Scientists map proteins produced in human body

Thirteen years after the human genome was sequenced, two research groups have independently mapped the extent to which cells in various organs in the body turn many thousands of genes into proteins.

From bacteria to humans, genes are made up of units of DNA, called base pairs. The sequence of base pairs in genes tell a cell's molecular machinery what proteins to produce. Ultimately, it is the proteins that carry out a myriad processes essential for life.

Once the over three billion base pairs that make up the human genome were sequenced, analysis of that data indicated that there are about 20,000 protein-coding genes.

In a paper just published in Nature, an international team of scientists led by Akhilesh Pandey of the Johns Hopkins University in the U.S and Harsha Gowda at the Institute of Bioinformatics in Bangalore has drawn up a draft map of proteins produced from 17,294 genes.

There was evidence for proteins coming from 18,097 human genes, reported Bernhard Kuster of Technische Universitaet Muenchen in Germany and his colleagues in a separate paper published in the same issue of the journal.

The two papers marked a "major advance", providing comprehensive data about proteins expressed in different human tissues, commented R. Nagaraj of the Centre for Cellular & Molecular Biology in Hyderabad, who was not involved in either study.

Dr. Pandey and his colleagues examined proteins produced by normal cells in 30 tissue samples, adult and foetal as well as those found in blood. They found 'housekeeping proteins' from 2,350 genes that were produced in all tissues. On the other hand, proteins from 1,537 genes turned up in only one of the tissues. A number of proteins were expressed only during foetal development.

“The driving impetus for our work was to develop a reference of what is normal for human organs and cells,” said Dr. Pandey in an email. This information could provide clues to biologists seeking to elucidate the function of individual proteins. In addition, knowledge about organ-specific proteins could be used for detection of diseases arising in those organs.

“The day may not be too far when people have their protein profiles mapped, much like [personal] genome sequencing we have today. This could help us diagnose more diseases and diagnose diseases better too,” said Dr. Satish Chandra, Director of NIMHANS and a coauthor of the paper at a press conference in Bangalore.

In their paper, the researchers reported detecting proteins from 193 regions in the human genome that generally would not be expected to produce any, including genes considered dysfunctional. This suggested that “we do not yet have a thorough understanding of how our own genome works,” remarked Dr. Pandey.

Although proteins from about 84 per cent of all human genes had been found, those from the remaining genes may have eluded detection, remarked Dr. Gowda, a Wellcome Trust-DBT India Alliance Fellow. This could have occurred if the proteins were expressed in tissues or organs that had not been sampled. Alternatively, they might be expressed at very low levels, requiring special techniques to track down.

A large number of scientists at the Institute of Bioinformatics, a non-profit research organisation founded and headed by Dr. Pandey, contributed to the study. Researchers at the Postgraduate Institute of Medical Education & Research in Chandigarh, the Armed Forces Medical College in Pune and the National Institute of Mental Health and Neuro Sciences in Bangalore also participated.

In the other Nature paper, Dr. Kuster and his colleagues catalogued the proteins found in various human tissues, cell lines and body fluids. They found that approximately

10,000-12,000 proteins were ubiquitously expressed. Hundreds of genes described in the human genome “apparently do not code for protein any more,” observed Dr. Kuster. One example was a family of proteins, involving some 800 genes, that are important for sensing smell and taste. But proteins could not be found from more than half of those genes.
“Our interpretation of that is that perhaps modern humans don’t rely so much on their sense of smell and taste as we used to a long time ago. Therefore, evolution essentially gets rid of those surplus genes at some point,” he told this correspondent.
On the other hand, there were parts of the genome that had not been associated with protein-coding potential but for which proteins turned up. “So this could be a new playing ground, if you like, where nature tries out new proteins and we don’t necessarily know what they do yet,” he remarked.

Nayak panel stirs up a row

he committee to review governance of boards of public sector banks headed by former Axis Bank Chairman and Managing Director P. J. Nayak submitted its report a few days before the announcement of election results. The timing of the report is significant. Its major recommendations are — by the standards of the day — controversial, and are certain to be opposed by several sections. Major bank unions are already on a warpath. Many commentators are apt to dismiss the report as being too theoretical, unlikely to be implemented in a hurry. The incoming BJP-led NDA government will surely take considerable time to ponder over the committee’s key recommendations.

Yet, for all the initial scepticism the report has drawn, it is an important contribution, which can serve as a blueprint for financial sector reform, albeit with modifications. The Reserve Bank of India (RBI) Governor has made a strong case for accepting the report arguing that by implementing its key recommendations, the very many ills of public sector banks (PSBs) can be solved.

The committee was constituted by the RBI to review a crucial area of public sector banks’ functioning, which has ramifications for the entire financial sector. Corporate governance in public sector banks is weak, with most of the so-called independent directors appointed at government whims and fancy and are, therefore, not particularly qualified for their roles. However, the committee has conceded that theoretically at least, the board of directors of any PSB should be expected to represent a healthy balance of diverse interests and regions.

Government interference

Government interference has adversely affected corporate governance in PSBs which face dual regulation, the RBI being the banks' traditional regulator. They also face dual external oversight from the CBI and CVC.

Not many outside the public sector will realise as to how deleterious the impact of these organisations have been on their normal working. There are so many instances of fear psychosis holding back commercial decision making.

Government interference has meant that policy objectives rather than commercial considerations dictate a PSB's working. A less charitable way of saying is that it is because of government pressure that several PSBs have lent to unbankable companies. Not all the worryingly high non-performing assets that banks are saddled with are due to government interference but if banks had decided on purely commercial considerations, they would most certainly had been better off.

Government control has also made the appointment of top bank executives opaque. Many of them owe their appointments to considerations other than merit. Once appointed as executive directors, managing directors and in other senior positions the time for a quid pro quo starts.

This is not to say that all PSB top managers are below par and do not deserve to be there but as the Nayak Committee has observed they would be better off if they had a fixed tenure and face less outside pressure. Also, government control has capped the remuneration packages of PSB chiefs who earn far less than their often smaller private sector counterparts.

It is not surprising at all that PSBs lag behind private banks under several parameters, including asset quality and profitability.

Have the main points of the report been misinterpreted? The committee did suggest a reduction in government shareholding in PSBs to below 50 per cent but that is not privatisation of the dominant PSBs.

All PSBs will be incorporated under the Companies Act. All enactments under which they have been constituted will be repealed. With their value 'unlocked', PSBs should be able to tap the capital market. At the moment, all of them are dependent on the government for additional capital. The requirements are huge apart from their balance-sheet requirements to meet the new capital adequacy norms of international regulators.

New category

The committee has made other important recommendations that may be considered technical. For instance, it proposes a new category of authorised bank investors – made up of pension funds and many types of money market funds.

Consequently, there should be a widespread debate delineating the role of government, its merits as well as demerits. The merits of government shareholding cannot be denied. But what should the extent of control be?

Don’t mess with the banking sector

Government ownership has been a factor underpinning stability in banking

As the new Finance Minister, Arun Jaitley, comes to grips with his portfolio, he will need to quickly focus on the banking sector. Today, Public Sector Banks (PSBs), which account for over 70 per cent of assets in the banking system, are bogged down by a rise in non-performing assets. This has eroded their profitability and limited their ability to raise the regulatory capital needed to make loans.

A Reserve Bank of India (RBI) committee on bank governance, headed by P.J. Nayak, has a ready solution: free PSBs from government control and eventually privatise them. It is a solution that is fraught with both political and economic risk. Mr Jaitley must steer clear of such quick fixes.

The Nayak committee’s case for privatisation rests on the presumed superior efficiency of private sector banks. It thinks that if only the government gave up its controlling function and became a passive investor instead, it would stand to make enormous returns on its shareholding.

Problems with the proposition

There are serious problems with this proposition. One, it is based on a comparison of performance of PSBs and private sector banks at a time when PSBs are weighed down by the problems of the economy at large. It would be more appropriate to compare performance over a longer period. A wide range of academic studies points to a trend towards convergence in performance of PSBs and private banks since banking sector reforms were set in motion in 1993-‘94.

Two, such comparisons are flawed by what is called ‘survivor bias’ in the private sector group. Several new private sector banks licensed after 1994 have ceased to exist. Precisely for this reason, they would not be found in the private bank group used for comparison. This lends an upward bias to the performance indicators of private banks.

Three, the comparisons ignore the scope of activities of PSBs and private banks. PSBs have an important development role. They took upon themselves the task of funding private investment in infrastructure which was an important driver of growth in the boom period of 2004-08. Private banks can be more choosy about what they wish to fund. Many are focussed on the retail segment, working capital and wealth management. Foreign banks make enormous profit out of their capital markets division alone. If PSBs were to adopt such a narrow focus, sectors that are crucial to the economy would be starved of credit.

From a flawed starting point, the committee moves on to a diagnosis and a prescription that are even more flawed. The committee thinks the PSBs are doing badly because their boards are dysfunctional. The government packs the boards with its own people. The boards go through the motions of approving proposals put up by the management. Little thought is given to issues of strategy and risk management. In contrast, private banks have high-quality professionals on their boards that provide sage counsel. This, the committee contends, is what explains superior private sector performance.

The solution? The government should distance itself from bank boards. The committee wants government shareholding to be transferred to a Bank Investment Company (BIC). The Bank Nationalisation Act and other related Acts must be repealed and PSBs brought under the scope of the Companies Act. The BIC would appoint members of boards of PSBs as well as their CEOs and executive directors. It would let its stakes in PSBs fall below 50 per cent so that banks are freed from limits on remuneration, the Right to Information Act and the jurisdiction of the Central Vigilance Commissioner.

Freed from these vexations, the PSBs can single-mindedly focus on profit maximisation. Eventually, the BIC would transfer its ownership powers to the bank boards. The government’s stake in the BIC itself would fall below 50 per cent, thereby privatising these banks. We would enter a brave new world of Indian banking liberated from the stranglehold of government ownership.

The committee’s faith in the functioning of private bank boards is truly touching. If boards in the private sector are such paragons of virtue, the committee must tell us why some of the biggest banks in the U.S. and the U.K., whose boards were packed with glittering names from the corporate world, collapsed in the financial crisis of 2007.

To cite only one example, the U.K. regulator, the Financial Services Authority (FSA), looked into the collapse of the Royal Bank of Scotland, the biggest banking failure in the country’s history. Its report noted that there was an almost complete lack of questioning and challenge on the part of the board in the critical years when the bank hurtled towards ruin. There was nothing wrong with the composition of the board.

Boards in general are dysfunctional, whether in the private sector or the public sector. The remedies must, therefore, be generic in nature. The Companies Act 2013 and clause 49 of Securities and Exchange Board of India’s listing agreement now contain clauses that are intended to improve the functioning of boards, in particular, that of independent directors.

In banking, the regulator needs to go further. ‘Fit and proper’ criteria for board members must be strengthened and the RBI might adopt the FSA’s practice of interviewing candidates proposed for a directorship on a bank board. For banks above a certain size, there could be a requirement that positions be advertised and nominations sought from eminent persons so that a wide pool of talent is tapped. The RBI may stipulate that bank boards contain expertise in areas such as risk management and marketing of financial services. Board effectiveness could be measured using outside experts.

These measures would help strengthen boards. We must recognise, however, that there is only so much that boards can contribute. It is the quality of management that is crucial to performance. In PSBs, this must be the government's responsibility.

The government does not have to discharge this responsibility through diktat from the finance ministry. It can operate through its nominees on the board. The government nominees and the RBI nominee on PSB boards must ensure that there is proper succession planning and that managers are groomed for various levels of leadership.

Opposing privatisation

It is unlikely that the Nayak committee's proposals will go through in the near future. Political parties and trade unions will oppose any move towards privatisation. This will make the repeal of various Acts difficult, given the present composition of the Rajya Sabha. Selling government stakes in PSBs without turning them around is bound to invite accusations of a 'scam'. No government can risk distancing itself from control of PSBs and handing over these to a group of professional managers at a time when banks are severely stressed.

That apart, we need to be clear about the basic rationale for government ownership in banking in India. There is more to it than the larger social purpose of banking. Our experience has been that government ownership has been a factor underpinning stability in banking. The world over, economies have faced banking crises over the past several decades. Banks failed, they were nationalised or bailed out, then turned over to the private sector. This is the phenomenon of socialisation of losses and privatisation of profits that has come to attract public outrage.

India's experience has been refreshingly different. The Indian approach has been to have the public sector dominate banking while exposing it to competition. In the process, efficiency has improved without jeopardising stability. Experience has shown that it is possible to retain the public sector as the sheet anchor of the banking system without compromising on efficiency.

Addressing the issues of governance at PSBs requires focus on the part of the finance ministry. Mr. Jaitley doesn't have to look very far for inspiration. One of Narendra Modi's less heralded achievements as Chief Minister of Gujarat was his success in turning around state PSUs by professionalising their boards and giving management a free hand.

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The time for SAARC is now

Domestic politics are impacting overall SAARC relations. As the largest SAARC economy, we must strive to minimise differences with our neighbours by understanding how they perceive our policies, and uphold the promise of this regional bloc

December 8, 2012 marked the 43rd anniversary of the South Asian Association for Regional Cooperation (SAARC) — and reminded us yet again, of the unfulfilled promise of a regional bloc rich in its potential for prosperity. But like the European Union, which took decades to formalize, perhaps enough time has elapsed and enough geopolitics transformed, for the idea to have reached maturation now and compel the region into coalescence.

Of course, this will not happen without the active effort of India. Within SAARC, India is the major global player. The confidence that came from high growth rates and membership of groupings like BRICS and the G20, is feeding India's ambitions to seek a larger part in global decision-making bodies like the United Nations and the World Bank. Our "Look East" policy towards Southeast Asia and efforts to draw closer to the Arab world through energy imports, trade and labour policies has paid dividends. But the fissures in the politics of South Asia are holding back some of these vital ambitions – for instance, Pakistan's opposition and the relative indifference of other South Asian countries to India's aspiration of a permanent membership of the UN Security Council.

Domestic politics too, are impacting overall SAARC relations, and negatively influencing India's objectives. The future of some states in India such as Assam or Tripura is linked to their SAARC neighbour Bangladesh, while the fate of every SAARC country is linked to their neighbouring state in India. This was evidenced by Tamil Nadu's reaction to India's supporting this year's UN vote against Sri Lanka's on its human rights record, and the chilling effect of the West Bengal government's opposition to the Teesta water-sharing agreement on relations with Bangladesh. Some of these differences could have been better contained if there were more trust among the South Asian governments.

For India, then, an effective SAARC is a current imperative. We are 80% of the SAARC economy, occupy three-fifths of the land area of South Asia and share a land border with each SAARC country except Sri Lanka, from which we are separated by only 31 kilometres of sea, and the Maldives further south. Apart from Afghanistan, which has a (very disturbed and disputed) land border with Pakistan, the other SAARC countries can connect only through India, whether it is the short distance between Bhutan and Nepal or the breadth of India between Pakistan and Bangladesh.

These are borders that we must learn to manage – even if they are viewed as still fairly new in India's civilizational terms. The economic fallout of the subcontinent's Partition has eroded pre-independence transport connectivity and shrunk economic exchanges. The Partition cut India off from its centuries-old neighbours in West Asia – the Arabs and Iran, whose influence on Indian culture and religious composition was so momentous, and on whose energy resources modern India is so dependent. It also cut India off from Southeast Asia into which Hinduism, Buddhism and Indian culture had flowed peacefully for centuries. The occupation of Tibet by China through the 1950s suddenly presented India with a new and hostile neighbour – China – and became a formidable barrier to the continuation of historical connections with the Central Asian states.

This lack of access, viewed earlier as a mere constraint, began to choke India when growth rates began to race towards 9% in the first decade of this century and energy imports became an imperative.

For India to transcend its geography and take its rightful place in the world, it must work to minimise differences with its SAARC neighbours and increase their stake in taking the whole region forward. An indispensable starting point is to understand how bilateral relations and specifically India's policies are perceived by its neighbours. This exercise is important not only for the rise of India but equally so for SAARC, because the importance of regions acting and progressing together is highlighted daily by the political upheavals in the Arab world and the economic turbulence in Europe. SAARC countries remain among the poorest in Asia and their social indices such as female literacy and child nutrition are worse than some poorer African countries. Intra- SAARC trade at 5%, as compared to 25% even in ASEAN, is the lowest of any regional bloc in the world. Despite four Indo-Pakistan wars, SAARC remains the least networked with institutions and agreements to minimise the dangers flowing from having two nuclear-weapon powers within, and one on, its border.

Finally, the significance of the success of India as a developing democracy able to achieve high rates of growth while attempting distributive justice as an alternative to the free-market Washington consensus, or the authoritarian Beijing model, should not be underestimated; other developing countries with a similar history of breaking out of colonisation to achieve higher rates of growth, hope to also become increasingly democratic. Although our SAARC neighbours may not acknowledge it, India is the gold standard for them as they genuinely endeavour to build and strengthen their own democratic institutions.

Expanding intra-SAARC trade can be a major impetus if political differences can be resolved through compromise. A virtuous cycle can begin: through the process of compromise, India will be able to access the energy resources it so badly needs to power its growth, while the energy flows can themselves link the economies.

Our cultural commonalities already bind the people. It remains for the governments to imagine a different future.

This Op-Ed was written to mark the launch of 'Neighbourhood Views of India,' a compendium of essays by geopolitics experts from the SAARC nations.

Multiplying India's LNG

options

With Russia facing western sanctions, it is looking to Asia as a gas export destination. So is the U.S., which plans to ease exports to non-FTA countries. India can benefit from both. But to increase much-needed supplies, India must build partnerships and scale up pipeline and import terminal infrastructure

As the crisis in Ukraine unfolds, it is beginning to affect the strategic decisions of American and Russian leaders about natural gas exports. At a time when India is poised to expand its imports of natural gas to meet its burgeoning domestic demand, this creates an opportunity for India to diversify its import sources.

Gazprom, the Russian company with one of the largest natural gas reserves in the world, derives over half of its revenues from gas exports to European countries. [1] Russia is now under increasing pressure due to western sanctions, after it annexed Crimea. Amid this tension, the country is looking to strengthen economic ties with Asian countries and significantly increase oil and gas supplies to Asia in the next 20 years. [2]

Meanwhile, in the U.S., pressure is building to speed up approvals of liquefied natural gas (LNG) exports to countries that do not have a free trade agreement (FTA) with the U.S., including Ukraine and other European countries. Currently, LNG exports to non-FTA countries are restricted, and require burdensome regulatory approvals. These can take as many as 36 months to obtain, while the U.S. Department of Energy (DoE) considers whether such exports are consistent with public interest. [3] As a result, European countries cannot easily import LNG from the U.S. and continue to depend on Russian gas supplies. This is seen as a hurdle to loosening Russia's grip in the region.

If legislation were indeed implemented in the U.S. to ease exports to non-FTA countries, it will not only be an important political signal to Russia, but will also allow India to benefit from U.S. LNG supplies; at present, this potential is limited.

Until recently, Qatar's RasGas was India's only long-term LNG supplier. The 20-year LNG deal between GAIL India Limited and Cheniere Energy of the U.S. in 2011 was the beginning of India's efforts to secure additional gas supplies through stable, long-term agreements. However, Cheniere Energy's Sabine Pass facility is one of only seven projects approved for LNG exports from the U.S. to non-FTA countries [4]; 24 other applications are under review by the DoE. [5]

In order to meet the country's natural gas requirements from imports, Indian energy companies will have to secure additional LNG supplies from the U.S. Recently, Petronet LNG (a joint venture between GAIL, ONGC, Indian Oil, and Bharat Petroleum, with additional equity participation by foreign entities and the public) signed a conditional agreement with United LNG of the U.S. for imports from the Main Pass Energy Hub in the U.S.'s Gulf of Mexico. However, a binding sale and purchase agreement (SPA) is conditional upon United LNG getting approval from the DoE; the application is still under review. [4, 6]

Asian countries such as India and Japan are attractive export destinations for U.S. companies due to the higher price paid for gas in Asia, as compared to Europe. Increased LNG exports from the U.S. will at least initially increase the supplies available to Asia; simultaneously, record low gas prices in the U.S. could translate into cheaper LNG imports for Asian countries.

However, to benefit from U.S. LNG, importing countries will have to develop adequate pipeline and LNG import terminal infrastructure; this will require new investments and technologies. Some Indian companies are beginning to make these investments. Apart from Petronet's current LNG import terminals at Dahej and Hazira, GAIL is involved in the construction of the Dabhol and Kochi LNG terminals on the west coast of India, and is also planning to develop an LNG import terminal on the east coast. [7]

In addition to the Sabine Pass agreement, the company has also entered into long-term agreements to import LNG from Dominion Cove in the U.S. and the Gazprom Shtokman LNG project in Russia. [8]

On the other hand, Indian private companies have not yet begun to fully participate. GAIL dominates natural gas pipeline and transmission infrastructure in the country. Although Reliance Industries also has pipeline infrastructure domestically, it has not yet invested in import terminals or long-term import deals. The company has investments worth $6.5 billion in upstream shale gas projects in the U.S., but is not yet exporting the gas to India. [9] Private Indian construction player Hiranandani Developers has acquired an option to build an LNG export terminal in Canada, but nothing in the U.S., and no participation in domestic import terminals as yet.

Even after securing long-term SPAs and regulatory approvals, roadblocks remain. The GAIL SPA with Cheniere Energy is only part of the second phase of the Sabine Pass project. The success of the agreement depends on Cheniere Energy making a final investment decision to undertake the second phase, and deliveries to India are not expected to begin until 2017. [10]

The deal also includes a cost of LNG to GAIL of 115% of the U.S. natural gas benchmark Henry Hub price. [11] This is an attractive proposition for GAIL, with Henry Hub prices less than $6 per million British thermal units (MMBtu). But if prices increase – and the U.S. Energy Information Administration expects U.S. natural gas prices to increase by an average of 2.4% per year between 2015 and 2040 – then the cost advantage of sourcing gas from the U.S. over other countries could diminish. [12]

Even so, the GAIL deal with Cheniere and other U.S. companies may be the cheapest import option for India in the medium-term to long-term – less than what India is likely to pay for LNG from Qatar, Australia, and Russia. Current deals with these countries are linked to the price of crude oil, which may also increase over the long-term. [13]

A comparison of India's gas import options

Exporting country	Companies/ Project	Tenure	Pricing benchmark	Estimated landed cost to India (per MMBtu)
U.S.	Cheniere Energy (Sabine Pass terminal) and GAIL	20 years(plus option to extend another 10 years)	Henry Hub	$10.5(@$3.78 per MMBtu Henry Hub)
Turkmenistan	Turkmengaz (TAPI project) and GAIL	30 years	Oil-indexed	$12.99(@ $100 per barrel crude)
Qatar	RasGas and Petronet LNG	25 years	Oil-indexed formula linked to Japan Customs Cleared crude prices	$13(@ $100 per barrel crude)
Australia	Exxon-Mobil (Gorgon project) and Petronet LNG	20 years	Oil-indexed	$16
Russia	Gazprom (Shtokman project) and GAIL	20 years	Oil-indexed	n/a

Source: Compiled from various sources, including the websites of GAIL, Gazprom, RasGas, Chevron Australia, 'Oil and Gas Journal', and ICRA Equity Research Service

Additionally, linkages to oil prices do not allow for the changing dynamics of the natural gas market. With the shale gas boom, the relationship between oil and gas extraction is loosening, as shale gas reserves are usually independent of co-mingled oil reserves. In the U.S., therefore, natural gas prices are determined by their own market dynamics. [14]

India has made various attempts in the past to obtain gas through pipelines from Iran and Central Asia. But these gas supplies are yet to materialise due to the geopolitical risks involved: western sanctions on Iran created difficulties with the Iran-Pakistan-India (IPI) project, while the Turkmenistan-Afghanistan-Pakistan-India (TAPI) project remains delayed.

The final TAPI gas price for GAIL could be attractive compared to the higher Henry Hub prices, but there are concerns about the security of the TAPI pipeline and a lack of creditworthy partners to finance the project. As a result, imported LNG (which is shipped rather than transported by pipeline) is the only viable medium-term option for India to fulfil its domestic demand-supply gap, unless of course India makes significant strides in developing its own domestic shale resources. [15]

Strategic partnerships to strengthen and diversify LNG import sources are critical. The U.S. Energy Secretary Ernest Moniz's visit to India in March 2014 highlights several areas of cooperation on energy between the two countries. India must continue to build this partnership and seek policy changes to facilitate approvals from U.S. government agencies for exports to countries that do not have FTA agreements with the U.S.

The partnership will ease price concerns regarding LNG imports and support India in its effort to develop and implement renewable energy and smart grid technologies – in tune with a recent UN report that considers natural gas a "bridge" for mitigating climate change, and urges action towards a massive shift to renewable energy. [16]

Partnerships with other LNG importing countries like Japan will also strengthen India's negotiating position vis-à-vis other LNG suppliers. GAIL launched just such a partnership at the end of March through its memorandum of understanding with Chubu Electric Power Company (Japan) for collaborating on joint LNG procurement. [17]

Finally, in entering into LNG supply deals with Russia, India may find an opportunity to broaden import sources, but will have to weigh the risks of depending on another partner subject to international sanctions for its energy needs.

Decoding RBI's policy on foreign debt

The RBI's two-pronged strategy to protect the economy from tapering-led volatility discourages unproductive external borrowings and prods foreign portfolio debt investors to think long-term. There's another vexed issue: the IMF has sounded a cautionary note on the rising number of foreign currency debt laden Indian firms

The Reserve Bank of India (RBI) recently issued a curious circular to all banks in India. It barred Indian banks with overseas operations from lending foreign currency to Indian companies, or from giving them guarantees that help them raise loans from other overseas banks, so that the loan proceeds can then be used to repay outstanding rupee loans in India. [1]

What is intriguing about this notification is that it revokes a 2012 decision that allowed Indian companies to raise money overseas to repay rupee loans. [2] But, when viewed in conjunction with a few other recent policy measures, a clearer picture emerges of the RBI's attempts to fashion an external policy, especially one that attempts to limit the Indian economy's vulnerability to external volatility that may arise as a result of U.S. Federal Reserve's tapering policy.

There is, of course, the RBI's obvious concern about the rising swell of non-performing assets (NPAs) on bank books. NPAs pose an impending risk to the Indian banking system and the economy which, if left unresolved, could damage the credit markets for a very long time. In January 2014, the RBI even released a framework for revitalising distressed assets. [3]

Even the International Monetary Fund (IMF), in its latest instalment of the *Asia Pacific Economic Outlook* [4], has struck a cautionary note about the high proportion of corporate NPAs, which it feels is a threat to economic stability. According to the IMF's outlook, a third of India's corporate debt belongs to highly leveraged companies – with a leverage of three times or more (for every Rs. 100 of share capital, these companies borrowed Rs. 300 or more), the highest in the region. Unfortunately, many of these companies also have a low profit to interest payments ratio or the interest coverage ratio (ICR); this means they have little profits left, after taking care of operating costs, to pay interests and taxes.

The IMF report further says that for companies with external borrowings, any currency depreciation is likely to adversely impact the ICR. This is probably what is giving the RBI anxious moments. There are clearly two strands to the external strategy that the RBI is trying to construct.

At a broader, macro level is India's total external debt position, which amounted to $425.970 billion on December 2013, a jump of 13.2% from $376.292 billion on December 2012 [5, 6]. India's external debt has been rising – especially since the Indian central bank started raising benchmark interest rates to counter deeply embedded inflationary trends. This prompted many Indian companies to tap cheaper external markets for loans.

Commercial borrowings currently total $134.229 billion, according to data of the Ministry of Finance – a jump of over 90% since December 2009. It was after January 2010 that the RBI increased interest rates 13 times in 18 months. Even non-resident Indian (NRI) deposits have spectacularly risen, especially after the RBI aggressively campaigned for them – starting in September 2013 – to counter the steep depreciation of the Indian rupee. NRI deposits amounted to $98.639 billion on December 2013, a clear increase of 107.7% over the $47.490 billion in December 2009. These deposits have to be repaid over the next two to three years.

The rising external debt number is bound to induce a sense of foreboding when viewed through the prism of critical macro ratios: the RBI’s total hoard of foreign exchange reserves can now service only 69% of the external debt, compared to 138% in 2007-08 .The total outstanding is 23.3% of GDP; it has always been lower than this since 1998-99. And concessional debt comprises only 10.6% of total debt stock, which means a higher debt servicing burden.

Clearly, one of the objectives of the circular – apart from avoiding the cosmetic transfer of risk from the domestic balance-sheet – is to keep a lid on external debt, especially since tapering by the U.S. Fed is likely to keep the external economy volatile. Allowing Indian companies to now raise funds overseas to repay domestic debt might aggravate the situation.

The second purpose of the circular is to address the probable risks that might arise from short term external debt, or loans that have to be repaid within 12 months. Short-term debt is 21.8% of the total debt now, and is lower both as a percentage of total outstanding external debt as well as in absolute numbers compared to the immediate preceding months.

India’s stock of short-term external debt – Ministry of Finance data shows – touched $92.707 billion at the end of December 2013, or close to 21.8% of the total debt, compared to $91.881 billion in December 2012, comprising 24.4% of total external debt then.

What can be worrying the RBI is the money streaming into short-term debt instruments – such as the 91-day treasury bills issued by the government or the commercial paper floated by companies – since January 2014, figures for which are still not available. This rush of investment has been facilitated both by the interest rate differential between western markets and India, as well as the stronger rupee vis-a-vis the dollar.

One of the clear indicators to RBI’s strategy was revealed in RBI Governor Raghuram Rajan’s first bi-monthly policy statement of 1 April 2014. The RBI announced that henceforth foreign portfolio investors will not be allowed to invest in any government security, including treasury bills, with residual maturity of less than a year. [7] While the ceiling for investments in government securities remains fixed at $30 billion, the RBI wants it invested entirely in government paper with maturity of more than a year. This, the RBI hopes, will deter the yield-chasing, short-term investors and insulate the economy from volatility.

To soften the blow, the RBI has handed out portfolio investors a number of sweeteners that facilitate the process, and lower the cost, of investing in Indian capital markets. One, portfolio investors can now open a local bank account and directly transfer the capital they can invest into that account, unlike the earlier tedium of having to route funds through a custodian bank, which added considerably to the time lag between intent and investment. [8]

Portfolio investors can now also hedge their currency risks in the local exchanges, provided their investments are in government debt of more than 12 months in maturity. [9] This is bound to lower their costs, apart from giving them further inducement to invest in Indian paper.

The RBI's moves clearly show its determination to keep a leash on short-term external debt. One of the reasons, according to *India Ratings*, can be a rush for the exit by short-term lenders during the tumultuous and volatile period for the rupee between May and August 2013. [10] But, at the same time, the RBI has also demonstrated that it does not want to give up on foreign portfolio investors yet, especially given the enduring nature of the Indian economy's current account deficit.

Little Hope for Entry into the SCO(Shanghai Cooperation Organisation)

As the dateline for NATO troops' withdrawal from Afghanistan reaches near, the SCO states are worried about the possible fallouts of the situation on Central Asia. Interestingly, Tajikistan that borders with Afghanistan will take over as the next Chairmanship of the SCO and countries like Pakistan, India and Iran would hope to become full members of the grouping. The Afghan pull out comes amidst renewed tention between Russia and the West over Ukraine. Clearly, Tajikistan, which has closed military ties with Russia, would be worried about the probable challenges the changing security situation may pose. Clearly, the SCO Track II conference held recently in Duhanbe was not really an academic exercise but more nuanced to assess, as well as, to transmit mainly the following key points:

- To contextualize the current economic and financial crises and justify China's "New Silk Route" proposal for Eurasian region;
- To assess the Afghan situation and the regional fallout-post 2014;
- To provide a long-term strategy for the SCO's role, function and enlargement;
- To build the intellectual base and public opinion to highlight the SCO's contribution;
- To bring legislative changes and structural reforms in the SCO;
- To resolve the financial issues of the SCO;
- To enunciate the rightful influence of Russia and China in Central Asia;
- To assess the prospect of SCO's expansion idea;

The multiple security threats, the cast of international players and their implications for the SCO countries was compelling the need for closer coordination between the Russia-led Collective Security Treaty Organization (CSTO) and SCO. Yet, confronting NATO was not the preferred choice for many. They wished SCO as a regional based body.

To be sure, some rang the alarm bell of the possible chaos in the region, a la Kyrgyzstan and Ukraine-type implosion spreading across Eurasia. Yet the idea for countering the Western democarcy drive was lacking. Some see potential in the Indian model, but not clearly by the majority.

The SCO draws satisfaction over the way it prevented crises like Osh from flaring up. The agreements that are more robust exist since 2010, they believe, could fully meet the future crisis. The confidence also lay in SCO's RATS ability to counter the Afghan fallout. However, for the Uzbek, primary concerns emanates from with the region from conflict over water and resources. Mongolia's commitment to its closer ties with the US and Japan makes it less interested in SCO's future direction. For Sri Lanka, need for joing SCO is important to garner larger organizational support to deal with any internal conflict. Surely, to some "Shanghai" sounded more Martime than Continental, thus change in the title of SCO.

It is the Afghan challenges that worry the most, especially the Tajiks who see the Islamists spreading across Afghanistan into Central Asia using better technologies. The critical points of infiltration are Badakhshan and Khorog. However, the Tajiks see little effort by the SCO Contact Group on Afghanistan to think about solution. The killing of Rasul Rabbani gives little hope among the Tajiks for peace process in Afghanstan. Notably, the SCO member states are said to be more enthusiastic for having dialogue with the Taliban than thinking about achieving a broad-based Afghan government. Message for Russia against replacing NATO in Afghanistan was laud and clear. Nonetheless, experts did not think that terrorists trying to infiltrate into Central Asia are in big number. Even for many Russian experts, not all Islamic elements are terrorists. For the, those in Pakistan's FATA region and in the Ferghana Valley are simply fighting for new political "ideas". Al-Qaida elements may have thrived in North Africa and Middle East but unable to set their footing in Eurasia. Interestingly for the Afghans, the source of trouble in Afghanistan emanates from the FATA (Pakistan), Ferghana (Central Asia), and Chechnya (Russia) to which Afghanistan can do litle about.

The geopolitical approach is unlikely to be helpful in resolving the Afghan situation. Like India, Turkey thinks that terrorism has roots in the socio-economic problems of the society and as such, focus needs more on soft security challenges rather than on the combat dimension. Introducing moderate Islam to influence the Taliban attitudes seemed the main Turkish goal. Clealy, they seemed mindful about West Asian conflict spilling over into Central Asia. Notably, the Saudi-Iranian rivalry does have impact on the Afghan-Tajik border.

The prospects for new states becoming SCO members seem more difficult than before. The draft document and rule for expansion ready since 2010 is held up probaly for the reseaons unexplained. The new clause that requires all heads of the member states to sign the membership document is the main obscticle. Iran was about to be made a member in 2010 but the UN Sanction prevented China and Russia from signing Iran entry. The thinking now revolves more around realizing a process of regional integration within Eurasia given the regions's vast natural resources plus the ability of China to invest in the region. Many see China as a great opportunity. This also goes for its geopolitical potential to resolve issues peacefully. Pakistan and Iran are viewed as having better prospects for joining the SCO, but many wished to draw difference between expansion and cooperation. The SCO has neither the criteria not a timetable for expansion. The example of European Union (EU), which took a gradual path for expansion, was cited for SCO to emulate. Interestingly, an issue cited as "technical" diffucIty was SCO "official language". Except for Russian and Chinese, no other language can be SCO's official language; is clearly meant to ban the entry of English speaking members. The SCO either not serious or taking a cautious if not an isolationist position on the expansion issue. The members appear careful about the intentions and behaviors of the observers-states as they see expansion could against the organizational interests. Unwillingness to get gragged into the Indo-Pak row seems apparent.

The Chinese-led SCO will be 15 years of existance next year, however, there remains no clarity on how to make it more than a paper tiger. Some remain disappointed with its performance on the ground, but China and its new "Silk Route" projects keep their optimism alive. The financial incentives keep the SCO afloat. The lingering fear is that the West would do everything to stifle the process of SCO's growth. The fallout of situation in West Asia and even the current West-Russia stanoff over Ukraine could affect the Eurasian space.

While Mongolia remains non-committal about joining the SCO as a full member, China's offer of building economic projects across the Gobi may have induced the Mongolia thinking. However, Mongolia is still holding a 'wait-and-see' approach. The Uzbeks have strong interest albeit with an aim to pursue their own agenda. Pakistan's desire for a full membership appeared very clear. The Central Asian tendency to treat India and Pakistan with the same yardstick is not a good sign – reflects on our diplomacy.

Although, the internal insecurity, particularly the US sponsored 'regime change' or crisis in Ukraine seem creating an atmosphere and an urge to strengthen as well as shield the SCO against the external strategic pinpricks. However, substantive change will remain elusive if the SCO envisages stability of the region by seeking regime security. China remains the ultimate boss of the Eurasian body and membership entry including that for India will come with a great deal of prescribed terms and conditions.

Six takes on the Ukraine crisis

It is seven months since the first round of protests began in Ukraine, and the crisis has only escalated further. Russia has rejected calls for another round of talks and parts of eastern Ukraine are seeing violence on a daily basis as pro-government loyalists try and take back cities controlled by the pro-Russians

The political and security situation in Ukraine is deteriorating every day. An increasing number of fights are breaking out in eastern Ukraine, as pro-government loyalists try and take back cities controlled by pro-Russian loyalists. An enormous debt crisis means that Ukraine faces imminent bankruptcy and given that Ukraine is a major channel for oil and gas exports from Russia to western Europe, any further escalation of tensions could send prices soaring.

Gateway House asked six experts for their perspective on the current state of play and on what to expect in the weeks ahead.

Rajrishi Singhal, Senior Geo-economics Fellow, Gateway House

"As the violence escalates, the economy of Ukraine is slipping from a state of fragility to a level of impairment that will take years to heal. Ukraine's economy has been shrinking and it is deeply in debt with money owed ironically to even the Russian gas supplier Gazprom – $3.5 billion as of May 1. Much of the heavy industry subsisted on this source which was supplied at subsidised rates. The Ukraine government was negotiating for a $15 billion debt from Russia before mobs deposed the former president. Now the U.S. and the EU will have to step in and the IMF might also fork out another $10-15 billion to stave off bankruptcy. The new government is contemplating a number of measures, such as raising household gas prices, increasing taxes, freezing minimum wages and laying off parts of the bureaucracy, although fears of mobocracy might force some degree of gradualism.

As far as the impact on India is concerned, Ukraine is India's second largest trading partner after Russia in the Commonwealth of Independent States and India's total trade with Ukraine in 2012-13 was over $3 billion. Pharmaceutical exports make up for 30% our total exports to Ukraine and the FICCI had recently expressed concerns that a prolonged crisis could impact the country's exchange rate, leading to a rise in the landed cost of Indian pharmaceuticals."

Ronen Sen, former Indian Ambassador to Russia

"What is unfolding is unfortunate because one had hopes that the terms agreed upon at the quadrilateral accord in Geneva in April would be honoured. Under those terms, all sides were to refrain from violence and the pro-Russian separatists were to disarm and return to the authorities' control of the buildings that they had seized during protests. This was obviously aimed at disarming all protesters – those in Kiev and in the east. However, things don't seem to be moving in that direction.

India has no special stake in Ukraine apart from sharing our sorrow at the loss of lives and our hopes for a peaceful resolution. As the world's largest democracy we hope that there will be a comprehensive dialogue for creating conditions conducive for the holding of both presidential and parliamentary elections in Ukraine. These elections would hopefully be held within a federal framework taking into account the interests of all citizens that would rule out the possibility of secessionist trends such as referendums for so called state sovereignty in different regions."

Ksenya Kysil, Correspondent, Kraina magazine

"The people of Ukraine have never felt hatred towards the Russians and this was the case even during the years when Ukraine got its independence from Russia – a period when emotions were running high. Today, our most akin brother slowly devours our eastern territories. However, Russians do not realise that a majority of east Ukrainians do not support them. The Crimean scenario is impossible there because Crimea has a sizeable presence of ethnic Russians who were resettled there after WW II. They never identified themselves as Ukrainians – they had Russian flags hanging in their homes and dreamed of drawing their last breath in "Mother Russia". However, what unfolded in Crimea is unlikely to repeat itself in the rest of Ukraine. Ukrainians have come together and will not surrender to the aggressor. The agenda is to now overcome the crisis and reform a neglected Ukraine."

Pepe Escobar, Roving correspondent, Asia Times

"Russia expects respect from "our western partners" who since 1991 have treated it, not as "an independent, active participant in international affairs," but as a backward or dangerous nation to dismiss and "contain." History clearly shows Washington does not respect the national interests of anybody. The Kremlin, in a nutshell, has invited Washington to play realpolitik. The Obama administration, at best – and we are being lenient here – plays checkers. Moscow plays chess. A mad drive to instill chaos in Russia's western borderlands while "ignoring" Putin won't change the Kremlin's defense of what it perceives as Russia's national interests.

Yet the sanctions game will persist, like it did with Cuba, Iraq and Iran. No adults in Europe will follow. Even poodles are able to sniff out that the Obama administration does not even qualify to play Game of Thrones on PlayStation 3."

Jaromir Novotny, former Deputy Secretary of Defence, the Czech Republic

"The government in Kiev is gradually losing control over the eastern region. The police and army in these areas are proving to be unreliable, with some of them choosing to join the separatists. Ukraine is on the edge of bankruptcy. There is a real possibility that we could see a repeat of what happened in Yugoslavia which broke up after a series of political upheavals in the 1990s.

This is the beginning of a long-term crisis where we will possibly even see a redrawing of the borders of eastern Europe by means of force. Who will care if the guarantees given by the permanent members of the UN Security Council are not even worth of the paper they are printed on? This is the beginning of a chess game being played between the West and Russia for the redrawing the spheres of influence in eastern Europe."

Robert Pettinger, U.S. Congressional Committee on Financial Services

"It is necessary to understand your adversary. If a man (Russian President Vladimir Putin) says that the worst things to happen in the 20th century was the collapse of the Soviet Union and leaves out the AIDS epidemic in Africa and the two World Wars, then you have to get inside his mind and think of what his objectives would be.

The U.S. President while no doubt working for, what he thought was in the best interests of the U.S., has acted in a way that has encouraged Mr. Putin to be the aggressor. The way to pressurise Putin is to put back our missile defence and place strong economic sanctions."

A New Vision for India

NEW DELHI – India's Bharatiya Janata Party, led by Narendra Modi, has stormed into office, winning its first absolute majority and reducing the formerly dominant Congress party to a rump, with just 44 of 543 seats in the lower house. Although India's sputtering economy was the dominant issue in the campaign, Modi's victory implies a significant transformation ahead for India's foreign policy as well. In short, an era of timidity and hesitation, bordering on paralysis, under the

Congress-led United Progressive Alliance (UPA) has ended.
There is no shortage of external challenges facing India's new government. Upon assuming office in 2004, the UPA frittered away the positive national-security and foreign-policy position that the previous BJP government had achieved, neglecting key partnerships as it struggled to work effectively in the face of chronic infighting.
For example, the Communist-led Left Front, part of the UPA, foiled the implementation of the momentous civil nuclear deal with the United States, and consistently undermined the creation of a balanced nuclear-liability bill. Indeed, that bill is still languishing – a situation that Modi should rectify soon.
With its decisive parliamentary majority (282 seats, plus another 50 or so held by its allies), the BJP has the mandate that Modi needs to pursue a bold and creative foreign-policy agenda. The question is whether he will use his political capital effectively to advance India's interests.
Even while it adopts a more emphatic international posture, Modi's government must guard against regression to non-aligned posturing and overzealous assertion of "strategic autonomy." Instead, it must follow the global trend toward economic and security alliances.
Economic diplomacy will undoubtedly play a central role in Modi's efforts. After all, India's international prominence is based largely on its economic potential.
Among India's top priorities should be measures to strengthen its relationships in its immediate neighborhood. Modi has already highlighted the imperative of making the South Asian Association for Regional Cooperation (SAARC) a "living body," instead of the moribund group that it was under Congress.
To this end, the relevant parties must abandon the usual saber rattling, and implement confidence-building measures. This logic likely drove Modi's decision to invite SAARC leaders – including Pakistan's Nawaz Sharif – to witness his swearing in as Prime Minister. To build on this, Modi should work to expand intra-regional trade linkages and foster person-to-person connections.
Of course, economic cooperation and development will be impossible without sustained peace – and that will not be easy to achieve in a region beset by deep-rooted tensions, including between India and Pakistan, and the threat of state-sponsored terrorism. Making matters

worse, India and China are locked in a longstanding border dispute. Add to that the turmoil in the nearby Middle East – exacerbated by America's withdrawal from Iraq and Afghanistan – and India's security situation is not immediately conducive to harmony and cooperation.

A more peaceful and prosperous future will demand a clear and credible strategic vision from Modi, including a zero tolerance approach to terrorists and their sponsors. At the same time, with the US retreating from the Middle East, India must take responsibility for the security of its interests in the region, such as by developing a blue-water naval capacity to secure its maritime energy-trade routes.

This imperative is one of the factors linking India and Japan. As many Indian strategists have noted, Japanese Prime Minister Shinzo Abe may embody the kind of self-confident and decisive leader that Modi aspires to become. Increased investment and defense cooperation with Japan will add much-needed substance to India's "Look East" policy, which could be advanced further by implementing long-planned projects with Bangladesh, Myanmar, and Thailand, as well as by building road and maritime infrastructure and strengthening trade links.

Engagement with the Association of Southeast Asian Nations – something that the Congress government was always reluctant to pursue – must also become a priority, if only to ensure regional stability. India's membership in the ASEAN+6-led Regional Comprehensive Economic Partnership was a step in the right direction, but much more needs to be done.

But India's most important partnership remains that with the US. The problem is that former Prime Minister Manmohan Singh did not seem to recognize this, leading to a growing divide that has cost India dearly. And Modi's relationship with the US has not been entirely positive, either, owing to American officials' decision to deny him a visa following the deaths of many Muslims during riots a decade ago in Gujarat, where he was Chief Minister.

Given the bilateral relationship's economic and strategic importance, Modi must reinvigorate ties, and quickly. For starters, he must work with the US to address commercial and economic issues, including American concerns over India's weak intellectual-property protections and fears within India's information-technology industry regarding proposed US immigration reform.

Success will require both sides' patience and willingness to compromise, bolstered by confidence-building measures. For its part, India could initiate realistic tax reforms, like eliminating transfer-pricing and retroactive taxation.

Modi’s final foreign-policy challenge is Russia – another country that the Congress-led government neglected. Modi must now assess what kind of relationship can reasonably be expected with President Vladimir Putin’s increasingly assertive administration, while recognizing that it is not in India’s interests to have Putin view China as Russia’s only potential strategic partner in Asia.

One way to gauge India’s relationship with Russia – as well as with the US and even Israel – is to allow for increased foreign investment in domestic defense industries, including more co-production initiatives. Indeed, according to former US Under-Secretary of Defense Ashton Carter, stronger military cooperation and increased technology transfer is the most effective approach to deepening US-India ties. Why not adopt the same approach to strengthen India’s relationships with Germany, France, the United Kingdom, and Japan?

Modi undoubtedly faces major foreign-policy challenges. But, with a clear, confident vision and credibility-enhancing policies, he has a rare opportunity to put India firmly on the path toward peace and prosperity.

JASWANT SINGH