



Gulf Research Center Knowledge for All



When it comes to diversification strategies of the GCC economies, tourism and services usually attract the most attention, with Dubai being discussed as a role model. While there is no reason to discard this rationale or to belittle the track record of Dubai, heavy and energy intensive industries like steel, fertilizer and aluminium deserve more attention. This is also true for the mineral and mining industry, which supplies the feedstock for these enterprises.

Hardly known in the Gulf countries only a decade ago, the mineral and mining industry is about to acquire considerable importance in the overall economy, especially in Saudi Arabia.

In this issue, Eckart Woertz and James Plasman give overviews about the mining and aluminium industries of the GCC countries. A report by the Saudi Deputy Ministry for Mineral Resources and the Saudi Geological Survey explains the geological peculiarities in Saudi Arabia with greater detail. Besides that, we are happy that two industry insiders agreed to share their insights with us: Fumimasa Murakoshi of Sojitz, Dubai, and Anthony Bohnenn, chairman of Australian Grange Resources, provide fresh perspectives on the steel industry in the Gulf. Last but not least, hydrogen and energy consultant Ayman Monged writes about new technology solutions in energy.

As cross-border trade of raw materials becomes more widespread, consumer-producer dialogues will become more important. With regard to the new heavy industries, the GCC countries will mostly sit on the other side of the table, as consumers of raw materials not as their suppliers. Naturally this is likely to foster an interest in feedstock security and upstream investments. Dubai has already undertaken such investments in India and Guinea, and two mining conferences in Dubai this month (see the announcements in this issue) may be the first sign of a surge in interest among GCC investors in the field.

I hope you will find this bulletin informative and thought-provoking. Please let us know your comments and suggestions.

Abdulaziz Sager
Chairman
Gulf Research Center

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THE MINERAL AND MINING INDUSTRY OF THE GCC



Dr. Eckart Woertz
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With oil prices rising threefold since 2002, the boom in other commodities like copper, zinc and aluminum has gone a bit unnoticed by the general public of the GCC countries. The rapidly expanding GCC industries in aluminum, steel, engineering and construction have noticed though – inflationary pressures and feedstock security have become important topics to them. The ongoing expansion of the GCC mineral and mining industry is, therefore, timely, as it has the potential to alleviate these pressures and add an important piece to the diversification drive of GCC economies.

The GCC mineral and mining industry is dominated by Saudi Arabia, which has considerable mineral wealth on its huge land mass. Besides that, only Oman has a mining industry but it is limited in size (In the UAE, some exploration work has been done in Al Ain, but it remains to be seen, whether any sizable mining industry can develop out of these efforts). Between 1983 and 1994, the state owned Oman Mining Company (OMCO) reworked the ancient copper mine site of Lasail in the Sohar region, where copper was produced as early as 1000 BC. But, in 1994, the copper was depleted and since then the mining efforts in Oman have been restricted to chromite exports by the Oman Chromite Company. OMCO had to resort to imported copper as feedstock for its refining and smelter plants. This situation could change with the recent progress on the mining projects of the privately owned National Mining Company, which was founded in 1997 as a subsidiary of MB Petroleum. It plans to start mining copper and associated gold and silver in the Hatta and Shinas region by the end of 2006, with a targeted output of 22,000 tons of copper per annum and 8,000 ounces of gold per annum. So far, the targeted project life is not more than four years, which is fairly limited. Additionally, the company acquired

a license for copper mining in the centrally located Ghusayn last year. At Sur, a coal deposit has been identified, which could fire a 300 megawatt power station over a period of 40 years, but like many other potential mine sites in Oman, this would need further geological surveys and feasibility studies. It needs to be noted that all these efforts are not the kind of large-scale projects that have the potential to make a measurable difference to the overall economy, like the ones that are under development in Saudi Arabia.

In Saudi Arabia, the state owned mining company Maaden was founded in 1997 and the Saudi Geological Survey followed suit in 1999. Thus, a nascent player and the groundwork for a scientific database were established. The Deputy Ministry for Mineral Resources contains a technical library of more than 4,000 reports and maps with assessments of the mineral potential in Saudi Arabia. About 30 different minerals occur in the Kingdom, with 15 of them being commercially viable. Over 2,000 sites have been identified that hold base and precious metals, gold, silver, bauxite, phosphate, iron ore, copper and tantalum being the most important among them. In 2004, a new mining code was approved to encourage investments in the sector and the state embarked on a strategy of restructuring Maaden into four strategic units (precious metals, phosphate, aluminum and industrial metals). The precious metal unit is set to be privatized via an initial public offering (IPO) by the end of the year.

The mineral and mining industry is very young in Saudi Arabia and actual mining has so far concentrated on gold and silver. Maaden currently has four operating gold mines – Mahd Al Dhahab, Al Sukhaybarat, Bulgha and Al Hajar – with two new projects, Al Amar and Al Duwayhi scheduled to come on stream in 2006 and 2008 respectively. With these projects, there are plans to double gold production from the current 6.8 tons, by 2009. Thus, there would be an important increase in the local supply to the country's gold market which trades around 150 tons per year. Apart from gold, Maaden produces 14.2 tons of silver in its precious metals operations.

With the planned bauxite and phosphate mining projects in Al Jalamid and Al Zabirah in the North of the country, the Saudi mining industry is about to do a quantum leap and its growth rate is expected to accelerate to 9.1 percent annually. Al Jalamid is one of the largest phosphate deposits in the world with 1.6 billion tons indicated and 1.5 billion tons inferred resource. Saudi Oger will build a \$2.5 billion railway to the industrial city of Jubail, funded by the Public Investment Fund (PIF). In Jubail, a \$3.2 billion processing complex will produce various chemicals, detergents, animal food and 3 million tons of diammonium phosphate (DAP) fertilizer annually. Saudi Arabia aims to become the world's third largest producer of phosphate fertilizers and capture 10 percent of the worldwide DAP market. The mineral endowments and the availability of low cost gas energy and sulfur feedstock will make Maaden the lowest cost producer in the world and the proximity of Asian markets represents an additional competitive advantage.

The Al Zabirah bauxite mining complex is the second most prestigious project in Saudi Mining. Like the phosphate from Al-Jalamid, it will be transported to Ras Al Zor near Jubail by the newly built railway from the North of the country. In Ras Al Zor, an alumina refinery and an aluminum smelter will process the bauxite in the first fully integrated production process of this kind in the Gulf.

The gains will not be in mining alone – a considerable downstream industry with newly created jobs is already projected. This is very important, as the job creation in the downstream conversion sector is usually higher than in the production of bulk goods. Saudi Aramco, for example, estimates that for every \$100 million investment in bulk petrochemicals, 30-50 jobs are created, while the same number stands at 300-600 for conversion industries.

With the ambitious projects in Al Jalamid and Al Zabirah, industrial minerals like copper, zinc,

magnesite and iron ore have attracted less attention, although Saudi Arabia has significant deposits as well – it already produces 3,000 tons of zinc and 1,000 tons of copper as a by-product. The iron ore deposit of Wadi Sawawin could produce 2.2 million tons of iron ore a year over a life span of 25 years. A feasibility study for a 60 kilometer slurry pipeline to the Red Sea and a processing plant for direct reduction iron ore pellets has been done already. In 2007, the Zarghat magnesite project, south west of Ha'il, is scheduled to come on stream. It is small but high grade, with a targeted mine life of 20 years and an annual production of 150,000 tons. Plans to develop copper deposits at Jabal Sayid have not materialized in the past because they were commercially not viable, but this may well change if current high copper prices are sustainable. In the not too distant future, the gypsum and marble deposits in the North of the country could also become an important provider to the booming construction sector in the country.

The tantalum deposit of Ghurayyah deserves special attention as it is not only one of the largest in the world but also one of the exploration sites that is not licensed to Maaden but to a private mining company. In 2002, British Tertiary Mineral Plc acquired a five year exclusive exploratory license for the deposit. With over 95,000 tons, it contains more reserves than the Greenbushes and Wodgina mines in Australia, which currently produce 53 percent of worldwide tantalum, a mineral that is essential in manufacturing computers and cellular phones.

All in all, one can say that the mining sector is set to become an important part of the Saudi economy. It will help to reduce the dependence on oil income and the expected job creation mainly in downstream conversion industries will be a welcome relief for the Saudi job market with its growing unemployment problem, especially because many of the projects are in disadvantaged rural areas in the North and in Asir.

WITH THE PLANNED BAUXITE AND PHOSPHATE MINING PROJECTS IN AL JALAMID AND AL ZABIRAH THE SAUDI MINING INDUSTRY IS ABOUT TO DO A QUANTUM LEAP



AN OVERVIEW OF THE MINING INDUSTRY IN SAUDI ARABIA

By Saudi Arabia's Ministry of Petroleum and Mineral Resources and the Saudi Geological Survey

Introduction

Covering 2,000,000 sq. km, the Kingdom of Saudi Arabia occupies approximately four-fifths of the Arabian Peninsula, and is underlain by rocks ranging from the Precambrian to the present day. The Precambrian crops out in the west as the Arabian shield, and is mostly Neoproterozoic (1000-540 Ma), originating at oceanic spreading ridges, as volcanic arcs, younger depositional basins, and anorogenic granites.

The Phanerozoic rocks, collectively referred to as the Cover Rocks, are unconformable on the Shield, and span the Paleozoic, Mesozoic, and Cenozoic. They include flat-lying sandstone, siltstone, limestone, and evaporites, north, east, and south of the shield; as lava flows (harrats) on and north of the shield; and as sedimentary and volcanic rocks in the Red Sea basin. The youngest deposits in the Kingdom include coral limestone along the coast, and unconsolidated sand, silt, gravel, and sabkha in the sand seas of the Empty Quarter and An Nafud, in lake beds, wadis, and floodplains.

Their modes of origin, in subduction zones, at centers of intrusion, and along shear zones, make the shield rocks a prime target for mineral exploration. Hundreds of metallic mineral occurrences are known, including VMS, epithermal and mesothermal gold-quartz vein systems, disseminated REE- and U-bearing minerals in gneisses, and hints of copper-molybdenum porphyry systems. Many occurrences for gold, copper, lead, and silver were worked in centuries past; and four gold mines are currently in operation.

The Phanerozoic cover tacks contain bauxite, phosphate, clay, limestone, silica sand, and lightweight aggregate. The Red Sea basin is known for metalliferous hot springs or brine pools along the deep axis of the Red Sea spreading ridge, and lead-zinc-barite occurrences. Local reports of lead and zinc minerals in deep drill holes in the east of the country suggest a potential for

metallic minerals in the sedimentary rocks of the Arabian Platform. Geologic mapping and non-energy mineral-resource development are the focus of two government agencies allied to the Ministry of Petroleum and Mineral Resources: DMMR, the Deputy Ministry for Mineral Resources, which is a part of the Ministry, and the SGS, Saudi Geological Survey. In this geologically diverse and economically valuable mineral-resource environment, the role of SGS is to undertake geologic mapping of the Kingdom, maintain the national geologic database, and conduct regional reconnaissance exploration. For example, the SGS mineral-occurrence database presently contains over 6,000 entries. Recent metallic mineral discoveries include an indication of porphyry copper at Jabal an Nitaq, iron in Jabal at Tarf, and gold at Abraq al Maraween. Industrial mineral exploration yielded a new discovery of a large, but high iron-content, nepheline syenite resource at Jabal adh-Dhuur, feldspar pegmatite in the Wadi Yiba area, 10 limestone deposits suitable for the cement industry, and indications of sapphire and red garnet at Harrat 'Uwayrid. Preliminary evaluative studies are undertaken of promising locations, including gold occurrences at Lugatah, Ghariat Avala, and Al Hawarr, dolomite at 'Ar'ar, kaolin in the Ha'il arm, and silica sand at Tayma and Al Jawf.

The Mining Sector in Saudi Arabia

The Kingdom of Saudi Arabia has a large variety of metallic and non-metallic mineral resources that range in size and value from occurrences of limited potential to deposits large enough to sustain profitable exploitation. Most metallic minerals are located in rocks of the Arabian Shield exposed in the western part of the kingdom. Industrial minerals are also located in the Arabian Shield but are more common in rocks that flank the Shield in the eastern and northern parts of the kingdom and underlie the Red Sea coastal plain. Substantial deposits of gold, iron, zinc, bauxite and phosphate have been discovered and explored, and feasibility studies for their development have been prepared.

The focus of the Ministry of Petroleum and Mineral Resources is to promote the exploitation of the mineral sector by local and international companies and export

the great majority of the minerals that is produced. Although domestic industries and value added activities have developed in conjunction with the mining of various commodities, the government has established legal environments that enable production and commercial terms and conditions that attract investment and development.

The current Mining Investment Code and Regulations of Saudi Arabia are attractive documents to a mineral investor. Mineral policy, the general business environment, and mineral potential are the three most important factors that should attract investment into the Saudi mineral industry. In the course of 2005, 265 million tons of minerals were exploited to produce 26 million tons of cement, 2.1 million tons of gypsum, 16 million sqm of ceramics, 1.8 million units of sanitary goods, 1.7 million tons of salt, 7,457 kilograms of gold, 13,500 kilograms of silver, 668 tons of copper, 462,000 tons of calcium carbonate and limestone for the production of glass, fiber optics, chemicals and building materials free of oxides. In addition, mineral production for the year included 4.3 million tons of clay, 42.3 million tons of feldspar, 642,000 tons of crushed marble, 443,000 tons of low grade iron ore, 1,489 tons of kaolin, 927,000 tons of ornamental stones including granite and marble, 372,000 tons of pozzolan, 190 million tons of crushed materials and 28 million tons of sand. All of these minerals were produced by over 600 investors who hold a total of 1,198 exploitation licenses.

Seven mining licenses have been issued for the exploitation of precious metals, base metals and iron ore. Five of these licenses are for the exploitation of precious metals and associated minerals. These licenses were issued to the Saudi Arabian Mining Company (Maaden) to exploit Mahd ad Dahab mine in the Madineh region, a1 Amar mine in Riyadh, al Hajjar mine in Asir, Sukaybarat mine in Qasim and Bulgha in Madineh. In addition, a mining license was issued for the exploitation of copper and zinc at al Masane, Najran, to Arabian Shield Development Company and another license for the exploitation of iron ore from Wadi Sawawin, Tabuk to the National Mining Company.

Work is continuing on the production of precious metals from Mahd ad Dahab and a1 Halar mine which are owned by Maaden. In addition, gold is being produced from the Sukaybarat and Bulgha Mines which are owned

by the Saudi Company for Precious Metals which is wholly owned by Maaden. Exploitation of gold mineral ore and associated metals amounted to 4,682,547 tons from which 7,457 kilograms of gold were produced.

The Al Masane mine for the exploitation of zinc, copper and associated minerals has not begun operation and Al Amar mine is still under development. Mining licenses and raw materials quarry licenses at the end of 2005 accounted for 34 licenses covering an area of 659 sq km throughout the kingdom. These licenses are held mostly by local companies which are exploiting various minerals. Gypsum and other industrial minerals are being exploited by the National Gypsum Company, ceramics, feldspar and kaolin by the Saudi Ceramics Company and magnesite and precious metals by the Saudi Arabian Mining Company.

In 2005, nine exploration licenses were issued to investigate the viability of exploiting base metals, gypsum, and zinc, six licenses were issued to Petro-Hunt Company (M.E.) for the exploration of base metals, one license to the Consolidated Mining Group for base metals, one license to Madineh Cement Company for gypsum, and one license for zinc and associated minerals to United Arab Mines Company. Current exploration licenses total 32, covering various minerals such as, gold and associated minerals, base metals, industrial minerals, non-metallic minerals, rare earth minerals and ornamental stones. The total area covered by these exploration licenses is estimated at 161,866 sq km.

In addition, two mega projects are being developed by Maaden: the Al Jalamid phosphate project and Az Zabirah bauxite project. The phosphate project is expected to be an integrated operation for the production of di-ammonium phosphate (DAP). The Az Zabirah bauxite project will have a value added component of producing aluminum from bauxite for sale on the world market. When these two projects are implemented Saudi Arabia's mining industry will become a world player in the production of phosphate and alumina.

Foreign companies and joint ventures to develop mineral deposits in Saudi Arabia include Petra-Hunt Company (M.E.) of the US, Arabian Shield Development-Company (US), Tertiary Minerals plc (UK), Vertex, Consolidated Mining, Sath Gold, CMC, Devcorp International, ASEC Company for Mining and MANAGM Company.

SOJITZ IS FOLLOWING GCC ALUMINUM AND STEEL INDUSTRY CLOSELY

Interview with Mr. Fumimasa Murakoshi of Sojitz/ Dubai

Sojitz, formed in 2003 as the result of a merger between Nichimen and Nissho Iwai, the two Japanese companies with traditions reaching as far back as 1892, is a trading house and industrial conglomerate with over 17,000 employees in group operations and 64 offices worldwide. In 2005, Sojitz had sales of \$43 billion and assets of \$21 billion. Its commercial interests are widespread, extending from energy to minerals



and power generation. Sojitz imports about 10 percent of Japan's coal requirements, mainly from China and Russia, and is engaged in the oil and liquefied natural gas business in locations like the Gulf of Mexico, the North Sea, Indonesia and Qatar. Furthermore, Sojitz is also a supplier of nuclear fuels and technical equipment to various forms of power stations. GRC spoke with Mr. Fumimasa Murakoshi, Senior General Manager Middle East for Sojitz, about the company's current projects as well as future plans:

GRC: Mr. Murakoshi, you have been based in Dubai for seven years now and have lived through the boom of commodities and Gulf markets alike. Where is the main thrust of Sojitz's business in the Gulf region at the moment?

Murakoshi: Sojitz is a diversified company. Our interests reach from the second biggest shrimp farm in the world on the Red Sea coast of Saudi Arabia, to oil and gas in Qatar and aluminum in Bahrain. Overall, the Energy and Mineral Resources division has become very important to Sojitz. In recent years, it has become the biggest contributor to the bottom line, because of the boom in energy and commodity markets. It is also of immense strategic importance to the Japanese economy, as Japan hardly has any raw material and energy sources on its own soil.

GRC: That's an impressive plate. Maybe we can start by talking about hard rocks and then move on to energy and shrimp farming.

Murakoshi: We have been marketing aluminum ingots to South East Asia for Aluminum Bahrain (ALBA) for more than 10 years now. As we are also an important procurer of iron ore and rare metals like nickel, vanadium and molybdenum, we are following the developments in the GCC steel industry closely. We have also secured the contract for a large-scale fertilizer plant in Oman and hope to market Saudi aluminum and diammoniumphosphate to Asia once Maaden's projects in Al-Jalamid and Al-Zabirah come on stream.

GRC: Saudi Arabia, Oman and the UAE have ambitious expansion plans with new aluminum smelters planned over the coming years. The Middle East is expected to capture more than 10 percent of the worldwide aluminum market by 2010. Do you see a danger of oversupply?

Murakoshi: I may add Iran as well – it also has expansion plans in the aluminum industry and competitive advantages because of cheap natural gas supplies. So far, aluminum demand from Asia, especially China, is still high and rising, especially in the automobile, aircraft and construction industries. Should there be a demand slump due to a recession, there could be an oversupply. On the other hand, many European and American smelters are shutting down, because high energy prices and environmental regulations have hurt their profitability. The latter is especially true for coal fired smelters.

GRC: How do you see the recent takeover of Gulf Industrial Investment Company (GIIC) by Gulf Investment Corporation (GIC)? Why has GIC bought the 50 percent stake of its joint venture partner, Brazilian CVRD, to gain full control?

Murakoshi: Frankly, I don't know the details. However, there will be a huge supply gap for iron ore pellets in the Middle East – after the ongoing expansion of companies like Hadeed in Saudi Arabia, Shaheed in Oman and Qasco in Qatar, demand is expected to rise to 24 million tons in 2012. Under such circumstances, GIC may wish to stand alone to manage GIIC themselves. An important issue will be to secure long-term supply of iron ore as feed stock.

GRC: Does Sojitz have any interest in precious metals in the Middle East?

Murakoshi: We are supplying the Istanbul gold market, but in the Gulf region, we haven't been active so far. The markets for rare metals like rhodium and molybdenum have been very lucrative for us in recent years and may have diverted our attention a bit from gold and silver. But as Dubai is one of the biggest trading places in the world for gold, we, of course, always have an eye open for possible partners.

GRC: What about energy in the region?

Murakoshi: Many Japanese companies are getting more involved in direct production of energy instead of simply trading it. Japanese Inpec has tried to develop the Iranian Azadegan oil field, though the project does not look too good at the moment. In the Gulf, Sojitz holds a three percent stake in Qatar's RasGas together with Sumitomo through LNG Japan Corporation and we are producing oil at the Al Karkara oil field in Qatar as well. Besides that, we are exporting crude oil from Oman to Japan.

GRC: Finally, we are curious to hear something about the shrimps...

Murakoshi: With NPC, we operate the second biggest farm in the world for production of white shrimps on the Red Sea coast of Saudi Arabia, in the north of Jeddah. With special fodder we can achieve the specific taste that is preferred by the customers in Japan and China. Besides that, the conditions are also very good because the water is very salty and not polluted. King Abdullah just hailed the project as a successful example of economic diversification.

GRC: Mr. Murakoshi, thank you very much.

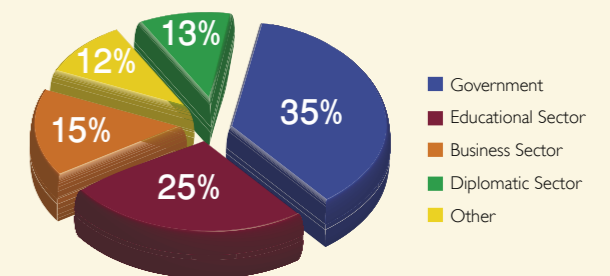
ARAA - THE GRC MAGAZINE



Launched in 2004, Aara focuses on economic, political, social, and defense issues relevant to the geopolitical Gulf region – Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, the UAE, Iraq, Iran, and Yemen. Aara is part of GRC's attempt to redress the lack of adequate representation of regional opinions and interests and fulfill its mission of 'knowledge for all.' This influential publication – reflecting the views of established academics and columnists – has gained in reputation over a period of time. Aara writers come from academia, business and industry, and occasionally the public sector

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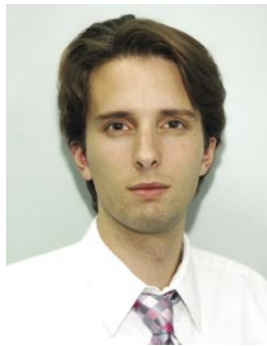
Araa Readership Profile



Araa editorial plan 2006-2007

July 2006:	GCC water crises
August 2006:	GCC e-government
September 2006:	Yemen
October 2006:	GCC aviation
November 2006:	Iraq
December 2006:	Real estate & construction
January 2007:	Defense
February 2007:	Telecom/satellite channels
March 2007:	Energy
April 2007:	Gulf security
May 2007:	Iran

ALUMINIUM TO BOOST ECONOMIC DIVERSIFICATION IN GCC COUNTRIES



James Plasmán,
Visiting Scholar, GRC

One of the GCC's biggest challenges is to foster growth in non-oil sectors of the economy, and indications are the bloc is succeeding in the aluminium industry. Aluminium accounted for 12 and 7 per cent of the GDP last year in Bahrain and Dubai, respectively, and the metal's role in the GCC will expand in the coming years.

With more than \$14 billion in investments planned, aluminium production in the Gulf will rise from 1.5 million tonnes in 2005 to 5 million tonnes in 2010. Other proposed projects could lift GCC production beyond 7 million tonnes by 2012, giving the region 18 per cent of world output. For mega-smelters with planned annual capacities of over 1 million tonne, like Alba, Dubal, and the Qatar Petroleum-Hydro joint venture, revenue for each firm could exceed \$2.5 billion at today's prices.

Finally, it seems, the GCC will have a large export industry that does not rely on oil production.

Creating a national industry that is profitable in the long term is tricky business, but several factors suggest that the aluminium industry has the potential to thrive in the GCC. The world price of aluminium will remain strong. World demand is growing between 4 and 5 per cent, or more than one million tonne each year. China's well-documented hunger for commodities to fuel its boom extends to aluminium and the healthy construction and transportation sectors in that country account for much of the world's growing demand. By 2008 the Asian nation will be a net aluminium importer.

Europe and the United States will also import more aluminium in the coming years, but for different reasons. The price of natural gas, which has risen 150 per cent for smelters worldwide over the last four years, is making many European and American aluminium plants unprofitable. A smelter with 250,000 tonnes capacity uses enough electricity to power a medium-sized city, and a power

outage of just four hours can allow aluminium to freeze in its pot and destroy the production line. Secure gas supplies are a big question for many smelters. Declining gas production will turn the US into a major importer in the coming years, and Europe will rely on natural gas for 30 per cent of its energy needs by 2020.

Political questions surround the ability of Russia and Iran, which have the world's largest reserves, to get their natural gas to market. Alternative sources of energy are also becoming less feasible. Concern expressed by regulators and customers over high emissions of CO₂ and other pollutants is requiring older smelters to switch from coal to natural gas for their energy needs or shut down, and little room exists to expand hydroelectric capacity in Canada and the US Pacific Northwest. Some 75 per cent of the world's idle capacity is in North America, and Europe stands to lose millions of tonnes capacity between now and 2010.

Gulf countries are ramping up aluminium production while smelters elsewhere shut their doors. The GCC's abundant gas reserves make it an attractive locale for aluminium producers. The completion of the \$3.5 billion Dolphin pipeline will supply the UAE and Oman with 500 cubic feet of Qatari gas daily. Bahrain is completing terms for a separate deal with its gas rich neighbour. If the price of gas continues to rise, both Saudi Arabia and the UAE have large reserves of their own to develop.

Besides gas, a number of other factors create an atmosphere conducive for heavy industry in the Gulf that few other countries can match. Situated with access to the world's oceans, Gulf producers can ship their products to both Europe and Asia at lower cost than Brazilian or Russian producers. Well maintained highways and reliable electric and water grids link the industrial sites to ports and cities. Proximity to India provides a skilled and mobile work force; almost 40 per cent of Dubal's employees come from the sub-continent. Environmentally friendly smelting is increasingly important to potential customers who themselves face public pressure to turn 'green.' Alba and Dubal have incorporated the latest clean technology and are two of the most environmentally friendly smelters

in the industry. Nitrous oxide emissions from Dubal's power plant have declined over the years, and the smelter has one of the lowest levels of fluoride emissions in the world. Alba is spending more than \$65 million to reduce harmful emissions from its six gas-fired power plants, and prides itself on being so clean that a vegetable garden grows on its grounds. The other smelters under construction in the Gulf have the opportunity to incorporate the newest technologies and meet evolving environmental standards at a fraction of the cost of older smelters.

Nevertheless, the Gulf's dominance in the industry is not guaranteed. Russian aluminium giant Rusal is taking advantage of Central Asia's vast bauxite deposits and energy resources to expand and overtake Alcoa as the world's largest aluminium smelter. Smaller producers such as Iran have plans to double output and formerly non-producing countries such as Vietnam will start up new smelters. Industry giants Alcoa and Alcan are closing unprofitable plants while still increasing overall output.

Adding to the uncertainty, most GCC producers will have to import raw materials for production. Two tonnes of refined bauxite, or alumina, are required for every ton of primary aluminium smelted. The Saudi mining company Ma'aden controls the rights to the only major bauxite deposit on the Arabian Peninsula and will use the alumina derived from there in its own plant set to commence production in 2008. The rest of the Gulf must import from elsewhere. Alumina prices were up over 40 per cent on the spot market last year and are projected to stay high. Firms are scrambling to secure their supplies. Dubal recently signed a contract with India's Larsen & Toubro to build an alumina refinery in the southeastern state of Orissa, and bought rights to 40 per cent of Global Alumina's output in Guinea. Still,

Image courtesy: Dubal Dubai Aluminium



Dubal's alumina production will not be near the amount needed to support its planned aluminium output. For the time being, Dubal and other alumina importers are at the mercy of the spot market for this input. Good management is also essential for GCC smelters to remain profitable.

Dubal's policy of rewarding employees for cost-saving suggestions, for example, saved the company tens of millions of dirhams in recent years. Dubal has also built up a reputation for reliability. During the first Gulf War, Dubal trucked its aluminium to the port of Fujairah on the Indian Ocean to ensure that its product would reach its customers in case the Strait of Hormuz was closed. The Asian financial crisis of the late 1990s provided Dubal with another opportunity to burnish its reputation as a reliable supplier. While other companies fled Southeast Asia, Dubal continued to meet its customers' needs, offering flexible financing options in lieu of credit. Dubal is now the preferred supplier of many of its Asian customers, and the company's sales in Asia continue to grow. This constant push to lower costs and earn a good reputation is essential if a state-owned company is to compete successfully in the world market.

The GCC's energy reserves will ensure that the Gulf remains competitive in the world aluminium industry over the next decade. The GCC will have a multi-billion dollar industry that stands to become a cornerstone in a diversified economy. The Gulf countries are making a smart move to take advantage of their energy reserves, strategic geographical position, and fortuitous global circumstances to build up their aluminium industry. By locking in their alumina contracts now and focusing on good management, aluminium producers will be a step closer to long-term success and profitability.

THE GCC STEEL INDUSTRY AND AUSTRALIA'S IRON ORE

Interview with Anthony Bohnenn, Chairman of Grange Resources

Mr. Anthony Bohnenn is chairman of Grange Resources Ltd., a company based in Perth in Western Australia. Grange Resources holds equity positions and royalty interests in mining, development and exploration projects for gold, copper and iron ore throughout Australia. Its current flagship project is the Southdown Magnetite Project near Albany. It is a high grade iron ore deposit suitable for open pit mining. Grange Resources intends to develop a mining operation and ship the iron ore to Kemaman in Malaysia, where it will produce iron ore pellets for the Asian and Middle Eastern markets.



GRC: Australia is a commodity powerhouse indeed: from coal to copper, precious metals, iron ore, bauxite and uranium – one hardly finds any mineral that is not produced over there. But still, can you tell us, why such a remote place as Western Australia could have any significance to the Gulf countries?

Bohenn: The Gulf countries are one of the fastest growing economies in the world and the more diversified the economy, the more diversified the import needs, not only in the field of manufactured goods but also regarding raw materials. The expansion plans for the GCC aluminum industry, for example, will lead to a huge increase in alumina imports and has already led to upstream investments by Dubal. In iron ore, we have encountered some interest from steel producers in the Gulf region as well. They are interested in long term supply contracts and feedstock security.

GRC: What are the advantages of the steel industry in the Gulf and how are they positioned in comparison to Asian and European competitors?

Bohenn: The Gulf has an abundance of gas and with this (cheap) gas the Gulf has a competitive advantage to produce steel through the DRI process (direct reduced iron). Apart from that, every developed economy should have its own steel industry. Steel is a very basic necessity when it comes to economic activity – from construction and infrastructure to cars, it is used everywhere. It is easily used 10 to 20 times more often than copper and other base metals, so you want to

have a piece of the pie once your economy becomes more diversified. At the moment, the Gulf steel industry seems to focus on the production of basic steels for construction and infrastructure needs, because that's where the main local demand is coming from. At a later stage, it is possible that they will venture increasingly into more sophisticated high end products like stainless steel, which use additional raw materials like nickel and molybdenum.

GRC: Is there a surge in steel exports from the Gulf like in the case of aluminum?

Bohenn: The focus over the coming years will be mainly on the internal market, as the demand for construction steel is growing strongly in the Gulf. At a later stage, a solid export industry is likely to develop.

GRC: Do the Gulf steel companies use a blast furnace process, which is based on smelting, or the direct reduced iron (DRI) process where steel is produced by huge inputs of gas?

Bohenn: As I said before, the Gulf is in an excellent position as there is sufficient and cheap gas supply. That means that the DRI process is and will be used in the new plants which are on the drawing boards. Blast furnace processes, on the contrary, would need the import of expensive coking coal and would come with a whole baggage of environmental problems.

GRC: How does the international iron ore market work and what makes it different from other commodities?

Bohenn: Some people in the Western world say that the OPEC has a sort of monopoly position having about 40 percent of the world market. The international iron ore market is however a much stronger case of an oligopoly. Three major players – Brazilian CVRD and Australian BHP-Billiton and Rio Tinto – account for 75 percent of the seaborne trade in iron ore. In the case of high quality iron ore pellets the situation is even worse; here CVRD has 90 percent of the seaborne pellet market, virtually a monopoly. Because of this strong position they are in a position to dictate prices.

Iron ore pellets are the only sort of iron ore that is uniform enough to make a suitable underlying for a traded future

contract; otherwise too many different types of iron exist on the market, with iron content reaching from 55 percent to 62 percent. But as the iron ore pellet market is a virtual monopoly, there is little incentive to establish such a futures market in iron ore.

Another important feature of the worldwide iron ore market is the relatively high transportation costs. Compared to the price of the merchandise, you need to pay a lot for transportation. A ton of iron ore bought in Brazil for \$55 needs to be shipped for another \$25-\$30 to China, for example. That's why geographic location and proximity to markets is such an important advantage for an upcoming competitor like Grange Resources.

GRC: Can you tell us a bit more about the status of your Southdown flagship project? The last thing we heard is that you are currently negotiating with prospective joint venture partners and mulling a cooperation with Rio Tinto, which owns mining licenses for adjacent territory.

Bohenn: Grange Resources has completed its drilling program and Bankable Feasibility Study (BFS) and we have delineated 460 million tons of magnetite iron ore which is good for a mine life of at least 22 years to

Direct Reduced Iron Ore Pellets – Indicative Demand; Source: Grange Resources



- SE Asia:**
- Perwaja Steel
 - Mega Steel
 - Krakatau Steel

- Gulf Region:**
- Hadeed
 - Qasco
 - Shadeed Steel
 - Rajhi Steel
 - Al-Tuwairqi
 - General Holding Corp
 - Al-Nassar
 - Qasco-Essar JV
 - Arpco
 - Insig

produce excellent quality DR pellets with iron content of 69 percent. Besides that we are trying to cooperate with Rio Tinto, which owns the adjacent part of the ore body. All options are on the table, including buying Rio Tinto's stakes, which could extend the mine life to 40 years. Grange, however, is owner of the best part of the ore body at Southdown.

Grange is in the process of an international tender looking for long term joint venture partners. The future partners can be consumers (steel producers), iron ore producers or international trading houses. Grange is in an advanced stage of the process and there is a lot of interest. Unfortunately, until now, there hasn't been too much interest shown by steel producers in the Gulf, which surprises me a lot, as the expected demand for DR pellets in the Gulf will grow from approximately 4 million tons in 2005 to approximately 24 million tons in 2012 and one would expect that steel producers want to secure supply for the long term at an attractive price.

GRC: Why do you produce the iron ore pellets in Malaysia and not in Australia or somewhere else? What is so interesting about iron ore pellets and why is there such a huge increase of projected demand in the Middle East?

Bohenn: Australia has become too expensive to build pellet plants and there is no cheap gas close to the mine

in Western Australia. In Malaysia there is infrastructure available. Kemaman is a deep water sea port and Grange has bought the rights for 50 percent of the port capacity for 50 years. There is also cheap gas (not as cheap as in the Gulf, though) and enough water and electricity. Finally, you are in the center of growth for the next 30 years. However in that respect, a pellet plant in the Gulf could also be considered, as there are many advantages, such as high growth of demand for DR pellets and cheap gas, just to mention a few.

Using iron ore pellets has many advantages. Namely there is no need of building sinter plants, which are environmentally very unfriendly and not allowed to be built anymore in many countries of the world. Steel demand in the Gulf is projected to grow even faster than in China by many. The main competitive advantage of Gulf producers is access to cheap gas and the DRI process is thus the most efficient way to go. As the DRI process needs DR pellets, demand for DR pellets will rise tremendously in the Gulf. We at Grange are confident that we will become an important supplier to the region.

GRC: Thank you, Mr. Bohenn, and good luck for your future plans in the Gulf with its growing steel industry.

Bohenn: Thank you very much.

Direct Reduction Pellets and Blast Furnace Pellets Consumers in the Gulf and Asia; Source: Grange Resources



THE GEO-ECONOMIC POSITIONING OF THE GCC

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Robert Schuman Centre for Advanced Studies - European University Institute.

Workshop Directors:

- Eckart Woertz:
Program Manager Economics at the Gulf Research Center (GRC) in Dubai
- Hind Muhammad Al-Sheikh:
Assistant Professor for Economics at the Institute for Public Administration in Riyadh

Until the 1980s the position of the countries of the Gulf Cooperation Council (GCC) in the international division of labour was clear: oil was exported and manufactured goods were imported, mainly from Europe and the USA. Nowadays the situation has changed. Although the importance of oil and gas revenues is still paramount, the GCC countries command an increasingly diversified economic structure with new sectors emerging in the fields of petrochemicals, utilities, services and tourism. They are the world market leader in polymer production and lay specific emphasis on the development of energy intensive industries like aluminium, steel and fertilizer plants. For these industries they have to import now raw materials themselves from countries like Australia and South Africa. On the other hand the focus of their trading relations has shifted and moves eastwards. The USA only account for roughly 10% of imports nowadays (2004) while the European Union is contributing one third and the Asian countries about a quarter of overall imports. Thus, they have become the most important trading partners for the GCC, most notably Asia, which purchases about two thirds of GCC energy exports. How could these interdependences of foreign trade be mapped out in detail? How will the GCC countries react to these challenges? How do they position themselves in the WTO process and the ongoing negotiations of free trade agreements with the EU and the USA? Which chances and which threats emerge from the opening of their economies? Which sectors and companies will benefit

(e.g. petrochemicals) and which will likely face difficulties in facing increased competition (e.g. agriculture, so far monopolistic telecoms, banks)? Will petrodollar recycling move away from simple buying of US treasuries and move towards strategic investments and other currencies like the Euro? And finally: is there a realignment of foreign policy discernible along the lines of geo-economic positioning?

SHORT BIOGRAPHY OF CO-DIRECTORS

Eckart Woertz is Program Manager Economics at the Gulf Research Center (GRC) in Dubai/ UAE and has extensive experience in equity and fixed income trading for German banks. He holds an MA in Middle Eastern Studies and a PhD in Economics from Friedrich-Alexander University Erlangen-Nuremberg, where he conducted research about structural adjustment politics in Egypt and the role of trade unions. In February 2005, he published "The Role of Gold in the Unified GCC Currency", where he predicted a long-term bull market in the precious metal. In his recent GRC publication "GCC Stock Markets at Risk" he has dealt with the risk exposure of GCC financial markets after years of relentless appreciation.

Hind Muhammad Al-Sheikh is assistant professor for economics at the Institute for Public Administration in Riyadh/ Saudi Arabia. Besides labour and gender economics she is specialized in development studies and statistics. Looking beyond the ivory tower she has extensive experience in cooperation with governmental and business institutions and has been in charge of a variety of workshops, committees and conferences that dealt with developmental challenges of Saudi Arabia. She is a member of the International Association for Feminist Economists (IAFFE) and the President of the Women Committee of the Saudi Arabian Association of Economists. She holds a BA from King Saud University in Riyadh, an MA from the University of Denver and a PhD in economics from the American University in Washington.



POTENTIAL OF HYDROGEN ENERGY IN THE GULF REGION



Ayman Manged,
Hydrogen and Energy
Consultant

Ayman Manged has more than 20 years of international experience in the energy, desalination and water treatment fields and has been involved in the hydrogen and fuel cell industry for more than 10 years. Mr. Manged held various posts in major water treatment and hydrogen and fuel cell firms, he was International Sales Manager at Gaco Systems, Vice-President of Sales at Stuart Energy, and most recently Director of Business Development at Hydrogenics Corporation. Mr. Manged has been involved in the design of the first public hydrogen refueling station in Canada and led the installation of various hydrogen refueling stations in various countries. Mr. Manged has also pioneered the commercialization of various hydrogen technologies in various industries.

Most people have heard about hydrogen energy and fuel cell technologies in the context of the automotive industry. The recent years have seen an immense increase in activities by most automakers in the hydrogen and fuel cell fields. All the major automotive companies such as General Motors, DaimlerChrysler, Toyota, Nissan, BMW, Hyundai, Mazda, Honda and others have been announcing the imminent release of their hydrogen vehicles for sale to the public. Some claim that these vehicles will be made available in 2010, some in 2015, while others, such as BMW and Mazda, have announced that their vehicles will be available for sale as early as 2007.

The reality is that fuel cell technologies are bound to be deployed in many other areas prior to being commercially launched in passenger vehicles. Fuel cells are now making inroads in the back-up power

industry for computer servers and telecom towers. These technologies are also starting to replace batteries in such applications as fork-lifts and other niche mobility applications (golf carts, neighborhood vehicles, etc.) where fuel cells offer a much longer range than batteries can ever hope to.

Another exciting application for fuel cells is in powering the increasingly energy-demanding portable devices. Nokia, Samsung, Toshiba and others are accelerating their research in this area for cell phones, laptops, video cameras, etc..

Fuel cells are bound to be adopted in the above applications much earlier than in the automotive industry which along with the stationary power generation market will probably remain the last two industries that the fuel cell industry penetrate in a substantially commercial way. The major obstacles in the adoption of hydrogen in the automotive industry is the absence of a hydrogen refueling infrastructure, the high capital cost of hydrogen generation technologies, the extremely competitive price of automotive internal combustion engine as well as the low state of development of hydrogen storage devices.

On a positive note though, this technology promises our civilization a much brighter future. The major advantages can be summarized in the following points:

- Hydrogen Fuel Cells produce zero local emissions (i.e. emissions at point of use). This advantage solves all local emission problems such as smog, NOx, SOx etc.
- On a well-to-wheel basis, hydrogen in fuel cells presents the lowest greenhouse gas emissions of any known fuel (even if the hydrogen is derived from fossil fuels such as gasoline).
- Hydrogen can be derived from all energy sources.

- Hydrogen will aid in conserving the depleting fossil fuel reserves: Fuel Cells are very efficient engines (The USA Department of Energy has set an achievable target of 60 percent efficiency. By comparison, an internal combustion engine has a maximum efficiency of 25 percent to 30 percent (depends on the engine and the fuel, etc.). This means that we would utilize less primary energy to satisfy our energy needs.

- Hydrogen is an enabler of intermittent renewable energy such as solar and wind power. This is as hydrogen can be produced from the excess power (power that is generated when the demand for energy is low) and be stored to be used for electricity production or as a fuel for transportation when needed.

Many in the Gulf region regard the rise of these technologies as a threat to their economies. This fallacy has been amplified by George W. Bush's announcement in 2003 that his administration will encourage the development of hydrogen and fuel cell technologies as means of energy independence. Nothing can be further from the truth.

What many fail to grasp is that, as stated above, hydrogen is not a source of energy, rather an energy carrier. Much like electricity, hydrogen needs to be generated or extracted from an energy source. Hydrogen will therefore not replace fossil fuels or compete against fossil fuels. On the contrary, hydrogen will allow the use of fossil fuels in a clean and efficient way thus promoting their use in areas and applications that are now not permitted (such as environmentally sensitive areas, protected national parks, dense urban

areas, etc.) and ensure the stability of their markets from the environment regulation risk. It will also conserve the consumption of these fuels for power generation and expand their use in more value added industries such as the production of plastics, synthetic fabrics, etc. Most importantly, it will prolong the life of the fossil fuel reserves thereby ensuring that future generations will have access to them.

Most of the hydrogen produced today comes from natural gas, gasoline and, to a lesser extent, coal. The remainder (about 4 percent) is produced by means of electrolysis or collected from other processes where hydrogen is a by-product (such as chlorine generation and Chlor-Alkali plants).

The current hydrogen industry is valued in the billions of dollars on annual basis and is growing at a rate of 15 percent per annum. The main use of this gas is in the refining of gasoline (hydrogen is used for desulphurization), in the production of fertilizer, as well as in the manufacturing of various commodities such as steel, glass, and margarine. Hydrogen is also utilized in the power plant industry where it is used as a cooling medium to increase the efficiency of the electricity generator. In short, hydrogen is widely produced and utilized today across an array of industries. There are no existing technical or safety barriers to its widespread use.

So, how will the fuel cell technology affect the Gulf region's economies and how could this region benefit from the rise of this technology?

THE REALITY IS THAT FUEL CELL TECHNOLOGIES ARE BOUND TO BE DEPLOYED IN MANY OTHER AREAS PRIOR TO BEING COMMERCIALY LAUNCHED IN PASSENGER VEHICLES. FUEL CELLS ARE NOW MAKING INROADS IN THE BACK-UP POWER INDUSTRY FOR COMPUTER SERVERS AND TELECOM TOWERS.



MANY IN THE GULF REGION REGARD THE RISE OF THESE TECHNOLOGIES AS A THREAT TO THEIR ECONOMIES. NOTHING CAN BE FURTHER FROM THE TRUTH.



1 Compare the price of a vehicular internal combustion engine at US\$50/kW versus that of a current Fuel Cell system at US\$2,000-US\$5,000 per kW.
2 It is worth noting here that the automotive internal combustion engine has the longest history of continuous research and development. It is not expected that this engine will cease to improve in the immediate future.
3 It is important to note that hydrogen is not a fuel, but an energy carrier; i.e. hydrogen does not exist in its pure form in nature.

4 It is expected that as fossil fuels become scarcer, their value will increase at a rate higher than that of inflation. It can therefore be argued that leaving oil in the wells is a sound investment practice.

The Gulf region would need to hedge the risks associated with a resource based economy (fossil fuels) and to transition itself to a more human resource based economy. Energy technologies are a "natural fit" for the Gulf region due to the abundance of the primary energy sources within the region as well as the concentration of energy expertise within its populace. The Hydrogen Economy is more technology and manufacturing based than the fossil fuel economy and would facilitate that transition.

The Gulf region economies are very carbon intensive (along with the US and Canada, the most carbon intensive in the world). GHG emissions are disproportionately high relative to created wealth in that part of the world. The Hydrogen Economy will help to alleviate this problem by lowering carbon emissions.

Demographic trends in the Gulf region point to horrendous local pollution problems in the future. The Gulf region has one of the highest fertility rates in the world and one of the highest urban population concentrations. Local pollution problems – such as those that exist in Los Angeles, Mexico City, Delhi, Beijing and Cairo today – will affect the local economies, and of course the quality of life if corrective measures, such as adoption of cleaner energy technologies, are not taken soon.

Most of the hydrogen in the near and medium terms, and until renewable energies are much more economically produced, will be produced from natural gas and other fossil fuels. The Gulf region has an important stake in promoting hydrogen technologies as means of promoting the efficient use of fossil fuels thereby increasing their competitiveness and ensuring their continued acceptance as viable energy sources. It is important to note that natural gas is still used (wasted) in pressurizing oil wells to increase their yield. This is a waste of a valuable natural resource. Natural gas can be easily separated into hydrogen and carbon dioxide. Carbon dioxide can then be utilized to pressurize the wells while hydrogen can be locally used in power generation or transported where it can be utilized as a transportation fuel.



Image courtesy: Saudi Gazette

Apart from fossil fuels, the Gulf region will benefit from the proliferation of solar energy technologies. Solar power adoption in the Gulf region remains miniscule. Hydrogen technologies will enable a widespread adoption of this intermittent power technology. In a future scenario, solar energy can be converted to hydrogen which would be exported, either through pipelines or through shipping vessels (much like CNG and LNG are transported today).

The Gulf region, due to its very hot summer climate, suffers from its power grid not being able to meet the peak demand of electricity during summer days. Hydrogen, which can be regenerated into electricity at will, is a candidate technology to resolve that issue.

It is expected that, in the short term, demonstration projects that prove the viability of hydrogen and fuel cell technologies in hot desert climates will be launched. It is also expected that equity investment by Gulf investment firms in hydrogen and fuel cell technology companies will increase.

In the medium term, hydrogen technologies could see large-scale adoption in certain locales, especially where natural gas networks are already established. It is expected that some tourist resorts, oil rigs, villages, and maybe cities, will be completely dependent on hydrogen technologies for both their stationary and transportation power needs.

In the long term, hydrogen will play a central role as the world shifts to renewable energy on a mass scale. In the Gulf region, solar power and hydrogen will have a symbiotic relationship where both would dominate the energy map. Hopefully, this will be in good time when there are still fossil fuel reserves that will be even more precious in the future and will ensure a continuing source of wealth for the upcoming generations.



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GEOSTRATEGIC OIL INTERESTS IN THE GULF

Dr. Eckart Woertz, Program Manager Economics, Gulf Research Center

Oil constitutes more than 90 percent of all transport fuels and 35 percent of the world's primary energy demand – no doubt, the world economy is addicted to oil and the Gulf countries have what everybody is longing for: They possess a breathtaking 61 percent of worldwide reserves and contribute 30 percent of production. Thus, with time, their importance will grow further. As demand continues to rise and production in other regions like the US and the North Sea declines, more and more countries will have to turn to the Gulf for imports of oil. On top of that the region becomes increasingly important in the gas business, as Qatar and Iran intend to expand their exports. All this constitutes a potentially explosive cocktail of geo-strategic interests from various sides, namely from the US, West Europe and China.

All of them consume much more oil than they produce. China used to be a net exporter until 1993. But now it imports 40 percent of its requirements – in 20 years it will be 70 percent. No wonder China is heavily engaging in energy diplomacy and trying to secure oil imports from around the world. In Africa it has vast investments in Sudan, Angola, and Nigeria while in Canada it has taken on tar sand projects in the north of the country. Recently it bought Petro-Kazakhstan for \$4.2 billion and the first pipeline from Kazakhstan to China has been inaugurated. Half of its imports though come from the Gulf, mainly Saudi Arabia. King Abdullah and the Chinese President Hu Jintao emphasized this increasingly important relationship during a series of mutual visits at the beginning of this year. China is building a multibillion

sea port in Gwadar, Pakistan that may serve as the starting point for a pipeline into its west, while Saudi Aramco invests in Chinese refinery capacity for sour crude and helps the country build up a strategic oil reserve.

On the political level, China has tried to rein in the influence of the US in Central Asia with the help of the Shanghai Cooperation Organization (SCO). Members of the SCO are China, Russia and the Central Asian Republics. At this year's summit, Iran and India were invited as well. Though a loose consultative body with limited congruence of interests, it can be seen as an attempted geo-strategic counterweight to the US. The latter already felt the pinch, when Uzbekistan asked its troops to leave the country in 2005.

So far two thirds of the Gulf's oil exports go to Asia, all of whose countries are as energy hungry as China. Only 3.4 percent of the worldwide oil reserves are located in this huge land mass where half of the globe's population lives. But in the future there will be more soliciting from the US and West Europe. Germany, for example, gets a third of its oil from Russia and a third from the two North Sea producers, UK and Norway. So far, it only imports 10 percent of its needs from the Gulf countries. But as the production in the North Sea is declining rapidly, it will have to turn to other exporters soon to meet its needs. Given their reserve dominance, most likely these exporters will be from the Gulf. The US's import dependence finally has grown from near self sufficiency until 1972 to 60 percent now. One of the first things the Bush Administration did in 2001 was to establish an Energy Task Force which basically came up with two recommendations: Oil-drilling in natural reserve parks in Alaska and geo-strategic securing of foreign oil imports.



This aggressive and unilateral securing of foreign energy sources went terribly wrong in Iraq, as we now know. The US has waged a war for oil and lost it. The Iraqi quagmire is not only causing immeasurable human loss, it also prevents any meaningful recovery of the country's oil industry. Oil production remains stubbornly below pre war levels, which were already depressed and anti-Americanism in the region has reached new highs. The disastrous outcome has shown the limits of belligerent unilateralism and the necessity for cooperation with the producer countries and international dialogue on energy issues.

Resource conflicts can be avoided only if every side feels that it will get a fair share of the world's dwindling energy sources. Europe so far has been content to sail in the geo-political wake of the US but may consider a more neutral stance, while the nations in the southern hemisphere especially in the rapidly growing emerging markets have rising energy needs that they want to be seen addressed. Among them are the Gulf states themselves, which have high population growth and ambitious and energy intensive development plans. Air-conditioned buildings, desalination plants and heavy industries like aluminum, steel and fertilizer – all these need energy. The Gulf countries already consume 17 percent of their own oil production and have one of the highest growth rates in energy consumption worldwide.

At the end of the day, energy conservation and new forms of energy will be needed alongside a fair distribution of oil and gas resources. It becomes increasingly discernible that there is not enough energy out there to replicate the lifestyle of the industrialized countries on a worldwide scale. International institutions like the IEA expect that the Gulf region would need to double its production over the next 25 years to meet the increasing demand projections. Saudi Arabia has already cautioned that production increases will only be possible on a more modest scale, while other experts have questioned the ability to raise production altogether, given the mature oil fields in the region. Therefore, energy conservation, a change in consumption patterns, especially in the industrialized countries, and an international dialogue on energy issues and alternatives are badly needed to avoid the kind of unilateral coercion and violent resource conflict that we have been witnessing already.

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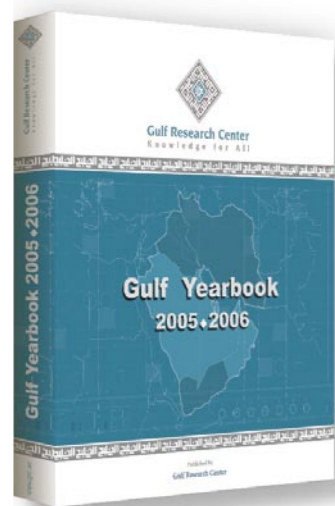
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The GRC Research Bulletins, which are quarterly periodicals, seek to document relevant and related information about the GRC various research programs and address the current information deficit in their specific areas. They are available in digital and hard copy versions.

PUBLICATIONS

Gulf Yearbook 2005-2006



This is the third volume in the annual series of the GRC yearbooks. Focusing on the events that have impacted the Gulf region throughout the previous year, this year's publication picks up on where the last report ended, outlining the pivotal events of the year in the GCC countries, Iran, Iraq, and Yemen, and their broader regional and international relations.

In a series of analytical chapters, the book looks at key issues such as political reform, economic development, and the threat of terrorism. Furthermore, an in-depth look is provided at the developments within the GCC countries from a domestic, economic, and foreign relations perspective. These items are complimented by a timeline of events for 2005. Written by prominent scholars, subject experts and the GRC's own in-house research team, it is an important guide to key events that have impacted the region during the year.

The 'Gulf Yearbook 2005-2006' is available in digital and hard copy versions. For details, visit www.grc.ae, e-mail sales@grc.ae or call +971-4-3247770

Makram Malaeb: Diversification of the GCC Economies Analysis of the Preceding Decade: 1993 – 2003

This paper looks at economic diversification attempts in the GCC countries from 1993 to 2003. The analysis focuses on studying the terms and composition of trade and changes to the GDP composition to determine if significant shifts are occurring in the countries' economies. Diversification successes do not lessen the dependence on oil as the main determinant of the economic wellbeing of GCC states. Diversification attempts, although bearing fruit in some instances, have, by and large, remained insufficient to effect real change. The oil boom in the last few years has given the countries a second chance to

develop their economies in a more diversified fashion. However, major reforms need to be undertaken in order to further diversify the GCC economies and make them less dependent on oil and gas.

Emilie Rutledge: Establishing a Successful GCC Currency Union: Preparations and Future Policy Choices

The GCC countries plan to unify their currencies by 2010. The paper analyzes the prerequisites necessary for a successful currency union and discusses the development potential, including increased intra-GCC trade, improvements to capital markets, and the attraction of foreign direct investment.

Eckart Woertz: GCC Stock Markets at Risk

Written before the recent stock market crash in the GCC, the paper analyzes the systemic risks GCC stock markets face after years of relentless appreciation. By drawing parallels with former boom-bust scenarios on



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the international stage, it analyzes phenomena like comparative overvaluations, regulatory shortcomings, overheated real estate markets, underestimated political risk, and the expansion of credit.

Robert Looney: A Euro-Denominated Oil Bourse in Iran: Potential Major Force in the International System?

The paper discusses legal, political, and economic shortcomings of the planned Iranian oil bourse, which is regarded by some observers as a major threat to dollar hegemony. It deems it unlikely that the Iranian bourse project will be attractive to traders and take a large volume of sales away from established markets. Furthermore, it suggests that a number of elements tend to perpetuate the dollar's role as a reserve currency in the international system and that concerns over the dollar might be premature.

CONSULTANCY SERVICE

Using the GRC's broad network of experts, the Gulf Research Center (GRC) offers consultancy services related to the Gulf Region for corporate houses and other institutions.

JETRO

In March 2006, the GRC conducted a comprehensive study on "GCC-Asia Economic Relations" for the Japan External Trade Organisation (JETRO), which is also a GRC corporate member. The JETRO report focused on the business and investment trends and opportunities for Asian companies in the GCC countries. It predominantly looked at China, India, Indonesia, Japan, South Korea, Malaysia, Pakistan, and Thailand. Supported by extensive data and graphs, the study also touched on existing trade relationships, the direction of trade, the Asian exports to the GCC countries and GCC exports to Asia, the energy relationship and energy contracts, as well as non-energy economic interests, especially banking and finance, construction, commerce, services, and human resources.

Other prominent ventures undertaken by the GRC include a study on the possibility of establishing a Center for Economic and Social Policies in the Arab Countries

(CESPAC), which was commissioned by the United Nations Development Program in 2005.



The feasibility study includes a survey of the current status of political, economic, and social studies in the Arab world, an outline of the various stages to be considered in the setting up of CESPAC, a description of the functional and administrative structures of the proposed Center, as well as a resource mobilization plan that will allow the CESPAC idea to become a reality.

The study, spread over seven months, took its cue from the findings of the Arab Human Development Reports 2002 and 2003 on the economic and social situation in the region, and was aimed at developing new and additional institutional capacities focused on providing alternative strategies, comprehensive policy proposals, and sustainable political, economic, and social policies.

According to the GRC Chairman, Abdulaziz Sager, "The center is qualified to undertake the proposed study due to its commitment to and experience in developing concrete and effective policy solutions for the challenges confronting the Arab world. Additional qualifications include the GRC's relevant areas of expertise and a broad network of experts that can be utilized in the work to be conducted."



As part of its expanding consultancy services, the GRC's highly skilled information technology (IT) division has developed a news portal for Al-Arabiya, which is one of Middle East's most credible Arabic TV news channels. This financial portal, entitled Anews, has been designed to attract the members of the Arab community interested in getting updated financial news and stock market information from the Gulf region. Upon the successful development of the portal, Al Arabiya also awarded the GRC with its web hosting infrastructure consultancy. Al Arabiya and the GRC have also joined hands and agreed to work collaboratively on more upcoming projects, especially those related to IT.

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Based in Dubai, UAE, the GRC began its activity in 2000 as a privately-funded, non-partisan think tank, education provider, and consultancy specializing in the Gulf region.

The GRC produces recognized research from a Gulf perspective, redressing the current imbalance in Gulf area studies, where regional opinions and interests are underrepresented.

The GRC believes that the Gulf Cooperation Council has transcended the initial reasons for its establishment, to become a fundamental right of its citizens in the development of the region. The GRC seeks to further this belief by being an institution of distinction and innovative research that advances different aspects of development to ultimately benefit the people of the region.

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