From the Editor’s Desk

Dear FDI supporters,

Welcome to this week’s edition of the Strategic Weekly Analysis. This week, the Indian Ocean research programme reports on the deepening defence links between India and the United States; a number of key security challenges facing the newly independent republic of South Sudan; and an update on China’s satellite capabilities, which are reportedly approaching par with those of the United States.

Closer to home, the Northern Australia/Energy Security research programme sounds a note of caution regarding a possible “shale gas boom” in the north-west of Western Australia.

Returning overseas, the Global Food and Water Security Programme reports on the ambitious plans for a desalination plant in Oman, using the newly developed desalination technology of forward osmosis. Also covered are a stabilisation in global food prices and the Ethiopian Government’s plans for four new hydroelectric dams on the Nile River.

Upcoming Strategic Analysis Papers include an analysis from the Global Food and Water Crises research programme of the food and water security outlook for Madagascar and, from the Indian Ocean research programme, an analysis of Japan’s national involvement in the Indian Ocean region. Subsequent papers will look at the roles played by Brazil, Saudi Arabia, France and other countries in the region.

I trust that you will enjoy this edition of the Strategic Weekly Analysis.

Major General John Hartley AO (Retd)
Institute Director and CEO
Future Directions International

*****

Indo-US Defence Co-operation a Confluence of Strategic Interests

Background

In another example of increasing co-operation between Washington and New Delhi, the US Defence Security Co-operation Agency recently announced India’s intention to purchase 32 US-manufactured
MK-54 lightweight torpedoes, in a deal worth US$86 million. The agreement is indicative of the growing confluence of strategic interests between the two countries, which in recent years has seen relations flourish.

Comment

Since the US intervention in Afghanistan, Indo-US relations have expanded and developed into what is now a strategic partnership. A significant facet of this relationship is in the sphere of defence co-operation, which has seen successive US governments sell high-tech arms and military equipment to the Indian military. The latest deal follows in the wake of the Indian Cabinet’s earlier announcement, in June this year, which authorised India’s largest-ever purchase from the US and included ten C-17 heavy-lift aircraft worth US$4.1 billion.

For some years now, the Indian defence market has proved to be a lucrative one for the US arms industry. For instance, in March 2009 the US government authorised the US$2.1 billion sale of eight Boeing P-8I long-range maritime patrol aircraft to the Indian Navy. Before that, in January 2008, Washington approved the US$1 billion sale of six Lockheed Martin C-130J Super Hercules military transport planes. Similarly, in 2007 the Indian Navy purchased the USS Trenton for US$48 million. The Trenton is a landing-dock vessel and was also the Indian Navy’s first-ever US-built naval vessel. In 2005, India and the US signed a historic defence framework that, for the first time, included joint production of arms. Previously, in 2002, the US sold to India 12 Raytheon-manufactured weapon-locating radars in a deal worth $200 million.

Based on projections over the next five years, India is expected to spend up to US$30 billion on advanced weapons systems. Although Russia and Israel remain India’s two leading defence suppliers, arms sales from the US are set to expand considerably over the coming years, especially if US manufacturers Lockheed Martin or Boeing succeed in their efforts to sell 126 new multi-role fighters to India in a deal that could be worth US$10 billion.

As bilateral relations continue to expand in other areas such as co-operation in energy, including civil-nuclear collaboration, US defence companies are likely to rank as leading contenders in strengthening their foothold in the Indian market. What this trend also suggests is that the willingness of Washington to sell advanced weaponry is an integral part of its broader strategy, which sees a wider future role for India in world affairs, perhaps most notably in shouldering more regional security commitments.

Sergei DeSilva-Ranasinghe
FDI Senior Analyst
Indian Ocean Research Programme

*****

Post-Independence Security Challenges for South Sudan

Background

While South Sudan’s independence on 9 July 2011 was a vital step towards greater welfare and prosperity, the country is yet to enjoy the full fruits of sovereignty. It remains to be seen whether the Government of South Sudan can maintain full control over its population, military and territory, given the persistence of border disputes and the armed militias that remain in existence.
Comment

Although the world’s youngest nation has been officially recognised by (North) Sudan, the border between the two is still in dispute. The Abyei region of Sudan’s border state of South Kordofan, the stage for much of the Sudanese Civil Wars, and the state of Blue Nile, are currently under (North) Sudanese administration, but will supposedly hold “popular consultations” in the near future. Key factors, however, such as the referendum process and a definition of what constitutes a Kordofan/Blue Nile citizen, have not been agreed upon. The North seized Abyei on 6 July and indefinitely postponed any independence referendum there, calling into question whether it intends to release its grip on the border states at all. For now, both sides have agreed to keep troops out of Abyei, but this ceasefire could easily be broken.

The continued existence of non-government militias is a key security and sovereignty problem for both sides. Throughout the South’s prolonged struggle for independence, many separate military entities emerged. While several of them united to become the Sudan People’s Liberation Army (the SPLA – now transformed into the South Sudanese Government under its political wing, the Sudan People’s Liberation Movement or SPLM), not all have coalesced seamlessly into one cohesive military unit. It is extremely difficult to clearly establish what non-governmental forces still exist, let alone their alignments and intentions. As demonstrated in the 1990s by the North’s co-opting of the SPLA-Nasir, a breakaway faction of the SPLA, it is possible that there are still pro-North military groups operating in the South. Conversely, pro-South militias could re-engage in the disputed border areas, jeopardising the peace process.

The existence of oil reserves in the border region has a strong influence on the dispute over the North-South border. With extremely underdeveloped economies, both Sudans have historically relied on oil revenues as a major source of income. The majority of oil reserves lie in the South, but the majority of the revenues have gone to the North until this year’s independence declaration. Considering the major loss in revenue the split will cause for the North, it will strive to retain as much of the disputed Kordofan/Blue Nile areas as possible. Further Northern military action therefore cannot be ruled out and, if pro-South rebels cause disturbances, it could create a self-defence pretext for a military invasion of the South.

Chris Doyle
Research Intern
FDI Indian Ocean Research Programme

*****

China Satellite Capabilities Approaching Par with US

Background

According to a World Security Institute report to be published in the October 2011 edition of the Journal of Strategic Studies, China has developed the ability to monitor targets live for up to six hours a day by improving its satellite reconnaissance network. This represents a doubling of China’s surveillance capabilities over the last 18 months. This development will provide China with the “vision” required to utilise new military hardware and expand its influence in the Indo-Pacific region.
Comment

Ten years ago, China had almost no live satellite surveillance capabilities. Today, its ability to observe targets from space in real-time is thought to be equal to that of the United States, according to China researchers from the *Journal of Strategic Studies*. This rapid development and prioritising of space-based reconnaissance is attributed to both a sense of embarrassment on the part of the Chinese that dates back to their inability to track US aircraft carriers during the Taiwan Strait Crisis, and the pursuit of weapons systems that will potentially give China the option to engage in asymmetrical warfare with the US.

The development of second generation satellites with Synthetic Aperture Radars will allow the People’s Liberation Army (PLA) to track moving targets, in any weather and in real-time. This, coupled with the news that China is close to successfully developing an anti-ship ballistic missile, the “Dongfeng 21-D”, presents a challenge to US dominance in the Indo-Pacific, which relies heavily on the use of aircraft carriers.

These concerns have been noted by US military leaders. In 2009, Robert Gates, the then US Secretary of Defence, noted that the development of the 21-D increased China’s ability ‘to disrupt our freedom of movement and narrow our strategic options’. Admiral Michael Mullen added that the expansion of China’s strike capabilities demonstrates the PLA’s focus on “access denial”, a strategy based on pushing US forces out of the Indo-Pacific. American allies in the region, especially Taiwan, are likely to be unnerved by these developments.

Andrew Campbell
Research Intern
FDI Indian Ocean Research Programme

*****

Caution Required in Shale Gas Boom

Background

In an agreement that may signal the beginning of a “shale gas boom” in Australia, Houston-based ConocoPhillips last week agreed to a company farm-in deal with Perth energy junior New Standard Energy (NSE). The $100 million agreement will provide capital for exploration in NSE’s Goldwyer shale gas project in Western Australia’s Canning Basin. Economic opportunities and energy security motivations, however, must be negotiated against potential shortcomings of the emerging industry.

Comment

Shale gas has been heralded as the fossil fuel of the future, with ‘enormous potential’ according to US President Barack Obama, who cites it as one of the few issues that receives bipartisan support in America. US oil and gas majors are actively seeking joint venture opportunities, to satisfy forecast global demand, in Europe, Africa and, in the latest instance, north-west Australia. The investment of ConocoPhillips, responsible for 23 per cent of US gas production, in NSE’s shale project in the Great Sandy Desert, will

---

provide a 75 per cent stake in the project and allow the energy giant the option of becoming the project operator.

Environmental and economic analysts, however, contend that the emerging shale industry has not received the same level of scrutiny as other established fossil fuels and the sector may be inherently flawed.

**Hydraulic fracturing**, the process used to liberate shale gas, has received considerable criticism and has recently been banned in France, with other European states considering following suit. Further, recent research suggests that shale gas wells fade much faster than previously forecast, requiring increased fracking and, accordingly, increased toxic waste.

Leaked industry e-mails, published late last month in the *New York Times*, raise concerns about the economic sustainability of the commodity. Energy executives, industry lawyers, state geologists and market analysts have likened shale gas to a Ponzi scheme, with ‘money pouring in’, even though shale gas remains ‘inherently unprofitable’. Several of the e-mails compare shale to previous financial bubbles, such as housing and technology stocks.

A former Enron employee, who had taken a position at an energy company, wrote in an e-mail regarding shale gas, ‘I wonder when they will start telling people these wells are just not what they thought they were going to be?’ He drew parallels between shale gas companies and the behaviour of executives at Enron.

The newspaper found that less than 20 per cent of the United States’ largest shale formations in *Barnett*, Texas, *Haynesville*, East Texas and Louisiana and *Fayetteville* in Arkansas were productive. The *New York Times* found that, in a review of 9,000 wells, less than ten per cent had recouped their estimated costs by the time they were seven years old.

The Australian shale gas industry faces even greater obstacles to production. Despite a rising industry consciousness of shale’s potential, demand for equipment remains low and, thus, current costs remain substantial. Citi analysts argue that shale projects would cost three times as much as American projects. Labour costs alone would be 40-50 per cent higher than in the US, due to low unemployment. Australian financial analyst, Greg Peel, argues that the absence of Australian energy companies, such as BHP, Santos and Woodside, reflects industry concern over shale’s long-term sustainability.

Contenders, however, argue that as the industry develops, shale gas economics will advance with increased gas prices and technological developments. At an energy industry conference in April, Steven C. Dixon, Executive Vice President of Chesapeake Energy, argued that ‘shale gas supply is only going to increase’ in response to well performance. Shale gas proponents cite energy companies’ maturing strategies to develop wells that produce additional liquids, like propane and butane, as proof of the sector’s long term future. Profitability of gas, within the Australian context, will be further bolstered by strategies arising from the Carbon Tax, promoting a transition to gas-powered energy and increasing demand for natural gas.

US and European gas markets should serve as a microcosm for the emerging shale industry; ad hoc policy has proven detrimental to the development required for the industry to remain sustainable. If Australia is to capitalise on shale energy, strategic proactive policy is required. Government must manage the expectations of industry and community stakeholders and develop strategy to ascertain the environmental and economic desirability and sustainability of shale gas.
Oman to House World’s First Commercial “Forward Osmosis” Desalination Plant

Background

In June 2011, Modern Water, a UK-based company, won a £500,000 ($759,800) contract to build a desalination plant at Al Naghdah, in the Al Wusta region of Oman. The plant will be capable of supplying 200 cubic metres of fresh water per day. The new plant is understood to be the world’s first fully commercial application of forward osmosis technology, following successful trials in Gibraltar and Oman.

Comment

The desalination plant, with its new technology, is said to be more reliable than traditional methods of desalination, giving higher throughput with minimal environmental impact and lower energy consumption. The successfully trialled plants operated by Modern Water in Gibraltar and Oman proved that forward osmosis is successful for the production of fresh water, the treatment of wastewater and monitoring water quality.

Forward osmosis is the newly developed process of using a semi-permeable membrane to separate water from pure solvent. Water is passed through membranes with the process driven by different solute concentration levels on the two sides of the membranes. Currently, reverse-osmosis technology is used for desalination processes in which water is forced through a membrane that allows the separation of water molecules from salt ions. To pressurise the water, the reverse-osmosis technology requires additional electricity and also costly pipes to withstand the pressures.

The forward osmosis desalination technology does not require pressurised water, thereby reducing production costs. Hence, the new technology can deliver fresh water to the local community, while allowing significant cost savings and reductions in the consumption of energy. It also appears to be more reliable than reverse osmosis.

Due to the dry conditions, low-water supply and a growing population, the process of desalination is used to supply water in Oman. The urgent need for water is also increasing elsewhere in the Middle East. Currently, about 60 per cent of the world’s desalination facilities operate in the Middle East. As a result, other bidding companies, such as Aquatech, a US-based company, already have thermal and membrane based desalination plants in Oman. Aquatech is among the first companies to recycle and reuse wastewater within the oil and gas industry and has recently completed a landmark oil field water reuse project in Oman.

Technological advances in the use of desalination enhance the quality of fresh water and drive down the production cost of desalinated water. Long-term drought and limited water resources in Oman raise concerns over water availability. Therefore, if the forward osmosis plant in Oman proves successful, it is...
expected that more forward osmosis projects will be constructed and provide benefits to other parts of the world.

Further reading:

Stella An
Research Intern
FDI Global Food and Water Crisis Research Programme

*****

Global Food Prices Stabilise

The Food and Agricultural Organization’s Food Price Index rose one per cent to 234 points in June 2011. This is 39 per cent higher than in June 2010, but remains four per cent below its all-time high of 238 points in February this year.

International sugar prices were behind much of the increase. The sugar price index rose 14 per cent from May to June, but still remains 15 per cent below its January record.

In June, dairy prices remained virtually unchanged from the previous month. Cereal prices fell slightly, as weather conditions improved in Europe and the Russian Federation’s ban on wheat exports was lifted.

Gary Kleyn
Manager
FDI Global Food and Water Crises Research Programme
gkleyn@futuredirections.org.au

*****

Ethiopia: New Plans for Hydroelectric Production

Background

On 29 June 2011, the Ethiopia Electric Power Corporation announced that it would build four hydroelectric dams on the Nile River. The major hydroelectric dam project is part of a plan to spend $4.5 billion to raise power generating capability. The project will be in addition to the Grand Renaissance dam, which is also being constructed on the Nile. It will provide much-needed energy and income for Ethiopia, but could have serious implications for Egypt and Sudan as they face possible threats to their water rights.

Comment

The new dams will help Ethiopia in its aim to become a prime exporter of electricity to neighbouring countries such as Egypt and Sudan. Construction of the four dams will commence after 2015. When completed, they will be capable of producing 11,000 megawatts of electricity. They will be in addition to the Grand Renaissance dam, which will be completed in seven years’ time and will generate 5,250
megawatts. Overall, the Ethiopian plan for hydroelectric production is to produce 20,000 megawatts of power within the next ten years. Twelve billion dollars is expected to be spent on these and other projects over the next 25 years.

The projects will not require foreign investment but, rather, will be funded through the sale of government bonds and through donations. It equates to a five-fold increase in the current power-generating capacity, which is around 2,000 megawatts. In the longer term, Ethiopia is said to have the potential to generate up to 45,000 megawatts of electricity from water. By selling hydroelectric power to neighbouring countries, Ethiopia may become a leading power exporter in northern Africa.

The plans for more dams may, however, violate the water rights of other countries on the Nile. Egypt has previously refused any deal that would reduce its share of the Nile and give more access to other countries. Moreover, the 1929 Nile Waters Agreement gives Egypt the majority of water rights to the Nile River. Furthermore, the projects on the Nile raise concerns about the damage to local ecosystems, because the cumulative effect will mean much lower water levels downstream. As a result, there is a need for governance by an independent party, such as the Nile Basin Initiative, to ensure minimal environmental damage and no destructive exploitation.

Stella An
Research Intern
FDI Global Food and Water Crisis Research Programme

What’s Next?

- The Institute of Advanced Studies and the University of WA are hosting a lecture by UWA Oceans Institute Director Carlos Duarte on 21 July. It will be held at 6.00pm in the University Club Theatre and will be on the topic “Oceans: Opportunities in Exploring the Planet’s Last Frontier.” RSVP to ias@uwa.edu.au.

- New Zealand Prime Minister John Key will meet US President Barack Obama in Washington on 22 July. Issues expected to be discussed include the global and US economic outlook, the US-NZ relationship, trade and Asia-Pacific regional issues. Mr Key will also meet with US Defence Secretary Leon Panetta.

- On 25 July, at 3.30pm the Murdoch University Asia Research Centre is hosting a free lecture by Thomas Pepinsky from Cornell University. He will speak on “Development, Globalisation and Islamic Finance in Contemporary Indonesia.” It will be held at the Freehills Lecture Theatre, Murdoch University, WA 6150. For more, visit: http://wwwarc.murdoch.edu.au/

- The Australian Institute of International Affairs (WA Branch) will hold a talk on “Japan: Post the Tsunami and the Nuclear Crisis – How is it Managing? What are the Long-Term Consequences and the International Impacts?” Speaking will be former US Consul General, Dr Ken Chern. It will be held 26 July, 6.30pm at St Catherine’s College, Park Rd, Nedlands WA 6009. For more, call 0466 308 374 or e-mail wa.branch@aiia.asn.au

(Continued next page)
What’s Next?  

(From previous page)

- The Kokoda Foundation is holding its first-ever event in WA. Titled “Securing Digital Australia: Whole of Nation Approach to the Cyber Challenge”, Sunday, 31 July at Meeting Room 17.203, Edith Cowan University, Mt Lawley Campus. This one day workshop will examine how government, industry and the public are involved in defending against cyber threats in an increasingly networked world. Timings: 8.30am registration for 9.00am start. Workshop will finish at 4.30pm. Cost: $110; $75 for full time students (limited numbers). For more, visit: www.kokodafoundation.org