24th ANNIVERSARY ISSUE

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January 17, 2016 ₹60

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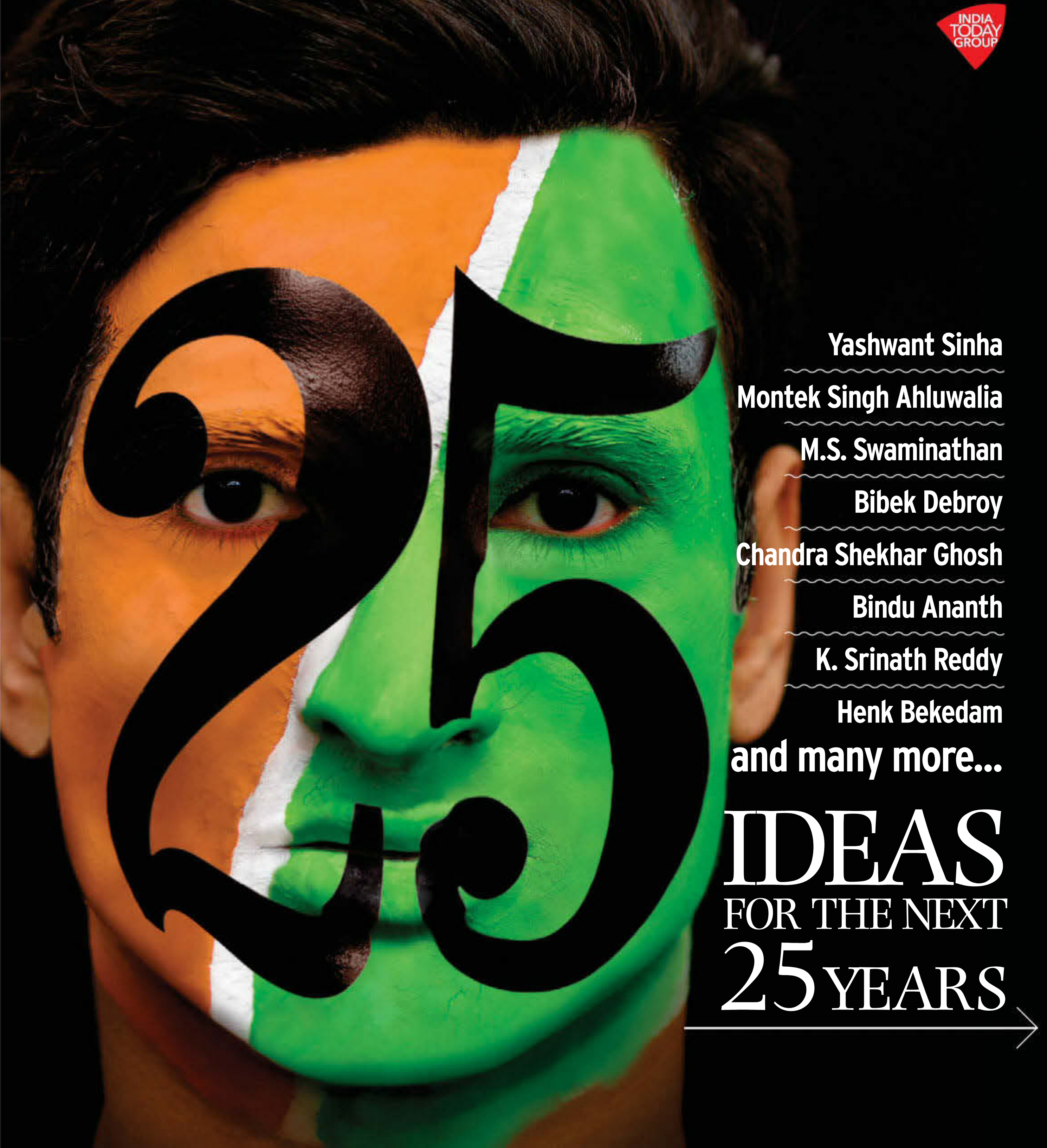


Yashwant Sinha

Montek Singh Ahluwalia

M.S. Swaminathan

Bibek Debroy

Chandra Shekhar Ghosh

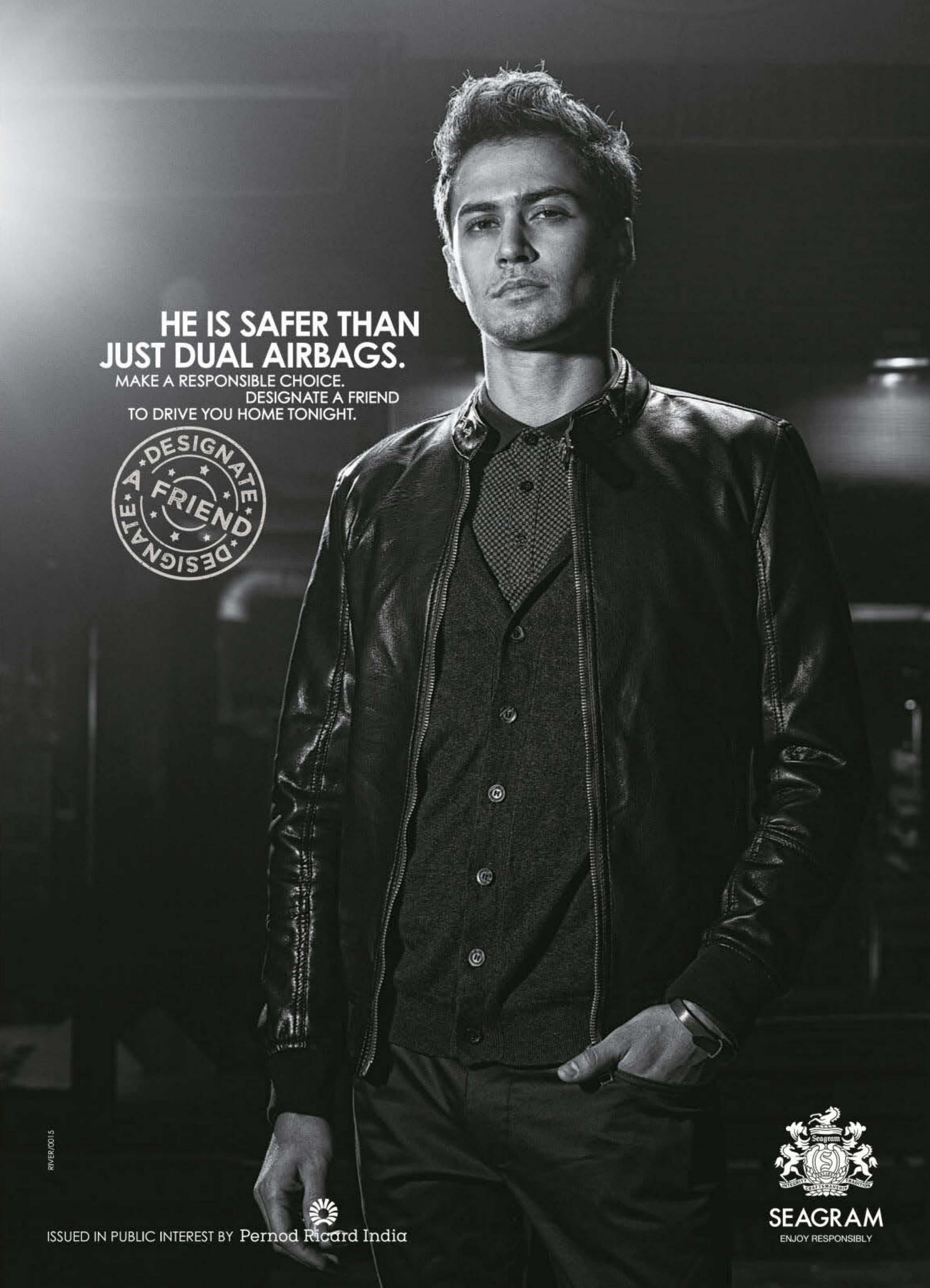
Bindu Ananth

K. Srinath Reddy

Henk Bekedam

and many more...

IDEAS FOR THE NEXT 25 YEARS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Letter from the Editor-in-chief

Turbo-charged Journey

The issue you are reading now is special in more ways than one for us. We have just completed our 24th year of publishing the magazine and are entering our 25th year in 2016.

In January 1992, we published the first issue of *Business Today* magazine. It was perhaps the perfect time to start a magazine focused on Indian economy and business. The previous year, India had come close to defaulting on its external payments and had to seek a bailout from the International Monetary Fund (IMF). The pound of flesh that the IMF demanded was economic and market reforms. Till then, the Indian economy was largely closed, and worse, was characterised by the Licence Raj, with the government having a major say in every aspect of business.

When the magazine launched its first issue, then prime minister Narasimha Rao and his finance minister Manmohan Singh had started on a path of economic reforms, which would be followed and built upon by all future governments. The danger to the economy had not receded completely and some of the most important steps to open up the economy and Indian markets were taken over the next four years. It was an exciting time to report on economic and business matters, and every issue of *Business Today* captured the rapidly changing economy.

As the economy was being opened up, a number of corporate houses were going through their own churn, and having to redefine their corporate strategies. It was a time of great hope as well as of great despair for many big businessmen. Our first cover story posed the question: Will the 1990s belong to the Tatas? The group was seen as having missed much of the action in the 1980s, and the question was particularly pertinent. As it turned out, while the Tatas did okay in that particular decade, the next one was really the time when Ratan Tata expanded the group overseas dramatically to become one of the country's truly globally-focused groups.

Meanwhile, another of our covers flagged the problems Vijay Mallya was facing, and asked the question: Is Vijay Mallya Broke? He was in a tight spot and selling assets, but he pulled through that time, though he made some of the same mistakes two decades later, which is why he has lost most of his empire now.

The 1990s were also a time of great churn in management theory, and globally all big corporations were embracing new management movements, from TQM to re-engineering. These, along with economic reforms at home, completely changed the environment for Indian business houses.

Business Today was the first magazine to start reporting on the new management revolutions, and we had an entire section focused on new management trends. We also started our *BT500*, a listing of India's biggest listed companies by market capitalisation.

As a magazine, *Business Today* pioneered many new surveys, to identify the best in class in different areas. In 1994, long before banking became such a hot area of business coverage, we had kicked off the Best Banks Survey. In 2007, we were the first publication to start a special issue focused on India's Coolest Start-ups, an annual survey that has become the most important survey of entrepreneurs and start-ups in the country.

We started the annual ranking of the Best Companies to Work For in 2001, the yearly ranking of Best B-schools in 2003, and a ranking of India's best small and medium companies in 2009.

We were also among the first to start the business confidence survey in the year 2011.

When *Business Today* published its first issue, India was the world's 15th biggest economy with a GDP of $293 billion at current prices. Today, as I write this letter, it is the world's seventh biggest economy with a size of $2.2 trillion. It is expected to become the third-largest economy in the world by 2025. A combination of market size, young workforce, and slowdown in major developed markets are all propelling India to the forefront of international economic growth. Today, I firmly believe that India is poised at the cusp of unstoppable dramatic growth if the government goes ahead with the much needed second stage of economic reforms.

Over the past 24 years, *Business Today* has chronicled both the best times and the worst times of the Indian economy and the corporate sector. We have profiled Indian businessmen who have risen to run global business entities, and also those who have crashed and burnt and lost their empires after a series of missteps. We have chronicled the boom years of the global economy, the rise of the first dotcoms, the subsequent crash of 2001/02, and the global economic boom that followed in the first decade of the new millennium, before the crash induced by the Lehman Brothers crisis.

But as we enter our 25th year of publication, the time has come to see what we need to do in the next 25 years to become a global superpower, not just in terms of our economic size, but in every area. And for that, we invited some of the foremost experts in India and abroad to write about what the country needs to do in specific areas to take its rightful place in the global power league.

AROON PURIE

Excelling Through Innovation

This refers to your special issue on chief executives in India (*India's Best CEOs*, January 3, 2016). For me, the CEO means: *Chief* of a company ensures and makes its *Earnings* best at *Operational* levels as long as he is CEO of that company. The CEOs package has analysed well how these men and women have excelled through technological innovations, especially when the economy is crawling. All credit goes to the *BT* team.

Mahesh Kumar, *New Delhi*

Revamping Bankruptcy Law

This refers to the interview with T.K.Vishwanathan (*New Bankruptcy Law Is Necessary for Reviving Economy*, January 3). It was an interesting interaction lucidly unfolding plenty of information and throwing fresh light on the whole gamut of insolvency issues, jurisdictional infirmities, jurisprudential inadequacies, and the urgent need for complete revamping of the bankrupt legal framework. Truly, Vishwanathan did a marvellous job of drafting the recommendations in February 2015, ranging around 12 existing laws and innovation, to script a concrete Insolvency and Bankruptcy Code 2015 Bill to be adopted by Parliament. It is an uphill task being carried out with exemplary coverage of global practices and requirements to chisel the desirable Act comprehensively. The Centre should ensure that the insolvency regulator is given requisite teeth, and placed outside the ambit of governmental control giving it independent authority and practical autonomy to safeguard it from hierarchical submission, political lobbying, nepotistic prejudices and subjective pressures.

B.Rajasekaran, *Bangalore*

A Nursery Rhyme for Maggi

This refers to your story on Nestle's Maggi returning to the Indian market after a gap of several months. (*Resurrection*, December 20). The Maggi episode has inspired me to compose a variation of the age-old nursery rhyme *Twinkle twinkle little star*.. (albeit mostly in Hindi)

My new rhyme goes: *Twinkle twinkle meri Maggi/ Firr sey nikal karr aagey bhaagi/ Up from the shelves you quickly fly/ Other brands peechchey reh jaaey/ Taste tera hai sab sey nirala/ Sab ke hearts ko jeetein walla/ Maggi hi hai sab sey aagey/ Baaki sab brands dumm dabba karr bhaagey/ Prem se khaao prem se khilaao/ 'Jai ho' Maggi ki, boltey jaao!*

J.S. Broca, *New Delhi*

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Vol. 25, No. 1, for the fortnight January 4-17, 2016. Released on January 4, 2016.

• Editorial Office: India Today Mediaplex, FC 8, Sector 16/A, Film City, Noida-201301; Tel.: 0120-4807100; Fax: 0120-4807150 • Advertising Office (Gurgaon): A1-A2, Enkay Centre, Ground Floor, V.N. Commercial Complex, Udyog Vihar, Phase 5, Gurgaon-122001; Tel.: 0124-4948400; Fax: 0124-4030919; Mumbai: 1201, 12th Floor, Tower 2 A, One Indiabulls Centre (Jupiter Mills), S.B. Marg, Lower Parel (West), Mumbai-400013; Tel.: 022-66063355; Fax: 022-66063226; Chennai: 5th Floor, Main Building No. 443, Guna Complex, Anna Salai, Teynampet, Chennai-600018; Tel.: 044-28478525; Fax: 044-24361942; Bangalore: 202-204 Richmond Towers, 2nd Floor, 12, Richmond Road, Bangalore-560025; Tel.: 080-22212448, 080-30374106; Fax: 080-22218335; Kolkata: 52, J.L. Road, 4th floor, Kolkata-700071; Tel.: 033-22825398, 033-22827726, 033-22821922; Fax: 033-22827254; Hyderabad: 6-3-885/7/B, Raj Bhawan Road, Somajiguda, Hyderabad-500082; Tel.: 040-23401657, 040-23400479; Ahmedabad: 2nd Floor, 2C, Surya Rath Building, Behind White House, Panchwati, Off: C.G. Road, Ahmedabad-380006; Tel.: 079-6560393, 079-6560929; Fax: 079-6565293; Kochi: Karakkatt Road, Kochi-682016; Tel.: 0484-2377057, 0484-2377058; Fax: 0484-370962 • Subscriptions: For assistance contact Customer Care, India Today Group, A-61, Sector-57, Noida (U.P.) - 201301; Tel.: 0120-2479900 from Delhi & Faridabad; 0120-2479900 (Monday-Friday, 10 am-6 pm) from Rest of India; Toll free no:1800 1800 100 (from BSNL/ MTNL lines); Fax: 0120-4078080; E-mail: wecarebg@intoday.com
• Sales: General Manager Sales, Living Media India Ltd, B-45, 3rd Floor, Sector-57, Noida (U.P.) - 201301; Tel.: 0120-4019500; Fax: 0120-4019664
• **Printed & published by Ashish Kumar Bagga on behalf of Living Media India Limited. Printed at Thomson Press India Limited, 18-35, Milestone, Delhi-Mathura Road, Faridabad-121007, (Haryana). Published at K-9, Connaught Circus, New Delhi-110 001. Editor: Prosenjit Datta**
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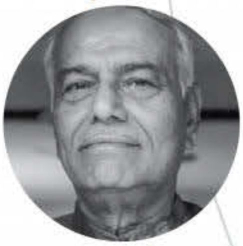

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Ideas for The Next 25 Years

Yashwant Sinha, Montek Singh Ahluwalia, M.S. Swaminathan, Bibek Debroy, Chandra Shekhar Ghosh, Bindu Ananth, K. Srinath Reddy, Henk Bekedam and many more...

It is conventional for most publications to devote the new year's first issue at either looking back at the year gone by, or making predictions about what the new year will bring. At *Business Today* though, we like to take a slightly longer view. This is why we decided not to look at what India needs to do in a range of economic and other policy areas in the next one year, but what it needs to do in the long term to take its rightful place at the high table of the global economy.

The Year 2016 is significant because it marks the 25th anniversary of the new direction the country's economic planners decided to take in 1991, and which has resulted in India becoming the seventh largest economy in the world. Over the next 25 years, India will become the third most important economy in the world, after China and the US, and will probably continue adding more growth momentum.

It is therefore a good time to think about what the country should do to become a genuine economic and political superpower. We asked some of the sharpest economic, political, military and foreign policy experts in India and abroad to look into the future and prescribe steps that the country needs to take to achieve its true potential. The 33 essays in this issue contain insights and ideas on subjects as diverse as budgeting, taxation, financial inclusion, social security, waterways, solar power, military strategy, foreign policy and administrative reforms.

RAJ VERMA

Economy

Innovations Can Jumpstart Our Manufacturing

BY PAWAN MUNJAL

VIVAN MEHRA

ABOUT: Services now account for over half of our GDP, but manufacturing is about 17 per cent. If India has to cater to the growing needs of its 1.3 billion people, it needs to find an alternative to forex-guzzling import of products ranging from mobile phones and cars to consumer goods and shoes. India needs to design and manufacture its own products. **Hero MotoCorp Chairman, Managing Director & CEO, Pawan Munjal,** explains how India can become a globally competitive manufacturing nation capable of designing and developing products that are acknowledged as the best in the world.

I find writing this article quite timely. I recently visited the Silicon Valley in the US, where I met some of the brightest minds engaged in path-breaking design and innovation. I have been a frequent visitor to the Valley. On this occasion, too, I visited the Google campus and spent some time listening to their young scientists working on the much-vaunted driverless car. I also made a trip to some other marquee names in the technology space and interacted with the members of their leadership teams.

What impressed me the most on this trip was the slew of ideas and projects that these teams are working on, which, if successful, will significantly impact human lives in various ways.

My biggest takeaway from this visit was the realisation that if Indian manufacturing wants to compete with China and the other economic super powers, we must think 20-30 years ahead. Today, we barely think beyond five, at best.

Fortunately, we have started widening our horizons, especially with Prime Minister Narendra Modi's Make in India initiative. The aspiration is to expand the manufacturing share in India's GDP from the current 15 odd per cent to 25 per cent by 2022. More importantly, the manufacturing sector is expected to generate 100 million additional jobs by that year. There are three areas to be earmarked before we chart the course of manufacturing

AJAY THAKURI

SHEKHAR GHOSH

growth. In today's connected and globalised world, the consumer uses and disposes off products and devices much faster than before. This is pressurising the entire system to develop products faster and better.

Second, over the past five years or so, there is much greater sensitivity around resource productivity (energy efficiency, recycling), climate change (emission norms) and sharing benefits with the community (land acquisition law, corporate social responsibility). Those days are gone when manufacturers were able to get away by ignoring these issues. The needs and concerns of relevant stakeholders now have to be addressed much more transparently.

Third, and most crucially, technology, digitisation and the sharing economy are disrupting the entire value chain, including manufacturing. Higher automation, the use of robots, and 3D printing are transforming manufacturing processes. As a result, the role of manufacturing in delivering customer value is getting redefined.

I have a slightly contrarian view from most observers with regard to manufacturing exports. I believe that as a country, it is important not to bank entirely on manufacturing exports. Expanding the domestic market is also crucial. Second, there is a need to devise a holistic manufacturing-service-technology package in line with 'new' customer expectations.

Concepts such as smart factories, which produce a variety of products using shared resources and employees with high levels of automation and digital engagement, will enable us to produce good quality products faster and cheaper

Third, it is important to proactively address the needs and concerns of stakeholders, given the growing disparity between haves and have-nots that some business ventures may accentuate or accumulate unintentionally. Therefore, I strongly believe that as a country, we need to focus on Solve for India along with Make in India.

Overall, accelerating economic growth and generating more employment through manufacturing should revolve around three premises. One, India must seek to become not just a manufacturer of goods and provider of services, but a solution provider to the needs and problems of tomorrow's society. Two, we need to create additional value for the consumer and thus, three, we need to create newer domestic markets to reduce the de-


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pendence on foreign markets. The insulation factor will become especially crucial during the uncertain global times we live in, where exports in dollar terms have declined for 12 consecutive months.

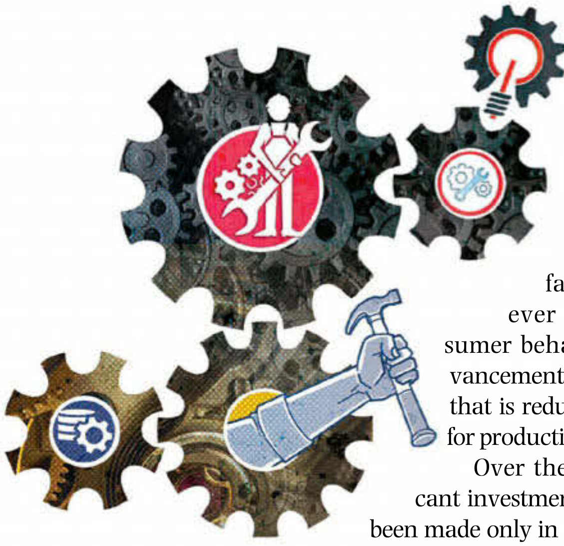
To sustain manufacturing growth, we need to be drivers of innovation in technological advancements. We should be able to adapt to new technologies in case we are not in a position to create these. Innovation in automation will be an integral arm of manufacturing and will guide the way in which industry and the people in it will work, so we need to stay in sync.

Concepts such as smart factories – which produce a variety of products using shared resources and employees with high levels of automation and digital engagement – will enable us to produce good quality products faster and cheaper. The increasing interface between the physical and digital world will lead to developing new production processes and materials, and innovating supply chains and distribution channels.

In this scenario, the government must also play a crucial part. There is some evidence of traction, especially in the areas of policy and regulation reforms, entrepreneurship development, clusters and workforce development programmes. However, in order to compete in a global playing field, skill and knowledge augmentation requires much stronger focus.

In 1990, India and China had almost the same GDP per capita. Since then, through effective policy and execution, China has grown far ahead of its southern neighbour and, today, finds itself at the top of the world's manufacturing pyramid.

To catch up, India needs to develop its manufacturing sector for the long-term future and, quickly! As



India must seek to become not just a manufacturer of goods and provider of services, but a solution provider to the needs and problems of tomorrow's society. We need to create additional value for the consumer and thus, we need to create newer domestic markets to reduce the dependence on foreign markets

I said earlier, we need to plan 20 years or may be even 30 years ahead, factoring in the ever evolving consumer behaviour and advancements in technology that is reducing lead times for production.

Over the years, significant investments in R&D have been made only in government institutions. The private sector still has a long way to go to bring about a change in culture and approach towards research, design, innovation and development.

In the recent past, a handful of Indian corporates have begun seriously investing in R&D. But, what we need is a cohesive and comprehensive approach that will ensure a suitable environment for the growth of manufacturing. Besides, adequate infrastructure support, including giving the necessary freedom and space to scientists, engineers and incubators to think and create technologies and systems for the world.

The new Hero Global Center of Innovation & Technology in Jaipur is one such step – towards developing a holistic R&D ecosystem that will enable competitive, efficient and advanced future mobility solutions. The center will aspire to become a hub of innovation – an inspiration for the engineers to believe that a world class facility is now available in India.

Quite clearly, setting global benchmarks in manufacturing in India will be the next logical step and, to ensure this, there must be increased interaction between industry and the academia to ensure researchers, engineers and upcoming young minds in the country – all are aligned towards a common goal. ◆

Enduring Value

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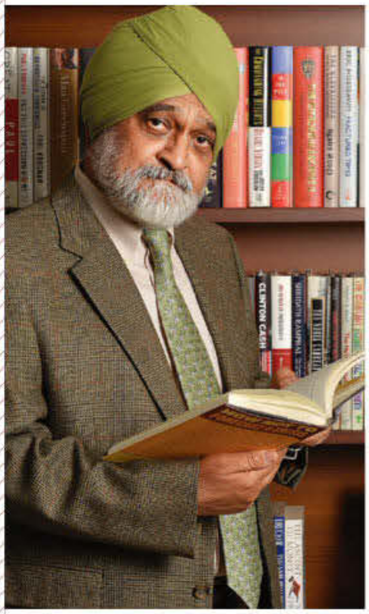
Economy

Ideas for the Budget of the Future

BY MONTEK SINGH AHLUWALIA



SHEKHAR GHOSH

ABOUT: India is already the seventh biggest economy in the world today when measured by nominal GDP. It is also the fastest-growing major economy. And it is expected to be the world's third-biggest economy by 2050, or perhaps even earlier. But just becoming a big economy is no good if you do not know how to balance your budget. In this column, **former deputy chairman of the Planning Commission, Montek Singh Ahluwalia,** prescribes what the governments of the future should aim for, in terms of deficit, expenditure and raising of resources.

Twenty five years is a horizon over which serious structural change is really possible. So here is my wish list for what future Budgets, and Budget processes, should be.

Fix the FRBM Act

India's fiscal deficit (Central and state governments combined) is about seven per cent of GDP, whereas the average of the G-20 emerging market countries was 2.7 per cent of GDP in 2014. The Fiscal Responsibility and Budget Management (FRBM) Act 2003 was meant to bring deficits under control, but it has not worked. The Act became effective in July 2004 and worked well for the first few years when the combined fiscal deficit declined from 8.9 per cent of GDP in 2003/04 to 4.1 per cent in 2007/08. The government resorted to a fiscal stimulus following the global financial crisis of 2008, and this raised the fiscal deficit to 8.4 per cent of GDP in 2008/09. The initial stimulus was, perhaps, justifiable, but it should have been reversed by 2010/11 because the economy had recorded a growth of 8.6 per cent in 2009/10. It was not reversed as it should have been, and we are still way off the target.

The FRBM can work only if Parliament is vigilant about ensuring fiscal discipline. Unfortunately, finance ministers know that they will be applauded for tax cuts and also for announcing increases in expenditure, and what this does to the deficit does not receive the scrutiny it deserves in Parliament. It is noticed only in the business press, if that. The FRBM Act is also deeply flawed because it

RAJ VERMA

makes no allowance for flexibility in the fiscal deficit target to respond to short-term considerations. This problem can only be solved by scrapping the present FRBM and introducing a modern legislation. What would a modern FRBM look like? It would have a fully stated rationale for the fiscal deficit trajectory instead of the arbitrary target of three per cent of GDP used thus far, and it would have a built-in mechanism for flexibility in modifying the fiscal deficit.

The rationale for the fiscal deficit target must come from an explicit targeting of the debt to GDP ratio, which is what financial markets worry about when they assess macroeconomic health. At present, India's debt to GDP ratio is about 66 per cent, whereas that of the average of G-20 emerging markets is 42.5 per cent. It would be reasonable to target a reduction in the debt to GDP ratio to say 50 per cent, to be reached by a particular year (say 2020). Since the fiscal deficit in any year is equal to the addition to the total debt at the end of the year, a particular trajectory for the fiscal deficit as a percentage of GDP, with some assumption about the growth of nominal GDP, yields a particular trajectory for the debt to GDP ratio. The Central government should determine a path for the consolidated fiscal deficit which yields the desired consolidated debt to GDP ratio, allocate some part of the consolidated fiscal deficit to the states and take up the residual borrowing for itself as the Centre's fiscal deficit. However, this will help only if there is a mature realisation that high fiscal deficits have damaging effects on the economy.

Turning to the issue of year-to-year flexibility in fiscal targeting, we need to ensure that a temporary fall in the growth rate of nominal GDP, either because

If expenditures have to increase by 4 to 5 percentage points of GDP and the fiscal deficit must also fall by around 3 percentage points, then ***revenues as percentage of GDP must increase by around 7 to 8 percentage points of GDP*** real growth has fallen below the structural "potential" or because inflation is temporarily lower, does not force a reduction in the fiscal deficit in absolute terms, simply to meet the target fiscal deficit as a percentage of GDP. The solution lies in defining the target in terms of the "structural deficit", which is calculated on what would have happened if GDP had equalled the potential real GDP, and inflation had been on target. The realised fiscal deficit can then be higher than targeted, as long as the structurally adjusted deficit is on target. This does not mean that repeated shortfalls in growth can justify repeatedly exceeding the fiscal deficit target. If, over time, growth keeps falling short of the originally assumed potential growth rate of GDP, it will be necessary to acknowledge that the growth potential has changed and the fiscal deficit trajectory must then be revised.

This raises the question whether Parliament should just rely on the finance ministry's assessment of underlying trends in structurally adjusted fiscal deficits. The issues are complicated and need expert analysis, but relying on the finance ministry presents an obvious conflict of interest. In the US, for example, the Congressional Budget Office provides independent assessments of the impact of the Budget to the US Congress. Perhaps the CAG should be tasked with doing this analysis at the time of the budget and the mid-year reviews, and presenting a report to Parliament. It would need to set up a special cell with fiscal experts and macroeconomists who can deal with these complex issues and answer questions on these issues.

Strategies for future budget must address the issue of what should be the level of government expenditure? India's **consolidated government expenditure,** *as a percentage of GDP, is 26.6 per cent, which is significantly lower than the average of the G-20 emerging market countries,* **which is 31.7 per cent**

Level of Expenditure

Many people worried about high fiscal deficits tend to argue that expenditure should be cut. While this may be necessary in an emergency, the correct approach is to determine the level of expenditure that we need and then, given the fiscal deficit that is acceptable, try to raise revenues to cover the expenditure. From this perspective, it is clear that we are not spending enough compared with other countries. India's consolidated government expenditure, as a percentage of GDP, is 26.6 per cent, which is significantly lower than the average of the G-20 emerging market countries which is 31.7 per cent. These countries are of course at much higher levels of GDP per capita; but if we are looking 25 years ahead, we should assume that government expenditure (Centre and states combined) should be at least 4 to 5 percentage points of GDP higher. This is actually a fairly modest estimate since it is widely accepted that we need to spend an additional 2 percentage points each on health and education.

There are many other areas where additional expenditure is needed which can only be accommodated if some expenditure items are cut. Obvious candidates for pruning in the Centre's Budget are subsidies on fertilisers which should be converted into a cash subsidy per acre of land cultivated, as has recently been done in Sri Lanka. The JAM platform enables this to be done.

Mobilising Tax Revenue

If expenditures have to increase by four to five percentage points of GDP and the fiscal deficit must also fall by around three percentage points, then revenues as percentage of GDP must increase by around seven to eight percentage points of GDP. Contrary to the widespread impression among business circles that

India is over-taxed, the fact is that India's consolidated revenues are less than 20 per cent of GDP, whereas the average of G-20 emerging market countries is 29 per cent! These countries have much more substantial social security expenditures which are financed by contributions which form part of government revenues. There are pressures in India to increase social security payments and these are objectively justifiable, but they can only be sustained if additional revenues are generated.

If the additional revenue target is set at seven to eight per cent of GDP it can be divided into an additional five per cent of GDP for the Centre and two to three per cent for the states. This implies that the Centre's budget-making must move decisively to mobilise tax revenues and other revenues to this extent over the next five years. What does this imply for tax administration?

First, we must acknowledge that revenues from customs duties should be expected to shrink. This is because our customs duty rates are higher than those in other developing countries and in a globalising and increasingly integrated world, it does not make sense to have duty levels much above those of other countries. Besides, we are signatories to the ASEAN Free Trade Area, (and are negotiating with RCEP) and under the ASEAN agreement, duties on a wide range of imports from these countries will be gradually reduced over the next few years. It makes no sense to grant low or zero duty access to imports from these countries, while maintaining high levels of tariffs for other countries. Any feared loss of competitiveness for our domestic manufacturers is much better corrected by having an appropriate exchange rate. The Real Effective Exchange Rate of the rupee, according to the RBI's index, shows a significant appreciation in real terms which perhaps needs to be corrected.

A useful change would be to abandon the present system of Budget secrecy. It serves no purpose other than blocking serious discussion of complex issues before the budget for fear of violating budget secrecy. There would need to be an understanding with Parliament that the abandonment of budget secrecy would not be a breach of Parliamentary privilege

The fall in customs revenues should not cause concern because customs should not be seen as a source of revenue, but as a means of preventing contraband and illegal imports. The revenue loss can be offset by a strong domestic indirect tax system. The GST is the key element in this context. There is a broad political consensus that a sound GST will help boost revenues by countering leakages and also increase efficiency and thereby raise growth. There are political differences that are as yet unresolved, but hopefully these will be resolved soon and the GST will be put in place.

There are many ideas in the world of direct taxes that should find their way into future budgets. As far as Corporation Tax is concerned, it has already been announced that the rate of corporate tax will be gradually reduced from 30 to 25 per cent with an elimination of exemptions. This is desirable and it will bring our corporation tax rates closer to international levels, but they will still be above the average. In the area of personal income tax, the main thing to worry about is that the level of income after which tax begins to be charged is too high. It is almost three times the per capita GDP, whereas the same multiple is lower in most other countries. It is probably not practical to lower the existing limit, but it would be desirable to fix a level in relation to per capita GDP and then freeze the present level for zero taxation until the rising per capita GDP brings it to the declared level as a multiple of per capita GDP. Thereafter, the level can be adjusted upward periodically.

Modernising Tax Administration

The present structure of the Revenue Department, with two separate Boards one for indirect taxes and another for direct taxes, is completely out of line with international practice. It is based on the old British practice which was

given up in the UK some years go. Some future Finance Minister should give thought to the need to integrate the two Boards into one. There are many synergies in revenue administration that would emerge if this were done. There will be resistance from the existing cadres because of the usual turf issues, but this can be overcome with sufficient advance planning. The integrated Board should be chaired by a revenue service officer as principal secretary, reporting directly to the finance minister. The present system where an IAS Officer heads the Revenue department should be abandoned. Given the specialised nature of Revenue administration, it is difficult to believe that a generalist from the IAS, acting as an interface with the Minister, can add value.

The integration of revenue administration into a single Board should be accompanied by the creation of a strong tax policy and a unit outside the Board, but within the finance ministry, responsible for tax issues. Tax policy is a finance ministry function, but it should not be dominated, as it is today, by the tax collection machinery. The tax policy unit should be well-staffed with revenue service officers and other specialists such as economists, lawyers, chartered accountants, etc. The unit should include a representative of the Chief Economic Adviser in the finance ministry. In the UK, this unit also has sociologists and psychologists advising on how tax issues will be perceived and how they should be sold to the public. The revenue administration should of course have the right to propose changes in tax policy, but their proposals should be considered by the tax policy unit which should make recommendations to the finance minister."

An important change which is overdue would be to abandon the present system of Budget secrecy. It serves no purpose other than blocking serious discussion of complex issues before the budget for fear of violating budget secrecy. There would need to be an understanding with Parliament that the abandonment of budget secrecy would not be a breach of Parliamentary privilege.

Contrary to the widespread impression among business circles that India is over-taxed, the fact is that India's consolidated revenues are less than 20 per cent of GDP, whereas the average of G-20 emerging market countries is 29 per cent

Abandon Separate Rail Budget

The practice of presenting a separate Railway Budget is an anachronism that should be got rid of. Ideally, the Railways should be made into a separate public sector corporation and operate with the flexibility which this involves instead of as a department of government which is the case at present. Railway workers and their unions need to be persuaded that they will not lose in any way. If necessary, all existing workers may be given the option of continuing as government servants until they retire. China took this step a few years ago and even abolished the erstwhile ministry of railways. We need not go that far, as the railway minister needs to be the interface with Parliament answering Parliament questions on Railway performance, but converting Indian Railways into a public sector corporation would give the Railways much more freedom.

Finally, I hope that in the years to come, the Budget will not be seen as the principal vehicle for announcing reforms as it has become. Reforms should be an ongoing process with public discussion on how to proceed in different areas, through the year. The Budget should focus much more on the macroeconomic health of the economy, and the establishment of a tax system that embodies global best practice. ◆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RAJWANT RAWAT

Economy

Bring Clarity in Taxation

By YASHWANT SINHA

ABOUT: It would be a travesty if India's economic growth were to be a prisoner of an antiquated tax regime, multiple and over-lapping tax structures and corrupt compliance officials. Can the economic interests of the Centre, the states and local bodies ever align to agree on a simple, transparent and a just taxation formula? Or, will that remain a Utopian thought? **Former Union Finance Minister Yashwant Sinha** puts together his thoughts on how India must handle its tax reforms challenge.

Man created the State to govern society. The State levied taxes to run the government. Over a period of time, taxation was used to achieve other socio-economic and political objectives. The nature of taxation changed and it became more and more complex. Now we are struggling to make it simpler. Collecting taxes is also always a struggle because most people are reluctant to pay taxes or come within the tax net. Tax avoidance and tax evasion pose a continuous challenge for any tax administration.

Since there are many kinds of taxes in India – levied by the government, the state governments and the local bodies – taxation reform has been a continuous exercise. Starting with the Taxation Enquiry Commission in the early 50s to the Subramanian committee on Goods and Services Tax (GST) of 2015, the shelf is full of learned reports on what should be done to reform taxation in India. They have also reflected from time to time the social philosophy of the government of the day. During the socialistic era, we believed that the State should collect high taxes from the rich in order to spend it on the welfare of the poor. With liberalisation came moderation in taxes and a great deal of simplification, but the philosophy of taxation has not yet been clearly defined and there is no national consensus on this issue. As a result, every finance minister has used the annual Budget to make changes in the tax system according to his whims and fancies.

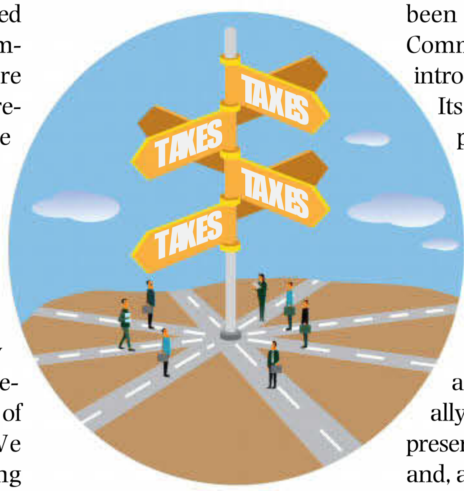
This has made taxation in India extremely complex.

When I was the Finance Minister, I followed a simple principle on the direct taxes side, which was that all incomes must be taxed. On the indirect taxes side, the principle I followed was that if profit was the motive for an economic activity, then that profit must be taxed. Obviously, while the principles I followed were simple, their implementation was complex. What was the definition of "income"? How did one deal with specific exemptions that served a desirable economic activity or a national socio-economic goal? What should be the threshold after which tax would be levied? How many slabs should there be and what should be the rate of tax for each slab? The advent of modern technology in business and the globalisation of business posed their own challenges. One faced similar challenges on the indirect taxation side, including import tariffs.

Tax administration posed its own challenges. There was always a conflict between voluntary compliance and coercion. Tax rates, the behaviour of tax officers, the system of assessment and appeal, discretionary powers of tax officials, the cost of collection and personnel management were issues that could not be swept under the carpet. Ultimately, the best tax system is always in danger of degenerating into a tool for harassment of the tax payer if the people implementing it are not informed with best intentions. In spite of all the improvements and reforms that have taken place in the Indian taxation system, the situation even today is chaotic, to say the least. It is out of this chaos that the concept of a new Direct Taxes Code, to replace the Income Tax Act of 1961, and the idea of a GST have emerged, and the future of taxation of India lies in the successful passage of the related legislations and their effective implementation. Once these two are put in place, all the excitement relating to Part B of the Finance Minister's Budget speech would become a thing of the past, and durability and predictability of the tax system will automatically be put in place.

The Direct Taxes Code Bill was introduced in Parliament by the UPA government and was referred to the Standing Committee of Finance, which I chaired. We worked hard and, after consulting the major stakeholders, submitted our report in March 2012, well before the presentation of the Budget. But the UPA government did not bring it back to Parliament. I was hoping that the new NDA government would apply its mind and bring the Bill back to Parliament. I was disappointed, therefore, when the Finance Minister declared in his very first Budget speech that he had no wish to do so since many of the recommendations of the Standing Committee were already incorporated in the Finance Bill. This is simply not correct. The Committee had recommended, for instance, that the exemption limit should be raised to ₹3 lakh; that the slabs should be linked to the rate of inflation, which should be automatically revised each year. It had recommended that incentives/ exemptions for both individuals and businesses should be made investment linked. It had also said that accountability of officials should be clearly fixed and unwarranted actions and orders on their part must lead to disciplinary proceedings. These issues are still pending.

In spite of all the improvements and reforms that have taken place in the Indian taxation system, the situation even today is ***chaotic****. It is out of this chaos that the concept of a new* ***Direct Taxes Code****, to replace the Income Tax Act of 1961, and the idea of a GST have emerged, and the future of taxation of India lies in the successful passage of the related legislations and their effective implementation*



More importantly, the whole issue of GAAR (General Anti Avoidance Rules) appears to have been indefinitely postponed. The Committee had recommended its introduction with some safeguards. Its postponement serves no purpose, except deferring the doomsday. GAAR is prevalent in many countries and, therefore, there is no reason why it should not be introduced in India as part of the Direct Taxes Code.

The Finance Minister has announced that he will gradually reduce corporate tax from the present 30 per cent to 25 per cent and, at the same time, do away with various exemptions. I wish him luck. During one of my Budget exercises, I remember reviewing each and every exemption with a view to putting an end to as many as possible. I could only abolish a few because all the others served some socio-economic objective. It is also accepted wisdom that corporate tax rate should match the highest slab of personal income

tax, which stays at 30 per cent. The above are only few issues on which decisions are pending. The Direct Taxes Code could put an end to all the uncertainties and give the country a new, clean start in a finally reformed taxation system.

> *The Standing Committee had recommended that the exemption limit should be raised to ₹3 lakh; that the slabs should be linked to the rate of inflation, which should be automatically revised each year. It had recommended that incentives/ exemptions for both individuals and businesses should be made investment linked*

On the indirect taxes side, the GST is the logical culmination of the reforms that have taken place in the past. The introduction of CENVAT was a big reform, so was the levy of service tax for the fast-growing service economy of the country. Similarly, the replacement of State Sales Tax by VAT was a huge step forward. As the Standing Committee on Finance had observed in its 73rd report of August 2013 on GST, "by replacing a large number of taxes levied by both the Centre and the states, the GST would integrate the tax base and allow seamless flow of input tax credit across the value chain of goods and services. This would eliminate multiplicity of taxes, cascading of taxes and result in overall simplification of the indirect taxation regime. As the credit chain will function only if all the transactions are recorded, GST would lead to improved disclosure of economic transactions, which may have a positive impact on direct taxes collections also". Most importantly, it would weave India into one common market. Thus, GST is an extremely essential indirect taxes reform and it is a pity that it is still held up in Parliament.

On the Customs side, a lot of reform has already taken place and we are close to ASEAN rates. It is another matter that vested interests still try to put pressure to tweak rates. This should be avoided at all costs. Similarly, discretionary exemptions should be done away with. A major challenge remains, however, as far as customs procedures are concerned. Further simplification of these procedures will lead to smoother movement of goods and services across borders.

I am totally against the Finance Minister reading out a '*dhobi*' list, in his Budget speech, of items on which either CENVAT or customs duty has been reduced or raised. I am also against the secrecy surrounding the taxation proposals in the Budget. The introduction of the Direct Taxes Code and the GST would largely eliminate the need for Part B of the Budget speech and the introduction of a bulky Finance Bill year after year. If, still, some urgent changes become necessary, they could be made at any time during the year without waiting for the Budget. Proposals for changes especially on the indirect taxes side should first be introduced in Parliament only as proposals. They should be thoroughly discussed with all stakeholders and implemented only after revised proposals, if any, have been considered and approved by Parliament.

We have finally arrived, through a long and tortuous process, at the end of our search as far as taxation reforms are concerned. Let the year 2016 go down in history as the year in which we reached our destination. ◆

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Economy

The Right(s) Perspective on Populism

By REETIKA KHERA

SHEKHAR GHOSH

ABOUT: Developing countries neither have the resources nor the inclination to provide security of health, education and minimum living expenses to each citizen. Hence, search for wellbeing has been one of the biggest reasons for migration from least developed countries to developed countries. But with India gaining strength, both economically and geo-politically, perhaps it's time to give every Indian a social security net. **Reetika Khera**, **Associate Professor, Humanities and Social Sciences Department, IIT-Delhi**, outlines how we can achieve the goal of 100 per cent social security.

In November 2004, when the National Rural Employment Guarantee Act (NREGA) was being debated, one commentator remarked that the draft had "entered national policy debates like a wet dog at a glamorous party." As I sat down to write for *Business Today's* glamorous end-of-the-year issue, I felt a lot like that wet dog.

The reason is this – much more than before, public discourse in the mainstream, especially business, media has become hostile to social policy. Social policy, in this context, includes health, education, social security and related issues such as right to work and right to food. Here are my four wet dog wishes.

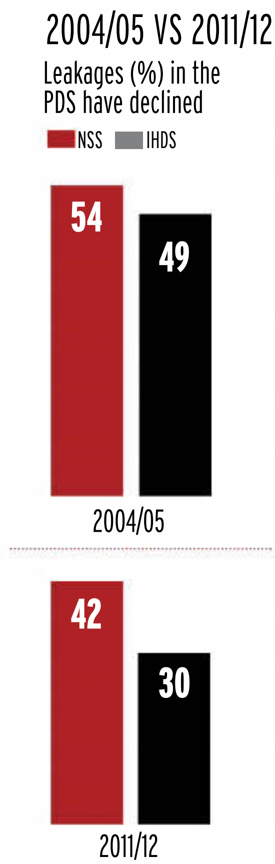
Safeguarding the legal framework

Since 2005, the right to work is partially guaranteed by NREGA. The Right to Education (RTE) Act made elementary education a legal right in 2009. In 2013, the passage of the National Food Security Act (NFSA) was a step towards ensuring the right to food. The NFSA is not just about selling subsidised grain through the Public Distribution System (PDS). One of its main contributions is the recognition of maternity entitlements for all women. It is another matter that it provides only ₹6,000 per child, and even that the government has made little effort to operationalise. The NFSA also upholds food entitlements under the Integrated Child Development Services (ICDS) Scheme for children under six years and the Mid-Day Meal (MDM) scheme for school-going children.

AJAY THAKURI

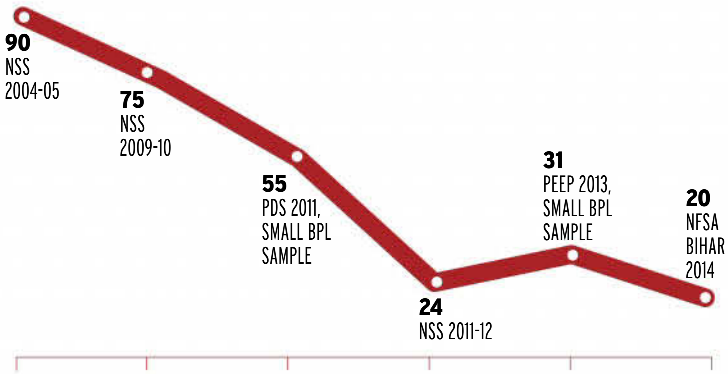
The framework for legal entitlements is clearly laid out in the preamble to the Constitution, which aspires to achieve social, political and economic justice and to guarantee equality of status and opportunity. In recent times, there appears to be a widespread perception in the mainstream media that India has gone overboard in creating legal safeguards for socio-economic rights. In one speech, the prime minister reportedly said that we needed "action not Acts" (as if Acts pre-empt action).

Is India unique in enacting laws to guarantee its citizens basic rights such as education, food and employment? The evidence suggests otherwise. Apart from the richer European countries, which have extensive legal provisions for such rights (including the right to health, non-existent in India), even among the BRICS countries there is plenty of legal protection. The post-dictatorship Brazilian Constitution from the 1980s and the post-apartheid



NSS is National Sample Survey; IHDS is Indian Human Development Survey; Source: Dreze and Khera (2015), Understanding Leakages in the Public Distribution System, Economic and Political Weekly, 14 February.

PDS LEAKAGES (IN%) IN BIHAR



South African Constitution from the early 1990s aspire to more expansive safeguards, which have been gradually realised over time. For instance, in South Africa, these rights are for all residents, not just citizens. In India, critics of socio-economic legislations routinely use derogatory terms ("doles", "freebies", "handouts") to describe them. In fact, the "right" perspective on these programmes is the "rights" perspective.

Important gaps remain. Social security pensions and community kitchens, which were part of the draft NFSA, were ultimately dropped. The coverage of social security pension for widows, elderly and people with disabilities remains abysmally inadequate. Pensions sound grand, so it is worth reminding readers that the central government pays ₹200-300 per month as pension under these schemes (some, not all, states have topped up these amounts, bringing them up to ₹1,000 per month). The woeful state of health facilities is the biggest gap in India's welfare architecture. Health care in India needs urgent attention, before things go the way they have in the United States of America (USA) one fact that does not get adequate attention is that the US achieves poorer health outcomes at higher levels of per capita spending. This is primarily due to the widespread presence of private insurance (which drives up costs). Once private corporate interests are entrenched, it is difficult to reverse that model.

In spite of the shortcomings of the social welfare system – both in terms of the flaws in existing laws and the gaps in the legal framework – **research shows that these interventions do add up to something for disadvantaged groups**

In spite of the shortcomings of the social welfare system both in terms of the flaws in existing laws and the gaps in the legal framework research shows that these interventions do add up to something for disadvantaged groups. What is also clear by now is that cash transfers (such as pensions or maternity entitlements) and in-kind transfers (school meals, community kitchens and subsidised ration) need to be seen as complements rather than substitutes.

Better spending priorities

We must not be close-fisted about public spending on existing social security programmes. This expenditure must be viewed as an investment in our most abundant asset people.

A recent misconception is that India is spending too much on social welfare, creating a nanny state for the poor. In fact, India is a social underspender. As economist Jean Dreze pointed out last year, India is among the "world champions" as far as social under-spending is concerned. Public spending on health and education in India is less than 5 per cent of GDP lower than in Nepal, Sub-Saharan Africa and the least developed countries, the figures for all of which are 6-7 per cent of GDP. As if things were not bad enough, the last Budget announced drastic cuts the budget for the Integrated Child Development Services (ICDS) Scheme was initially halved (in August, extra funds were made available, but even that took it to about two-thirds of the previous year's budget). The hugely popular and successful Mid-Day Meal (MDM)

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Scheme faced a drastic reduction (from ₹13,215 crore to ₹8,900 crore). Increased devolution of tax revenues to the states is unlikely to compensate for these brutal cuts.

Another line of defence is that we do not have the "fiscal space" to do so. The budget numbers, however, do not corroborate this impression. Compared with 0.3 per cent and 1.5 per cent of GDP that is spent on NREGA and NFSA, respectively, military spending in India is 2.4 per cent of GDP. Tax breaks amount to about 3 per cent of GDP. There is some fiscal space, but it is being utilised only very partially on social welfare.

Of course, some of these tax breaks encourage investment or industry. Others are definitely questionable. For example, the tax relief to the gold and diamond industry (around ₹60,000 crore) is twice as much as the expenditure on NREGA (approximately ₹30,000 crore). It is thrice as high as exemptions to the textile industry, which is estimated to employ 45 million people (as opposed to about three million that work in the gems and jewellery industry).

Another aspect of the affordability argument is tax revenue. If tax revenues were more buoyant, that would also create more fiscal space. According to research by Piketty and Qian (2007), between 1986 and 2008, in China the proportion of the population that pays income tax increased from less than 0.1 per cent to about 20 per cent (later, it declined to 8 per cent). India has been stuck at 2-3 per cent.

It is somewhat worrying that as the country gets richer, instead of widening the scope and scale of social security, there has been an attempt to pass off contributory insurance and pension schemes as social security. This attempted rebranding and restriction of India's welfare system from its correct interpretation, which includes education, health and social security, seems to be in line with the recent unreasoned and unrelenting attack on social welfare.

It is nobody's case that there is no corruption in the implementation of these programmes or that we can condone it. However, the correct response to corruption, whether it is NREGA or NFSA or whether it 3G and coal scams, is to **find ways of fighting back**

Confronting corruption

It is nobody's case that there is no corruption in the implementation of these programmes or that we can condone it. However, the correct response to corruption, whether it is NREGA or NFSA or whether it 3G and coal scams, is to find ways of fighting back. Much has been learnt on how to do that – at least in the case of NREGA and the PDS – over the past few years. Sadly, the rhetoric has acquired a life of its own ("only 15 paise out of one rupee reaches the poor"), very often out of sync with facts.

What is the actual situation? As far as the PDS is concerned, several independent studies show that there has been an improvement on the leakages front: according to our own estimates using the National Sample Survey data, "leakages" have gone down from over 50 per cent (in 2004/05) to around 40 per cent (in 2011/12). Several other studies (including the India Human


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Development Survey, Delhi School of Economics, World Bank, etc) also document this improvement. The leakages were still high in 2011/12, but there is evidence of continued improvement in recent years, and every reason to hope that they can be reduced further. The decline has been more dramatic in states that have implemented the NFSA.

NREGA, too, has seen a reduction in corruption levels: the mismatch between government records and self-reported employment in 2011/12 was 5-32 per cent (depending on the data source), down from around 50 per cent in 2007/08.

Questioning public discourse

Disregarding evidence, influential commentators and think-tanks continue to fall back on studies that are ten years out of date, creating the impression that nothing has changed. In case of the PDS, a 2005 Planning Commission study (which was based on data for 1997-2001) continues to be cited for leakage estimates, even though more recent estimates are available. Most recently, a government committee, with the help of creative accounting, managed to show an increase in leakages. Even after the authors admitted to the erroneous calculations, some sections of the mainstream media continue to cite these estimates.

Using old statistical tricks (such as reporting only absolute levels of spending), the media helps create a distorted impression of social spending. For instance, NREGA and NFSA receive a lot of attention as high expenditure items. One financial paper ran a headline "Can We Afford ₹6 lakh crore food subsidy in 3 years?", instead of presenting the figure on an annual basis or as a percentage of GDP (the NFSA is 1.5 per cent of GDP).


SHEKHAR GHOSH

*Compared with **0.3% and 1.5 % of GDP** that is spent on NREGA and NFSA, respectively, military spending in India is 2.4 per cent of GDP*

Many of those who question these programmes often do so on the basis of timeless anecdotes ("in my village, PDS grain is of poor quality"). Interestingly, these same commentators ignore the wealth of rigorous evidence that presents a more balanced picture to accuse others of being ideologically driven!

The debate around NREGA assets is an apt example of this, where the derogatory remark by the prime minister in Parliament is at odds with the evidence. Yes, NREGA roads need regular repairs, but so do the roads in our cities.

Politicians and media are not the only sources of misinformation. Oddly, the Comptroller and Auditor General (CAG) seems to have joined the party. Its recent report on the MDM scheme betrays how it is innocently ignorant of the wealth of rigorous research in economics documenting the benefits of MDM on enrolment, attendance, nutrition and learning effort. Similarly, its report on procurement claimed a loss of thousands of crores to the government because it allows private millers to keep valuable paddy by-products. It fails to mention that this is standard practice (millers keep the by-products when they mill for private entities). Some media outlets unquestioningly reproduced the CAG's presumptive losses.

Social media allows us to remedy some of the undemocratic practices of mainstream media, politicians and others – many more of us should use this democratising development. ◆


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Financial Inclusion

Financial Products for Bottom of the Pyramid

By CHANDRA SHEKHAR GHOSH

SUBIR HALDAR

ABOUT: Since the economic reforms started in the 1990s, the depth and sophistication of financial products have been improving every year. But much of the focus of these products has been on rich and middle income consumers. It is recognised by everyone that without proper financial products for the have-nots, no real progress on financial inclusion can take place. **Chandra Shekhar Ghosh, Founder, MD & CEO, Bandhan Bank,** with his deep knowledge of microfinance in India, makes suggestions ....

At the outset, let me be candid about one thing — the term 'financial inclusion' is being used in India in a very narrow sense. The barometer of financial inclusion here is how many deposit accounts a bank is opening. Though bank deposits are critical, financial inclusion is more than that – we need to make available loans, insurance and other financial products as well. Have we been able to do that? No, but we have been trying.

It will be a success and we will be able to make access to formal banking services a fundamental right in India if we, the bankers, approach the subject in a slightly different way. Traditionally, the banking system has been reaching out to the masses in the hinterland due to push by the government and the regulator. We need to see business at the bottom of the pyramid.

According to the 2011 Census, 70 per cent of India's population lives in villages. If one looks at the distribution of bank branches in India, published by

AJAY THAKURI

the Reserve Bank of India (RBI) every quarter, one finds that little more than one-third branches — 37.73 per cent or 48,732 — are in rural areas (September 2015 RBI data). So, there is a wide mismatch. There is a geographical disparity too. Ratings agency Crisil's financial inclusion index (Inclusix) reports a score of 62.2 for the southern region and 28.6 for the eastern region. The RBI data support Crisil's findings. It shows that the eastern region has 16.25 per cent of all reporting offices and credit deposit, or CD, ratio of 44.47. The comparative figures for the southern region are 27.95 per cent and 88.22, respectively.

The JAM trinity — Jan Dhan Yojana, Aadhar and mobile banking — will give impetus to the work banks have been doing to achieve 100% financial inclusion.

Urban Exclusion

We must also remember that there is exclusion in urban pockets too, even in Mumbai and Delhi. There are reasons for the reluctance of the banking sector to reach out to the masses, particularly in rural India. The low transaction size and volume make cost an inhibiting factor. Technology can bring down costs but one needs to spend on the right kind of technology as even after putting in place the right platform, it may not always be smooth sailing for banks as connectivity is a major issue in remote rural pockets. Naturally, it takes long to make the business profitable. So, we need deep pockets and enormous patience, besides skills and the right products.

The hindrances are poor internet connectivity, frequent power cuts and unwillingness of employees to service the rural masses. Many branches in rural areas are forced to keep power generators to ensure that they continue to do business even in the absence of electricity. This adds to the cost. Such costs are not incurred in urban and semi-urban areas. The size of transactions, too, is relatively bigger in such areas.

Typically, young, bright bank officers do not want rural postings. Therefore, the quality of staff who ultimately land in rural areas is in many cases inferior to those serving the urban clientele. Even if a few get posted in rural areas or in outskirts of cities, they choose to commute from their home and hardly get time to interact with the local people. Limited opportunities for education of children and poor health care facilities in such pockets add to their woes.

The problems are many and deep-rooted and there is no magic wand to change the scenario overnight. It will take continuous push by the government and the banking regulator to create the right ecosystem for true financial inclusion. And, this is happening. The Prime Minister Jan Dhan Yojana is a great initiative. The banks are responding to the overtures of the government and the regulator. They are not only walking briskly to cover the proverbial last mile but also seeing business opportunity in financial inclusion.

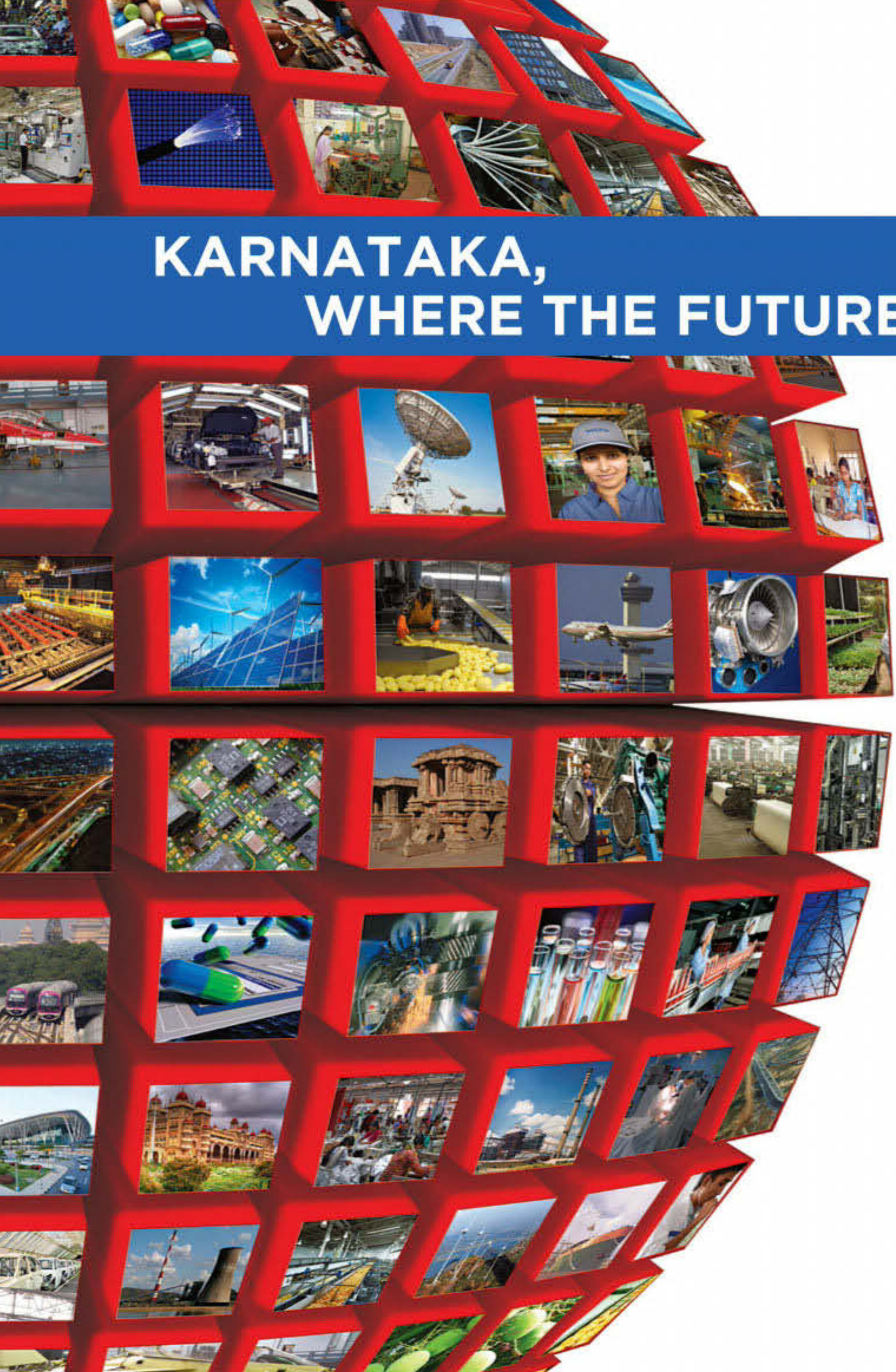
A recent survey by Standard & Poor's Ratings Services found that 76 per cent Indian adults do not adequately understand key financial concepts. It may sound a bit harsh but the reality is that financial literacy in India is nobody's baby. I feel people living in rural India are still apprehensive about using the services of financial institutions. The not-so-friendly attitude of the staff, lengthy paper work and lack of understanding of the processes and products scare them away. They do not mind borrowing from local money lenders even at high interest rates due to less or no paperwork. Probably, we need an institution exclusively to drive the financial literacy mission. The institute can select educated youth from rural areas, train them and place them in rural bank branches.

A. PRABHAKAR RAO

Banks cannot hawk the same products to urban as well as rural customers. ***Their products have to suit the lifestyle of the rural folk.***

Customised Products

Banks cannot hawk the same set of products to urban as well as rural customers. Their products have to suit the lifestyle of the rural folk. For instance, the traditional fixed deposits are offered in multiples of months. This can be tweaked. The maturity of deposits can be around festivals or the



harvest season or New Year when people like to have money for celebration or travel.

In case of recurring deposits, a fixed amount is deposited every month and one usually loses interest income if the deposit is withdrawn before the term. This cannot work for people whose income is dependent upon farm-based work and other small businesses as their cash flow is uneven. A recurring deposit product with flexible instalments and options for withdrawal when one needs the money will help a lot.

People who earn small amounts every day keep aside a part of their daily profit. A daily deposit product will be immensely beneficial for such people.

A lot of hue and cry is being raised about the development of the MSME sector. We don't foresee a small business growing into a large mainstream business house. We are happy if we get our money back, letting the small business continue to be the same. Lack of funding is the first barrier to scaling up, but absence of motivation and hand-holding are also the reasons why small businesses remain small. A dedicated group of staff could be deployed in rural and semi-urban bank branches who can visit local areas and identify businesses that can be scaled up with funding, technical support and motivation. They can provide continuous counselling to the owners throughout the credit cycle.

I have experienced that the repayment record of people whom bank approaches with credit is much better than those who come and ask for credit. We need to remember that the banks cannot lend cheap to this segment, inhibiting credit growth to this segment. Let the rate of lending be decided by market forces and let banks focus on the quality of service.

We take extreme care in serving ***high net worth*** *individuals. Financial inclusion will get wings the day we start offering the same kind of* ***service to a marginal farmer living in a mud hut***

I have also seen that cheap credit is not the first priority of these entrepreneurs. There are other factors such as timely availability of credit, matching of credit with cash flow, timely support in case of a crisis, hassle-free paper work and friendly attitude of the banker as well.

We take extreme care in serving high net worth individuals. Financial inclusion will get wings the day we start offering the same kind of service to a marginal farmer living in a mud hut. A poor daily wage earner with limited means of income needs such services much more than a millionaire.

Do the banks have the skill and attitude to replicate the urban service practices in the rural settings? Perhaps not. A training centre is needed to sensitise the employees on how to provide the best possible services to poor and middle-class households.

Rural housing is a priority of this government. Having a *pucca* house is a dream for many in rural settings. By possessing a *pucca* house, families could do away with the recurring cost of maintaining mud houses. In the new priority sector loan norms, the Reserve Bank of India has included housing loans up to ₹28 lakh in metropolitan centres and ₹20 lakh in other areas in this segment. Many of us tend to focus on the higher side of such limits to build our loan book, but if we look for those who want ₹10-15 lakh or even less than that to build a house in rural India, it will change the landscape of financial inclusion, literally. The future of the banking sector rests in the country's 6,38,000 villages.

The JAM trinity — Jan Dhan Yojana, Aadhar and mobile banking — will give impetus to the work banks have been doing to achieve 100 per cent financial inclusion. A new era in Indian banking is not far from us.◆

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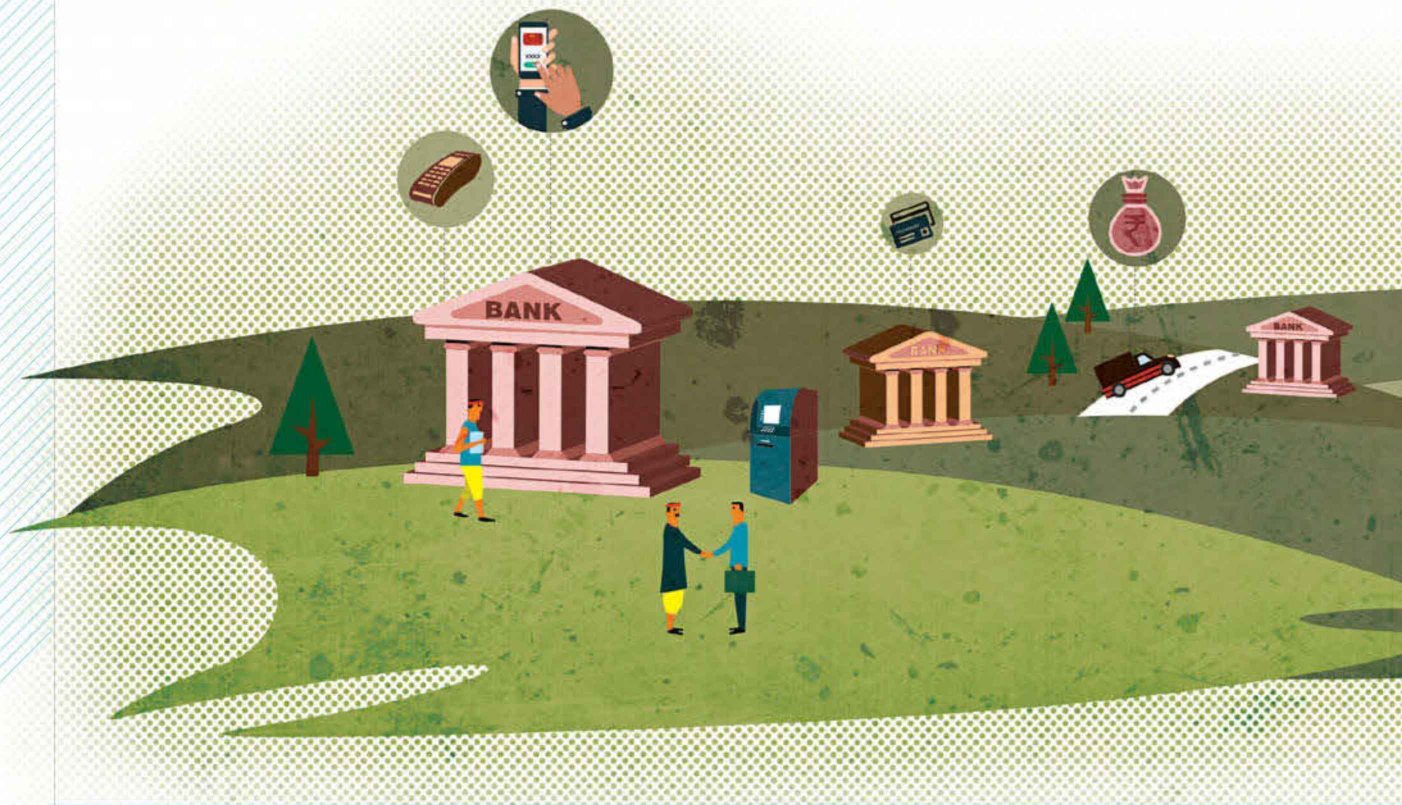
VIVAN MEHRA

Financial Inclusion

Reaching the Last Mile in Financial Services Delivery

BY BINDU ANANTH

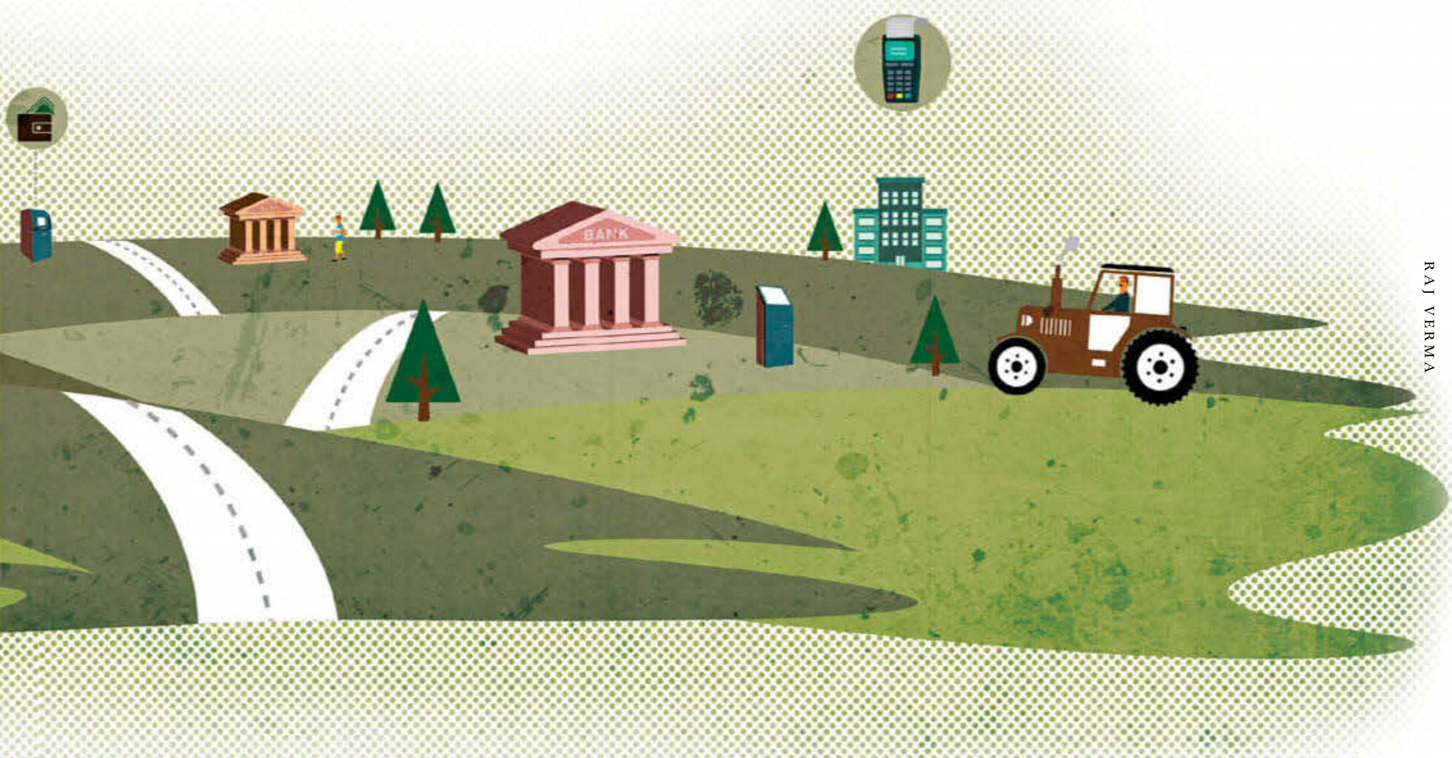
ABOUT: Despite the best efforts by policy makers and state-owned banks, the last mile problem has been an insurmountable hurdle in the way of financial inclusion for the poor. Many solutions have been tried but most have reported partial success. **Bindu Ananth, Chair – IFMR Trust & IFMR Holdings,** is possibly the best person to write on this given the number of years she has spent in studying the problems at the ground level and figuring out solutions that work. In this column, she busts some common fallacies about financial inclusion.



I write this from the sidelines of my city's (Chennai's) worst flooding in 100 years that has rendered lakhs of people homeless and bereft of livelihood. As the daunting task of re-building looms ahead, one key issue, among others, is going to be how to provide people timely and reliable access to financial services? Can we rapidly honour claims related to life, accident and asset insurance, enable withdrawal from savings deposits to meet the immediate need for food and medicines, and provide people short-term liquidity to repair leaky roofs, pay school fees and re-stock inventory? These are "moments of truth" for those offering financial services and, unfortunately, we are too often found lacking. A lot of this can be traced to fault lines in the last mile of financial services delivery.

The last mile is the "plumbing" that connects financial product manufacturers – banks, insurance companies, mutual funds, etc – to their end-customers, that is, households and businesses. While for most of us who belong to the urban, salaried segment, this access is rendered through bank branches, ATMs and insurance/investment agents, the picture looks very different for the rural agricultural segment and urban informal sector workers. They rely far too often on friends and family and informal sources to meet their financial service needs, because as far as they are concerned, the last mile is broken – the nearest bank branch is too far and there is no reliable process to file an insurance claim. For instance, the All India Debt and Investment Survey (AIDIS) 2014 found that about 19 per cent small farmers rely on non-institutional sources for loans despite the well-documented concerns over the costs of such borrowing. It reveals that more than a third of non-institutional borrowing is at annualised interest

A study has found that 19% small farmers rely on non-institutional sources for loans despite the well-documented concerns over the costs of informal borrowing. ***It reveals that more than a third of non-institutional borrowing is at annualised interest rates of more than 30%***



RAJ VERMA

> *For every loan of ₹10,000 by a public sector bank's rural branch, the cost is ₹4,140*

rates higher than 30 per cent. The problems with the last mile can be broadly attributed to the high cost of providing the service and human resource challenges. I will briefly describe each of these.

My colleagues Deepti George and Anand Sahasranaman looked at the cost structure of rural bank branches. They found that for every loan of ₹10,000 through a public sector bank rural branch, the cost is ₹4,150 (41.5 per cent). For a private sector bank rural branch, it is about ₹3,210 (32.1 per cent). Going across to mutual funds, I learnt from a talk by Mr. Nandan Nilekani recently that the cost of onboarding a customer is ₹1,500. Now, imagine a customer whose investible surplus is ₹10,000 a year. All this represents extremely expensive plumbing that tilts the scale in favour of wealthier customers who have larger account balances and investible surpluses.

SHEKHAR GHOSH

As far as human resources are concerned, the challenges are similar to those in other public services such as education and health care — how to get trained, motivated staff to work effectively in rural hinterlands and urban slums? An ambitious branch manager in a bank would, with a few exceptions, always want to work in the Nariman Point branch than a rural branch. Efforts by regional rural banks and a few commercial banks to create a cadre for rural operations have run into implementation challenges.

There is very good news on both these fronts. There have been fundamental breakthroughs on the customer acquisition front. Aadhaar, through its almost universal biometric database, will do away with the need for bankers and mutual funds to do expensive and time-consuming documentation of the customer's proof of identity and proof of address. All the regulators have confirmed that Aadhaar = KYC. Through the shared e-KYC database and the Reserve Bank of India's (RBI's) planned central KYC repository, what used to be a private endeavour of each financial service provider will now become a shared, public utility. This is path-breaking.

In a parallel and equally important development, the RBI has granted in-principle licences to 11 payment banks. If this pans out as expected, in one year or so, India could go from having 125,000 bank branches to over five million lakh access points where customers can transact — at the very least open accounts and deposit & cash, including their welfare payments from the government. With reference to the cost discussion earlier, several payment bank licensees are telecom companies and their cost structures are fundamentally different from those of traditional banks; this will be a crucial enabler of proliferation. Across the board, technology is enabling lower variable transaction costs, which is essential if the financial system is to serve a billion people.

While the last mile for payments can be taken care of by a general purpose merchant along with some technological add-ons, the last mile for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credit, insurance and investments will need to have, in addition, a skilled cadre of individuals who can advise the customer on the nature of the product to be bought, given her needs. This is a fundamental difference between payments and other financial services, where a "high-touch" last mile is required to ensure suitability of these products/services for the customer. It is hard to conceive of a farmer walking up to a mobile top-up merchant and discussing the merits of a weekly versus a bullet amortising schedule for her loan payments! The promising development here is the emergence of a number of specialised, regional non-bank finance entities as well as the new small finance banks that started their journey as microfinance institutions, with some of them having non-profit roots. I am involved with a business model called Kshetriya Gramin Financial Services (KGFS), where we deploy locally-hired, highly-trained individuals as "wealth managers" in remote rural markets who are enabled to offer a wide variety of financial products but within a tightly-defined framework of what is suitable for the customer. These new players will have to bring to the table an ability to understand the customer, manage large field forces, and an unstinting commitment to customer protection. While these institutions will also have to grapple with human resource challenges as they scale up, the fact that they are focussed on specific customer segments will help build a consistent identity and customer service philosophy. Another emerging trend that is pertinent here is the separation between manufacturing and distribution. Earlier, the bank or the insurance company was expected to both own the product as well as the distribution through captive channels such as bank branches. Increasingly, newer players will emerge which want to focus exclusively on distribution and customer service. Then there will be others who will specialise in product offering and balance sheet management. This will create room for innovation.

In one year or so, India could go from having ***125,000 bank branches to over five million access points where customers can transact***

On product design, I often come across this fallacy of advocating only "simple products" that can be universally sold, particularly for low-income customers. This understates the need for design or for providers taking more responsibility for what they sell. In reality, the customer needs sophisticated financial solutions to deal with lifecycle issues such as retirement and unforeseen risks such as flooding and rainfall failure. We cannot wish away these needs of the customer. We have to find the right balance between good product design, provider responsibility and customer understanding of what she is buying. Laying it all at the doorstep of customer understanding, as is the current approach, will undermine the potential of financial services.

Making my way through a crowded airport earlier this week, my colleague and I discussed how bewildering the place might seem to a first-time plane traveller and wondered if a dedicated counter to assist first-time travellers might make things easier. Dealing with the financial system is, in many ways, equally bewildering. You have to contend with an intimidating maze of documents, processes and people, often in an entirely different language than the one you understand. There has been little effort at service innovation here. In our KGFS work, we have tried to pay attention to this. The branch interiors are designed to be open and welcoming; we are committed to minimising paperwork and, eventually, eliminating it altogether. The wealth managers speak the local language and are trained to be welcoming. These practices hold the key to converting the last-mile access into actual usage.◆


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Financial Inclusion

Harnessing Technology for All

BY VIJAY SHEKHAR SHARMA

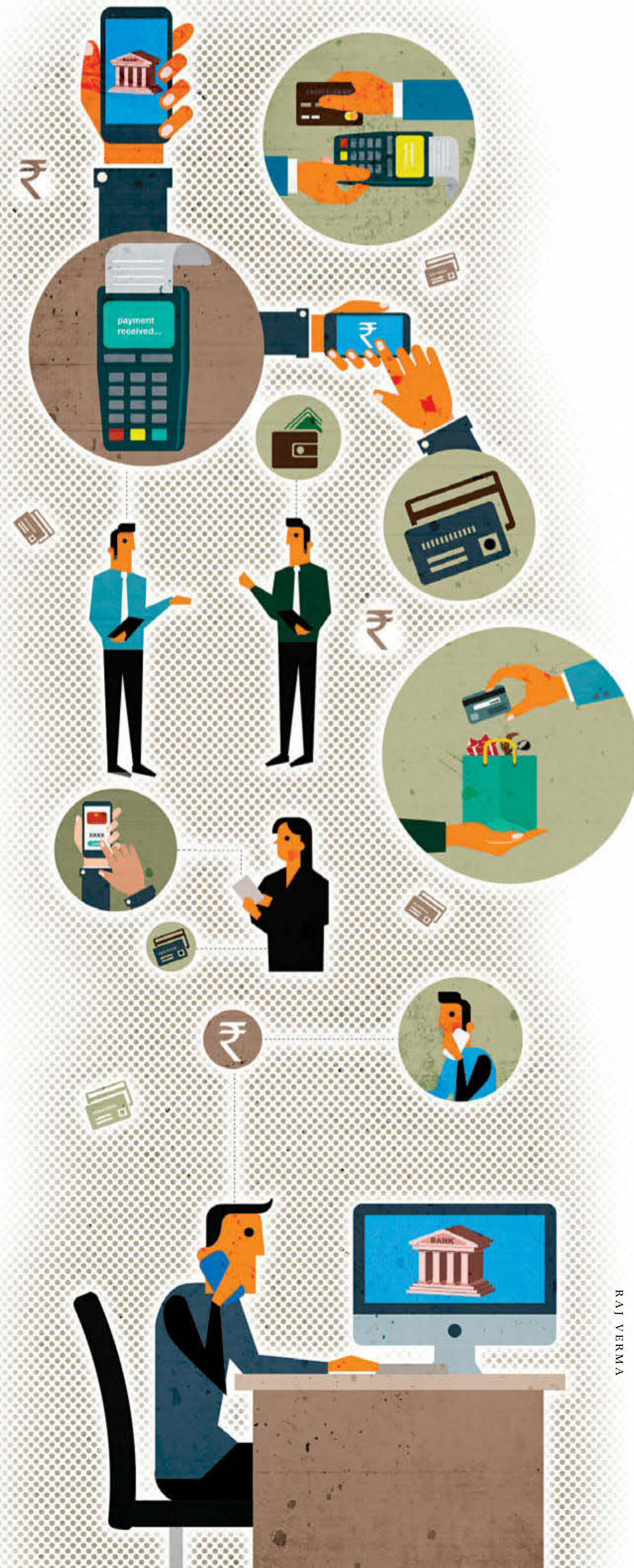
SHEKHAR GHOSH

ABOUT: Banking is changing like never before, and largely because of the rapid advancement of technology. Automated teller machines, internet banking and other advances have already made dramatic differences to consumer experience. Now, payment wallets, mobile banking and other advancements are going to revolutionise it further.
Vijay Shekhar Sharma, founder of One97 and Paytm, is a digital entrepreneur working in the areas of fintech and retail. He is also one of the recent recipients of the payment bank licence. Here he talks about how technology could solve financial inclusion issues.

Financial inclusion is not just about having a bank account for everyone in the society. It is about creating an ecosystem that enables and encourages people to use financial instruments in their everyday life. There are four key instruments of financial inclusion – payment, credit, insurance and investment. Technology has the potential to truly democratise each of these instruments and make a tangible impact on the financial well-being of people.

The ability to pay and receive money is a basic need. Physical currency or cash has been at the core of fulfilling this need for centuries. Cash as the primary medium of payment has led to setting up of an expensive cash management infrastructure. A lot of innovation has happened in streamlining cash management systems and making them more accessible and efficient. Bill collection centres for utilities, network of ATMs and cash deposit machines, cash-in/ cash-out counters in banks are some examples of cash management systems. However, in past few years, people have started questioning the very existence of cash itself. The idea of replacing physical currency with digital payments is not new. There are numerous global examples of cash-less or less-cash societies, but it always looked like a distant dream for India.

Rapid increase in penetration of smartphones and internet, along with emergence of new-age technology companies in the payments space, has made this dream look much more real. Multiple technologies have emerged to replace cash. Plastic money has been around for some time and now we see mobile wallets emerging as a popular alternative. It will be interesting to see which



RAJ VERMA

technology takes centre stage in transaction settlement. Cost, convenience and reliability will be the key factors driving adoption of these products. The winning technology will be one that can take on the huge unorganised retail market of the country. In any case, society will benefit from this innovation. 'Money on API (Application Program Interface)' seems to be the future of payments. Accounts of payers and receivers can communicate, and payments will be settled between accounts directly. When this becomes a reality, why do we need an external facilitator of transaction, cash?

Financial inclusion is incomplete till people have access to credit. In India, millions of people are still not able to get credit from formal sources and are dependent on informal sources for their credit needs. The rate of interest of such credit options is exorbitant. This is despite the fact that banks and other financial institutions are looking for new customers to extend credit. The absence of a transaction history for these individuals and enterprises is the root cause of lack of credit to them. A person paying her utilities bill on time should have a good credit history. However, she may not be able to secure a loan from formal financial institutions because she does not have records that can be analysed to assess her creditworthiness. If her transaction data is available to a bank, she can get access to credit. Such data is available, but in disparate systems that are not connected. Additionally, there is lack of a unique identifier that can be used to get all her data in multiple systems for analysis and decision making. Solution is two-partite: First, the transaction history of a customer with various institutions like utilities, revenue department, transport department, etc should be available to him in a digital form when required. Second is the promotion of Aadhar as a unique identifier of an individual and his transactions. We need universal credit platforms where people can push their digital transaction data to improve their creditworthiness. Once we start connecting disparate systems, we will realise that we have much more data than we thought even for traditionally unbanked and under-banked individuals and entities. Low cost of data storage, data transfer and big data analytics can play an important role in taking credit to the last mile in future.

Digital payments can emerge as a way of making traditional unbanked and under-banked sections of society more creditworthy. In China, millions of small traders have got access to loans based on their online trade and digital payments data. In India, this trend has recently started with credit companies partnering with e-commerce companies to disburse loans to small retailers who are selling online. A small retailer accepting payments through digital medium has more reliable data to prove his creditworthiness and companies will have more confidence in extending advance to him in comparison to a retailer doing all his transactions in cash. In future, partnerships between credit and internet companies may become a milestone in increasing reach of credit.

SHEKHAR GHOSH

Financial inclusion is incomplete till people have ***access to credit****. In India, millions of people are still not able to get credit from* ***formal sources*** *and are dependent on informal sources for their credit needs. The rate of interest of such credit options is exorbitant. This is despite the fact that banks and other financial institutions are looking for new customers to extend credit*

Similarly, insurance and investments will become much more mainstream riding on the digital revolution. The convenience with which we will be able to buy insurance or a mutual fund by using our smartphone is going to increase. It may become as simple as paying your bill from a mobile wallet. API integration of data, fast connectivity and ability of systems to handle millions of transactions per second will transform the way these products will be designed and sold. If convenience and communication can be made right, there is no reason for insurance and capital market investments to remain limited to a small section of society. When the government of India promoted insurance for masses and banks made it convenient for people to buy them over mobile phones, results have been spectacular. Fintech companies have the potential to reach untapped markets and force incumbents to innovate.

A measure of the centrality of technology in financial institutions is the percentage of engineers in the total workforce. Many departments such as business development having on-ground sales force, marketing and customer service will witness huge change in their scope of activities. The response to a large number of customer queries may not be enhancing customer service team, but enhancing the product team – this will ensure that the product can be made simple and intuitive to use. In future, it may become a norm to have over half of the work force as engineers in stable financial institutions.

In such a dynamic environment, RBI has granted in-principle licences to 11 entities to set up payments banks. Most of these institutions are expected to have technology as their core competency. The model of these banks needs to be distinctively different from traditional banks. While traditional banks have a business unit to focus on technology products, most payments banks will be organised and operated as technology companies.

Cost and revenue centres are expected to be very different for these banks. Capex may be dominated by investment in setting up technology architecture and opex towards product design and updates. Revenue share from interest income and transaction-based fee income may be small compared to value garnered from surrounding activities.

There are five key areas that need to be focused on to achieve tangible success. First, investment in the right technology to ensure cost of transaction is near zero. Whether it is a person-to-person transaction or a person-to-merchant transaction, cost of transferring money from one account to another account should happen at extremely low cost. Revenue stream for a bank will shift from transaction fee income to income from leveraging data to sell more valuable products like credit or insurance.

The second important aspect is innovation in product design. A good example is Yuebao, the money market fund of Alipay in China. It has been designed with no minimum investment requirement and high liquidity. Investing in this money market fund is like investing in a savings product. Additional returns are an advantage. The product has got a great response from all customer segments. Data analytics and technology prowess will help payment banks in innovating traditional products. Scalability of technology-based products is expected to develop a large untapped market. Absence of legacy is expected to be an advantage in questioning current norms of doing business.

Reaching the unreached is going to be the third important parameter. Wide agent network providing last-mile banking services will be a critical component of payment banks. Operating such an agent network can be very costly, as well as risky for an

The revolution in mobile phones is an example. ***Companies with less focus on user experience could not survive*** *– this despite their high focus on utility and value for money*

organisation. A truly scalable and cost effective solution cannot be dependent on physical workforce for on-boarding, training and managing agents. It has to be a simple-to-use technology platform that enables prospect agents to manage themselves. Operation risk framework needs to be very robust. Right incentive and penalty mechanism needs to be in place based on performance and customer feedback.

The fourth parameter is the convenience and ease of using service. The utility of product will not be enough and a bank will have to think like a product design company. The revolution in mobile phones is an example. Companies with less focus on user experience could not survive – this despite their high focus on utility and value for money.

Trust is the last and most important factor in a banking relationship. Reliability and consistency in service are important to develop trust. Compensation before investigation of a problem has to be the 'mantra'. Such a response is possible only when a bank has a good risk management engine to separate genuine cases from fraudulent ones. The effort has to be on development of risk management products, rather than creating a massive system to oversee transactions.

The timing is right for the payment bank model to be successful in India and achieve the cause of financial inclusion. Government and regulatory bodies have been encouraging use of technology in financial system. The penetration of smartphone with data connectivity is ever increasing. Aadhar is emerging as a unique identifier and authentication system. A vibrant start-up culture is promoting technology-based innovation and new companies are emerging every day to challenge the status quo. ◆

VIVAN MEHRA

The Environment

Air Pollution is Slow Murder; Must be Stopped

BY SUNITA NARAIN

ABOUT: With Delhi's air pollution reaching alarming proportions and most of the other major metros on the verge of hitting dangerous levels of air pollution, there's need for drastic action in the interest of public health. Without doubt, if this generation needs to make the world a better place to live for future generations, clean air has to be our biggest priority. Environmentalist and activist **Sunita Narain, Director General, Centre for Science and Environment,** exhorts, it's now or never.

As I write this, the Supreme Court has passed far-reaching orders to control toxic air pollution in Delhi and its neighbouring areas. The Chief Justice recognised the public health emergency in the city caused by the runaway air pollution and initiated crackdown with a slew of measures – from tax on entry of trucks into Delhi, to a ban on the registration of private diesel cars above 2,000 cc and facilitating the move to compressed natural gas (CNG) in taxis across the national capital region. But why is this happening and what is the history of Delhi's tryst with air pollution?

"Roll down the window of your bullet-proof car, Mr. Prime Minister. The security threat is not the gun; it is the air of Delhi." This was the headline of the public advertisement the Delhi-based Centre for Science and Environment (CSE) issued some 16 years ago. This was the time when the air of Delhi was sick with black smoke and fuel, and emission standards were virtually non-

AJAY THAKURI

existent, and motorisation was just beginning to take off. The agenda for action – also listed by CSE in the public notice – was to advance the roadmap for fuel emission standards; restrict diesel vehicles and make the transition to a much cleaner fuel, CNG.

The rest is history. Amicus Curiae Harish Salve asked the Supreme Court to direct firm action. It did. The city did make the leapfrog to CNG and the country also cleaned up its fuel and advanced emission standards for vehicles. The result was reduction in pollution; studies have recorded the impact in terms of benefits to health. World Bank reports that during 2001 to 2004, Delhi avoided 3,500 premature deaths a year because of this transition. This was no small achievement. Simply put, we in Delhi could see stars. We even forgot that we had a problem called pollution. But not anymore.

Each year, since 2007, pollution levels have risen to reach dangerously toxic levels. Our analysis shows that almost every day of the winter of 2014, air pollution levels were either severe or very poor – in other words, as per

MANDAR DEODHAR

the government's own air quality index, the air was unsafe to breathe and would make even the healthy ill. It is no surprise then that a study, commissioned by the Central Pollution Control Board (CPCB), conducted in 2012, covering around 11,628 school children, reported the horrific fact that every third child had reduced lung function. Their sputum contained four times more iron-laden macrophages a sign of the body's self-defence mechanism to fight pollution than children from cleaner environments. All this is clearly unacceptable.

So, what has made Delhi, once again, wheeze, choke and die because of dirty air? The fact is that, in the past decade, since the introduction of CNG, some things have changed. One, there has been an explosion of personal vehicles near

The most critical step is to massively augment our public transportation systems – buses, metros, footpaths and cycle tracks – so that we can take a bus and then cross the road or just walk. We also need car restraints. Parking rates and fines for illegal parking need to be increased and then enforced. We also need to take aggressive and radical steps to hold down pollution from factories and farms, particularly in critical winter months

100 per cent increase in registration in Delhi alone. So, even as each car has become cleaner, because of tighter emission standards and better quality of fuel, the number has increased exponentially. The net result on pollution is the same.

Second, while in 2000, diesel cars comprised only 4 per cent of the total sales, the number jumped to 50 per cent by mid-2000. India-style socialism meant that cheaper diesel (there is still a price differential between petrol and diesel) continues to be used by the rich car owner. Each diesel car is legally allowed to emit four to seven times more than the petrol variant. Pollution is inevitable.

Third, by 2007, around 1.2 million vehicles mainly cars were entering or leaving the city daily. We never planned for growth of connec-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tivity as we never planned the growth of Gurgaon, Faridabad, Noida and now Greater Noida. It just happened. It made pollution happen.

Fourth and most deadly – as this makes up roughly 30 per cent of the emissions from the transport sector – over 50,000 heavy-duty commercial vehicles traverse the city daily. Way back in 2004, the Supreme Court had ordered for a bypass. This was lost in contractual rigmarole and, as a result, has not been built yet.

Then there are other sources – from factories in the vicinity of Delhi to the coal-based Badarpur power plant. All these add to pollution. All contribute to the hell we breathe today.

There is one new pollution source – non-vehicle – which made an entry post 2005. Punjab and Haryana directed farmers to delay paddy transplantation to save on groundwater usage in peak summer. But now, there is no time for farmers to harvest paddy and grow wheat. They burn the straw. So, in October and November, just as winter inversion is settling in, this fire makes its way to the already polluted air shed of Delhi. We choke.

What, then, is the way ahead? The fact is that Delhi managed to turn the page on pollution in 2001. Can it do so again? My colleagues and I believe it can be done. We have put together an agenda for action – the second-generation reform package, which lists 12 big steps that need to be taken for clean air.

The most immediate is to have an aggressive roadmap for clean fuel and vehicle technology in the country. But this is not acceptable to powerful vehicle manufacturers. So, even as oil companies have started supply of cleaner fuel across North India from April 1, 2015, car companies have succeeded in getting an extension for supply of clean vehicles from the surface transport ministry. Knowing full well that this would bring down pollution from diesel trucks entering the city significantly.

Now, the same car companies are busy arguing that they should continue to have the licence to pollute. They want 8-10 years to move to the cleaner vehicle technology that Europe uses today. These companies need to understand that we have all run out of time and air to breathe.

The other steps are equally urgent – from monitoring air quality to smog alerts, so that we know when we are advised to take precautions because of bad air. But most critical, the game changer perhaps, is to massively augment our public transportation systems – buses, metros, footpaths and cycle tracks – so that we can take a bus and then cross the road or just walk. We also need car restraints – parking rates and fines for illegal parking need to be increased and then enforced. We also need to take aggressive and radical steps to hold down pollution from factories and farms, particularly in critical winter months.

But bad air is not just Delhi's problem. All across Indian cities, we are losing our right to take a breath. We don't know this because most cities do not have the paraphernalia to monitor air quality. But because we do not know, does not mean our air is clean. It is time we reversed this slow murder.

Our right to clean air has to be non-negotiable. That is the least we ask. ◆

In the past decade, since the introduction of CNG, some things have changed. One, there has been an explosion of personal vehicles – near 100 per cent increase in registration in Delhi alone. So, even as each car has become cleaner, because of tighter emission standards and better quality of fuel, the number has increased exponentially.

The net result on pollution is the same

The Environment

India is an Ideal Country for Solar Energy

BY CHETAN MAINI

DEEPAK G. PAWAR

ABOUT: If we want to meet the goal of 24x7 electricity to every citizen in the country, while reducing the pollution and smog enveloping our urban areas, the best solution for the medium term seems to be solar energy. But, while enormous progress has been made on that front, more needs to be done to take full advantage of the power of the sun. **Chetan Maini, who developed India's first-ever commercial electric car,** the Reva, writes about how to harness the full power of the sun for clean energy.

Earlier this year, Prime Minister Narendra Modi set a new target for India's solar mission five-fold increase in solar power generation to 100 GW by 2022. This would be equivalent to around 10 per cent of the power mix of the country seven years from now. With this target, India could become one of the largest producers of solar power, globally. This year, India is going to add around 5 MW of solar power. Therefore, the mission is definitely a stretched target, but doable, considering China is adding around 13 GW every year. The ramifications to India will be phenomenal if we achieve the target. It will provide the right platform for sustainable growth for the next 25 years. It will increase our energy security, reduce our dependence on fossil fuels, combat climate change, besides creating a new industry and a significant amount of new jobs. This would also position India as a global leader and exporter in solar power solutions.

Today, we import over 80 per cent of oil and 20 per cent of coal to meet our energy needs. This puts significant stress on us, as a nation, which needs to maintain its growth trajectory, while minimising the negative effects of rising global commodity prices. India is targeting GDP growth of 7-8 per cent and, to achieve it, our energy demands are also expected to go up. Therefore, it is imperative to look at clean energy. Further, solar energy not only helps combat climate change, but can also reduce local pollution levels.

Geographically, India is an ideal country for solar energy. We get 300 days of sunshine, our peak power demand is in the evening and not during daytime (driven by cooling requirements), and we have a seasonal peak in the summer. These are also times when solar energy is at its peak.

But, what's the cost of solar power? The equation has changed dramatically in the last 40 years – from $60 per Watt in the mid 70s to less than a $1 per Watt, today. The end result is that in recent solar power agreements, Andhra Pradesh touched a record low of ₹4.63 per kilowatt hour (Kwhr) for a 25-year tariff. Even after adding distribution costs, this will be lower than the current cost of commercial power in 12 states. Recent bids for thermal power in Andhra Pradesh were ₹4.27-4.98/Kwhr, the difference with solar energy being quite marginal. Given the likelihood of coal prices rising over the next 20-30 years and solar costs likely to come down, it makes more sense to be investing in solar.


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While our focus remains on solar photovoltaics (PV) tied to the grid or on rooftops, there are several other potential solutions, including distributed solar PV systems that use energy without a local grid. Improvements in sterling engine technologies can also be adapted. One can use solar collectors (a parabolic reflector to concentrate heat) to power a sterling engine that converts thermal energy to mechanical power. This can then be connected to a generator to produce power. With the increase in adoption of LEDs, low voltage electronics and efficient brushless DC motor technology, houses can be powered by using

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DC directly from solar panels. This can help reduce energy consumption by over 50 per cent. While this may be challenging with the current infrastructure, such new technology solutions can easily be deployed at the 100 smart cities India is planning to set up.

Solar has another huge advantage. It enables us to get renewable energy solutions into the transportation industry, which is one of the largest consumers of fossil fuels that results in high pollution levels. India sells around 20 million vehicles a year. The recent National Mission on Electric Mobility launched by the government is targeting five million electric vehicles by 2020. The energy economics for electric vehicles (EVs) are very favourable. Even with the current pricing of solar energy, an electric vehicle cost per kilometer is six times lower than a petrol equivalent. Given the global growth rate of EVs at 75 per cent, the next 15 years will see a significant increase in EVs. To put this in an energy perspective, the five million vehicles will need 3 GW of solar power, or 0.3 per cent of the planned capacity by 2022. In fact, if 200 million electric vehicles hit the road by 2030, (50 per cent of the expected population), solar power required to run them would be 124 GW, or 50 per cent of what is planned by 2030. Considering that the auto industry grows at 8 per cent CAGR for the next 15 years, if we move to EVs powered by solar energy, by 2030 we will be consuming significantly lesser fossil fuels and this would result in lower pollution levels.

India has weak electrical grids and distribution losses of

20%

add to the financial burden of operators. Solar power has significant day peaks and seasonal peaks, which require efficient storage of energy. Therefore, we need to develop an energy-efficient ecosystem

The adoption of solar energy, however, is going to have its own challenges. India has weak electrical grids and distribution losses of 20 per cent add to the financial burden of operators. Solar power has significant day peaks and seasonal peaks, which require efficient storage of energy. Therefore, we need to develop an energy-efficient ecosystem. Advancements in Li-ion and other battery technologies have significantly re-

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duced costs, size, weight and increased life. For instance, Li-ion batteries' costs are down from over \$1,000/Kwhr a few years ago to \$200/Kwhr, and is expected to touch \$150/Kwhr by 2020. Such storage energy solutions provide us with a huge opportunity.

With advancements in power electronics, communication and energy storage, easy integration of small rooftop solar power installations as well as large-scale solar plants to the grid is possible. If we add electric vehicles to the storage equation this looks even more promising. They could store all the excess solar energy and provide up to 50 GW of power to the grid to balance peak energy requirements. This could significantly reduce peak load requirements and investments in infrastructure.

Today, intermittent power supply is a cause for concern for agriculture. The use of solar energy will not only make power supply more reliable, but also make it more affordable with the use of more efficient DC pumps.

For the first time, we are seeing all the macro factors coming together to enable solar adoption. Cost of solar cells is falling. Technology advancements in storage, power electronics, communication and solar cells will further drive down costs and enable large-scale deployment. Positive long-term government policies driven by energy security and climate change are fostering an ecosystem. Privatisation of the energy market and connecting the entire grid will enable easy integration and deployment. Increased awareness levels are changing the mind-set of consumers as well.

The government can play a huge role in ensuring the success of India's solar dreams. It has already jump-started this by setting a clear vision and a framework of policies. The industry will continue to need support till it is fully viable. Therefore, India must make significant investments in R&D for newer technologies. China has overtaken Japan, the US and Europe as the largest producer of solar PVs. India must strive to beat China by not only investing in existing technologies, but also come up with core solar technologies solutions to lower costs and increase performance of solar cells – unique solutions for Indian conditions – storage, advanced power electronics, and the ecosystem as a whole, including setting up of a smart grid to give us a long-term sustainable advantage.

The recent National Mission on Electric Mobility launched by the government is targeting **5 million** *electric vehicles in India by* **2020**

If **200 million** *vehicles went electric by 2030 (50 per cent of the expected population), solar power required would be 124 GW, 50 per cent of what is planned by 2030*

To achieve this, the government's support to augment the investments being made by the industry will be key. Creating a high level of awareness for adaptation of solar power along the lines of *Swachh Bharat* will also be important to get the country behind this initiative. In addition to making India sustainable in energy, such investments can give us a global competitive advantage to export our technological solutions to other developing countries in the next 10-20 years.

Now, what if we look at the possibility that all our future power needs will be generated from solar? Assuming India's requirement of 1,000 GW from solar, this would need a surface area of less than 2 per cent of Rajasthan. If we add the requirement of energy for all vehicles on the road by then (assuming a future with 400 million electric vehicles), this would increase the area to 2.5 per cent of the state. Imagine a clean future that is green and powered by the sun. This does not just need to be a figment of our imagination, it is something that is truly possible in the next 25 years. The baby steps we are taking today in building a solar nation are in the right direction to make the transformation that we need – to have sustainable growth in our nation and leave a better India than what we had inherited. We owe this to our children! ◆

The Environment

Optimise Utilisation of Coal Reserves

BY RAJIV KUMAR

SHEKHAR GHOSH

ABOUT: Despite India's honourable commitments to emission control under the COP21 talks at Paris, coal will continue to remain India's largest source of energy to power its economic growth over the next 25 years, with a little help from hydro, solar, wind and nuclear energy. But how could these two contradictory goals be achieved? The answer, says **Rajiv Kumar, Senior Fellow, Centre for Policy Research**, lies in 'Clean Coal'. Or, as environment-friendly as it gets. But use it – we must – before it becomes useless.

A desynthesis of the commitments at the 21st annual conference of parties (or COP) in Paris makes it evident that India will continue to rely on coal for its energy needs along with the renewed focus on building up capacities for renewable energy based on solar and wind sources. But the good thing about these commitments is that India resolved to use coal in a much cleaner and efficient manner.

India sits on reserves of 301.56 billion tonnes and annually produces 500 million tonnes. The great majority of the output is produced by the public sector monopoly, Coal India Ltd (CIL), practically the only producer of 'commercial coal'. Prime Minister Narendra Modi wants this company to double production to one billion tonnes by 2019. At this rate, the reserves can last for the next 200 years. And mind you, these reserves have been estimated at a maximum depth of 1,200 metres, not beyond that. Environmental concerns are being expressed ever more vociferously today about carbon emissions. This would make it difficult to mine in this long term.

Therefore, it is critical to exploit these reserves as quickly as possible, before they become useless. For this, we need to do two things right: a) we should not depend exclusively on monopoly producers like CIL. Instead, we should open up quickly for the biggies of the world, such as BHP Billiton or Rio Tinto, to come in

RAJ VERMA

and do commercial mining; b) these biggies have far greater resources and access to technologies to produce coal in a much cleaner and efficient way. We may not like it, but the fact is CIL cannot ramp up production to the level we all would want them to. Like China, we should also be producing three billion tonnes of coal every year. This makes the case much stronger for getting on to commercial mining.

We are just exploring at the depth of 30 metres, and there are countries in the world, including China, which are exploiting resources at 2,000 metres using new technologies. For example, the deepest mine in the world is South Africa's TauTona mine, with a depth of 12,800 feet (two-and-a-half miles).

Today, we are getting coal via open-cast mining, which is more ecologically degrading than any other technology. 88 per cent of India's coal is produced via open-cast mining, whereas in China the ratio is reverse and they use more of underground mining. There are two technologies available to do deep mining – room & pillar and long wall. One requires cutting of coal seams in a network of rooms leaving behind "pillars" of coal supporting the roof of the mine. This method is virtually phased out. In the long wall method, a large machine with a rotating drum – often referred to as Long Wall Shearer – moves back and forth

We should open up quickly for the biggies of the world, such as BHP Billiton or Rio Tinto, to come in and do commercial mining. These biggies have far greater resources and access to technologies to produce coal in a much cleaner and efficient way

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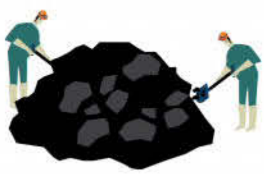
across a coal seam. And subsequently, the coal is mined from the room created. Both of these technologies require extensive monitoring, but long wall is preferred it is a highly efficient way of mining as 80 per cent of reserves can be extracted. But these technologies do spike the cost of production by roughly 50 per cent.

CIL prefers open-cast mining because it is easier and also cheaper. There are no incentives attached to switching over to the expensive underground mining. This would require reforming the whole ecosystem of how the price of coal is determined, marketing rights and size of the present coal blocks. Lot of these reserves are under the virgin forests where tribes and other such communities live. Underground mining makes it easier to exploit such coal reserves.

We don't have any alternative to this. We must realise that we don't have the technology, capability and capacity to go down deep. This is where the bigger companies can help us, and this will also help us in cutting down our carbon footprints.

88 per cent of the country's coal is produced via open-cast mining, which is the most ecologically degrading method in place



To make it happen, we also need to tweak electricity prices, as with the current structure the prices will go up. There is a strong case of moving towards beneficiation of coal as well, irrespective of how it is mined underground or via open-cast mining. This requires pit head beneficiation and generation on a much larger scale. This will also allow transporting less coal. Given the quality of our coal, which has large quantity of coal and inert material, we use diesel to transport mud and stone, along with coal to up-country power plants. This is sheer wastage of energy. The national grid must be strengthened more to evacuate power from these centres.

India must look for an efficient tie-up for clean coal technologies such as carbon sequestration. The Americans invested heavily in developing this technology, but they eventually gave it up after they found shale oil. Here, we can use our negotiation skills with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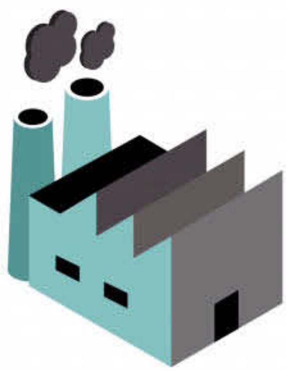
large mining companies and can motivate them to bring in these technologies. This will require India to be open for large-scale commercial mining by foreign mining companies. It is in our interest too, as, in the long run, the global community would not allow us to mine coal in the conventional way. The big mining companies will also have to go in for greener options. Moreover, there are certain other technologies, like utilisation coal-bed methane, or in-situ gasification of coal, or the South African technology of converting coal into oil and using it thereafter. All these must be explored.

But we also need to realise that more than mining coal, the concern today is the burning of coal. This is more polluting and emissions certainly add to the problems. In the Indian Intended National Determined Contributions (INDC), declared just before the Paris convention, India has pledged to cut carbon emissions but said that even though coal is polluting it will continue to dominate its power needs. The country is looking at clean-coal power plants also called super-critical power plants, with the use of super-critical and ultra super-critical power plants. These plants offer higher efficiency and cut down on carbon emission, as you require less carbon to get the same amount of heat energy. India has an installed capacity of 160 GW based on coal, out of the total 276 GW, but only 10 per cent of this uses clean coal-burning technologies. From 2017, all new coal power plants will use clean technology. The idea is to go up to 24 per cent by 2022. This too is not enough.

There would be roughly 20 GW of thermal capacity retiring by 2022 and these power plants must be replaced with the high-efficiency, ultra super -critical technology, along with the forthcoming power plants. The power equipment companies – such as Alstom, BHEL, among others – are already moving towards ultra super-critical technology with 1,000 MW power units. For reference, the conventional coal-fired power plants have efficiency of 32 per cent, the super-critical technology allows power plants to operate at a temperature and pressure above the critical point of water – at a point where there is no difference between water gas and liquid water. This results in higher efficiencies – above 45 per cent. In simple terms, you would require less coal to generate a MW of power, obviously reducing the emissions of CO2 and mercury. The new upgrade obviously increases the project cost, but it increases the capacity and efficiency of the unit.

India has an installed capacity of 160 GW based on coal, out of the total 276 GW, but only 10 per cent of this uses clean coal-burning technologies. From 2017, all new coal power plants will use clean technology. The idea is to go up to

24 per cent by 2022



Most of us accept that coal is a necessary evil and clean coal technology is better than the old polluting plants. Along with this, India must make fundamental changes in energy policy. This includes the push in renewable energy. We are already talking about 175 GW of renewable energy. Even if 20 per cent (at current efficiencies) of renewable energy can be utilised, they can share the burden of the peak load, which is still met by coal-fired power plants. When 1,000 MW on solar is committed to NTPC at ₹4.63 per unit in Andhra Pradesh, it is quite manageable as the company's average cost of generation from coal-fired plants is ₹3.25 per unit. Most of these technologies are available off the shelf. All India has to do is show a political resolve and reform the way they use energy, and the future will be bright. We have to accept that coal will stay in our energy basket for the next 25 years. All we can and must do is make the mining of this commodity greener, transportation to plants and other consumers in the most energy efficient way, and optimise utilisation of heat energy. ◆

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Health for All

Accelerating Universal Health Coverage in India

By DR HENK BEKEDAM


SHEKHAR GHOSH

ABOUT: A critical component of the United Nations' 2030 agenda for Sustainable Development Goals is health for all. However, despite a decade-long work under the National Rural Health Mission, a vast majority of Indians remains out of the heath care-for-all umbrella. The more recent National Urban Health Mission of 2013 and the Rashtriya Swasthya Bima Yojana have only just begun. The **WHO representative to India, Dr. Henk Bekedam**, suggests ways to marry national and state priorities to bring quality health care to every Indian citizen.

In the words of Dr. Margaret Chan, Director General of the World Health Organization, "Universal Health Coverage (UHC) is the single most powerful concept that public health has to offer."

UHC refers to a goal for each nation, whereby all citizens have access to quality health services they need, and don't suffer financial hardship when they pay for them.

UHC assumes even greater importance in the context of the recent adoption by the United Nations of the 2030 agenda for Sustainable Development Goals (SDGs). It is a key element for the success of health-related SDG (SDG 3); it also underpins other SDGs.

Moving towards UHC in India

India has made rapid strides towards increasing access to health services in the past few years through a number of initiatives, including the flagship National Rural Health Mission (NRHM), launched in 2005. This was expanded to the urban population through the National Urban Health Mission (NUHM) in 2013.

To provide financial protection to targeted populations, including those below the poverty line, the government has implemented the Rashtriya Swasthya Bima Yojana (RSBY). It covers the cost of secondary-level hospitalisation.

In addition, there are a number of state-specific schemes. Some involve running free diagnostics facilities and offering free medicines; others are government-funded health insurance schemes in several states. Evidence suggests that these can reduce

AJAY THAKURI

the financial burden on patients and increase attendance at public health facilities.

The need to accelerate UHC in India

While these initiatives provide some financial protection to those seeking health care, tens of millions still fall into poverty after an illness or abstain from accessing the health services they need.

At 60 per cent, India's out-of-pocket expenditure (OOP) for health is one of the highest in the world. This exacerbates health inequities. To sustain its economic growth, India will need to have a healthy population and address health inequities. In this context, UHC can be the driver and benefit the entire population.

Accelerating UHC is the key to successfully addressing the new public health challenges and inequities in health outcomes.

Despite remarkable achievements such as polio eradication and maternal and neonatal tetanus elimination, to name a few, there are several health challenges. The country is facing a double burden resulting from significant increase in non-communicable diseases (NCDs) associated with lifestyle and the pre-existing burden of communicable diseases.

Cardiovascular diseases, cancer, chronic respiratory diseases and diabetes are the largest contributors to morbidity and mortality in the country. The four NCDs accounted for 56 per cent premature deaths in the 30-69 age group in 2010 in the WHO South-East Asia Region.

Environmental issues such as air pollution have also become a major concern.

At 60%, India's out-of-pocket expenditure for health is one of the highest in the world. This exacerbates health inequities

SHEKHAR GHOSH

The high pollution levels in Delhi is a case in point.

Another challenge is inequities in health outcomes and access to health services. The Maternal Mortality Ratio (MMR) varies from 61 per 100,000 live births in Kerala to 300 in Assam. Differences also exist in health indicators between urban and rural/remote areas infant mortality rate, or IMR, estimated at 27 per 1,000 live births in urban areas, is 44 per 1,000 live births in rural areas. In addition, disparities in coverage of essential intervention exist even within the well-performing states. For example, immunisation coverage in Tamil Nadu varies from about 34 per cent in Kanyakumari district to 75 per cent in Vellore district.

Here are the eight recommendations for accelerating the progress towards UHC.

The Maternal Mortality Ratio varies from 61 per 100,000 live births in Kerala to 300 in Assam. Differences also exist in health indicators between urban and rural/ remote areas — infant mortality rate, estimated at 27 per 1,000 live births in urban areas, is 44 per 1,000 live births in rural areas.

❶ Agree on the process to define a vision

In order to start a journey, one should know where to go. It is important, therefore, to define and agree on the vision and goals for 2030. This involves agreeing on a process for developing such a vision. This will entail development of a national framework and roadmap that define roles of the Centre and the states, besides that of both public and private sectors. This goal needs to be operationalised into five-year plans, which due to their step-by-step approach allow for different processes to converge and adjustments to be made.

❷ Opportunities to accelerate UHC in states

As the states are at varying levels of development, the UHC vision for the country needs to be cognizant of these diversities. In this context, there are opportunities for the states to accelerate the process of moving towards UHC. They could choose a model that they can follow for 5-10 years to develop their own path and determine their own pace. The overall national framework ensures convergence in the long term.

❸ High-level political commitment beyond the health ministry

High-level political commitment to invest in the health sector is essential for advancing the UHC agenda at both the Centre and the states. This commitment is also needed beyond the Ministry of Health, notably the ministries of finance, skill development and human resources development, and the NITI Aayog. A similar commitment is needed in the states also.

❹ Participatory processes for designing and implementing UHC

While political commitment is a must, community involvement is equally essential for moving towards UHC. Institutions, both in the government as well as NGOs, including think-tanks and private sector players, have an important role to play in advocating UHC and pushing for its effective implementation. Building a UHC vision for the country on the basis of strong commitment and holistic participation will be a strong bedrock for the country's future.

❺ More money for health but also more health for the money

The health sector has tremendous potential for directly contributing to enhancing the quality of human capital, which will drive other sectors to more productive outputs. This is particularly relevant for India, which has over 20 per cent of the global burden of disease with 17.5 per cent of the world's population.

While the private sector plays an important role in provision of services, the role of the government is fundamental and central to achieving health goals and needs to be strengthened, both in the provision and regulation of services. This requires adequate public funding to improve the safety and quality of services, addressing of inequities and investments in prevention efforts.

Increasing public spending in health would not only be instrumental in accelerating UHC implementation but would also be an investment in human capital, especially given that India's public health spending, at 1.1 per cent of GDP, is among the lowest in the world.

However, it is not only about spending more money on health but also about spending it efficiently. International evidence suggests that we can improve efficiency of health spending for better outcomes. The World Health Report 2010 estimates that 20-40 per cent of all health spending is wasted. In the Indian context, irrational use of medicines and lack of absorption capacity to spend allocated funds are serious concerns.

❻ A strong health system

Intrinsically related to efficiency in government health spending is the need for a robust health system. A weak health system cannot produce a healthy population. Put another way, the factors of production of health need to be optimised so that the sector can function optimally. It is imperative to strengthen government health facilities and improve the working conditions of government health staff, especially in rural areas. This involves having essential medicines and supplies, training and ensuring an appropriate skill mix, besides a functional referral system for complicated cases. It is imperative that the system is geared to meet the matters of global health security and international health regulations.

High-level political commitment to invest in the health sector is essential

for advancing the universal health coverage agenda at both the Centre and the states

What is essential is to ensure that health care is of good quality so that health spending remains efficient. This is of paramount importance in the UHC vision.

❼ Monitoring and accountability mechanisms for UHC implementation

Progress towards UHC entails developing a monitoring and accountability framework as part of the same process that defines the UHC vision for India. This can be achieved through defining a set of indicators and time-bound goals, including IMR, MMR, life expectancy, OOP and access to services. Disaggregation of data by gender, economic status and geographical area will be the key to understanding the progress made and the remaining challenges.

Overall, time-bound goals will help maintain the momentum for UHC implementation as well as make the process open to direct audit by stakeholders.

❽ Evaluation and adaptability for UHC reforms

Finally, it is important to build mechanisms for regular review and adaption based on ongoing monitoring and accountability processes. The UHC models we choose should have the scope for revision as more hands-on experience is gathered. In addition to allowing for course correction regularly, there should also be a forum for the states to share experiences. ◆


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Health for All

Resist Pressure at Any Price

By DAVID SINGH GREWAL and AMY KAPCZYNSKI

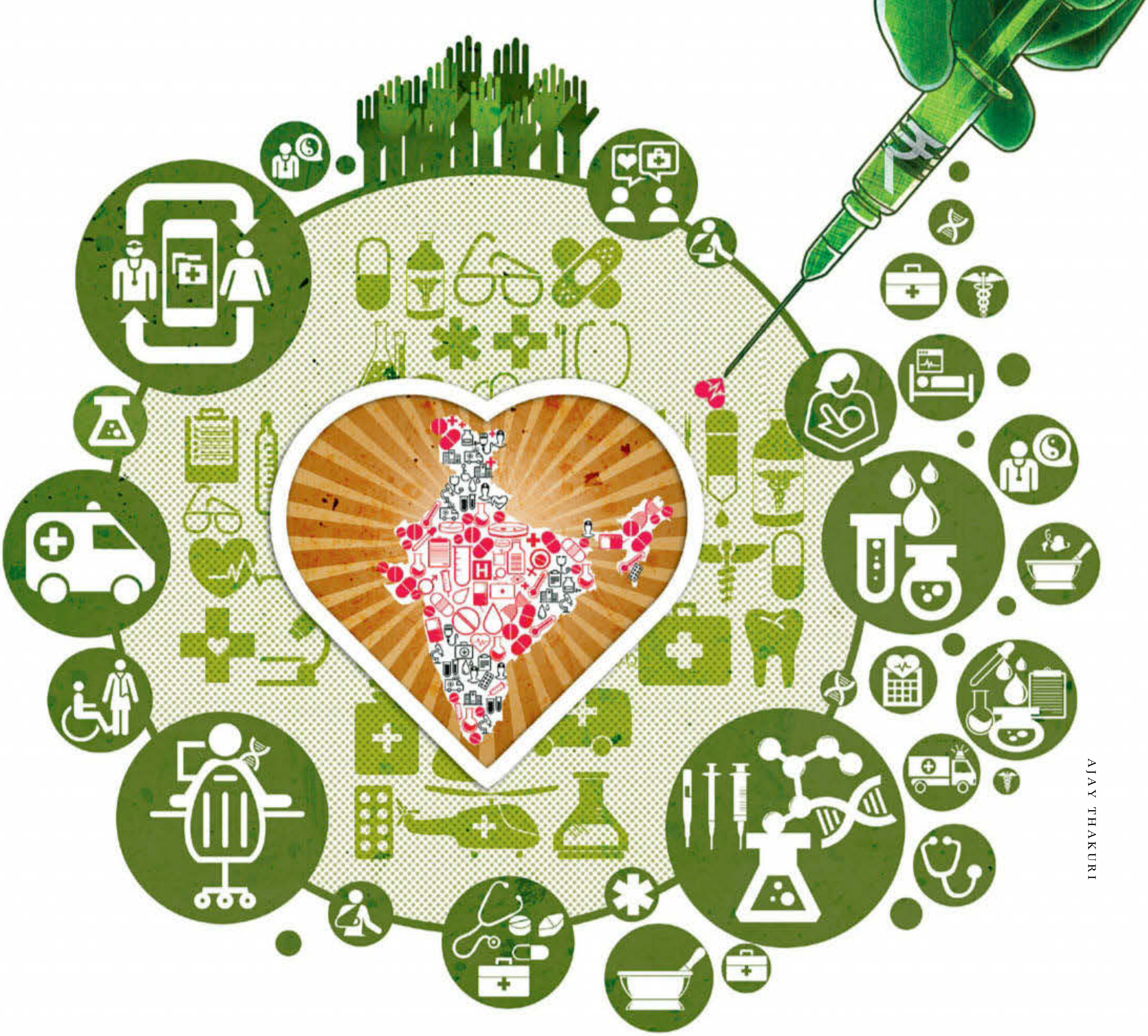
HAROLD SHAPIRO

ABOUT: Despite stiff opposition from developed countries, India's four-decade old regulation allowing process patents ensured affordable drugs for the masses and created an indigenous pharmaceutical industry. But with the country's 2005 compliance with WTO to move to a product patent regime, drugs are beginning to get out of reach of the common man. **Yale Law School's associate professor David Singh Grewal** (right), a specialist in IP law and biotechnology and **Professor Amy Kapczynski** explain how to make drugs-for-all a national priority.

Semiconductors and software, infrastructure and education all surely matter, and get the lion's share of public discussion and policy attention in India. But if there's a single issue on which India's future development and its international standing both depend, it could well be its approach to the price of medicines.

Many may wonder why this matters so much. Indian adults grew up taking for granted a local pharmaceutical industry that is the most competitive in the world. This reality, though, was the product of deliberate policymaking. The 1970 Patent Act played a key role: it precluded patents (government-granted monopolies) on medicine products and permitted them only on pharmaceutical processes. In a few decades, India's drug prices went from being among the highest in the world to among the lowest. And India's industry became a crucial global player, providing many in the developing world – and even the developed world – with high quality, affordable medicines.

Keeping medicines affordable in India and around the world matters not only for public health but also for social justice.



AJAY THAKURI

Affordable medicines are a boon to development in general and poverty alleviation in particular. Giving up on India's regime of affordable medicines would push many families over the edge into poverty, indebtedness, and social dislocation.

According to the Draft National Health Care Policy 2015, in 2011/12, rural households spent almost seven per cent and urban households around 5.5 per cent of their monthly income on health care. When these already significant expenses go up – as during a serious illness or an accident – the result can overwhelm families, especially the poorer ones. The policy document says that 18 per cent of households faced catastrophic medical expenditure in 2011/12, an increase over 15 per cent in 2004/05. These outsized medical costs can lead to indebtedness, with health emergencies driving a cycle of debt and further consequences, including pulling children out of school in to low-skilled jobs or, in the case of girls, early marriages. The World Bank estimates that about a fifth of the population in India lives in extreme poverty – and increasing pharmaceutical costs would hit these families most directly.

The affordability of medicines matters for another, more general reason. High drug prices mean that poor people in bad health may hold back from paying for – and taking – the full course of recommended medicines, such as antiviral medicines or antibiotics. This false economy puts the entire public health system in jeopardy by facilitating the growth of drug-resistant strains of disease. High prices for medicines can result in fewer effective medicines being available, not only in India, but worldwide.

Under Pressure

India's regime of affordable medicine makes eminent sense on a number of independent grounds. However, this regime is under enormous pressure today, largely because of the lobbying of multinational corporations and foreign governments, which together have worked for decades to construct a global trading order intended to make medicines more expensive and to shift industry, and profits, to the developed world.

One key source of pressure on India's affordable medicines comes from the World Trade Organization (WTO). A condition for membership of the WTO, created in 1995, was adherence to its intellectual property treaty, TRIPS. That treaty requires most countries in the world – many for the first time – to grant product patents on medicines. The WTO inaugurated the linkage between trade and intellectual property rights (IPR), but the two agendas have never fitted neatly. While the trade agenda is about liberalisation of the flow of goods and services across borders, the TRIPS treaty imposes trade-restrictive policies to uphold monopoly profits. This linkage between trade and intellectual property was pushed by the largest pharmaceutical companies in the world, though India's intervention in the early negotiations of the WTO helped keep the linkage from being even tighter – more restrictive and more inequitable – than it currently is.

The justification offered for this linkage was that more protection for IPR would lead to more innovation. The evidence for this connection, as a

The draft National Health Care Policy 2015 says that in 2011/12, rural homes in India spent almost ***seven per cent and urban households around 5.5 per cent of their monthly income on health care.*** *When these already significant expenses go up – as during a serious illness or an accident – the result can overwhelm families, especially poorer ones*

matter of global welfare, was never strong, because innovation gains must be traded off against the health and lives lost from increased prices. The TRIPS treaty mandated patents in developing countries, which are a tiny portion of the global market overall, but where patients are particularly vulnerable to price increases. This move has almost certainly generated net social losses, because more people are priced out than saved by medicines that have been developed because of additional patent protection. Newer trade agreements – among them the Trans-Pacific Partnership (TPP) and Transatlantic Trade and Investment Partnership (TTIP) – double down on this 20th century logic, giving the patent-based industry still more control, and more pricing power, with ever smaller potential gains to innovation.

The problem runs deeper still. TRIPS and these newer agreements seek to impose on the world one particular approach to the development and distribution of medicines, an approach that is increasingly revealed to have enormous costs for all countries. Patents generate incentives by imposing high prices on those who need medicine. So it is no surprise that developed countries no less than developing ones are struggling with skyrocketing drug prices. In the US, for example, new medicines to treat Hepatitis C – a sometimes deadly liver disease – debuted last year at more than $84,000 for a 12-week course of treatment. (The same drugs are sold in India by generic firms for less than $1,000). In the US, the drug has been sharply rationed in response. In just one year, federal government programmes in the US spent nearly $5 billion on these medicines – and treated very few of those in need. The US Senate recently conducted an investigation into the pricing of these

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new drugs, and estimated their cost of development at just a few hundred million dollars. The main provider of these new medicines, Gilead, has already earned more than $26 billion in returns, recouping many times over its initial investment in the drug. But millions of sick people are still left untreated. The prices generated by this aggressive patent-based model are unsustainable and inefficient.

The problem is nearly as bad in Europe, despite the price control systems in place there that serve partly to moderate outsized monopoly profits. Even at discounts of about 50 per cent, the new Hepatitis C medicines still impose massive budgetary burdens on governments, restricting access to the drugs and undermining public health. (Hepatitis C is infectious, so treatment is also a kind of prevention, as with diseases such as HIV/AIDS. Serious price controls are hard to enforce against the background of patents, which give companies ultimate say over the price and availability of their medicines. Additionally, pharmaceutical companies have used trade agreements to attack national price control systems directly. The TPP, for example, has a "health care transparency annex" that is intended to make price controls more onerous for governments and to give multinational companies more power to challenge national programmes that curb prices.

Domestically, policymakers in the US and Europe are starting to reach for solutions akin to those that India has used – even while, ironically, their trade ministries are attempting to block these same moves in India and elsewhere. US presidential hopeful Bernie Sanders, for example, has proposed that the US government override the patent on the new Hepatitis C medicines, and pay the company a reasonable royalty, to prevent the kind of extortion now taking place.

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Leading the Way

India has quietly led the way here; for example, by exerting its authority to issue compulsory licences for medicines, including on the grounds that medicines are unaffordable. The licence issued to Natco in 2014 to produce an important cancer drug, Sorafenib (brand name, Nexevar), is a case in point, and shows the potential impact of Indian government pressure on drug prices. In that case, the branded cost was ₹2,84,000 per patient per year, while the generic price was ₹8,800.

Though such compulsory licences are fully compliant with WTO rules – thanks in part to India's early intervention in the negotiations – invoking them requires strong political backbone. The US has responded by upping the diplomatic pressure on India and lobbying for changes to India's patent law that would reduce the availability of affordable generic medicines.The US, and increasingly the EU, are attempting to hobble India's generics industry. The effort is to weaken aspects of India's law that set a high standard for innovation (for example, Section 3[d] of the Act), and lobbying for new forms of patent-like protection, including data exclusivity. Whether India is able to resist such pressure or not will make a big difference to its development over the next 25 years.

India's actions are closely watched around the world. Its innovative patent law both meets international obligations and provides flexibility to promote access to medicines, and has been emulated by other countries. India should continue to lead both by defending its laws and by resisting pressure to join or align its policies with the new trade agreements such as the TPP and TTIP, which would

undermine its ability to make affordable medicines for its own citizens and for export abroad.

New Approach Needed

It can further lead by consolidating a new approach to pharmaceutical access and innovation, and codifying this approach in its own agreements with other countries. For example, India can actively cultivate and support allies in the developing world which have sought to make use of patent flexibilities, including Brazil and South Africa. Together, these countries should work to negotiate agreements that mutually commit to retaining the freedom to craft national patent law, to issue compulsory drug licences, and to promote affordable access to medicines.

India can also lead in another way: by developing new models to support pharmaceutical research and development (R&D). India has the technical infrastructure and the financial power to commit more resources to health research, and to use those resources to promote strategies that improve public health without compromising access, such as direct government funding of science. With grants and prize funds, for example, India could prioritise research in areas of special public health importance, while insisting that recipients of grants or prizes commit to pricing new medicines affordably. India is also in an excellent position to promote more open models of innovation, by insisting that patent barriers to research are kept low, and by strategically funding open science networks, both within India and globally. India can also leverage its power to bring other countries into the fold, working at the World Health Organization and through its multinational agreements to promote a new, more equitable and health-driven approach to R&D around the world.

India's patent law meets both international obligations and provides flexibility to promote access to medicines. It has been emulated by other countries. It should continue to lead by defending its laws and resisting pressure to join or align its policies with new trade arrangements such as the TPP and TTIP, which would undermine its ability to make affordable medicines for its own citizens and for export

India's leadership matters for more than India alone and for more than just medicines. In fact, taking the lead on medicines could become part of a more general India-led push to transform the international economic order into one concerned with poverty alleviation and development.

Twenty-five years from now, the question will not be whether India is a major world power. That can be taken for granted. The question will be whether, during its rise, it used its growing power to lead the world to a position of sanity and humanity on patents, R&D, and public health—or whether it yielded to the pressure of foreign lobbies at the moment of its ascent. If the Indian government can maintain its development-friendly stance on patents and public health, and help create alternative mechanisms to support scientific research, it will be doing the right thing—and not just for its own citizens. It will prove an inspiration to other developing countries—and indeed a model for the whole world. ◆

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Health for All

Towards an Integrated Pro-Poor Health Policy

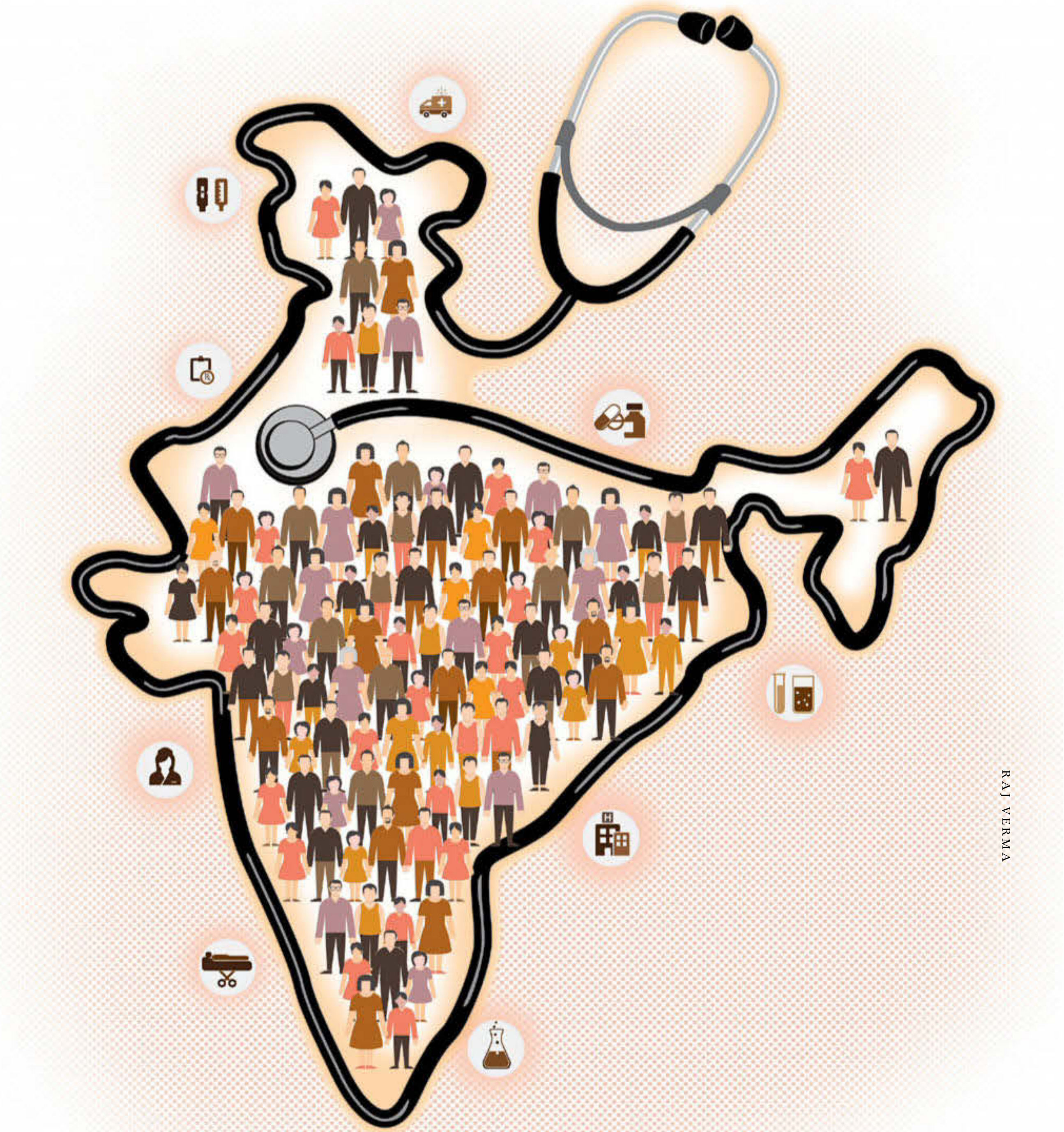
BY K. SRINATH REDDY


VIVAN MEHRA

ABOUT: Despite growth in public and private hospitals, and primary care centres, and increased sophistication in medical insurance products, the poor in India still have very little access to proper medical care as compared to those in developed countries. What is the solution? **K. Srinath Reddy, President, Public Health Foundation of India,** looks at the way ahead for universal health insurance in India.

Globally, over 100 million people are pushed below the poverty line every year, while nearly 250 million people incur catastrophic out-of-pocket spending (OOPs) on health care. In India, nearly 50 million people are impoverished and about 150 million incur catastrophic expenditure because of unaffordable health care. The need to provide protection against such financial distress and increase access to affordable health care has led to the rise of health insurance. Most countries recognise the value of a healthy population for economic development and several others legally recognise the right to health of all individuals. Accordingly, insurance systems have evolved to manage an individual's health event and associated payment by pooling risks across the population and paying collectively prior to the event (prepayment). Insured individuals and families cross-subsidise health risks among themselves, by creating a large pool of premium payments from which only a few draw when they fall ill. Thus at any time, the 'healthy' subsidise the 'sick'. Larger the pool, greater the potential for spreading risks. A large pool also allows society to reap the benefit of predicting the average cost.

Many welfare-oriented rich countries provide insurance cover to their populations. Even a number of low- and middle-income economies provide financial risk protection to people at large, where governments spend a larger share of their tax revenues to deliver health care services. As a consequence, health outcomes are more robust and people do not suffer financial hardships due to OOPs. In such tax-funded health systems, the rich subsidise the poor and



RAJ VERMA

the risk pool comprises the whole population. Though this is not usually designated as a health insurance system, the insurance function in this case is implicit, because prepayment (through taxes) and risk-pooling (whole population is covered) are the underlying principles. In countries where social health insurance dominates, the insurance function is explicit. Global evidence demonstrates that tax-funded government health systems and contributory social health insurance are equally effective in terms of achieving better health outcomes and providing financial risk protection.

Until 2007, India had only two large fragmented health insurance schemes – the Central Government Health Scheme (CGHS) and Employees' State Insurance Scheme (ESIS). CGHS benefits are available to all central government

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employees, with a minimal contribution from the employees, while a large share of the payment is made by the central government through budgetary allocations every year. The ESIS is a typical social health insurance programme, wherein the employees, employers and the government together contribute to a fund, which pays to provide both inpatient and outpatient care benefits to the enrolled employees and their dependents. Community-based health insurance programmes in India provide limited benefits and are often unsustainable because of a smaller risk pool of contributors and limited-paying capacity of individual community members. Since informal workers dominate (92 per cent) the workforce, scaling up contributory social insurance (through salary deductions) would take decades.

In view of a large informal workforce, both central and state governments in India had to step in. In 2007, Andhra Pradesh came up with an insurance programme, where the premium was entirely funded by the state government. The insurance company, in turn, began purchasing tertiary hospital-based surgical care from both private and government facilities. The following year, the Centre introduced Rashtriya Swasthya Bima Yojana (RSBY) but confined the benefits to secondary care hospitalisation, which entailed lower costs. The Andhra Pradesh model was followed by Tamil Nadu, Karnataka, Maharashtra and Gujarat. Most state government-funded insurance schemes expanded their ambit to cover the poor and a large part of the middle-income population, which was vulnerable to health care-related financial shocks. Population coverage of these schemes ranged between 40 per cent and 70 per cent, with Andhra Pradesh covering the most. RSBY, on the other hand, has been largely confined to people who are below poverty line (BPL). Health benefits were offered by RSBY to the extent of ₹30,000 per annum for a family of five on a floater basis. The state government-funded health insurance schemes offered higher benefits with a ceiling of ₹1.5 lakh to ₹2 lakh per annum.

Providing appropriate health care of assured quality at affordable costs to all the people is the objective of Universal Health Coverage (UHC). The poor and other vulnerable sections unreached by existing health services do require special attention. At the same time, health care costs need to be contained

From roughly 75 million of India's population covered by health insurance in 2007, the current number is around 370 million, according to administrative data from these schemes. While private insurance accounts for 15 per cent, government-funded schemes make for the rest. A recent survey of the National Sample Survey Organisation (NSSO), a government agency, however, suggests that about 11 per cent of the population is covered by health insurance schemes, which translates to around 100 million. This discrepancy between the number of people covered suggests that notional enrolment may be high, but effective population coverage could be far lower.

A central objective of these schemes is to provide access to hospital care along with financial risk protection. Evidence from the national level survey conducted by NSSO during 2014 suggests that the utilisation of hospital cover provided by RSBY has been limited


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to about one-fourth of all secondary hospitalisation episodes among the poor and vulnerable sections. Several micro-level studies and evidence from the large sample survey conducted by NSSO indicate that the financial benefit to households has been very limited, despite some health benefits. Poor households in India, despite such schemes, are still paying for their overall health care. Catastrophic spending, a critical indicator to measure financial risk protection, did not decline among those who are covered by government-funded health insurance schemes. The principal reason for the failure of such schemes in providing financial protection lies in the limited benefit packages offered by the programmes. The focus of RSBY and other government-funded health insurance schemes is to provide access to hospital care. On the other hand, households in India incur nearly two-thirds of their OOPs while accessing outpatient care, especially on medicines. Expenditure on outpatient consultations, diagnostic tests and medicines are not covered by these schemes. Only about 16 per cent of all essential medicines are under price control.

A major limitation of the government schemes lies in their fragmentation of care, since primary care is neither covered nor connected to more advanced secondary and tertiary levels of care. Comprehensive and continuous care, and essential attributes of a good health system are absent. Private insurance is usually reluctant to cover primary care, because it involves a wide range of common conditions with many potential claims. If the government also shies away from primary care in its health insurance schemes, health care will be incomplete in population coverage, grossly inadequate in service coverage and defective in cost coverage. This deviates from all principles of Universal Health Coverage (UHC) which India signed up to in September 2015, as part of the Sustainable Development Goals (SDGs).

Scaling up significant investment in primary health care and assuring the supply of essential drugs would reduce the need for hospitalisation. Such measures would not only improve access to overall health care but would also prove to be cost-effective and pro-poor

Evidence from evaluation of these schemes as well as global experience reveal that passive purchasing results in cost escalation and runs the risk of unnecessary health care being delivered. Without robust regulatory systems, abuses can occur. For instance, media reports from some states indicate that hysterectomy surgeries are being unethically performed even on young women. In the past, media reports also suggested that some hospitals turn outpatient care visits into hospitalisation episodes merely to avail the benefit of the scheme. Some hospitals also charge patients over the prescribed cost ceiling for procedures. The involvement of several financial intermediaries in the schemes, such as the insurance companies and third party administrators (TPAs), further pushes up the cost of operating the scheme. Some states have turned to a Trust model, avoiding the insurance intermediary.

Providing appropriate health care of assured quality at affordable cost to all people is the objective of UHC. The poor and other vulnerable sections not reached by the existing health services do require special attention under UHC. At the same time, health care costs need to be contained. Scaling up significant investment in primary health care and assuring the supply of essential drugs would reduce the need for hospitalisation. Such measures would not only improve access to overall health care but would also prove to be cost-effective and pro-poor. Robust rural and urban primary health care services will significantly reduce OOPs of households by attending to common conditions and providing preventive and early-care close to home.

Countries that have achieved good health at a low cost, such as Sri Lanka and Thailand, have taken the primary health care route as a key pillar of

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health system strengthening. These countries now boast of having achieved good health outcomes comparable to those even in rich economies. They have also been able to provide significant financial risk protection. Models of integrated care, which seamlessly connect primary to secondary and tertiary care, and contain health care costs by optimally utilising primary care for prevention and a 'gatekeeper function' for appropriate referral, exist within both public health care and private insurance systems across the world. The Kaiser Permanente system, which operates in some parts of the US, combines an insurance role with a provider network and creates a financial incentive for keeping people healthy and avoiding complications that require high cost procedures.

Unless a strong primary care system is effectively connected to the public and private providers of secondary and tertiary care through a UHC framework that integrates all government-funded health insurance schemes, we will not be able to reap the medical and financial advantages of integrated care. The payment system, too, should change from a fee-for-service model that pays for every visit or procedure to a fixed annual service fee that encourages prevention in clinical practice and cost containment through preserving health.

There is now an opportunity for different states to develop such models, given the promise of greater resources and autonomy through the devolution that follows the fourteenth Finance Commission's recommendations. This would also need the Centre to play an enabling role, because RSBY will continue to be centrally administered and it must ensure that portability of UHC entitlements is protected as Indians travel across states for employment, education or leisure. Ideally, all central- and state-funded insurance schemes should be integrated to provide adequate coverage for standardised secondary and tertiary care that stands on the firm foundations of comprehensive primary care. Merging all central- and state-funded insurance schemes (including those for the Indian Railways) will greatly expand the risk pool and enable greater financial protection. Some sections of the middle class may join the rich in opting out of this system, preferring to seek private care and pay out of their own pocket. Private health insurance will be attractive to this small segment as it expands with economic growth.

Ideally, all central- and state-funded insurance schemes should be integrated to provide ***adequate coverage*** *for standardised secondary and tertiary care that stands on the firm foundations of comprehensive primary care.*

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Nevertheless, in a progressive tax system, those who seek this route will continue to cross-subsidise the poor who will derive the benefits of tax-funded public health care and government-subsidised health insurance. To make this happen under a framework of UHC, the Centre and the states must collectively increase investment in health and develop a concerted action plan for delivering quality-assured integrated health care with pro-poor emphasis, leaving adequate room for state-specific adaptations and innovations. That will be the true test of cooperative federalism. ◆

Health for All

Looking Back to Plan for the Future

BY ROBYN NORTON AND VIVEKANANDA JHA

ABOUT: In many of our urban areas, health-care facilities rank with the best in countries like the US and the UK. But problems start cropping up as you move away from the cities and deeper into rural India. Despite over six decades of effort, the Indian government – and voluntary organisations working in the field – have not been able to reduce the disparity between health-care facilities in big cities and those in remote areas. But now, technological advancements hold out some hope. **Robyn Norton, Principal Director, Professor of Global Health and James Martin Professorial Fellow, University of Oxford**, and **Professor Vivekananda Jha, Executive Director of George Institute of Public Health, India**, share their thoughts in this article.

Of all of the forms of inequality, injustice in health is the most shocking and inhumane.
- Dr. Martin Luther King, Jr.

The 1978 Alma-Ata declaration, of which India was a signatory, was the first global expression of the importance of primary health care, and identified it as key to the attainment of Health for All. In particular, it termed inequalities in health care as politically, socially and economically unacceptable. It also highlighted the positive effect of health promotion and protection on economic and social development of people.

The United Nations 2030 Agenda for Sustainable Development urges countries to "ensure healthy lives and promote well-being for all at all ages". Specific targets include reduction of maternal mortality to under 70 per 100,000 live births; ending preventable deaths of newborns and under-five children; ending the epidemics of HIV, TB, malaria and neglected tropical diseases; reducing premature mortality from non-communicable diseases (NCDs) by one-third; halving deaths and injuries from road accidents; and providing universal health coverage, with equity in access to health services and financial risk protection.

The right to health is mentioned in Part IV of the Indian Constitution under the Directive Principles of State Policy. In a series of judgements since the mid-1990s, the Supreme Court of India has carved out a Right to Health within Article 21 that describes the right to live with human dignity, making it a part of fundamental rights.

To keep people healthy, we need to focus on the provision of affordable, high-quality primary care and risk mitigation, ideally with linkages to advanced care.

Health-Care System in India

At present, the health-care system in India is characterised by large inequities related to access; variability in quality; focus on cure and disease rather than prevention; lack of attention to policy or evidence; over-reliance on the private sector; and lack of financial protection. Indian private hospitals promote themselves as destinations for medical tourism and the generic drug industry seeks to turn India into a global pharmacy. At the same time, a large number of Indians remain without basic health promotion and preventive services.

The total spending on health care in India is about ₹10,200 ($157) per capita, or 4 per cent of GDP, of which only about 25 per cent (₹2,600) is contributed by the government. These figures are lower than even those of most Sub-Saharan African countries

AJAY THAKURI

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Over the past 50 years, poverty has reduced, and vital health indicators such as life expectancy and maternal/infant mortality rates have improved. However, this pales in comparison with the strides made by comparable economies elsewhere in the world. There are within-country disparities as well the life expectancy varies from 58 years in Madhya Pradesh to 76 years in Kerala.

Disease Burden and Resources

The Global Burden of Disease (GBD) Study gives up-to-date evidence on levels and trends related to mortality in 188 countries. According to the 2015 GBD report, India accounted for one-fifth of all global deaths. Ischemic heart disease topped the list of causes of premature deaths in 2013. In contrast to 1990, when eight of the top 10 causes of death were infections and pregnancy-related complications, in 2013, five of the top 10 causes (accounting for 60 per cent of all deaths) were NCDs and injury.

The total spending on health care in India is about ₹10,200 ($157) per capita, or 4 per cent of GDP, of which only about 25 per cent (₹2,600) is contributed by the government. These figures are lower than even those of most Sub-Saharan African countries. On top of this already low figure, the 2014/15 health budget was slashed by 20 per cent to ₹29,000 crore, and the 2015/16 figure is not much higher either (₹29,700 crore). Such cuts fly in the face of evidence that investing in health care even during economic downturns helps recovery and improves the strength of human resources. Healthy people are more productive, are more likely to save money, leading to wealth creation, and favourably influence the population structure through reduced fertility rates.

The staffing figures are also dismal, with 0.7 doctors and 1.1 nurses per 1,000 people. According to a report of the National Rural Health Mission, the ratio of population to doctors is six times lower in rural areas than in urban areas. Many rural primary health centres cater to double the population they are designed for (about 25,000), and a significant proportion are either unstaffed or have no equipment. About 66 per cent rural population lacks access to preventive medicines and over 31 per cent has to travel over 30 km for treatment. For those working in an unorganised sector, this means loss of a day's earnings. Hence, individuals do not seek care until it becomes unavoidable often when the illness has reached the point of no return. Because of inadequate primary care facilities, tertiary hospitals continue to be beset with problems that should have been addressed in the community.

Currently at 7 per cent, the number of individuals over the age of 65 years in India is expected to rise to 12.5 per cent (170 million) by 2026. Older people are the most intensive users of health-care services. Population ageing will be accompanied by increase in the proportion of those with multiple conditions requiring long-term care. Many of these diseases can be avoided by timely care.

Currently at 7 per cent, the number of individuals over the age of 65 years in India is expected to rise to 12.5 per cent (170 million) by 2026. Older people are the most intensive users of health-care services. Population ageing will be accompanied by increase in the proportion of those with multiple conditions requiring long-term care

In sum, most people in India do not have reliable access to health care nec-

essary to prevent and treat conditions most likely to cause early death and lifelong disability. And the best available evidence suggests the situation is likely to worsen in the coming years – unless we make major changes now.

Transformative Change is Needed

Current inadequacies, projections of demand and limited resources call for system-wide changes. Fundamental, transformative change is required with "disruptive" innovation — ideas that are truly out of the box.

What should be the specific targets? To dramatically improve access and reduce cost, the location and focus need to move out of hospitals, where doctors reside, into the community, where people live. Science, technology and entrepreneurship should drive the change.

Primary care should include health promotion, prevention and basic diagnostic & curative services focused on the most important causes of death and disability, including NCDs. Early care that keeps people out of hospitals needs to be incentivised.

Innovations to the Rescue

There are many situations where we do not know how to get well-known effective treatments to those most in need. Examples include developing effective methods to deliver preventive care to those at the risk of developing NCDs in the absence of doctors at the front line and ensuring long-term adherence to treatments prescribed for chronic diseases. Patients and providers must be assured that the quality of care in the community will not be compromised.

This can be achieved through the development and implementation of technology that ensures that the best evidence is used in decision-making, besides information sharing across different levels of health services, including patients and providers. Information technology platforms now enable embedding of latest guideline-based decision support that can provide user-appropriate output at all levels of health workers, provide motivation to patients, and serve as a reminder system. The biggest drivers of transformative change in the delivery of health care are likely to be wireless technology, linkages to electronic health records, drug supply chain management systems, simple point-of-care diagnostic devices and cheap wearable sensors.

Implementation of this technological solution can enable a second transformation — replacement of the physician-based workforce at the frontline with non-physician healthcare workers (NHPWs), so that physicians can focus on patients who need care that cannot be provided by the former. Practitioners of other systems of medicine, such as Ayurveda and Homoeopathy, should be co-opted in such programmes.

About 66 per cent rural population lacks access to preventive medicines and over 31 per cent has to travel over 30 km for treatment. For those working in an unorganised sector, this means loss of a day's earnings. Hence, individuals do not seek care until it becomes unavoidable — often when the illness has reached the point of no return

The Need for Evidence

We would like to insert a note of caution. The number of players in the market with untested mobile health products has mushroomed, so much so that the mention of mHealth technologies induces an up-rolling of eyeballs. Many stakeholders, including physicians and policymakers, do not believe that it can bring about important evolution in practice, and that it is "not worth the hype".

This scepticism needs to be overcome with rigorous science. There is a need to generate evidence about acceptability, effectiveness, cost-effectiveness and scalability of transformative healthcare delivery practices. This will require the conduct of appropriately-designed, randomised controlled trials to determine whether systems-focused interventions actually make a difference to health outcomes, as well as studies to identify the barriers to implementation in real-life settings.

An example is the SMARThealth programme of George Institute for

Global Health India, developed in collaboration with Institute of Biomedical Engineering of the University of Oxford, and implemented in rural Andhra Pradesh. After a short training, village health-care workers identify patients at the risk of developing cardiovascular disease(s) and choose the optimal treatment using standardised, evidence-based approaches with the help of a simple decision-support algorithm. They refer high-risk patients to medical practitioners at the nearest primary health centre. A study showed that trained village workers outperformed unaided physicians in accurate identification of at-risk subjects and selection of treatment.

Optimal use of this technology-aided task-shifting will require giving limited prescription rights to NHPWs so that the patient does not have to make an extra visit to the physician simply to get a prescription. This recommendation is in line with the National Policy for Prevention & Control of NCDs, which envisages an increased role for NHPWs. Many countries allow NHPWs, such as nurse-practitioners or physician-assistants, to prescribe medications. Additional barriers that need to be tackled include ensuring availability of essential medicines and diagnostics at primary health centres.

High income countries are allocating monies to develop such evidence. For example, the UK government has established a £1.5-billion Global Challenges Fund to ensure that the country's science takes the lead in addressing the problems faced by developing countries. The UK Collaborative on Development Sciences is linking research with development investment. In contrast, the Indian Council of Medical Research is out of funds, and has not been accepting any research proposals since September 2015.

Patients will play a greater role in the management of their care.

Payment models around the world are shifting from "pay for service" to "pay for performance". The Indian health-care system needs to embrace this change

Technological innovations will empower those with complex chronic diseases to do self-monitoring and self-management at home. Remote monitoring will improve outcomes and reduce hospital admissions, critical drivers of costs. This technology has been already tested successfully for self-management of patients with heart failure, chronic respiratory diseases and Alzheimer's disease, and is now being tried for patients who get dialysis done at home. Combined with the use of technology to collect data on a person's daily life in terms of inputs (food consumed, quality of air, etc), states (mood, blood oxygen levels, etc) and performance (mental and physical), this can be turned into a powerful tool for personalised health promotion via text or voice messages. New apps for mobile phones, such as FoodSwitch, which provides nutrition information about packaged foods by scanning bar codes, help people make healthy food choices.

Scaling up, Financing

A major challenge for this initiative is "scaling up" and facilitating adoption in government and private sector operations. At present, private sector primary care clinics are fragmented and sub-scale, and do not use technology beyond electronic health records.

Social entrepreneurs, who recognise that financial success and humanitarian contribution are not mutually exclusive, can accelerate this transformation by supporting development of innovative, affordable care solutions. Success stories include Aravind Eye Hospital and Narayana Hrudayalaya, which rely heavily on paramedical personnel and standardisation of processes.

Extending provision of private health care to a cross-section of the community via low-cost community clinic chains in slums, technology-

SHEKHAR GHOSH

enabled NHPW outreach, establishment of a referral chain for specialist services and novel funding mechanisms such as micro-health insurance are opportunities for entrepreneurs.

The Indian health insurance companies, bedevilled by high claim ratios, also need to change their model. Paradoxically, insurance companies prioritise coverage for procedures and treatment over promoting healthy practices. Several employee health insurance schemes cover inpatient but not outpatient treatment, putting preventive treatment at a disadvantage. Large organisations that provide health coverage to thousands of employees need to realise that changing these priorities is likely to lead to substantial savings on premium payments. Even the state-funded insurance schemes, such as the Rashtriya Swasthya Bima Yojana and the Rajiv Aarogyasri Community Health Insurance Scheme, pay for procedures rather than primary or preventive care. Central-and state-funded insurance schemes work in an uncoordinated fashion — they need to be merged into a single-payer system that allows portability from state to state.

Already, around the world, the focus is shifting to keeping people healthy, improving their quality of life, maintaining independence and minimising personal costs by reducing the likelihood of costly medical episodes needing hospital visits, admissions or readmissions. Payment models around the world are shifting from "pay for service" to "pay for performance." The Indian health-care system needs to embrace this change.

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The Need for Data

Finally, planning for health-care delivery depends on regular information gathering and timely data on health needs and the impact of delivery. Data must form the bulwark of health delivery schemes. The better the data, the more robust are the findings.

Worryingly, the 2015 GBD report singled out India for an actual decline in the cause of death data for 2013 compared with that available in 1990 or 2000. Absence of data collection mechanisms makes the Right to Health a mere rhetoric. Analysis of big data sets, such as those collected from electronic health records or those collected by insurance companies, provides opportunities to inform existing schemes. ◆

Agriculture

A Revolution Waiting to Happen Beyond the Mandis

BY DILIP MOOKHERJEE


SUBIR HALDAR

ABOUT: The highly restrictive Mandi system has been the bane of India's agricultural marketing and distribution. It's not just trader-centric, leaving the farmer to fend for himself, but is also blamed for hoarding, collaborative price surges and spoilt farm produce. It may have run its course. But what's the alternative? **Dilip Mookherjee, Director of the Institute for Economic Development, and Professor of Economics at Boston University,** who specialises in incentives and institutions, suggests the path to a more efficient and transparent agri supply chain.

How would you like to see a five times increase in production of crops and a three times increase in incomes of small farmers in India, all within the next decade? This would raise the Indian economy's growth rate, and nearly eliminate poverty and food price inflation. An impossible dream? Yet, this is what happened in the remote northwestern Chinese Gansu province in the past 15 years. It did not require large investments in infrastructure or productive facilities. Instead, the trigger was a revolution in marketing organisation. Local governments formed marketing associations that brought together small potato farmers and negotiated on their behalf directly with wholesalers and retailers. Bypassing middlemen enabled farmers to realise a three-fold rise in prices for their potato. This incentivised farmers to raise potato yields by 50 per cent and cropped area by 300 per cent, resulting in dramatic output and income growth.

Is there scope for something like this to happen in India? Isn't Indian agriculture performing well enough already? Production technology in Indian agriculture has grown by leaps and bounds over the past 50 years, thanks to the Green Revolution and large irrigation investments. However, while the country now produces sufficient quantities of grain to feed itself, supplies of non-staple crops such as fruits and vegetables are failing to keep up with demand, resulting

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in high rates of food price inflation. The agricultural sector is struggling to meet growing demand for food quality and safety from domestic consumers. It is failing to integrate into global value chains, thereby, missing lucrative exporting opportunities. Meanwhile, the bulk of the population – small farmers and landless workers – remain trapped in low productivity occupations.

Therefore, the time is opportune for a corresponding revolution in agricultural marketing. As numerous researchers have documented, agricultural marketing arrangements in India are caught in a time-warp, resembling those in the Middle Ages or sub-Saharan Africa. Large parts of India still rely on the traditional arrangement of a long vertical chain of intermediary middlemen who earn hefty margins. Farmers sell to local middlemen (*kachha arhatiyas, phorias, village banias*) who re-sell to (or are commission agents of) wholesale traders, who in turn sell in large mandis to wholesale buyers and retailers. Middlemen margins in West Bengal potato, for instance, range from a quarter to a half of the wholesale price. Conservative estimates show that West Bengal potato middlemen earn at least as much as the farmers themselves, implying that farmers receive half or less of the actual wholesale price. In other words, if there were a way for the farmers to sell directly to wholesale buyers, the

The time is opportune for a corresponding ***revolution in agricultural marketing****. As numerous researchers have documented, agricultural marketing arrangements in India are caught in a time-warp, resembling those in the Middle Ages or sub-Saharan Africa* price they would receive would double or treble. Just as it did in Gansu province.

In some Indian states, marketing organisation is regulated by the state APMC (Agricultural Produce Marketing Committee) regulations. Farmers take their produce to the *mandis* where it is auctioned off to wholesale buyers under the oversight of APMC-appointed overseers. The APMCs severely limit the set of buyers that can participate in the auctions, besides prohibiting direct sales by farmers. The auctions are conducted in a perfunctory manner; there is much evidence of collusion among buyers who are not prevented and, perhaps, even facilitated by the state-appointed overseer. The net result: farmers realise low prices and have only limited incentives to raise yields or expand cropped areas.

The farmer price realisation problem is compounded by poor infrastructure at the *mandis*. Manual weighing, single-window systems and lack of modern grading and sorting processes create long delays and measurement errors that tend to be biased against the seller. There are long queues of farmers waiting to sell their produce, with limited ability to take their produce elsewhere if the price is below other outlets. The delays result in large post-harvest losses to the tune of 4-6 per cent for cereals and pulses, 7-12 per cent for vegetables and 6-18 per cent for fruits. Total post-harvest losses were estimated at ₹44,000 crore at 2009 wholesale prices.

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SHEKHAR GHOSH

Lack of storage facilities limit opportunities for farmers to store crops for sale at later times rather than at the time of harvest when their price is depressed. Lack of adequate refrigeration and sanitation at the *mandis* result in lower food freshness and quality, compounded further by similar problems in transportation and retail markets. Measurement of quality is difficult and there is no awareness on food safety standards that need to be maintained.

Further cutting into farmers' price realisation is a large range of taxes levied by APMCs, of which only a small proportion is ploughed back into the *mandi* infrastructure. Market fees range between 0.5 per cent and 2 per cent of the sale value. In addition, commission charges vary from 1-2.5 per cent in foodgrain and 4-8 per cent in fruits and vegetables. Other charges include purchase tax and weighing fees charges. The resulting total burden of charges can go up to 15 per cent in some states. On the other hand, state spending on *mandi* infrastructure accounts for only 1 per cent of public spending on agriculture.

Farmers lack information about average prices prevailing in different *mandis*, despite widespread diffusion of cellphones. Neighbouring *mandi* prices for specific commodities are rarely in public domain, with the exception of a handful of areas under

organisations such as Agmark. However, such price information is valuable to farmers only in the presence of effective competition among buyers for their produce. That is, if they have options of selling directly to multiple alternative outlets within a comparable transportable distance. These conditions do not prevail in many parts of the country. Randomised field experiments in West Bengal (a non-APMC state) and Maharashtra (an APMC state) with provisions of *mandi* price information failed to result in increased price realisation for farmers. The Bengal experiment also resulted in greater volatility of price received by farmers, which made them worse off. On the other hand, access to price information provided through ITC's *e-choupals* enabled soybean farmers in Madhya Pradesh to realise only 1-2 per cent rise in prices. Apart from information about prices prevailing in neighbouring *mandis*, the *e-choupals* represented an additional selling option to farmers. Therefore, lack of effective competition is the constraint that really binds; information access is valuable only in the presence of effective competition.

With few exceptions, APMC regulations prevent supermarkets, retailers or agro-processing exporters from procuring directly from farmers. This prevents widespread emergence of contract farming, which vertically integrates the supply chain of high-value cash crops. Such vertical integration allows end-users to upgrade and coordinate varieties planted by farmers with those that customers demand and meet safety standards. End-users can additionally provide credit and transfer risk from farmers, and invest in modern transport and storage facilities. Contract farming has emerged in production of gherkins, medicinal herbs, potatoes, poultry and horticulture products in a few states (Tamil Nadu, Punjab, Karnataka, Himachal Pradesh) that have permitted them, with encouraging results for growth of output, export and farmer incomes.

*APMC regulations prevent supermarkets, retailers or agro-processing exporters from procuring directly from farmers. This prevents widespread **emergence of contract farming**, which vertically integrates the supply chain of high-value cash crops. Such vertical integration allows end-users to upgrade and **coordinate varieties planted** by farmers with those that customers demand and meet safety standards*

Yet, contract farming also raises a variety of regulatory challenges ranging from scope for opportunistic and possibly exploitative behavior by buyers. Defaults by farmers also frequently occur. Such hazards are well-known from contract farming practices during the 19th century, and seem to recur in a number of recent case studies.

Even if contract farming becomes more widespread, its incidence is likely to be limited to a specific set of high-value cash crops. The bulk of agricultural production will continue to be handled through more conventional distributional channels. What is essential in bringing about the required revolution in agricultural marketing is to raise effective competition for the farmers' produce, which will be facilitated by co-existence of multiple sales channels. If farmers are free to decide between contract farming options and more conventional *mandi* sales, market competition will induce the necessary discipline on exercise of monopsony power by either type of buyer. Such salutary benefits of farmers' option to sell to ITC's *e-choupals* were observed in Madhya Pradesh *mandis* and prices offered by *arhatiyas* to farmers.

The first ingredient of the necessary marketing revolution is therefore a deregulation of the state APMC acts and removal of barriers to effective competition for farmers' produce. Contract farming or direct purchases by retailers or agro-processing exporters need to be legitimised and encouraged throughout the country. Farmers need to be free to sell to whichever outlet they choose. Dismantling the

permit raj is the first and primary imperative, which has the potential to unleash a growth momentum in agriculture analogous to the de-licensing reforms in industry and trade during the early 1990s.

But deregulation by itself is not going to be enough. A new regulatory framework and creation of supporting market institutions is needed. An unregulated laissez faire will confront problems of inadequate competition for various reasons. These include scale economies in transport and storage, that will tend to generate oligopolistic cartels of middlemen that provide these services. *Mandi* infrastructure needs to be overhauled to bring them into the 21st century. Third-party quality evaluation and certification needs to be provided. Contract farming needs to be subject to regulatory oversight to prevent opportunistic behaviour. A large supermarket chain or agro-processing exporter is likely to have considerable market power while bargaining independently with a large number of small farmers. Farmer collective organisations will be needed to ensure parity of bargaining power, and play a role in enforcement of contracts.

Most small farmers lack the literacy needed to operate e-portals that provide information about price movements and engage in e-commerce transactions with distant buyers. They lack the liquidity and credit access necessary for engaging in futures market transactions. Here again, local collective organisations such as panchayats can play an important intermediary role. This is what worked in China's Gansu province. Alternatively, local banks, rural credit agencies or buyer confederations could provide outlets similar to ITCs *e-choupals*, which engage local agents on a commission basis. Such outlets can provide farmers a package of market trading opportunities along with related credit and risk management services. ICICI had started a credit franchise programme a few years ago along these lines, but these were subsequently banned by the RBI. There is an urgent need to permit and re-introduce such agricultural marketing service outlets.

Farmers need to be free to sell to whichever outlet they choose. Dismantling the permit raj is the first and primary imperative, which has the potential to unleash a growth momentum in agriculture analogous to the de-licensing reforms in industry and trade during the early 1990s

Ultimately, the agricultural marketing revolution will require political will and leadership. Existing middlemen coalitions will mount strong opposition. Political leadership at both the Centre and state levels will be necessary to deal with lobbies and the loss of their contributions to their parties. The resulting gain in support of farmers and consumers should hopefully compensate, as the political pendulum continues to move towards effective governance as the key to political success. State governments need to reduce the burden of APMC charges, and view them less as revenue sources and more as user fees that fund *mandi* infrastructure investments. Fortunately, the momentum has been building in Central and state governments since the past decade, culminating in the 2013 report of Committee of State Ministers in charge of Agricultural Marketing headed by Harsh Vardhan Patil. A National Agricultural Market online portal was cleared by the Cabinet Committee for Economic Affairs in July 2015. These represent hopeful beginnings. But most of the action still lies ahead. ◆

Agriculture

Achieving a Yield Revolution in Major Food

BY M.S. SWAMINATHAN

VIVAN MEHRA

ABOUT: India's Green Revolution took place in the 1960s. The white revolution or Operation Flood - the exponential increase in dairy production - started in the 1970s, and ended in the 1990s. Since then, there has been only incremental thinking on the agricultural productivity front. And the biggest problem is that the bulk of the Indian farming community has not been able to escape the tyranny of monsoons. If the rains fail, so does our crops. How does one move beyond the over dependence on rains as many other countries have done? Professor **M.S. Swaminathan**, **renowned geneticist and father of the Indian Green Revolution,** shares his thoughts.

On the occasion of the 50th anniversary of our Republic, the then President K.R. Narayanan had identified two areas as the most significant achievements during 1950-2000. Strengthening the commitment to a democratic system of governance through elected Panchayati Raj institutions and other local bodies. Gender justice has been incorporated in the grassroot democratic institutions by first reserving 33 per cent seats for women and now 50 per cent. The second area highlighted by Narayanan was the achievement of the green revolution leading to self sufficiency in our food requirements. In the early 1960s, I had mentioned that a revolution in the yield potential of major food crops, such as wheat and rice, is an idea whose time had come. I, therefore, launched a research strategy involving changes in plant architecture and physiological rhythm. For achieving this, we had to initially import seeds of semi-dwarf varieties of wheat from Gonziro Inozuka of Japan and Norman Borlaug of Mexico. These varieties were capable of responding to good soil fertility and water management.

The idea of achieving a yield revolution through a revolution in plant type was put into practice intensively during 1963-68. As a result our farmers produced more wheat during 1964-68 than was possible during the preceding 4,000 years. This is why, William Gaud of the US had coined the term Green

Revolution for indicating that we can, through green plants, achieve higher production through the productivity pathway. In the case of rice also, we first started the yield revolution with Indica-Japonica crosses. Soon this gave way to the use of semi-dwarf varieties of rice obtained from Taiwan and from the International Rice Research Institute in the Philippines. Thus, during the 1960s new opportunities were created for breaking the yield ceiling in wheat and rice and increase productivity per units of land and water. The significance of a productivity approach to agricultural self reliance will be clear from the fact that the world requires 50 per cent more rice in 2030 than in 2004 with approximately 30 per cent less arable land.

Mainstreaming ecology in technology development and dissemination is the road to sustainable agriculture. The progress made by our country in food production, thanks to the green revolution symphony comprising farmers, scientists and policy makers, has probably no parallel in the world. We have now introduced a Food Security Act conferring the legal right to food to nearly 75 per cent of our population. Our Independence had as its backdrop the great Bengal Famine. We have thus moved away from famine to conferring the right to food with home-grown food. There is, however, no time to relax. The monsoon and the market are two of the major determinants of a farmers wellbeing. Monsoon behaviour is becoming erratic due to events associated with global warming. Similarly, market volatility often denies farmers the right price at the right time and place. But, how do we rescue the interests of our farmers from the vagaries of the monsoon and the market. This is the current challenge to scientists and policy makers.

2015 has been designated as the International Year of the Soil. 2016 is the International Year of Pulses. 2016 also marks the beginning of the UN sustainable development decade. Sustainable development goal No.2 calls for "end hunger, achieve food security and improved nutrition, and promote sustainable agriculture". As early as 1968, I had told the Indian Science Congress at Varanasi that: "Intensive cultivation of land without conservation of soil fertility and soil structure would lead to the springing up of deserts. Irrigation without arrangements for drainage would result in soils getting alkaline or saline. Indiscriminate use of pesticides, fungicides and herbicides could cause adverse changes in biological balance and lead to an increase in cancer and other diseases, through toxic residues present in grains or other edible parts. Unscientific tapping of underground water would lead to rapid exhaustion of this capital resource left to us through ages of natural farming. The rapid replacement of numerous locally adapted varieties with one or two high-yielding strains in large contiguous areas would result in the spread of serious diseases capable of wiping out entire

AJAY THAKURI

crops, as happened prior to the Irish potato famine of 1845 and the Bengal rice famine of 1942. Therefore, the initiation of exploitative agriculture without a proper understanding of the various consequences of every one of the changes introduced into traditional agriculture and without first building up a proper scientific and training base to sustain it, may only lead us into an era of agricultural disaster in the long run, rather than to an era of agricultural prosperity."

I, therefore, called for an evergreen revolution, which will lead to increase in productivity in perpetuity without associated ecological harm. The transition from green to evergreen revolution is the need of the hour. It will involve new science, such as production and application of biological software for sustainable agriculture, including biofertilisers, biopesticides, vermiculture, drip irrigation and soil health enhancement. In every block we should establish a soil health monitoring and enhancement centre that can help farmers to maintain high yield in perpetuity. President Obama also mentioned the importance of an evergreen revolution while addressing our Parliament: "Together, we can strengthen agriculture. Cooperation between Indian and American researchers and scientists sparked the Green Revolution. Today, India is a leader in using technology to empower farmers, who get free updates on market and weather conditions on their cell phones. And the US is a leader in agricultural productivity and research. As farmers face the effects of climate change and drought, we'll work together to spark a second, more sustainable evergreen revolution"

Evergreen revolution is the most appropriate idea for progress in agriculture and sustainable food and nutrition security for the next 25 years.

India is described as ***the country with the largest number of hungry people.*** *Therefore, our government is told by foreign experts that we must give the highest priority to ending* ***hunger and malnutrition.*** *Both agrarian prosperity and national food security depend on the economics of farming*

World Trade and Food Security

The World Trade Organisation (WTO) is an inter-governmental body to promote free and fair trade. In developing principles for assessing what is fair and what is unfair, a global view is taken. This is where the problem arises. Agriculture is essentially a commercial occupation in developed countries where hardly 5 per cent of the population depend on agriculture for their livelihood. But in many development countries, including our own, agriculture is the principal occupation of a majority of rural families who depend on crop and animal husbandry, fisheries, forestry and agro-processing for both their livelihood and household food security. Also, the farm size is small and the marketable surplus is low. As a result, farm families require social protection. It is wrong to designate the limited support given to them as subsidy. It will be more appropriate to refer to the assistance given as support to sustainable farming.

India is described as the country with the largest number of hungry people. Therefore, our government is told by foreign experts that we must give the highest priority to ending hunger and malnutrition. Both agrarian prosperity and national food security depend on the economics of farming. We have now come to the stage of giving legal right to food through the National Food Security Act 2013. As mentioned earlier, India has evolved from a "ship-to-mouth existence to a right-to-food commitment. To fulfil this commitment, we have to give concurrent attention to production, procurement and public distribution. The difference between agriculture as a commercial occupation and agriculture as a means of abolishing hunger will have to be clearly understood at the 10th ministerial meeting of WTO in Nairobi this December. It is a matter of pride and satisfaction that the Union

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Minister for Commerce and Industry Nirmala Sitaraman has conveyed the message that support policies for food security and abolition of malnutrition are non-negotiable. The industrialised countries should understand and acknowledge the human dimensions of trade in foodgrain. Developed countries have safeguarded the extensive financial support they are giving to their farmers through the green box provision. It is high time that there is also a food security box which can help countries to adopt farm support policies that can help them to achieve the zero-hunger challenge launched by the UN Secretary General.

It is high time that there is also a Food Security Box which can help countries to adopt farm support policies which can help them to achieve the zero-hunger challenge launched by the UN Secretary General

Beyond Paris

The Paris climate consensus essentially restores the status quo with reference to the implementation of the provisions of the 1992 framework convention. I am glad there is a commitment to limit temperature rise to 1.5 degree Celcius. Even this amount of increase will lead to the loss of 6-7 million tonnes of wheat in Punjab and Haryana. Countries in Northern latitudes will, however, benefit. I am happy that the principle of common but differentiated responsibilities has been reiterated. What is now urgently needed is the redoubling of our efforts in the area of both adaptation and mitigation. Agriculture adaptation will involve shifting our emphasis to per-day productivity of crops rather than per-crop productivity. There is also need for greater attention to reduce ammonia volatisation by replacing normal urea with neem-coated urea. Our food security can be safeguarded by promoting biogas plants, water harvesting ponds and planting of nitrogen-fixing trees in every farm. To honour our commitment to renewable energy and a low-carbon pathway of economic development, there is need for intensive attention to the R&D aspects of solar, nuclear, wind, biogas and biomass energy. This is the pathway to sustainable agriculture.

Food is the first among the hierarchical needs of a human being. United Nations Development Programme's 2015 Human Development Report indicates that India ranks 130 out of 188 countries with reference to the Human Development Index. The greatest asset of a nation is its human endowment. Our first and foremost aim should be the provision of opportunities for a healthy and productive life for all. This should be the goal of the evergreen revolution which should incorporate the nutrition dimension. We should concurrently attack the problems of poverty induced undernutrition, protein hunger caused by inadequate consumption of pulses and hidden hunger caused by the poor intake of micronutrients such as iron, zinc, iodine, vitamin A and vitamin B12, etc.

Let me conclude with the statement based on President Roosevelt's remarks: New frontiers of the mind and technology are before us, and if they are pioneered with the same vision, boldness and drive with which the battle against food shortage was fought through the green revolution, we can achieve the goal of zero-hunger sooner than generally considered possible. ◆


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Agriculture

Time to Add Value to the Agricultural Value Chain

BY D. SHIVAKUMAR


VIVAN MEHRA

ABOUT: Indian policy makers have had mixed feelings about commercial farming by big corporations. On the one hand, the benefits of technology and productivity of commercial farming operations cannot be overlooked. On the other, there is a feeling that unfettered growth of commercial farming can harm and render the millions of small and marginal farmers jobless. As a result, commercial farming operations almost never get government approval in most states. **D. Shivakumar, Chairman and CEO of PepsiCo India**, writes about how to make commercial farming work in India.

The health of Indian agriculture will be a key determinant of a number of things over the next decade. It accounts for 15 per cent of the gross domestic product (GDP), and is growing at 2-4 per cent per annum. This sector lacks scale in landholding, employs 55 per cent of the workforce, is susceptible to nature's changes, has half the credit requirements coming from non-government sources, is still seeking technology inputs across the chain, and the next generation in rural India does not want to invest time in it.

India has done well to be self-sufficient in agriculture despite these challenges. The Indian agriculture story is about 50 years old, when India adopted technology with the use of high-yielding seeds. As a result, food production has been consistently ahead of population growth for the past 50 years, making us self-sufficient.

Today, we are among the top three producers of wheat, rice, pulses, sugar, tea, milk and fruits and vegetables. We are a large producer, but in terms of per-capita production or consumption or per-acre yields, we are not in the right league at the top. And, there is no silver bullet to solve the issue.

Our company is one of the largest buyers of agriculture produce in India and it has done a lot of extension work over 25 years in helping farmers. Today, over 65 per cent of Tropicana's requirement for fruit pulp is sourced entirely from the

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best of Indian orchards.

Overall, we work with 24,000 farmers and have invested in their skilling, in technology upgradation, and in computer education for the future of their children.

Indian agriculture needs to move up the value chain if it has to benefit both the farmer and the consumer. We are seeing a demand for more processed foods from single income and double income families. We are seeing demand for health and wellness products from young and the old alike. We are seeing subtle but definite changes in diets and food habits. Nearly a fourth of our population skips breakfast and is looking for a different packaged answer to their time challenge. India's food mix will change this decade from pulses and grains to value-added dairy, fruits and vegetables. Fruits and vegetables is a ripe area for consideration to rethink Indian agriculture.

India is the number one producer for many fruits: banana, mango, lime, guava, papaya and pomegranate, and among the top five in several others. Yet, for many of these fruits, we do not have global scale processing facilities. In India, only four per cent of the fruits are processed compared to other benchmark

countries, such as 23 per cent in China, 50 per cent in Indonesia and 70 per cent in Brazil. Citrus for example is a challenge. PepsiCo has in collaboration with a partner, set up a world-class processing facility located in the citrus-growing belt in Maharashtra.

Processed fruit in India is cost-uncompetitive compared to these markets despite high import duties. This is due to deep structural challenges and constraints across the value chain: poor farming practices, low-yield varietals and fragmented farms resulting in 35-50 per cent lower yields against global benchmarks. There are several inefficiencies that add to the end cost: intermediaries (15-30 per cent in costs), wastage in storage and transportation (20-35 per cent) and use of outdated technology with sub-scale processors.

Fruit provides far higher incomes to farmers (as much as 2-4 times of cereals and sugarcane) and uses 40-80 per cent less water per hectare compared to cereals. Increasing the share of horticulture would have a meaningful impact on the livelihood of farmers and also help conserve water.

There are several examples of countries having transformed their fruit industry to become global leaders in a short period of time. For instance, China took leadership in processed apple, growing from $50 million of export to $1.4 billion in just eight years. Thailand and Indonesia replicated similar success for pineapples and coconut, respectively. India can draw several lessons from these countries and replicate success.

Fruit provides far higher incomes to farmers and uses 40-80 per cent less water per hectare compared to cereals. ***Increasing the share of horticulture would have a meaningful impact on the livelihood of farmers*** *and also help conserve water. There are several examples of countries having transformed their fruit industry to become global leaders in a short period of time. China took leadership in processed apple, growing from $50 million of export to $1.4 billion in just eight years. Thailand and Indonesia replicated similar success for pineapples and coconut, respectively*

❶ **Focus** Pick a winning fruit and geography 90 per cent of orange juice concentrate is produced in Sao Paolo and north eastern provinces in China produce most of the processed apples. A dense competitive cluster benefits the entire eco-system. It allows focused investments in the farm and infrastructure and build technology into the ecosystem.

❷ **Grow** Build critical scale for the best-in-class technology to be financially viable. To make local processing competitive, globally, it needs investments in processing capability. Lack of scale makes it unviable for processors to invest in building an integrated value chain.

❸ **Partner** Build a credible coalition of an anchor buyer and a processor, which is supported by government enablers. Here the government could provides incentives and infrastructure, while the anchor buyer provide stability of demand, allowing processors to make significant investments in building advanced integrated processing capacity.

❹ **Reform APMC** The agriculture produce market committee also needs some reforms. The APMC mandates the farmer to sell his produce only to a middle man approved by the government. This rules out a direct link between farmers and a company sourcing fruit. The middle man makes higher margins and the farmer earns less. Giving direct access to the farmer will benefit both the farmer and the end buyer. Time has come for Indian horticulture to transform and move processing levels close to benchmarks. All of us would be happy to contribute and play a meaningful role in this journey. ◆


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Agriculture

From Make in India to Make in Rural India Through Dairying

By R.S. SODHI

RACHIT GOSWAMI

ABOUT: Forty-five years after Operation Flood – that made India the world's largest milk producer – India continues to be on the lookout for the next breakthrough in agricultural produce and productivity. As India's population grows, it desperately needs the next big burst in productivity to feed the millions being adding to the population year after year. What's the roadmap to the next White Revolution? **R.S. Sodhi, Managing Director, Gujarat Cooperative Milk Marketing Federation**, suggests the way forward.

India is the largest producer of milk. It is a matter of pride. I feel privileged to have closely witnessed a part of India's journey from being a milk-deficient nation to becoming its largest producer. It is an honour to be a witness to the revolution that started about 50 years ago with Operation Flood that was the basis of this achievement.

While it is great to take pride in past achievements, one should not rest on one's laurels but keep looking ahead, anticipate, and prepare oneself to take challenges head-on. One of the greatest lessons my mentor, Dr. Verghese Kurien, gave me was this – "In every crisis, if you look carefully, you will spot an opportunity. My insistence is on finding and seizing that opportunity."

Introduction

Considering the dynamic environment we live in today, I find that the dairy

industry is full of opportunities. It is a vital part of the global food system and plays a key role in sustainability of rural areas. The world is currently witnessing significant volatility in farm-gate prices. However, prices to Amul farmers have been rising. The prime reason is that our farmers own not only production but also processing and marketing of milk and milk products. Also, a significant part of their earning comes from value-added products rather than bulk sales.

A rise in demand for milk and milk products is being seen worldwide and the industry is globalising. However, the question of how we can give impetus to the industry to continue reaping its economic benefits still remains.

The dairy industry in India is unique. With six lakh villages housing about 90 crore people, dairying is not just a large economic activity but also an integral part of our social and cultural heritage. Its uniqueness lies in its unifying power, in the fact that no other industry touches lives of millions of farmers, of which 70 per cent are landless. Complementing this are Indian climatic conditions that support animal husbandry. Dairy, in effect, could become a great tool for equitable growth and income distribution. What remains is providing market access by offering stable and remunerative prices to farmers and encouraging this generations-old sustainable livelihood source.

We have, over the years, come far from being an agrarian economy to become a more service sector-driven one, achieving accelerated gross domestic product growth. Every economy aspires to grow; growth, however, has a flip side inflation. Further, if growth is heavily skewed towards the urban side, it magnifies the impact of inflation owing to the income gap. To keep this evil under check, we need balanced and inclusive growth. For inclusive growth, it is pertinent that our villages progress, and if villages are to progress, dairy, an integral part of the rural economy and livelihood, must also progress.

Current Scenario in India

The unemployment rate in India rose to 4.9 per cent in 2014 from 4.7 per cent in 2013, mainly on account of increase in joblessness in rural areas. While the unemployment rate dropped in urban areas to 5.5 per cent in 2014 from 5.7 per cent in the previous year, the unemployment rate in rural areas increased from 4.4 per cent to 4.7 per cent during the period. In this context, the Make in India initiative, which aims at job creation, should focus on rural India to ensure impact. Thus, Make in Rural India is the way to go. For this, what can be better than the dairy sector, a sector that touches the lives of millions of farmers twice every day?

Outlook

India is expected to see significant growth in milk production. However, with growing demand led by increasing income levels on the one hand and limited scope for increasing cattle population due to natural resource constrains on the other, the sector is likely to face newer challenges. Let us have a closer look at the outlook for the Indian dairy industry.

Apart from a well-conceived strategy for increasing productivity of ***milch animals*** *through superior breeding, nutrition and health practices such as the National Dairy Plan,* ***we need to learn from the best practices across the world.***

❶ More mouths to feed than hands to produce implies need to increase productivity

Food still accounts for the highest share of monthly household expenditure in India at 31 per cent. Within food, milk and dairy products account for the highest share after cereals. The per capita milk availability in India has gone up from 126 gm per day in 1960 to 359 gm per day in 2015. This is despite our population rising by three times during the period. Global per-capita milk availability has actually declined by 9 per cent over the past 10 years.

However, it is important to note that by 2025, India will beat China to become the most populous country in the world with 1.4 billion people. Further, by 2060, 56 per cent Indians will reside in urban areas and 44 per cent in rural areas. India is likely to have 143 cities with a population of more than one million by 2060. On the other hand, the number of villages will witness only a marginal increase, from 640,000 lakh in 2012 to just 675,000 lakh in 2060. This clearly indicates that India will face the problem of 'mouths to feed' growing faster than 'hands to produce'. This will require a continuous increase in milk production. Augmenting production through breeding and technological innovations would be the right way to deal with this crisis.

The Indian model of milk production is characterised by low input-low output. Despite lack of water and gradually declining arable land, dairy farming is on the rise. This has been made possible by optimal integration of production unit (the cow), technologies and equip-


SHEKHAR GHOSH

ing dairy entrepreneurs in cooperative as well as private sector. This would require policies that safeguard the interests of small players. It is important to note that the government should not lose sight of long-term goals for short-term gains. Free trade agreements, or FTAs, for instance, will allow EU government-subsidised products to be imported from Europe with little entry barriers. In the EU 2014/20 budget, 363 billion euros have been allocated for farm subsidies, which will make EU farm and dairy products ridiculously cheap compared to Indian products.

We must also take lessons from China's FTAs with New Zealand and Australia. From an economic perspective, this agreement has essentially secured a greater share of growing Chinese market for the two nations. The FTAs have been a remarkable success for developed nations' dairy industries. Australian dairy exports to China, for example, have almost quadrupled between 2008 and 2012. In such circumstances, the so-called 'Free' Trade Agreement could well turn out to be our costliest trade agreement. We cannot compromise the economic and commercial rights of farmers and consumers to provide impetus to India's exports.

Dr. Kurien faced a similar situation many years ago. It was path-breaking to think of monetising the dairy commodities received as grants from the EEC so that we do not retard our own capabilities. This idea led to the birth of Operation Flood whose outcomes are insurmountable.

❸ Professional institutions 'of

ment, operator (the farmer) and production environment (the dairy farm).

Apart from a well-conceived strategy for increasing productivity of milch animals through superior breeding, nutrition and health practices such as the National Dairy Plan, we need to learn from the best practices across the world. For instance, Israel's Super Cows that produce 12,000 litres milk a year are the result of advanced feed, technology and breeding practices. Thus, trusting capabilities of our farmers and integrating them with superior, even imported, technology, feed and fodder is the way ahead.

❷ Policy changes should precede structural changes to ensure innovation

Innovation would necessitate encourag-

The per capita milk availability in India has gone up from 120 gm per day in 1960 to 359 gm per day in 2015.

This despite our population rising by three times during the period

the farmers, by the farmers, for the farmers'

Though change is the only constant, it cannot be based solely on the profit motives of middlemen. Dr. Kurien's belief in entrepreneurship of farmers and the potential of Indian markets helped him in successfully building 200-plus people's institutions. However, he drove each of these institutions like businesses, combining professional management with technological expertise.

The idea is to nurture dairy entrepreneurs through effective training of youth at the village level coupled with dedicated leadership and professional management of farmers' institutions. This will, in effect, instil efficiency in the system so that farmers are not forced to demand grants and external support for financing the inbuilt inefficiencies of the system.

4 Opportunity in global trade

India is surrounded by countries and regions that are milk-deficient, such as the Middle East, South Asia and Southeast Asia. There is ample scope for export of value-added milk products to Bangladesh, China, Singapore, Thailand, Malaysia, Philippines, Japan, the UAE, Oman and other gulf countries, all of which are located close to India.

At present, the population of South Asia alone is growing at 1.3 per cent a year; it is likely to be 2.2 billion by 2050. This presents an opportunity for India's dairy industry.

5 'Healthy practices', a pre-requisite for healthy dairying

Along with raising productivity of milch animals to cater to domestic as well as international demand, it is important that we work on further improving quality, both in terms of input as well as output.

There is a strong need to take concrete steps towards educating the farmers. Almost every element in the environment contributes to the quality of milk, a commodity that comes from every corner of the country twice every day. Thus, agricultural practices, sanitation, quality of drinking water & fodder, type and quality of pipelines — all of these need to be aligned to the goal of healthy milk. It is interesting to note that Europe started adopting healthy agricultural and sanitation practices at the grassroots level in the 1970s and could implement its stringent quality norms only in the late 1990s. Also, with weather uncertainties rising, it has become all the more important that our farmers display a high sense of hygiene and know-how of animal health and nutrition. Combined with availability of on-demand veterinary service and high-quality cattle feed, this is bound to yield significant positive results in enhancing our milk output.

The so-called ***'Free' Trade Agreement*** *could well turn out to be our costliest trade agreement. We cannot compromise the economic and commercial rights of farmers and consumers to provide impetus to India's exports*

6 Looking beyond

It is important to understand the multiple dimensions of milk. The value of milk produced in the country was ₹4,18,000 crore in 2014/15, making it one of the key commodities in India. More than that, milk is the answer to questions of economic self-sufficiency of the rural lot. The business provides employment to the landless and land owners alike and the income thus generated checks urban to rural migration. In addition, milk, being a complete nutrition, will play a key role in combating malnutrition and poverty.

Thus, growth of the dairy sector in a setting of weak infrastructure and governance has given rise to certain challenges. To meet these, the sector requires renewed attention and investments from government and agricultural research and development community.

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VIVAN MEHRA

Infrastructure & Urbanisation

Prospering with the Flow

By PRAVIR PANDEY

ABOUT: Somewhere along the rapid growth of India's vast road and railways network, river-based navigation got the short shrift. But with global demand to align economic growth with environmental harmony, water navigation is getting a second look. **Pravir Pandey, Member, Finance, Inland Waterways Authority of India,** explains why inland waterways-based movement of people and goods, particularly National Waterway- 1 between Allahabad and Haldia on Ganga-Bhagirathi-Hoogly River System, is of truly national significance.

"Any river is really the summation of the whole valley. To think of it as nothing but water is to ignore the greater part" *Hal Borland in* This Hill, This Valley

In ancient times the Ganga and some of its tributaries, especially in the east, were important transportation routes. According to Megasthenes, the Ganga and its main tributaries were being navigated even in the fourth century BC. By the 19th century, irrigation-cum-navigation canals formed the main arteries of India's water-transport system. The advent of paddle steamers revolutionised inland transport, stimulating the growth of indigo production in Bihar and Bengal. Regular steamer services ran from Kolkata up the Ganga to Allahabad and far beyond, as well as to Agra on the Yamuna and up the Brahmaputra River.

The decline of large-scale water transport began with the construction of railways during the mid-19th century. The increasing withdrawal of water for irrigation also affected navigation. Today, river traffic is insignificant beyond the middle Ganga basin around Allahabad, and mainly consists of rural river craft (motorboats, sailboats, rafts, etc). Navigation on the Ganga has been a lost socio-economic opportunity for years.

Connectivity and prosperity are interlinked. The US, China, Europe, Vietnam,

Thailand, Brazil, Argentina, Paraguay and several African nations have taken great strides in developing inland waterways. With substantial investment, they have been able to maximise the socio-economic benefits of inland waterways. The rest of the world is catching up fast. India cannot afford to be left behind.

Opportunity Beckons

National Waterway-1 (NW-1) on the Allahabad-Haldia stretch of the Ganga-Bhagirathi-Hooghly River System is a waterway of truly national significance, passing through the states of Uttar Pradesh, Bihar, Jharkhand and West Bengal. It has the potential to serve the cities of Haldia, Howrah, Kolkata, Bhagalpur, Patna, Gazipur, Varanasi and Allahabad, their industrial hinterland and other industries located along the Ganga Basin. The rail and road corridors of this region are already saturated. The development of NW-1 would result in a viable supplementary mode of transport.

The most important navigational challenge is the depth of the water in the river. Adequate depth is essential to make a waterway navigable and commercially viable. Large alluvial Himalayan rivers like the Ganga typically have more depth in their lower reaches than their upper ones, since they are joined by tributaries carrying discharge from their own catchment areas. While the Inland Waterways Authority of India (IWAI) has been able to maintain a least available depth (LAD) of three metres between Haldia and Farakka, it has been difficult to maintain a LAD of even two metres in the upper reaches of NW-1 between Patna and Allahabad due to very low discharge and difficult hydro morphological characteristics. As a result, currently, vessels of a capacity of up to 750 deadweight tonnage (DWT) only can navigate the NW-1 in the reaches beyond Farakka.

What is needed is capacity augmentation of the entire NW-1 right up to Allahabad, as many shippers have shown interest in using it. To enable bigger vessels of 1,500-2,000 DWT to navigate it, the infrastructure on NW-1 needs to be developed. Once large vessels begin to ply between Haldia and Allahabad, it will reduce transport cost for shippers, reduce congestion and accidents on highways, and bring about convergence between river transport and other modes of surface transport. It would also reduce carbon emissions and emission of particulate matter considerably.

The cost of making the entire 1,620 km NW-1 stretch navigable has been estimated at ₹4,200 crore. This would cover strengthening of open river navigation techniques and installing of hardware, which includes dredging facilities, a modern river information system (RIS), a digital global positioning system (DGPS), night navigation facilities and modern methods of channel marking. Introduction of low draft vessels and other techniques available elsewhere glob-

The US, China, Europe Vietnam, Thailand, Brazil, Argentina, Paraguay and several African nations have ***taken great strides in developing inland waterways.*** *The rest of the world is catching up fast. India cannot afford to be left behind*

RAJ VERMA

ally are also options.

The government has already initiated a proposal for capacity augmentation of navigation on NW-1. It has been put forward to the World Bank for technical assistance and investment support. The World Bank has indicated its readiness to support the effort, starting with an initial loan of $50 million. Finance Minister Arun Jaitley, in his Budget speech of 2014/15, had announced the Jal Marg Vikas Project on the Ganga between Allahabad and Haldia.

The project will start by outlining a sustainable and cost-effective framework. The framework will set criteria for eligibility, preparation, appraisal and implementation. It will be developed during the project preparation period, and will have to be approved by the World Bank's board of executive directors.

SHEKHAR GHOSH

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An essential component of the Jal Marg Vikas Project will be strategic communication campaigns aimed at citizen participation, particularly of communities living in the influence zone of the project corridor. Extensive public consultations with families and communities likely to be affected by the project will be carried out before actual implementation begins.

The project also aims to improve the investment climate and institutional development. Multi-modal logistics hubs integrated with surface modes of transport – road and rail – will be established. The critically important attributes will be (a) the origin and destination of various trades, (b) the type and volume of potential cargoes, and (c) the identification and mapping of potential cluster industries.

Mitigating Risk

The costs of infrastructure development have to be carefully evaluated. The project presents unique and difficult engineering, environmental and business development challenges. The price tags are high. Will trade follow? Will the engineering interventions provide sustainable solutions? Will the environment remain safe? Will regional economies grow, delivering value for money to users, stakeholders and private investors? To answer these questions, the project has commissioned the services of three consortiums of reputed consultancies.

A joint venture of Howe Engineering (India), HR Wallingford (UK), and Rodic (India) is conducting a detailed feasibility study of the capacity augmentation intended and the detailed engineering envisaged for the ancillary works. Another team of EQMS (India), Abnaki Infrastructure Application and Integrated Development (India), and IRG Systems (South Asia), is looking at the environmental and social impact of the project, and preparing an Environment Management Plan (EMP) and a Resettlement Action Plan (RAP). A third consortium of Hamburg Port Consulting (Germany), IMS Imgenieurge (Germany) and Ramboll (India), is looking at the Inland Water Transport (IWT) sector's development strategy and carrying out a market development study as well for capacity augmentation.

An agreement for a project preparation fund advance (PPFA) of $3.5 million was signed between the World

Bank and India's Department of Economic Affairs on June 6, 2015. A robust and functional management structure for the Jal Marg Vikas Project has been constituted to ensure timely and quality execution of the project.

Creating Ripples

At present, there are 20 floating and two fixed terminals on the NW-1. These are ill-equipped to handle the huge quantity of cargo expected to move after the capacity augmentation of navigation. The scoping and project preparation missions of the World Bank have identified Varanasi, Haldia and Sahibganj for construction of multi-modal terminals with rail and road connectivity. The construction of a multi-modal hub with rail and road connectivity at Ramnagar, Varanasi, is high priority. A memorandum of understanding was signed in March 2015 with the Dedicated Freight Corridor Corporation of India Ltd (DFCCIL) for technical support for rail connectivity at Varanasi and for developing additional hubs in future on national waterways. The work is expected to commence by January 2016.

The construction of a multi-modal hub with rail and road connectivity at Haldia is also high priority. Studies by the IWAI and the World Bank concluded that Haldia has huge potential. After site surveys, land mapping, cargo studies and environmental impact assessment, 61 acres of land have been taken over on lease from the Kolkata Port Trust. The tender is expected to be floated in January 2016; work should start by March.

The IWAI is also contemplating design and construction of low-draft vessels with high cargo carrying capacity. An IWAI team visited Netherlands and Germany to study the design of low-draft vessels. Introducing such vessels in the waterways would provide useful logistics solutions, providing a cheap and cost-effective alternative to heavy capital expenditure to ensure adequate depth in the waterways. The other major works envisaged at this stage are construction of a multi-modal terminal at Sahibgunj in Jharkhand and a new navigational lock at Farakka. The technical feasibility studies, environmental and social impact assessment and cargo projection studies for these have been completed.

Land acquisition is a major hurdle for all infrastructure projects, including highways and railways. But ***transportation through waterways does not involve much land acquisition,*** *except in a few places where terminals have to be constructed*

The IWAI has taken up the challenging project of setting up, for the first time in India, a River Information Service System on the NW-1. River Information Services (RIS) are equipment-, hardware- and software-related services designed to optimise traffic and transport processes in inland navigation. This will facilitate inland navigation safety and optimise resource management of the waterborne transport chain.

Land acquisition is a major hurdle for all infrastructure projects, including highways, railways and urban transportation. But transportation through waterways does not involve huge land acquisition except in a few places where terminals have to be constructed. In comparison to other infrastructure projects, land acquisition is negligible. As a result, there will be insignificant impact on ecology and biodiversity, agricultural activities as well as on livelihoods. Improved river flow due to augmentation of navigation facilities will benefit aquatic flora and fauna. There will also be increase in economic opportunities.

The project will also enable communities living alongside to conduct activities on both sides of the river. Improved access to trading centres and ancillary infrastructure along the NW-1 will benefit local, regional and international business, apart from generating employment opportunities. It will spur tourism as well. ◆

Infrastructure & Urbanisation

Building Cities of the Future

BY KARIN WANNGÅRD

ABOUT: India has embarked on an ambitious quest to create 100 Smart Cities. A vast number of existing cities will need to be re-imagined and converted into Smart Cities. The challenges in the process of doing so are unique. **Karin Wanngard, Mayor of Stockholm,** deliberates on how to transform an old city into a Smart City... the Stockholm way.

The capital of Sweden, Stockholm, was founded in the year 1252. Today, my city is at the forefront of the technological revolution. It attracts the leading IT companies as well as skilled professionals from all over the world. Indeed, new and thriving companies are started here every week. Stockholm is also the fastest growing capital in Europe. Many factors contribute to this. Stockholm is a beautiful, old and quaint city to live in. We have a high-skilled labour force, mainly due to education – from kindergarten to university – being free of charge. Health care is universal and Stockholm offers a wide range of cultural activities and plenty of green areas.

Stockholm has five 'unicorns' or billion-dollar tech start-ups. In fact, we have almost as many unicorns per capita as Silicon Valley. 'Programmer' is the most common job in Stockholm. Some 18 per cent of the workforce is employed in high-tech related jobs – the highest in Europe. The start-ups in Stockholm are attracting funding from global investors and growing rapidly. There are hundreds of open job positions in just a handful of the fastest growing start-ups.

We recently introduced programming as a topic in elementary school. We believe that one should see code as a new language, much as we, in the past, have put great importance to our children learning foreign languages, such

as English.

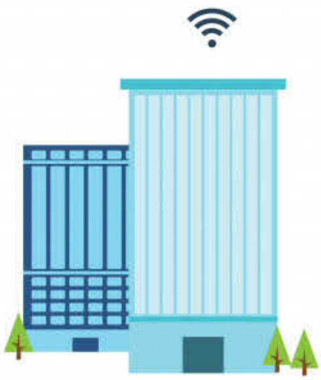
Stockholm's fast-paced growth is a success story, but there is a wide range of challenges. We have a housing shortage that, if not fixed, may deter people from moving here, which will be detrimental to economic growth in the long run. We need to expand the city, but this must be done in a sustainable way. After all, Stockholm's good environment is a key reason for many to live and work here. I strongly believe that the solution lies in welcoming and applying new technology. The transition from an old city to a smart city has to be made while keeping and respecting the historical heritage.

This year, we set ourselves the ambitious goal to make Stockholm the smartest and most connected city in the world. When it comes to connectivity, we are far ahead, having established a company owned by the city, Stokab, that provides dark fibre – its network reaches 90 per cent of the households and 100 per cent of businesses. The basic philosophy behind it is that access to fibre infrastructure is a strategic utility for the city, just like water.

Solid infrastructure is, of course, a pre-requisite when building smart cities. But again, application is crucial. There's no point in installing faucets in every home, if the water is undrinkable. This is where political will and decision-making comes in.

I believe the cities that have the ability to embrace and apply new technology

Solid infrastructure is, of course, a pre-requisite when building smart cities. But application is crucial. There's no point in installing faucets in every home, if the water is undrinkable



Tackling climate change is a growth opportunity for cities as it raises the standard of living of citizens and helps attract businesses. Those cities that can offer a good environment and show that sustainability is at the top of their agenda will be more attractive to people and businesses alike. Cities can succeed if there is political will and an openness to embrace new technology

will be able to make this transition quite rapidly. It will also greatly benefit people living in cities as well as improve conditions for businesses. Some of the most interesting things are the developments made in open data, big data and Internet of Things (IoT). We now have the capacity to really put these things to use. Next year, Stockholm will adapt a new strategy to make these tools a natural part of the services provided by the city. Combining big data, open data and IoT provides endless possibilities.

There are many examples. Trash bins "announcing" when they need to be emptied; automatic control of flow in storm drains to avoid flooding; parking spaces that communicate when they are free; smart and connected lamp posts providing street lighting when required to save energy and that can measure particle concentrations in the air; as well as providing Wi-Fi and installing sensors in homes to detect a rise in the levels of mould and moisture before they damage the building. The list is endless.

New technology can also be applied when designing more large-scale innovations. Soon, traffic planning can be done in real time, based on open and big data, providing information on traffic jams before they occur, to speed up transport and decrease congestion.

But this is not enough to build the city of the future. A smart city is also a sustainable city. I strongly believe that this will be truer in the future. Fighting climate change is not only necessary for the survival of the planet, but finding ways to build sustainable cities and regions will provide those that succeed with a competitive advantage. Most people want to live in a healthy and good environment; this will in turn attract talent and businesses to cities that can offer this.

There is also a growing market for new innovations in this area. For Stockholm, having companies that can produce environmentally friendly solutions in a wide range of areas from transport to how we build sustainable housing is a great export opportunity, creating new jobs in an economy that is becoming increasingly internationalised. We do not compete so much with other regions or cities in Sweden, as we do with other cities in the world, be it Silicon Valley or Bangalore.

Therefore, those that want to make the transition from old to smart, need to focus on sustainability as well as new technology. And these two things correlate. A sustainable city cannot be built without the use of new technology. I have set ambitious goals for the city of Stockholm to be not just climate neutral, but also fossil-fuel-free by 2040. To do this, several things are needed.

Since 2006, we have been using a successful system, charging a fee on cars entering and leaving the city. This has cut traffic significantly. And we are continuously seeking innovative solutions to make the shift towards more sustainable transport by using more environmentally friendly cars and lorries. Cities need to have a good public transport system in Stockholm buses run on environmentally friendly fuel as well as good bike paths, providing people with an option to the car.

We also address the issue of sustainability when building new homes and buildings. We can decrease energy consumption in buildings by improving ventilation and heating systems and through other simple measures such as sealing windows more efficiently, using new and improved building materials and new ways of construction. In addition, Stockholm has good infrastructure when it comes to recycling. This makes it easier for

people living in Stockholm to recycle and dispose of waste in a more environmentally friendly way.

There is a saying that 'all politics is local'. This is becoming truer even in terms of building a sustainable world. In addition to the steps taken by governments and international organisations, cities will play an important role in the future. Inter-city co-operation will be even more important when fighting climate change. We see a global trend of urbanisation; more and more people will live in cities in the future, therefore cities working together, sharing experiences on green projects is vital. Cities account for 70 per cent of the world's greenhouse gases and 70 per cent of the world's population is projected to live in urban areas by mid-century.

Cities are where investment, innovation and action on climate change occur, and where communities can become more resilient and socially inclusive when facing this issue. Cities have the solutions – local governments control a wide range of services – transport, infrastructure, water use and waste management. Investment in these areas can significantly reduce emissions. Applying new technology to the core services cities provide is extremely important when building sustainable cities and communities. Much of the necessary steps needed to reach global goals of reducing emissions will be taken by cities and regions. And those that succeed in this work will have a competitive advantage in the globalised economy.

Soon, traffic planning can be done in real time, based on open and big data, providing information on traffic jams before they occur, to speed up transport and decrease congestion

Tackling climate change is a growth opportunity for cities as it raises the standard of living of citizens and helps attract businesses. The climate issue is becoming ever more important to many people, and those cities that can offer a good environment and show that sustainability is at the top of their agenda will be more attractive to people and businesses alike. And I truly believe that cities can succeed if there is political will and an openness to embrace new technology, while keeping their historical heritage in the process. From old to smart, without losing one's history. ◆

Infrastructure & Urbanisation

Smart Cities – Five Mistakes of the West India Must Avoid

By JACK D. HIDARY

ABOUT: With the government kicking off its plan to build a hundred smart cities, its next priority is to identify how many of these will be built from scratch. More importantly, what all must a Smart City have? What should be prioritised and what must be avoided? **Technology entrepreneur and investor Jack Hidary**, who was one of the architects of the Cash for Clunkers programme in the US for disposing of old cars, suggests a template for a brand new Smart City and says India should avoid making the mistakes of the West.

There is a big push for smart cities. The government has allocated significant capital both at the central and state levels to make these a reality. Smart cities promise to reinvigorate local economies and improve the quality of life. We must, however, be careful and implement these programmes to forge new pathways and not recreate the problems that the western cities are now facing. Smart city programmes encompass several components.

1 Smartphone penetration and fast bandwidth

a. Key to many smart city programmes is the need to connect citizens, businesses and the government on a fast network. In India, the pace of smartphone penetration is rising fast. Now, we must encourage 4G to get the real benefit of these smartphones. 4G speeds across the country are spotty now. We will not achieve the main goals of smart cities until this is fixed.

b. For fast Wi-Fi in homes and offices, we need to install faster wired infrastructure. Wherever possible, we should skip this step and go directly to wireless point-to-point connections to fast network access points (NAPs). Wireless point-to-point can now deliver fibre-like speeds at a fraction of the cost as it does not

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require digging of streets or overhead cables.

c. We must avoid the monopoly/duopoly structure of many western cities. In the case of the US, this has limited average speeds to home and businesses to 15 megabits per second – compare that to South Korea, where average speeds are one gigabit per second 100 times faster!

❷ Power generation and storage

a. Every city needs power and India's cities need a lot of it to deliver reliable electricity, clean water, bandwidth and other services. Everything depends upon energy. Too many smart city programmes, however, follow the western model

of centralised power plants and grids.

b. We recommend not making the same mistake that western cities have made and moving in a new direction. Instead of centralised power, we can go with distributed power generation and cross-connected microgrids. This will give us resilience and reliability. It will also lower costs. Electricity rates in Mumbai and Delhi are roughly the same as in New York and San Francisco. Furthermore, more than half the country has no reliable grid at all, and the rest has power plants that cannot meet demand at all times of day. This will inhibit smart city growth.

c. India can forge a new pathway and avoid the mistakes of Europe and the US. The West is saddled with an ageing, centralised power infrastructure that has no storage and backup. India today relies on up to 100 gigawatts of diesel back-up as a band-aid to a fragmented system. Instead, we can implement battery storage in each building, giving hours of back-up before they start gensets that pollute and harm the people.

d. We can tap solar, wind and other clean energy sources at a distributed level instead of building more thermal plants. The cost of installing solar power in India is $1/watt a third of the US cost. Battery prices are also coming down quickly. We expect several Chinese, Japanese and American battery makers to set up battery assembly plants in India in the next five years. Demand will outstrip supply.

Today, India has about *150 million* *vehicles and the roads are already choked. The western model of simply building more highways and lanes is bad. Instead, let's leapfrog the West and forge a new pathway. Let's recognise that the goal of transportation is to help people move around, not to provide everyone with several vehicles. The success of Ola Cabs and Uber in India is an encouraging sign. It means that Indian consumers want efficiency, not just a car for sitting in traffic, wasting time and money*

e. Let's not make the mistake of the West and become even more dependent on fossil fuels and a centralised grid. Let's bring down the cost of electricity in our Tier-I cities and create a resilient microgrid architecture in vast swathes of the country with little to no grid.

3 Transportation

a Key to a smart city is ability to move goods and people efficiently. We all know the challenges faced by many Indian cities in this regard. Again, let's not follow the western model. In the US, there are 250 million cars and trucks for a population of 310 million. The US has 4 per cent of the world's population and consumes 25 per cent of the world's oil production most of that is burned in its cars and trucks.

b. Imagine India with this same car and truck penetration. This would translate into almost one billion vehicles! Today, India has about 150 million vehicles, and the roads are already choked. The western model of simply building more highways and lanes is bad. Instead, let's leapfrog the West and forge a new pathway. Let's recognise that the goal of transportation is to help people move around, not to provide everyone with several vehicles. The success of Ola Cabs and Uber in India is an encouraging sign. It means Indian consumers want efficiency, not just a car for sitting in traffic, wasting time and money.

c. Let's encourage the use of dispatch cars by dedicating special lanes to these vehicles. As drivers realise that is it more efficient to use these services, they will stop using personal cars. It will be easier to modify these fleets of shared cars to electric and other efficient technologies.

d. The level of pollution in Tier-I cities now exceeds that of China. We must reverse this trend for providing a healthy life to our citizens and attracting foreign investment and executives. China is already suffering from polluted atmosphere in the form of companies and expats refusing to raise their families in that environment.

e. Moving cargo accounts for about 40 per cent traffic on Indian roads. We can reduce this through several innovations. Believe it or not, there are several aviation solutions to moving cargo that are cost effective. Companies have developed blimps that are safe and can transport significant quantities of cargo from ports to distribution centres. This frees up the road for non-cargo traffic. Imagine taking a third of the traffic off the roads! This idea was developed recently in a moonshot design programme at Bangalore as part of the Nasscom Product Conclave.

Moving cargo represents about

40%

of the traffic on Indian roads. We can reduce this through several innovations. There are several aviation solutions to moving cargo that are cost effective. Companies have developed blimps that are safe and can transport significant quantities of cargo from ports to distribution centres

f. Let's not follow the western model in transportation. While improving rail is another part of the solution, it is expensive and hard to develop new rights of way. If anything, we can wait until the hyperloop is commercially viable and adopt that across India rather than sticking to rail technology from 100 years ago.

4 Health Care

a. Any smart city must deliver excellent health care to its people. More than two-third people in India have no reliable access to quality health care. Is centralised hospitals and clinic system of the west the solution? Once again, this would be a mistake. While a certain number of hospitals are, of course, necessary, this western system cannot be scaled up for 1.3 billion people in a quick timeframe.

b. Instead, let's go with a distributed, digital approach. With the near universal penetration of smartphones in the next few years, we can distribute sensors and instruments throughout the community that can be used by people without medical training to gather key medical data in real time and transfer it to a core body of doctors and experts for analysis. 4G will allow for remote video connection, and combined with real time sensor data of blood analysis, iris scan, brain imaging, etc, can help experts quickly diagnose most ailments and prescribe solutions.

c. Digital technology is also key in disease prevention and increased safety. Cheap but accurate sensors tied to a mobile phone can detect pathogens and impurities in water. New sensors in the market can detect toxins in toys, paint and other household materials. Smartphone tech can encourage fitness and health habits and provide more security.

d. Once again, the western model of centralised health care will not work for the scale we need in India. We should not follow this model. We can deliver better health care for less cost to 1.3 billion people and get this done much more quickly than building lots of buildings that will never have specialised staff in every ward and city to help the people

In conclusion, India can forge a new pathway and free itself from the old models of the West. The smart city programme is a wonderful idea, but only if they can rapidly find appropriate solutions and not saddle Indian cities with outmoded programmes from the past. India has a bright future if it pioneers a new kind of smart city for all its people. ◆

Education

Where There's a Skill, There's a Way

By SANJEEV DUGGAL

VIVAN MEHRA

ABOUT: A vast majority of our 2.2 million graduates find themselves at sea once they exit their colleges since most of our college education only partially equips them for jobs. This scale of unemployment – and the need to prevent them from straying into anti-social activities – is one of the biggest challenges of our society. How should India go about making its graduates and working population job worthy for the next 25 years? **Sanjeev Duggal, CEO & Director, Centum Learning**, a skilling company with presence in 21 countries, writes on how to change India's skills landscape.

When she got married, Rajni Bala's dreams were similar to those of most young women of her background – having a contented married life with a loving husband and children. Reality, however, turned out to be very different. She had to live with her in-laws, who proved tyrannical, while her husband was a drunk, who hardly provided for her two children. She finally left, along with the children, returning to stay with her widowed mother. She is still locked in a legal tussle with her husband and in-laws. But with hardly any education, what would she do for a living? She heard about a learning/training centre in her area and enrolled in it for a 12-day intensive course in retail operations. She has since been hired as a cashier at a branch of a leading global retail store. She proudly points to a badge she wears next to her ID card. "I won it for my performance," she says. "I have been able to establish myself and support my two children, because of this opportunity I got."

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Hailing from a small village in Morigaon district of Assam, Amar Jyoti joined a 45-day skilling course to get some kind of employment. His trainers at the centre were so impressed by his zeal that, on completion of the course,

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they offered him a trainer's job at the centre itself. After two years, he is now a senior trainer in charge of two centres. "I'm proud to be able to bring about the same change in other people's lives that the skilling centre did in mine," he says. "I'm proud to have lifted several BPL families out of poverty by imparting skills to their members."

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Jagir Kaur, a daughter of poor parents, felt guilty when she failed to get a job after clearing her Class XII board exams. The fact that her elder brother, in her family of six, was also unemployed, made matters worse. Finally, she left her village for a nearby town where she underwent a skilling course in looking after wholesale stores, which soon landed her a job. Jagir smiles often, a smile of pride. "I'm the first girl in my family to have moved out of home and become self-reliant," she says. "I manage my expenses and support my family, too."

The glass, half-empty or half-full – depending on one's perception – is the best metaphor to describe the skilling scenario in India.

Much has been done, but much remains to be done.

Less than two per cent of our workforce has formal skills

The glass, half-empty or half-full depending on one's perception is the best metaphor to describe the skilling scenario in India. Much has been done, but much also remains to be done. The staggering statistics are well known out of India's 1.25 billion population, 54 per cent are below 25 years of age and 65 per cent below 35 years. India has the world's largest workforce after China. But unlike China's ageing population, most of India's workforce growing by 14-16 million every year will still be employable 25 years from now. The tragedy is that less than two per cent of the workforce has formal skills. Even among those with some sort of training or qualification, only a third has employable skills.

Successive governments at the Centre have created multiple agencies and programmes and heaped ample funds on them to address the challenge of skilling India. There is the National Skill Development Corporation (NSDC), which has set itself an ambitious some even say, unrealistic target of skilling 150 million by 2022. There is the National Skill Development Agency (NSDA), which anchors and implements the National Skills Qualification Framework, engaging with states to dovetail the states' skilling facilities and schemes with those of the Centre.

There is a nationwide network of government-run Industrial Training Institutes (ITIs), earlier supervised by the Ministry of Labour, but transferred to the Ministry of Skill Development and Entrepreneurship from April 2015. There is the recently launched Central government scheme, the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), into which ₹1,500 crore is being pumped to provide outcome-based skill training to 2.4 million young people. As part of its rural reach out, the government has also funded the Deen Dayal Upadhyaya Gramin Kaushal Yojana (DDU-GKY) scheme under the Ministry of Rural Development. In addition, there are many more skill development schemes run by Central ministries, state governments and private institutions. At this stage, the glass looks decisively half-full!

But there are challenges, too. The

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There is still an obvious shortage of skills. The perception of many parents that their children must go into engineering or medicine – a hangover of the 1960s and 1970s mindset– has hamstrung efforts at skill building at its most important stage: in school.

wide gap between supply and demand across various industries persists. There is still an obvious shortage of skills. The perception of many parents that their children must go into engineering or medicine a hangover of the 1960s and 1970s mindset has hamstrung efforts at skill building at its most important stage: in school. However, there is change at this level, too the Central Board of Secondary Education (CBSE) now offers some 50 vocational courses. Further, a host of skill-based employment avenues have opened up for those who have just finished school lab technician, beautician, computer operator, animation artist, refrigeration mechanic, digital print shop operator...

A decade ago, the Kerala government funded a statewide network of self-financing "Akshaya e-kendras" to impart basic computer skills to one member of every family. What did the

young entrepreneurs who set up these e-kendras do, once the target groups in every district had been trained, and government subsidies had dried up? After a few hard knocks, the vast majority have reinvented themselves and are running small but profitable businesses today catering to local needs and shortages in areas like PAN card and passport applications, transfer of funds, payment windows for civic taxes, college admissions, job search and applications, etc. The Kerala model is a splendid example of spontaneous skill-building.

Elsewhere, some challenges remain, even as school-level or undergraduate-level skill-building efforts continue. A *trishul* of talents needs to coalesce before skills can translate into gainful employment: technical skills, domain knowledge, and soft skills. The first two are a matter of training and application. The final one, presents some nuanced challenges.

Today, for instance, whether you are a beautician or a tour guide or a taxi driver, a working knowledge of English is a force multiplier when it comes to employability. I was reliably informed that in Bengaluru, a licensed driver, maintenance engineer or nursing assistant who can speak and read English, can straightaway add 50 per cent to his/her pay packet.

After 30 years in training and skill development, I'm also convinced that partnering large and credible training partners is critical to attaining both quality and scale. Of the 211 affiliated training partners of NSDC, the top three contribute 31.01 per cent of the skilling (as per NSDC's 2014/15 annual report). The government needs to engage with these and others that have a track record in skilling. The objective is skill-building and not doling out patronage to all kinds of "Mom and Pop skilling shops".

The biggest challenge in skilling is

A trishul of talents has to coalesce before skills can translate into gainful employment: ***technical skills, domain knowledge and soft skills.*** *The first two are a matter of training and application. The final one presents some nuanced challenges*

getting students to the classrooms and retaining them there. Government and training partners need to work together to ensure that the candidate is incentivised to attend classes through industry aligned courses, relevant training methodology, and deeper connect with jobs and industry. The larger training players also need to harness technology wherever available to achieve the required scale.

We must also recognise that among the not-so-well-off, aspiration levels are often low, as is capacity to pay. This problem has to be addressed with sensitivity. It is best done by government-funded programmes, executed by large training partners which have the ability to scale up.

To generate more funds across a wider spectrum from corporate houses, the government could mandate that 50 per cent of the funds earmarked as part of corporate social responsibility (CSR), should be used for skill development.

Skilling India to compete and excel on a global *maidan* is a multi-pronged challenge. We need our engineers and doctors and business executives. We need a rainbow of other heterogeneous skills. And sometimes we discover in ourselves skills and talents for which we were not trained, but which constitute a coming together of head and heart. To take a personal example, my elder son studied film-making, while the younger one underwent courses to become a chef. Today, both of them are entrepreneurs running a very successful "gourmet catering and food experience" venture. They started as mainstream graduates, then decided to follow their dream and carved out the vocation of their choice. As parents, let us encourage the creative outreaches of our children, by supporting them when they make career decisions driven by enthusiasm rather than societal pressure. ◆

Education

India Needs College 4.0: Reboot Higher Education

BY MANISH SABHARWAL

RACHIT GOSWAMI

ABOUT: NextGen companies as well as managers find the skills of today's youth hopelessly inadequate to cope with the challenges of the future. As corporate India grapples with the 'Educated Unemployable' with a flurry of private skilling campuses, their effort barely amounts to a drop in the ocean. **Manish Sabharwal, co-founder and Chairman, Teamlease Services** – a temporary workforce and skilling company – and a member of India's Central Advisory Board of Education explains why skilling needs to be the future of education in India.

Currently, India has 20 million young adults pursuing a degree in a physical classroom, five million getting their degrees via distance and online courses, four million pursuing vocational education, while only 400,000 are apprentices. Is this system architected to cater to the one million youth who will join the workforce every month for the next 20 years? More importantly, what can we do to ensure our education system delivers the employment outcomes that many of these graduates seek?

Before we dive into answering these questions, it's important to remember that college isn't what it used to be; 31 per cent of retail sales clerks in the US now have a college degree (up from 1 per cent in 1970); 60 per cent of taxi drivers in Korea have a college degree (up from 1 per cent in 1990); and 15 per cent of high-end security guards in India now have a college degree (up from 1 per cent in 2010). But it is also important to not be patronising about the pursuit of degrees; vocational training is usually for other people's children, not ours, and going to college seems to rationally matter beyond the traditional *shaadi* requirement of degrees; Michael Spence got his prize for work on value of the signalling value of higher education. In other words, being from IIT is more valuable than being at IIT. Indian higher education must make the leap that classical physics (discrete systems) made to quantum physics (everything is interconnected) by thinking harder about the deep connections between the 3Es education, em-

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ployment and employability.

Our college system must recognise Peter Diamond's work on search costs in labour markets. A country like India, where over 50 per cent of the labour force works in agriculture, needs to think about the work of Arthur Lewis on the wage impact of the accelerating farm to non-farm transition. The work of Gary Becker is important in thinking about financing skills and education; it is unrealistic to expect employers to manufacture their own employees. And, higher education reforms must be inspired by the work of Robert Solow who found that increase in employment and capital stock only explained a tenth of long-term economic growth with the rest being technological innovation.

History matters. College 1.0 for India was started by the British with the objective of producing an elite class to perpetuate their rule. College 2.0 began after Independence; it led to the masterful creation of IITs and IIMs, but this excellence seems to have come at the expense of K-12 education. College 3.0 began in the 1980s when the decline in governance and lack of expansion of state capacity led to a private sector response. India now needs College 4.0; a radical reboot of our higher education that balances the trinity of cost, quality and scale, while delivering the employment outcomes that "India scale" needs. We must

College 1.0 for India was started by the British with the objective of producing an elite class to perpetuate their rule. College 2.0 began after Independence; it led to the creation of IITs and IIMs. College 3.0 began in the '80s when it led to a ***private sector*** *response. India now needs College 4.0 – a radical reboot of our higher education* innovate because even democracies with small populations find it difficult to balance "being equal and excellent". College 4.0 is about massifying higher education, encouraging biodiversity and thinking about the ecosystem.

College 4.0 needs us to do 10 things. First, we must start with fixing schools because you can't teach people in three years what they should have learnt in 12 years. The world of work has changed and reading, writing and arithmetic may be the most important vocational skills. There is a race between education and technology, and education is losing; consequently Class XII is the new Class VIII for lazy employee filtering. We may have been confusing the skill premium with a school premium but our toxic Right to Education Act confuses school buildings with building schools. We urgently need to amend this act to become the Right to Learning Act. Second, we need to remove the dead end view of vocational educational by creating full modularity under which a three-month certificate becomes an opening balance for a one-year diploma, which moves to a two-year associate degree, and a three-year degree. Third, we need to use recent amendments to the Apprentice Act to rapidly increase our apprentices (India only has 400,000 apprentices, while Germany has three million and Japan 10 million. More importantly, we need to give academic credit for apprenticeship so that the learning-by-doing and learning-while-earning also enables lateral entry into the degree modularity ladder. Fourth, we need to end the apartheid against distance and online learning; all universities must be allowed to freely sign up students nationally and UGC must end its dated war against off-campus centres; we need all the capacity we can get. Of course, technology has been a disappointment; we all know technology

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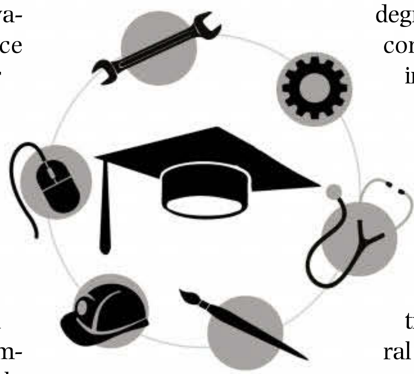
We need to end the apartheid against distance and online learning; all universities must be allowed to freely sign up students nationally and **UGC must end its dated war** *against off-campus centres; we need all the capacity we can get. More importantly it is unfair that global MOOCs like Coursera, Edx and Udacity can freely sign up students in India but Indian universities cannot operate outside their state*

matters in education we just don't know how. But as economic historian Carlota Perez suggests in her book *Technological revolutions and Financial Capital*, technology innovations take much longer to become useful than we think, but we are probably a few iterations away from something that works. More importantly it is unfair that global MOOC (massive open online courses) like Coursera, Edx and Udacity can freely sign up students in India but Indian universities cannot operate outside their state. Fifth, we need a massive deregulation of higher education by ending the current regulatory regime. We need to encourage more biodiversity in institutional forms and innovation in delivery; the current system leaves little space for either. Two different regulatory regimes have led to substantially different outcomes because we produce 1.5 million engineers, but only 35,000 doctors every year. Arguably anybody who wants to be an engineer can be an engineer and the glut is now leading to an improve-or-perish equation for engineering colleges. India needs 100,000 doctors every year and the lack of competition keeps fees unreasonably high. Quantity is leading to quality in engineering and we need to replicate this across many other areas. Currently, our education regime is overregulated but under-supervised and we need to reimagine the role of regulators like UGC and explore university partnerships in some areas with the new sector skill councils. Sixth, we need to convert our employment exchanges to career centres that offer counselling, assessments, apprenticeships, training and job-matching. Universities have not established strong connections with employers, and career centres could become this vehicle. Seventh, we need massive labour reform; an employment contract that is the equivalent of marriage without divorce means that 90 per cent of our labour force works informally. It also means that our 63 million enterprises only translate into 14,500 companies with a paid-up capital of over ₹10 crore. The lowest hanging fruit in labour reform is the economic insanity of a regressive benefits regime that mandates a 45 per cent salary deduction for employees with the lowest wages; exactly the point of entry for one million youth into the labour force every month. The budget announcement creating competition and choice in PF and ESI has so far been ignored by the Ministry of Labour but needs to be operationalised quickly. But we need a broader and radical overhaul of our labour laws that will reduce the costs of formality but raise the costs of informality; formal high productivity jobs at the exit gate of our higher education system are fast becoming the binding constraint for India's productivity. Eighth, we need a lot more decentralisation to state governments. States like Rajasthan, Madhya Pradesh and Maharashtra are making moves to make their states fertile habitats for job creation and 29 CMs are more important for jobs than one PM. There is no such thing as India's labour and education market and handing funds,



We need a lot more **decentralisation** *to state governments. States like Rajasthan, Madhya Pradesh and Maharashtra are making moves to make their states* **fertile habitats for job creation** *and 29 CMs are more important for jobs than one Prime Minister.*

functions and functionaries to state governments. Ninth, we need to create an open but well-supervised regime for foreign universities to operate and compete in India.

Tenth, we need to synthesise all of these changes in more skill universities; vocational universities are different from normal universities in three ways; they pray to the one god – the employers, only 5 per cent of their wards are on campus with the balance in apprentices, online or on-the-job, and only 5 per cent are pursuing a degree. Skill universities represent a confluence of various stakeholder interests because they are one-third employment exchanges, one-third ITIs and one-third colleges.

India's painful poverty is a child of our productivity deficit on our supply and demand side. Our journey to higher productivity needs policy to accelerate five transitions – farm to non-farm, rural to urban, subsistence self-employment to decent wage employment, informal to formal and school to work. The school-to-work transition is complicated because of the size of our demographic dividend, being a democracy that cannot implement Singapore's norm of forcefully diverting 25 per cent of school students to vocational training and cultural norms that value degrees for non-employment reasons. But fixing our higher education system would go a long way in not only fixing our supply-side productivity, but also in laying the foundation for innovation. India has always been more economically complex than other emerging economies – we make everything and do everything even if we don't always do it at scale or well and we are a 10 horsepower engine operating at four horsepower. Our problem is not capacity but capacity utilisation. Making our graduates employable is a great place to start. ◆

Education

The System Needs a Complete Overhaul

By ANURAG BEHAR


NILOTPAL BARUAH

ABOUT: It's well recognized that school education plays a crucial role in economic and social development of a society. While India has clearly made some progress on school education, the situation on multiple dimensions is alarming. **Anurag Behar, CEO of Azim Premji Foundation** looks at the possible solutions.

Let us start by considering two things. One, in the past 10-odd years, the proportion of children in private schools has gone up from 15 per cent to over 30 per cent. This is three to five times more than any mid- to large-sized country, not including failed states. We are world champions, hands-down, on the matter of private schooling. In the same period, learning levels (even the narrowest of definitions) have dropped across the board both in public schools and private schools. However, all rigorous research studies conclude that in the aggregate there is no difference in learning levels across public and private schools, and that learning levels in both kinds of schools are poor.

Two, the only study available that compare India's best schools (about 100 of them) to any international benchmark, the PISA (Programme for International Student Assessment) 3 scores, conclude that the average learning across these (our best) schools is below the average of the overall school systems of Organisation for Economic Cooperation and Development (OECD) countries. This requires emphasis: the best Indian schools are just about below the average school performance of a list that includes countries like Mexico, Slovenia, Italy and the (much maligned on school education) US. Alarmingly, but not surprisingly, the performance of our best schools falls sharply further, if "procedural" assessment questions, which basically assess memorisation, are factored out from the study.

What are these two things indicative of? First, that we must get rid of the

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silly notion that private schools are going to solve India's education problems; actually they (and certainly there are exceptions) are making matters worse. Second, and more fundamentally, both private and public schools are performing poorly on the average, while there is indeed a range. And, even our best schools are performing poorly with respect to a relevant benchmark. Then we must start seeing these for what they are – manifestations of deep-set systemic problems, which are affecting all our schools.

Everything else that one can look at also suggests that to improve education in India we will have to look at system-level issues and act on those, and not advocate for simplistic actions. Silver bullets (for example, technology- and assessment-led reforms) captivate the general imagination, but in the best case have little effect, and in most cases make things worse. However, before we look at these system-level actions, unless we have a common and shared understanding on some of the fundamentals of school education, we are likely to misunderstand each other.

These fundamentals include the purpose of education, processes of learning and influences on education, among others. While some of these fundamentals may be well known, some may not be. So, I will list some of the most important ones. I must caveat it by saying that in a brief piece like this it is not possible to do any justice to these matters; only very rough pointers will be possible within the required brevity. There is substantial consensus on these matters in the field of education. The specific positions are either informed by decades of research and debate, or are matters that are normative in nature, representing a basic socio-political consensus in relevant societies. For the normative positions, I have used the particular instance of India. However, these positions would be similar across most liberal, democratic societies.

The aim of school education is to help the cognitive, social, emotional, physical and moral development of the child. This needs to happen in an integrated manner, through sustained, systematic and purposeful interventions. Some related specifics are that education must help the child to develop into an autonomous and independent-thinking individual, to relate empathetically to the people and the world around, to become aware of the accumulated knowledge of humankind, to be an engaged citizen and part of a community, to be economically productive and independent, and to develop a sound moral and ethical bearing. Such a role of education in the development of the individual underlies the parallel role of education in developing a good society; a democratic society, which is equitable, humane, just and sustainable.

> *Education must help the child to develop into an autonomous and independent-thinking individual, to relate empathetically to the people and the world around, to become aware of the accumulated knowledge of humankind, to be* **an engaged citizen** *and part of a community, to be economically productive and independent, and to develop a sound moral and ethical bearing*

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Education is a social-humanistic process, entirely dependent on relationships of people involved in the process the teacher and the student. Early childhood years are critical for learning, growth and development of the child. All children can learn and have multiple capacities, while they will have individual differences, including of dispositions and interests. These differences must be factored into the teaching-learning process. The teacher is the most important part of the education system, and her role is very complex and demanding. Teaching-learning is an uncertain and creative process, requiring autonomy for the teacher. School culture has significant impact on the child's learning and development, in addition to the pedagogical processes in the classroom. Sociological factors have significant impact on education; socio-economic background of the children is a very significant influencer of learning. And finally, to close this very inadequate list, we must recognise the importance of a child having a fulfilling childhood and not think of this period only as a preparation for the adult life.

Let's now briefly look at the Indian education system before going on to discuss how to improve it. Education is a concurrent subject in the Constitution; while there are broad common directions guided by national policies, the states run their school systems independently; higher education has much greater control of the central government through multiple regulatory bodies. With 1.5 million schools, eight million teachers and 210 million children, India has the largest schooling system in the world. It's also by far the most complex because of India's linguistic, socio-cultural and geographic diversities. A very large percentage of the children are first-generation school goers. The system is afflicted by multiple problems, which is why it needs improvement. Most importantly, there is an alarming crisis of learning, that is, children are not learning what they are expected to and, whatever they are seemingly learning, is mostly through rote. Equally importantly, school completion rates are about40 percent–for every 100 children entering grade one, only 40 pass out of grade 12. There continues to be deep-seated inequity and discrimination within the school system.

It's not as though India has not made progress on school education. In the past 30 years, the enrolment numbers have gone up from near 50 per cent to near 100 per cent; if the enrollment numbers had been the same as in the mid-1980s, then 100 million children would have been out of school today. This has happened because of massive expansion of the school system in the past 25 years. Every habitation in the country has a primary school within 0.8 km. In grades one to five, we have almost achieved gender parity, meaning that almost all girls are also enrolled in schools. Many of our policies are progressive, most importantly our school curriculum and curricular frameworks are very good.

To talk about improving education, we must recognise that we have to inescapably deal with socio-political and cultural issues, as well as complex issues within the field of education; it's actually a wicked problem to solve. We can be certain about the necessary actions, but we can't be certain about all actions. I will list six set of actions that are absolutely necessary, without which improvement will not happen, and which if done will help make significant improvements. Need-less to say, no such list can be exhaustive.

Most importantly, there is an alarming crisis of learning, that is, children are not learning what they are expected to and, whatever they are seemingly learning, is mostly through rote. Equally importantly, school completion rates are 40% – for every 100 children entering grade one, only 40 pass out of grade 12. There continues to be deep-seated inequity and discrimination within the school system

One, we have to rebuild our teacher education system from grounds up. Teacher education (B ED or D ED) prepares people to become teachers. Without any exaggeration, we have the weakest teacher education system in the world. The curriculum, its implementation, institutional structures and regulation, everything is in a mess. Our teacher education programmes are two years long, countries with even half decent systems have five-year programmes. The curriculum is archaic, and implemented shoddily, if at all. We have about 16,000 teacher education colleges in India, over 90 per cent is privately owned and run, and an overwhelming majority of these are shops-in-the-guise-of-colleges with no interest in education. They have no faculty, no facilities, only a licence to operate. How this has come about is one of the biggest scams in independent India. The result is that we have a super-weak and super-corrupt teacher education system.

There is enough recognition that this is a core problem in Indian school education. The Supreme Court had taken suo motu notice of this matter and appointed a commission under the chairmanship of the (late) Justice J.S. Verma. The commission's report

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has been accepted by the Union government. Not only do we know what needs to be done (curriculum, institutions, regulation, etc.), but have accepted it "officially". Getting it done, however, is a different matter. It will require actions that will shut down a very large majority of these 16,000 colleges, most of which are owned by locally powerful people. You can imagine the political will (at multiple levels) required to do this. In parallel, massive public investment will be required to set up new colleges and improve existing ones. This is perhaps the toughest set of actions, but without this no improvement will happen. I wish that the influential readers of this magazine, systematically build pressure on this matter rather than agonising over the "poor learning outcomes in schools". What's the point in crying over symptoms, when we know the disease and its cure; shouldn't we act?

Two, we are required to support and develop capacities of existing teachers. The reality is that we have eight million teachers in our schools, who have come through this weak teacher education system. Unless we provide sustained and rigorous professional development support to our teachers, the large majority will remain limited by their own weak educational background. This has a direct effect on their motivation and engagement as well. Effective in-service professional development will require empowered, local institutional structures at the district, block and cluster levels. It will also require possibilities and mechanisms for peer learning. In many senses, making all this happen will be far more complex than improving teacher education.

We are required to support and develop capacities of existing teachers. The reality is that India has over **8 million** *teachers in our schools, who have come through this weak teacher education system. Unless we provide sustained and rigorous professional development support to our teachers, the large majority will remain limited by their own weak educational background*

Three, we should have much larger numbers of (what I will call) education experts. These are teacher educators, curriculum specialists and assessment experts, etc. The numbers of these are woefully short in India; the numbers need to increase by a hundred times. The shortage has overall impact – including on teacher education and their professional development. For this, new "schools of education" need to be set up in university campuses, which offer Masters and Doctoral level programmes in Education.

The fourth set of actions relates to changing our assessment (examination) system. We have moved to continuous comprehensive evaluation for grades up to eight – this has been a good development. However, till we do not improve our school-leaving exams (and college entrance tests) by moving them away from assessing memorised and procedural knowledge, to assessing conceptual understanding and ability to think, we will keep reinforcing what we want to eliminate.

Five, we need to invest substantially more on our pre-school education and care for children between ages of three and five. Most children do not have access to such facilities or even the Anganwadi system, which is in a shambles. We need investment in the basics of this system, as was done in schools between 1985 and 2005. This involves a host of changes, including changing completely the profile of people being recruited as Anganwadi workers, and treating them on a par with school teachers.

Six, we must invest in capacity development of our education leadership. This includes principals of schools, functionaries at the block and district levels, and senior officials at the state level. It will also require a change in approach of the appointment and management of such education leadership.

It's not possible to list all the areas of actions. There are very many other important sets of actions, such as investing in creating secondary schools, teacher recruitment and ensuring teachers are there for all classes in all schools, improving text books, streamlining and improving committed financial flows, structural simplifications like merging the *Sarva Shiksha Abhiyan* structure with State Education Departments.

For these sets of action to be possible, and many others that will be required, we will have to raise public investment in education. Governments, past and present, have accepted that at least 6 per cent of GDP needs to be spent on education, while we are currently at about half that number. In fact, in this phase when we are developing and improving our education system we probably require 8-10 per cent; as a benchmark most OECD countries spend 6 per cent of GDP on education, while they are not really in an "investment" but a "maintenance" phase. Without the money, anything that we are wanting to do, will remain as intention.

There is another key reason why public expenditure on education must

Governments, past and present, have accepted that at least ***6 %*** *of GDP needs to be spent on education, while we are currently at about half that number. In fact, in this phase when we are developing and improving our education system we require* ***8-10 %****. Most OECD countries spend 6 per cent of GDP on education, while they are not really in an "investment" but a "maintenance" phase*

go up. Till 25 years or so, most Indian students studied in government or government-aided schools. An entirely privately-funded school was a rarity. From there, we have, in just one generation, moved to a situation where private schools are almost a third of the total school-going population. And this share is still rising. Many would celebrate this. But, as I noted earlier, this mushrooming of private schools has not had a positive impact on learning outcomes. In fact, we have witnessed just the opposite. This is not accidental. The role and nature of education is such that it's a quasi-public good, which cannot be delivered effectively by market mechanisms. Both theory and evidence is clear on this matter. It's no surprise that even the most market-driven countries depend on the public system for education and not the market. To complicate matters, a vast majority of our private schools are profit seeking, and see the socio-economically disadvantaged as the market. The most disadvantaged are getting the worst deal from this trend of privatisation. Good education for all will happen only in public schools, not in the marketplace.A sound public education system is the foundation of a good democratic society; there is no substitute to that.

In closing, let me point out two issues that will have as much bearing as money on any real improvement in education. We need to drive basic cultural changes in the education system, moving away from a culture of centralised and mechanical decision-making to empowering schools and teachers. We must stay the course with our plans and directions for at least 20 years. Even a country as big as Finland took 40 years to get its school system where it is today, while working consistently in the same direction. Education change takes a long time, and we have to accept that. ◆

Education

Renaissance of Liberal Arts Education in India

BY ASHISH DHAWAN, PRAMATH SINHA, VINEET GUPTA and SANJEEV BIKHCHANDANI




ABOUT: The early Indian planners focused on technology and management education to help bright students become great technocrats and managers in a country that was being built ground up. But now, there is an increasing feeling that this overemphasis on professional skills in higher education is resulting in lopsided growth. All developed countries have a healthy liberal education system that throws up rounded leaders. A few years ago, **Ashish Dhawan, Co-founder of Chrys Capital**, one of India's biggest private equity funds, **Pramath Raj Sinha, Founding Dean of ISB**, **Vineet Gupta, MD, Jamboree Education**, and **Sanjeev Bikhchandani, Founder and Vice Chairman of InfoEdge** (Naukri.com), joined hands and pulled in many others to conceptualise and build Ashoka University, a private university focused on liberal arts education. They write about the importance of liberal arts to the development of the country.

India has always had a tradition of liberal arts education. The centres of learning at Takshashila and Nalanda were possibly the Harvard and Yale of the ancient world. Students came from across the world to study grammar, philosophy, ayurveda, surgery, politics, warfare, astronomy, commerce, music, dance, and much more. Leading Chinese and Japanese scholars were graduates of Nalanda. Among the graduates of Takshashila were the philosopher and economist Chanakya; the father of Sanskrit grammar, Panini; and the grandfather of Ashoka, Chandragupta Maurya.

It is a shame that today not a single Indian institution is among the Top 200 in the world. Can we ever think of becoming a global superpower if our education system is in a shambles? Report after report talks about the crisis in higher education the poor quality of faculty, the unimaginative curriculum, the lack of research and the institutional degradation. We must seriously rethink the British model of specialist education and revive our tradition of liberal education if we aspire to be a leading economic force in the next 25 years.

Where Are We Now?

India has been focused on improving access and equity in the post-Independence era. The British system was targeted at educating a narrow group of elites and so even as late as the 1950s only 400,000 students were enrolled in 500 colleges across the country. Over the past 65 years, the higher education system has grown almost a hundred times to 30 million students at 37,000 colleges. Our gross enrolment ratio (GER) has almost reached 25 per cent; we should aspire to a GER of 60 per cent by 2040. But the obsession with increasing access has meant that quality has been ignored. We have experienced the same in school education. The GER for elementary education has almost touched 95 per cent but the vast majority of children are being failed by the system.

As the economy has taken off, India has had a need for engineers, accountants, managers, doctors and lawyers. But the pendulum may have swung too far in the direction of professional education. The top students always aspired to go to the IITs even if they had no interest in engineering. As a result, private colleges mushroomed to meet the needs of the burgeoning IT sector. The expansion was overdone and almost 4,000 colleges with 1.7 million entry-level seats were built. The sign that the 'professional degree boom' has peaked is evident from the recent shutdown of hundreds of engineering institutes – even the regulator, the AICTE, wants to shut down 40 per cent capacity and instead focus on enhancing outcomes.

We have a real crisis in higher education that has become apparent as corporates find that only a quarter of the graduating students are prepared for the workforce. A look at the curricula and pedagogy at most institutions reveals no real revolution of ideas – the basic system of teaching and assessment still relies on rote learning and an exam-based, lock-step method. The over one million professors and instructors in higher education need to re-imagine the teaching and learning process.

Research is almost non-

RAJ VERMA

existent at our universities and colleges. It is tragic that some of the leading South Asian historians, linguists, political scientists and economists are at western institutions. The debate on India's economic model is between Amartya Sen at Harvard and Jagdish Bhagwati at Columbia. Where is the intellectual voice from our institutions?

VIVAN MEHRA

We have underinvested in research, particularly in humanities and social sciences, and only a few institutions such as IISc and TIFR are known for research excellence.

Why liberal arts?

Let us start by clarifying that a liberal arts education does not just focus on the arts. In classical antiquity, these were the subjects and skills considered essential for a free person in order to actively participate in civic life. The Yale Report of 1928 stated that the essence of liberal education is to develop the freedom to think critically and independently, to cultivate one's mind to the fullest potential and to liberate oneself from prejudice, dogma and superstition.

In modern times, liberal arts universities encompass the arts and humanities, social sciences and natural and applied sciences. Students are exposed to a variety of subjects and encounter new ideas at an astonishing rate. After all, how many 17- and 18-year-olds really know what they want to do with their lives? Our current system of early specialisation is a remnant of the British model for passing on specialist knowledge to administer a far-flung empire. It needs to change.

Our gross enrolment ratio in higher education has almost reached 25%; *but the obsession with increasing access has meant that quality has been ignored*

In his book, *In Defence of a Liberal Education*, Fareed Zakaria describes how he and his brother escaped the Indian system to attend elite American liberal arts universities, Yale and Harvard, respectively. Zakaria writes that America's success was built on liberal arts education on multi-disciplinary study for the sake of learning rather than vocational study for the sake of a set career path. He points out that even though the US has fared poorly on international high school math and science tests for 50 years, it has led the world in technology, research and innovation.

Jack Ma, a BA in English and the founder of Alibaba, recently hypothesised that the Chinese are not as innovative as westerners as China's educational system, which teaches the basics very well, does not nourish a student's complete intelligence, allowing her to range freely, experiment and enjoy herself while learning: "Many painters learn by having fun, many works are the products of having fun. So, our entrepreneurs need to learn how to have fun, too."

Is this our inflection point?

India is rapidly becoming a middle-income economy. We can no longer just rely on the factor-input model of growth that we have been pursuing since the 1991 economic reforms. As Prime Minister Narendra Modi has recognised, we must invest in our human capital. But, this is not just a matter of skilling. We also need to develop into a knowledge economy. Our young college graduates will have to deal with disruption in the coming decades. No longer can they just garner specialised skills. Instead, they need 21st century skills that will allow them to evolve as old industries get obliterated and new ones are created.

This recognition has dawned upon the leaders of East Asia. The forward-looking Singaporean government invited Yale to partner with the National University of Singapore (NUS) to create the first liberal arts college in that part of the world. In its first year itself, Yale-NUS got more than 11,400 applications from over 130 countries. The acceptance rate of the inaugural class was under 4 per cent, less than in the top US universities, demonstrating the latent demand for liberal arts education in Asia.

China has invested significantly in building broad research-based universities and even formed the C9 League, an alliance of nine top universities analogous to the Ivy League. A few of these have begun experimenting with aspects of liberal arts learning. Shanghai's Fudan University has introduced an Oxbridge-style residential college structure and, in a significant break with tradition, allowed students to put off deciding their major until the second year.

Our system is ready for a new form of education. Students (and even parents) are fed up with rote education. Those who can afford it are sending their children abroad for undergraduate and graduate studies. However, middle-class parents continue to push for professional education as there are not many other viable options.

Ashoka's role

Ashoka University was founded in 2010 (formal approval in 2014) as a not-for-profit institution under the Private University Act in the state of Haryana. It is a distinctive example of an institution providing pure liberal education that aspires to be on a par with the best in the world. Our aim at Ashoka is to help students become well-rounded individuals who can think critically about issues from multiple perspectives, communicate effectively and become leaders with a commitment to public service. Ashoka lays strong emphasis on foundational knowledge, thorough academic research based on rigorous pedagogy, and hands-on experience with real-world challenges. It prepares students to be ethical leaders in a diverse and complex world, the kind envisioned by Emperor Ashoka over two thousand years ago.

The sign that the professional degree boom has peaked is evident from the recent shutdown of hundreds of engineering institutes. Even the regulator, the AICTE, ***wants to shut down 40% capacity and instead focus on enhancing outcomes***

Our initial success has shattered the myth that students and parents are not ready to accept liberal arts education in India. In our second year as a university, we received 5,500 applications for 430 seats. Our students come from 27 states across India and across the socio-economic spectrum. Almost 55 per cent of our students are women, unlike the male-dominated IITs and IIMs. The graduates from our one-year post-grad Young India Fellowship programme have demonstrated that employers value liberal education – we already attract 90 employers and have 100 per cent placement record.

How did we gain traction so quickly? We recognised that great faculty is an essential ingredient for building a world-class university. Our mission has attracted leading scholars and academics from around the world. This year we received 800 applications for 20 full-time faculty positions. Ashoka has demonstrated that if the right platforms are created, academics of Indian origin (and even others) would consider relocating to India. China has followed the same strategy.

We believe that many elements of Ashoka can provide a direction to higher education in India. The curriculum has to provide breadth and depth. The students must have choices. The pedagogy must move away from the "sage on stage model" to a more Socratic method of inquiry. The governance should allow for no one person to dominate the institution. Collective philanthropy can provide the much-needed financial resources for creating many more high-quality colleges and universities. And, finally, institutions have to invest in faculty and research to build a strong core.

The creation of IITs led to the emergence of one of the largest engineering college networks in the world. The IIMs did the same for management education. We hope Ashoka can do the same for liberal education in India and the world.

SHEKHAR GHOSH

We can envision the potential for ***India to have at least 25 universities in the global Top 200*** *in the next 25 years*

Looking forward

Initiatives such as Ashoka that restore liberal education to its rightful status in the country can transform higher education not just in India but the world. As we look ahead and build on the successes of new institutions in India like ISB and Ashoka that have received global recognition and acclaim very rapidly, we see no reason why India cannot have many more institutions of high calibre in the years ahead. We can envision the potential for India to have at least 25 universities in the global Top 200 in the next 25 years. Our belief stems from the realisation and experience that for about $100 million or ₹700 crore one can build a greenfield new university in India of international quality for 4,000-5,000 students. This is disruptive innovation in the field of higher education not just in India but in the many new emerging economies of Asia and Africa that aspire to build high-quality institutions of higher learning for their growing young populations. Not only are the upfront investments reasonable, the education itself can be offered at an affordable price point, which is important for access to quality education at scale. At current costs, it should be possible to offer an undergraduate degree for about $10,000 a year along with the flexibility of offering generous need-based scholarships to a majority of students to ensure needs-blind access for all who deserve it.

The time has come for India to again embrace and carry forward its rich legacy by redefining and shaping liberal education for the 21st century not just for India but for the world. Today, liberal education in India is not just blindly aping the western model. It incorporates the best of content, courses and knowledge that India has to offer and marries it with the best in contemporary pedagogy in terms of experiential learning, use of technology, grass-roots immersion and mentorship. It ensures that the best minds in India are capable of engaging with the toughest challenges we face as a society. This way we ensure that the Indian liberal education aspires to be not just the best in the world but the best for the world. As America worries about its overdependence on liberal education and its rising costs and relevance, India and its Asian neighbours are showing how a rejuvenated model of liberal education is not just an imperative but can be delivered in a high-quality and affordable model at a large scale. As a country we have the opportunity to change the course of higher education not just for India but for the world. ◆

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Justice for All

Judgement on the Judiciary

By RANJEEV C. DUBEY


VIVAN MEHRA

ABOUT: Some of India's landmark legislations such as MGNREGA, insurance for all, direct benefit transfer, education for all and health for all, have been instruments of bringing social equilibrium. But with crores of cases pending in Courts across the country, delayed justice continues to deny justice to the common man. How could law become an instrument of social justice? **Ranjeev C. Dubey, Managing Partner, N South, Advocates**, outlines what must be done to bridge the gap between the rich and the poor over the next 25 years.

Here is a core eternal truth: removing the symptoms of an ailment is not the same as curing the ailment. India's main problem is that in the past two decades, we have acquired a peculiar fascination for symptomatic treatment. When women are raped in cars, we ban solar film on car windows. When air quality declines, we ban half the cars from plying the streets on particular days. When corruption spins out of control, politicians fight pitched battles with the police on the streets. Lost in the symbolism and emotional catharsis from such actions is the fundamental fact that everyone rises to the incentives of his/her environment. At the root of the vast majority of our ills lies our wanton neglect of a key instrument of social equity, equilibrium and justice: the judicial system.

This is actually quite obvious. If rapists, polluters and scamsters were convicted faster than they could profit from their felonies, there would be little incentive to engage in criminality. You can't build a great country by hysterically protesting on the streets, stripping crooks naked and parading them on donkeys, or spewing venom on TV. You do it by building great institutions that efficiently pursue the objectives for which they are designed. Almost every society that has identified social equilibrium and justice as objectives, has hastened to establish, and carefully preserve, an efficient judicial system. In India's case, this becomes all the more necessary because we now expect our judicial system to not only deliver justice but also define policy (distribution of 2G li-

AJAY THAKURI

cences, mining licences), investigate crimes (the Hassan Ali Khan case, the Jayalalithaa case), regulate markets (SEBI and the fascinating case of Sahara India), define political ideology (rule on the legitimacy of Salwa Judum) and even resolve metaphysical conflicts (suicide versus Santhara)! Many would agree that this side of Bollywood and cricket, only the judiciary holds this country together. We need an efficient judiciary, especially since, in recent years, the legislature has gone the way of all flesh.

Yet the fact remains that the judiciary as an institution is deeply troubled. At its worst, it is an extortion racket equal to anything the provincial police station can conceive of. For the most part, it is overburdened, unable to function, gridlocked and logjammed. As former Chief Justice H.L. Dattu so candidly acknowledged, India has more than three crore pending cases. One estimate claims that at current disposal rates, we will need 466 years to clear the backlog.

However, the situation is not hopeless. This seemingly intractable problem comes down to only a few things we need to fix. At the heart of the problem is the fact that we haven't enough judges. Countries with efficient legal systems uniformly have a ballpark ratio of 50-60 judges per million people. In India, the corresponding figure is closer to 10. We need to fix this, and fast.

At its worst, India's judiciary is an extortion racket, equal to anything the provincial police station can conceive of. For the most part it is overburdened. There are more than three crore pending cases. One estimate claims that at current disposal rates, it will take 466 years to clear the backlog. Countries with efficient legal systems have a ballpark ratio of 50-60 judges per million people.

But there is more to increasing judges' strength than appointing more judges. It is also about providing them the real estate, infrastructure and support staff they need to function. I understand there has been a policy decision to increase judges' strength by 25 per cent. But this will barely keep up with the ambitions of an expanding economy: it will not make up for the neglect of the past.

Can judges' strength be increased to five times its current level? No doubt, it's a great challenge. Where do we get so many skilled judges? After all, it's productive assets we need, not well meaning, decent folk who hope to learn on the job. I get plenty of CVs from aspiring lawyers emerging from the hallowed portals of India's leading law schools: most don't have employable skills, although they do have great financial expectations. Skill deficit is a complex countrywide phenomenon. All I can say is this: if you want great skill, you better have a great budget. The world is what it is. And money is never enough. You have to catch talent young. A lawyer with 10-15 years experience can switch jobs and become a judge because he has a career expectation of another 20-25 years. Once he has been 20 years a lawyer, he is too successful, too set in his ways and doesn't have a career progression deep enough to justify the switch. Bear also in mind that you will have to train him for this specific role. You will need to build great training institutions, much more intensive than the short workshop routines you have now.

What will you train these judges to do? The era of the generalist judge has passed. I have 35 years of legal experience, but I don't even pretend to understand tax laws or intellectual property rights (IPR). At the rate we are changing our regulations, in a few years, I fear I won't understand capital markets either. We need intense HR planning for judges. How many do we need for which jobs? Getting this product mix right isn't rocket science, but it isn't our usual perfunctory gloss-over-details claptrap either.

One more problem is the inability of judges to exercise complete control over their own courts. Technology now provides a solution. Enterprise resource planning has penetrated the very heart of Indian business; there is no reason similar systems can't be implemented across all courts. We need to move to a completely electronic ecosystem, transparent to all stakeholders. We need to standardise all our practices, from the way we number our cases to the way we organise our data systems.

We need cooperation from our lawyers, too. A vociferous minority of lawyers can be particularly perverse. "I'm too poor to buy a computer," you might hear one say. "My fundamental right to practise this noble profession stands impaired if everything goes online." "It is imperative that I be present at my uncle's cousin's brother-in-law's funeral," another may insist as he seeks postponement of a hearing. Conflict aversion then becomes the road to institutional self-destruction.

This brings me to discipline and intellectual clarity. I have lived through the deterioration of the legal system in the late 1980s and 1990s, when time after time courts took to unsettling long-settled law in some elusive quest for targeted justice for individuals, subjectively defined through the prism of the judge's ideological bias. What we have now is a legal system in which I as a lawyer cannot definitively tell a potential client what the court will decide in the face of any given set of facts, or how long it will take, or what it will cost to get that decision. The situation is truly ludicrous. We need certainty of law a good deal more than we need justice for each individual based on some misguided notion of compassion.

Time after time, in the late 1980s and 1990s, courts took to unsettling long-settled law in some elusive quest for targeted justice for individuals, subjectively defined through the prism of the judge's ideological bias.

We need certainty of law a good deal more than we need justice for each individual, based on some misguided idea of compassion

Fixing this has two elements. First, we need our judges to think only of the big picture. Judges are here to apply the law to the facts, not deliver individual justice to the downtrodden. It's a cultural shift, easily implemented if it is clearly understood. Second, we need to arm judges with a definitive understanding of the law. All this takes is IT and competent law clerks. If a judge can punch a couple of buttons and get abstracts of all cases decided on a particular point of law in the last 60 years before him, he will know what law to apply. The rest is common sense, and that has never been lacking.

I am overwhelmed by the irony presented by the judicial system in India. Here is a hallowed institution that has all but disintegrated in substantial measure. We observe this downfall as mute spectators even as we continue to look to the judiciary to rescue us from a predatory state. The fixes are easily understood and easy to apply, but there is no administrative will to make the changes. Even where administrative will exists, political support is absent. The people want justice, but there is no popular movement on behalf of civil society agitating to enforce the fixes. Topping all this is the greatest irony of all: we want the best judiciary possible, but we haven't the slightest interest in addressing any of its existing problems. In this, we only prove the greatest eternal truth about Indians: we are superb at strategy, we just hate to implement our rhetoric. ◆

Justice For All

Need Better, Fewer Laws

BY BIBEK DEBROY

SHEKHAR GHOSH

ABOUT: Many of the criminal and civil laws followed in India were framed in colonial times. Indeed, a huge number of Indian laws needs to be scrapped and new ones passed to help us progress. The man who has written extensively about it is **Bibek Debroy, celebrated economist, head of the panel for restructuring Indian railways, and a member of Niti Aayog**, the body that replaced the Planning Commission. He shares his views.

There is a quote from Publius Tacitus (Gaius Cornelius Tacitus), author of several texts including 'Annals'. As commonly cited in English, the quote goes, "The more corrupt a State, the more numerous the laws". That's not quite correct. Tacitus wrote, "Corruptissima re publica plurimae leges". We indeed have a clause about a corrupt State and another clause about plurality of laws. But there was no obvious causation in Tacitus. One could equally well translate this as, "The more numerous the laws, the more corrupt a State". However, the correlation is not in doubt.

Governments are elected to pass laws and all laws involve curbs on individual freedom. As a collective body, aggregated from individuals, those curbs are accepted by society because they result in the greater "common good", however defined. Behaviour, so to speak, is modified and incentivised to conform to a certain standard. How many "laws" are there in India? For several reasons, that is not a very easy question to answer. First, law is not always statutory in nature. Traditionally, legal regimes are divided into common and civil law jurisdictions. In the former, and India belongs to this category, law is not always codified. Though difference between the two kinds of jurisdictions is getting blurred, with codification in common law countries, there are common law strands in India and case law sometimes determines "law". Second, there is the category of administrative law, executive in nature. This is not statutory law, though it often obtains its sanction from some statutory law. Rules and orders belong to this category. Third, both Union government and State governments can legislate.

RAJ VERMA

Within Union government, courtesy India Code, we now know exactly how many Union government statutes there are. But, one still has to figure out whether one is going to count principal acts alone or amending acts too. There have been several attempts to count (and suggest repeal) old laws. One such recent attempt was the Ramanujam Committee set up by PMO, in September 2014, to identify Union government statutes that could be repealed. (There were three Law Commission Reports too.) The Ramanujam Committee told us that 380 statutes, enacted between 1834 and 1949, still remained on statute books. There were another 2,401 statutes, enacted after 1950. That's a listing of 2,781 Union-level statutes. Note that following common law traditions, India doesn't have a system of desuetude. Therefore, statutes are open-ended. They continue to remain on statute books, unless they are specifically identified for repeal. Fourth, you will find a figure that 25,000 State-level statutes exist. I will soon tell you where that figure comes from. It is plain wrong. No one has a precise figure about State-level statutes. We don't yet have the counterpart of India Code there.

All too often, the importance of the legal system as a constraint on economic growth and development isn't recognised and appreciated. Despite law and economic initiatives, and emphasis on institutional economics, economists rarely talk about legal reform. Since 1991, there have been isolated instances, such as when legal changes were necessary because of WTO or plurilateral/bilateral agreements, or when infrastructure and financial sectors were being liberalised. But those apart, as a test case, go through all the economic surveys.

In how many of these does legal reform feature? Everyone acknowledges that India went through a heavy dose of government intervention between mid-1960s and mid-1970s. In how many economic treatises that discuss this period is there a specific reference to legal changes? The tightening up of Foreign Exchange Regulation Act (FERA) in 1973, Monopolies and Restrictive Trade Practices Act of 1970, Urban Land Ceiling and Regulation Act of 1976, tightening of Industrial Disputes Act in 1977/78 and change in the Preamble to the Constitution in 1976 are instances. Sure, we know about these individually; but is the importance of law, as part of infrastructure for economic policy, appreciated as part of the big picture? There is a back-of-the-envelope kind of number suggested about 10 years ago by the World Bank. If India can fix the legal system, there will be one per cent increment to GDP growth. It is illustrative.

What does fixing the legal system mean? There are several dimensions. First, there is the simple matter of old laws. Other countries also have old laws. We can laugh at old laws. Surely, they do no harm. Not quite, they can be used to harass people. Did you know the 1949 East Punjab Agricultural Pests, Diseases and Noxious Weeds Act applies to Delhi? According to this, if Delhi is invaded by locusts, the DM will announce the invasion by beating of drums and every able-bodied person has to cooperate in fighting locusts. If you think this is harmless, how about the Aircraft Act of 1934? Stated simply, under the given definition of "aircraft", you need a government licence to fly kites (of the literal kind). The Sarais Act of 1867 enjoins sarai-keepers to give free drinks of water to passers-by and can be made applicable to hotels. About 200 statutes from the 19th century still exist on statute books, often with colonial overtones. It is surprising these weren't examined and junked in 1950, when the Constitution came into effect. (There was a perfunctory attempt in 1960/61 and a more serious one in 2001/2002.) The Ramanujam Committee identified 1,741 such old statutes for repeal. Did you know that ordinances from 1949 still remained on the books? More and more reports what action has been taken? That's a legitimate question to ask. In May 2015, several such old Union-level statutes were repealed through two Acts and a third Bill is pending. Between 1993 and 1998, I was involved in a project on law reform, known as LARGE (Legal Adjustments and Reforms for Globalising the Economy.) I have already mentioned the problem with obtaining access to a complete listing (and texts) of State-level statutes. For Odisha, we had a rough figure of 1,015. We multiplied that by number of States and got a rough figure of 25,000. This was no more than a guess and yet kept getting quoted. I have been associated with a law reform project in Rajasthan where we managed to get access to all the statutes and it numbered no more than 650. Therefore, I now think the number of State-level statutes will be around 18,000, not 25,000. Most of these concern land.

Second, revamping old laws isn't always that simple. Rare is the case when one can repeal a statute in its entirety. If that is the case, as in the instances I mentioned above, a simple repealing Bill will do. More often, there is an old section in the statute. That needs to be scrapped or amended, while retaining the main statute. This requires a scrutiny of the statute, section by section and is much more time-consuming. Consider Section 69(1) (a) of the Transfer of Property Act of 1882. "A mortgagee, or any person acting on his behalf, shall, subject to the provi-

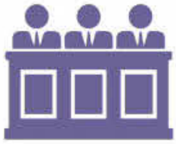
Despite law and economic initiatives and emphasis on institutional economics, ***economists rarely talk about legal reform.*** *Since 1991, there have been isolated instances, such as when legal changes were necessary because of WTO or plurilateral/ bilateral agreements, or when infrastructure and financial sectors were being liberalised* sions of this section, have power to sell or concur in selling the mortgaged property or any part thereof, in default of payment of the mortgage money, without the intervention of the court, in the following cases and in no others, namely, (a) where the mortgage is an English mortgage, and neither the mortgagor nor the mortgagee is a Hindu, Mohammedan or Buddhist or a member of any other race, sect, tribe or class from time to time specified in this behalf by the State government, in the Official Gazette." In similar vein, I can cite several sections from Indian Penal Code of 1860. In administrative law, I might want to retain Essential Commodities Act of 1955, but scrap several orders issued under it.

Third, and this is related a bit to the second issue, in the same area, statutes may not have been enacted at the same point in time. Therefore, definitions may not be uniform. A good example is labour laws. Depending on how you count, there are around 50 Union-level statutes that directly deal with labour, more if you count indirect ones. These don't agree on definitions like "wages", "child", "workman", etc. Since the case law has also evolved separately, that too varies, causing further confusion. These statutes need to be harmonised. In passing, laws haven't always been drafted well. There are problems with language. Bad drafting leads to disputes and interpretation by courts. In other parts of the world, there has been a plain English movement, so that laws are written in simple language. This has left India relatively untouched.

Fourth, India has been described as a country that is over-legislated and under-governed, reminiscent of Tacitus. Both in Parliament and Legislative Assemblies, there is an attempt to solve every problem under the sun through legislation, even though that legislation can't be enforced. Hence, there is excessive government intervention through statutes. This is sometimes perceived as taking ideological positions on degree of government intervention, but there is a better way of looking at the issue. Before passing any legislation, one should ask the following questions: Why is this statute needed? What are the costs if it is not enacted? What are the benefits and costs from enacting it? This is ostensibly meant to be addressed in "Statement of Objects and Reasons" that accompany all pieces of legislation, but undertaken very perfunctorily. If done properly, as some other countries have, we will have fewer and better laws.

Fifth, although not the focus of this piece, since this is about reform of the legal system too, one should mention speed of dispute resolution. Excluding quasi-judicial forums, there are more than 30 million cases stuck in Indian courts. There are several things that can be done to reduce the backlog, but this is not the place to discuss that. Suffice to say that one also needs changes in Indian Evidence Act of 1872 and 1973 Criminal Procedure Code, Civil Procedure Code of 1908 having been amended in 2002. These determine, along with other things, procedures followed by courts.

Even without 1991 and post-1991 reforms, India's legal system should have been changed. However, liberalisation provides an additional impetus. The government has spoken about minimum government and maximum governance. This requires fewer and better laws, with focus shifting from licensing, control and government intervention to regulation. There have been initiatives by Union government and some State governments. However, a more systematic exercise needs to be undertaken by Law Commission and its counterparts in States. ◆



Before passing any legislation, one should ask the following questions: ***Why is this statute needed?*** *What are the costs if it is not enacted? What are the benefits and costs from enacting it? This is ostensibly meant to be addressed in "Statement of Objects and Reasons" that accompany all pieces of legislation, but undertaken very perfunctorily. If done properly, as some other countries have, we will have fewer and better laws*

Bureaucratic Reform

Revamp our Bureaucracy

BY VINOD RAI

SHEKHAR GHOSH

ABOUT: India's babudom is being rated among the worst in Asia. Unless bureaucratic reforms make fundamental and structural changes by holding bureaucrats accountable, India will continue to struggle as political initiatives take painfully long to translate into actions. **Vinod Rai, former CAG of India and Visiting Senior Research Fellow at the Institute of South Asian Studies, in the National University of Singapore,** explains why revamping Indian bureaucracy is essential to make India future-ready.

The Indian bureaucracy is much celebrated and, at the same time, much reviled. It has been called the 'steel frame' and is also called 'babudom'. Its performance draws reactions ranging from total despondency to cautious accolade. However, in the present times, across all sections of society, it has ceased to draw unqualified praise or recognition for its role. How has it travelled from the 'steel frame' days to being seen as a 'laid back and laggard' phenomenon today? There is great need to introspect on these issues as any sustainable economic development can only be premised on the edifice of a transparent, accountable and ethical governance structure, which is what the civil service is meant to provide.

We have had Administrative Reforms Commissions and any number of recommendations to bring in reforms. Successive governments have either been non-serious about accepting these recommendations or have just not been concerned about them. The more worrisome factor has been the cavalier fashion in which different governments have thrown to the winds implementation of the very same recommendations that they had accepted when political expediency so required. There have been a set of recommendations which have been advocated by the highest Court of the land   these have also been disregarded. Maybe a fixed tenure for key posts such as the Cabinet secretary and the Home secretary, maybe have a civil services board to do the postings   these aspects are more ignored in their implementation than their acceptance. We need to examine how this situation came about and what could be a roadmap for any

seriousness that government may show to address the malaise.

Any attempt to re-engineer the bureaucracy would have to deal with two aspects. The first would have to address the systems or structures and the other would have to be the professional or attitudinal aspects of civil servants. No civil service structure can be static in its character. It has to be dynamic and has to change with the times. As models of governance or politico-economic environments change, it has to adapt and re-engineer itself. It is widely believed that the political executive does not allow that to happen and ensures that either the bureaucracy is sidelined or remains too rigid to handle rapidly changing political scenarios, thus emasculating it. It is, and has been, proven to be true. However, it is not that the constituents of the service have covered themselves with glory in their own approach, behaviour and professionalism displayed while on the job. Let us examine the factors which are beyond the reach of service officers on the one hand and require structural corrections by govern-

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It has to be dynamic and has to change with the times ment, and how, on the other hand, the officers could themselves correct some of the behavioural aberrations that have crept in?

It is commonly believed that the single largest contributing factor to the decline in the dedication of the officers towards their oath of allegiance to the Constitution is the upper age limit for eligibility to take the Civil Services Examination. The service seeks to recruit young and capable minds and mould them, keeping in mind the noble objectives and targets of the service. A 30 or 32-year-old person, who has served in one or two jobs and has appeared for the examination at least three to four times, is married and probably has a child. Such a candidate is hardly amenable to be moulded. By that age he has already formed his impressions about various important issues in life and administration, and does not have an open mind to whatever is being taught to him in an academy or on the job.

I recall joining some probationers for breakfast at the academy where I had gone to deliver a guest lecture in 2009. The entire discussion among them was about how they had requested for a posting to their home towns so that their wives and children could adjust easily! Mind you this was the first posting of their careers and the interest was the family and not the job. While, we would empathise with those who, for a variety of factors, have to be accorded a relaxed age limit, it needs to be recognised that irrespective of the age at which you join, retirement will take place at 60 years. The government services are also guided by a career progression system which is premised on seniority. You may be the brightest, most dynamic and exceedingly successful officer, but can be considered for promotion only with the most laid back, non-serious and non-performing officer of your batch/ seniority. A person even joining the IAS at the age of 30 can, at best, aspire to retire only as an additional secretary, that too if he is lucky – he could even get stuck at the joint secretary level itself. As an entrant to the service would be privy to this career limitation at the time of joining, would he have any long-term career aspiration in the service itself? Hence, why have people join the service who from day one do not see themselves rising to the top echelons and, thus, have no motivation to perform. These are the elements who fall prey to distractions in the course of the service. We cannot really blame them as the structure has been so contrived. Successive committees set up by the government and the UPSC have pointed out this ab initio lacunae, and successive prime ministers have accepted the argument, but expressed helplessness to change the system due to its political unacceptability. It is really strange how we sacrifice the best of issues at the altar of political convenience. If so, why aspire to reform the system or bemoan its inadequacy? It is our own creation and probably by design, as no political executive in present times wants a strong and effective bureaucracy.

Any serious attempt at revamping the bureaucracy must start from this very fundamental feature. The civil services were designed to be of a generalist nature. To that extent, bureaucrats have been able to manage fairly professional assignments with a fair amount of competence. However, times are changing and administration is becoming complex. Management of the infrastructure sector, economic departments and even education, social or health related issues, needs a greater degree of

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expertise and knowledge than was hitherto required of bureaucrats. Time has come when, after doing initial district and revenue related administrative appointments, civil servants should be given the option to attain specialisation in their field of choice and aptitude. They are presently trained at all levels of their career. These trainings are largely general in nature. These need to be converted to creating cadres of, if not specialised, at least fairly well-oriented administrators in fields that they will be called upon to administer. If we recruit young and dedicated candidates of an age not exceeding 24 years – with the usual relaxation for a reserved candidate – and after the initial 10/15 years, train them in specialised sectors, we will be creating a body of administrators who will not be 'square pegs in round holes', as they move up the career path. Considering the large number of professionally educated candidates who get selected for the higher civil services, such a basic specialisation effort would be undertaken earlier in the career and with a greater degree of success.

Time has come when, after doing initial district and revenue related administrative appointments, civil servants should be given the option to attain specialisation in their field of choice and aptitude. They are presently trained at all levels of their career. These trainings are largely general in nature. These need to be converted to creating cadres of, if not specialised, at least fairly well-oriented administrators in fields that they will be called upon to administer

Good governance is the need of the hour. The citizen, having come centre stage, demands a more responsive, transparent and accountable set-up which is premised on probity and integrity. We need to emulate some of the culture embedded in the civil services of Singapore, Scandinavian countries and the qualities that the British Civil services, from whom we derived our model, still espouse and maintain. It is not about compensation alone. Any person seeking enhanced levels of compensation has enough opportunities elsewhere. She need not join government. We need to seek to create a bureaucracy of persons who are spirited, inspired and willing to work closely with public agencies, rather than sit in ivory towers. The civil servant has to be a team player first before he seeks to be a team leader.

It is also necessary to create a fast-track career progression path for those with a demonstrated dynamic and outstanding display of public leadership and innovation in good governance. Treating the dynamic and lethargic officers at par gives no incentive for taking up challenges and delivering in difficult times and regions. While the average performer may continue to move up the seniority-cum-merit path, the outstanding performer must be fast-tracked for promotion and, hence, incentivised to perform better. A structure for such rewards can be designed. If the country can have a Prime Minister at the age of 40 years (and a very dynamic prime minister at that), global CEO at 47 years (Satya Nadella), why can't we get the best of vigour, vitality and drive out of a bureaucrat before he is 50? Why wait till he is 58 before he can head a department?

In a parliamentary democracy, it is undeniable that the political executive is supreme. The electorate has given it the mandate to govern. This governance function is carried out by the civil service. The civil service has to operate and balance between the noble public pronouncements of the government in power and privately expressed intentions, which quite often are not in consonance with the publicly stated views. Why is it that the Central Bureau of Investigation is called the 'handmaiden' of the government in power. The highest court in the land called it the 'caged parrot'. Caged by whom? Obviously, by the government in power. Caged by the very people who loftily de-

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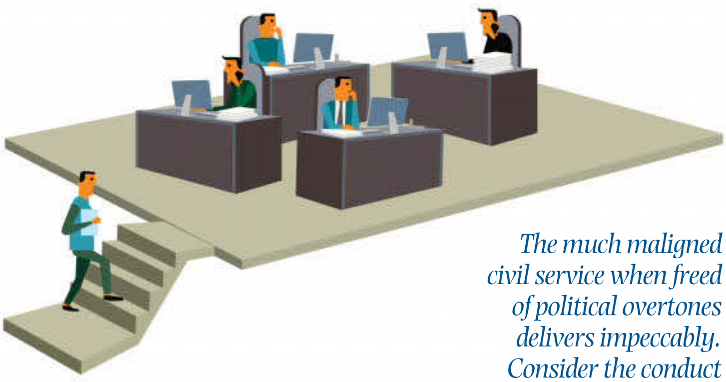
clare that the 'law will take its own course'. How often has the law been allowed to take its own course? It is these piquant situations that create a hiatus between the officers who are willing to stay on the straight and narrow path, as against those who are willing to acquiesce to the political pressure for very narrow career-related gains.

It is to contend with these situa-



tions that successive committees/ commissions set up reforming the bureaucracy had recommended the setting up of 'Civil Services Boards' which would ensure postings on merit and also fix the tenure of officers, thereby releasing them from the harassment of political pressures. The Supreme Court had also endorsed this viewpoint in a verdict delivered by them while deciding on a PIL. No such reform has taken place. If the bureaucracy is expected to deliver on the merits of any situation, it has to be allowed to take decisions in a free environment. The correctives are threefold: have the Civil Services Board do the appointments/postings, permit fixity of tenure, and have a quick penalty and reward system – all three to be dispensed by an independent board. This in itself will ensure officers abjure errant behaviour.

We need to recognise that the much maligned civil service when freed of political overtones delivers and delivers impeccably. Consider the conduct of elections. It does so under the direct control and supervision of the Election Commission. In this role, the very same bureaucracy has gained global acclaim. The same bureaucrat, whether in the independent and autonomous office of the Information Commission or the National Auditor, is still capable of delivering objectively. This is because she has fixed tenure, independence under the statute and a well-defined mandate. This makes it abundantly clear that we need to free the bureaucracy from inappropriate political control. Such a paradigm can emerge when bureaucrats decide that they will face the unfair political demands and be prepared for short-term harassment which is often in the form of frequent transfers. Such a determination will have to be made by the majority. This will ensure that attempts to transfer inconvenient officers comes to naught as the replacement would be equally balanced and impartial. The 'transfer the inconvenient' tendency can be squarely faced – it only requires determination of a larger number in the system. As a corollary of this phenomenon, it will have to be ensured that the agency which makes the final call on an officer's delinquency or otherwise is an independent agency such as the UPSC and not the elected executive. This can also be extended to the observance of tenure norms, disciplinary action and a system to oversight the process of 'empanelment/ suspension'.

The much maligned civil service when freed of political overtones delivers impeccably. Consider the conduct of elections. It does so under the direct control and supervision of the Election Commission. In this role, the very same bureaucracy has gained global acclaim. The same bureaucrat, whether in the independent and autonomous office of the Information Commission or the National Auditor, is still Capable of delivering objectively, because of ***fixed tenure, independence under the statute and a well-defined mandate***

It has finally to be accepted that in any system, however good, the architecture can function only as well as the persons who operate it. The aspirants to the service need to introspect. They need to recognise that they have to be the agents of change and synergise government efforts with other participative agencies to deliver most effective and timely solutions. There is need for the civil service to change with the times, moving away from the mindset of a regulator to one of a facilitator. This can be done by training institutions, provided the persons selected are impressionable and young enough to be inculcated with the ideals of the higher civil services.

Revamping the bureaucracy is not a Herculean task. It merely requires a positive mindset of the government in power and a determination among the aspirants in the service to deliver as per the hallowed objectives of the service. It requires officers to remain committed to the job at hand and not be swayed by narrow sectarian, political or regional interests. The compensation structure today is not adverse in government. Being inadequately paid can hardly be ascribed to some of the ills that have crept in. Corruption or nepotism are a direct consequence of an individual not being able to see an exciting career for himself which permits him to rise to the highest echelons. Hence, I strongly believe that providing an attractive career progression opportunity itself would take care of this phenomenon.

The bureaucracy is the continuous element in administrations. Governments may change and hence the framers of the Constitution had provided for an impartial and permanent bureaucracy. The country has to ensure that rapid growth and welfare measures are inclusive for all sections of society. This necessitates an impartial, dynamic and accountable civil service which can ensure that these objectives are actually achieved. The stakes in having such a service are very high – the government and the political executive must work towards ensuring a spirited and impartial civil service structure designed to cater to the needs of the nation. ◆

There is a need for the civil service to change with the times, moving away from the mindset of a regulator to one of a facilitator. This can be done by training institutions, provided the persons selected are impressionable and young enough to be inculcated with the ideals of the higher civil services

Defence Policy

Coming together for 'Create in India'

BY ANIL SARDANA AND RAHUL CHAUDHRY

ABOUT: For six decades, India had the desire but never the determination to be self-dependent in defence requirements. Vested interests played their part in keeping India dependent on foreign purchases. But no power in the world can claim military supremacy by buying its way through defence needs. **Anil Sardana, CEO & MD, Tata Power** (lead contractor for Pinaka Multi Barrel Rocket Launcher and Akash Missile Launchers), and **Rahul Chaudhry, CEO of the company's Strategic Engineering Division,** write on why 'Make in India' matters for India's defence preparedness.

To be a sovereign state means to be free from the control of any external influence. But to anyone who has read about the challenge India experienced during the Kargil War and Operation *Parakram* (planned after the Parliament attack), would realise the limited space available to India in her strategic manoeuvres. Take for instance, the GPS degradation during the Kargil war that propelled India to create its own GPS-Aided Geo Augmented Navigation (GAGAN), primarily for civilian use, making India the third country in the world to have this capability. In this world of technology denial, Trojans and malware, our sovereignty is not only challenged by those occupying the Tiger Hill, but also by those who limit our ability to act in national interest. Despite realising the limitations of GPS and having created GAGAN, we are still in the infancy of using it for our armed forces. This is but natural as we had to take calibrated steps to beat the denial regimes. While India remains dependent on foreign defence equipment for its security, will it be able to achieve its dream of being a permanent member at the UN Security Council and, at the same time, pursue strategic independence that is built on national capabilities with clear objectives

and tenacity to follow through?

How to achieve substantive self reliance is well articulated in the Defence Production Policy released by the Ministry of Defence (MoD) in 2011, keeping Team India and not just defence public sector units (DPSUs) and Defence Research and Development Organisation (DRDO) at the heart of its implementation. The policy document articulates a gradual phasing-in of Indian industry capability and mandates a 10-year term in which all defence platforms (products) will be indigenously developed. It is not the policy but its implementation through defence production procedure that has been a challenge.

The crux of defence preparedness for any country is its focus and ability to create in-depth strategic capability. Defence capability (platform) development cycle normally runs in decades and mere procurement from a request for proposal (RFP) to an induction takes seven to 10 years. Thanks to the lost decade for defence, it is a pity that the decision-making process today is merely focussed on procurement and not on developing strategic industrial capabilities. In the procurement, we are chasing tail lights of technologies as countries developing products will tend to first induct them into their own armed forces and then export the proven version, which is in the middle or end of its life. The money received by exports is usually used to upgrade to the next version and, thus, the capabilities of these foreign countries remain a cycle ahead. This is evident in many government-to-government deals where products have gone obsolete and factories closed (in the country of origin), even before India concluded her acquisition deal. A measure used by the government to combat the so-called "obsolescence" is through joint development programme funding. Here, also we have seen aircrafts fly three days after India gave a billion dollars.

The message is simple – strategic self reliance has to be earned, it will not be purchased or gifted. It is true that substantive self-reliance cannot be about re-inventing the wheel in today's world, but it has to be about know-why and not mere know-how. We need to know why the wheel is spinning at a particular RPM, how to repair the wheel and, more importantly, how to upgrade to the next generation. We need to move from the concept of "systems integration"– a

Thanks to the lost decade for defence, it is a pity that the decision-making process today is merely focussed on procurement and not on developing strategic industrial capabilities. In the procurement, we are chasing tail lights of technologies as countries developing products will induct them first into their own armed forces and then export the proven version, which is in the middle or end of its life

AJAY THAKURI

nice name for mere assembly and testing to "systems engineering", i.e., the ability to define product specifications, develop the design, maintenance and upgrade capabilities using multiple subsystems, some of which can be from the global supply chain.

This clamour about Make in India Defence to connect Indian manufacturing to global supply chain is an oxymoron. If India is a mere part of the supply chain but not the owner of the intellectual property (IP) creating defence products and systems, then the foreigners, however friendly, knows the true measure of our capabilities. Thus essence of "strategic manoeuvrability" is compromised. France and the UK both NATO members, still maintain their independent nuclear deterrent. Closer home, it is well documented that expensive, mission-critical military equipment were per force grounded because of denial of spares and repairs post Pokhran-II embargoes.

Cost of strategic independence cannot be measured just in monetary terms. However, there is strong economic rationale for developing substantive self-reliance in defence and promote systems engineering to deliver Indian sefence products and systems over the next five to 10 years, a dream enshrined in the Defence Production Policy of 2011. In today's knowledge economy, value addition in manufacturing is shrinking. This trend is going to be enhanced with advanced 3D printing and integration of design to manufacturing, i.e., Industry 4.0. This phenomenon is already creating jobless growth in advanced nations and threatening the mass market factories in China. The factory of the world is now driving "created in China" as the growth mantra for transforming its economy by 2025.

This clamour about Make in India – Defence to connect Indian manufacturing to global supply chain is an oxymoron. If India is a mere part of the supply chain but not the owner of the ***intellectual property*** *creating defence products and systems, then the foreigners, however friendly, knows the true measure of our capabilities*

Defence production in terms of volume has always been niche, demanding highest level of reliability and quality. This is a sector where IPR and WTO rules do not apply. So if Make in India Defence" becomes a movement to replace the DPSU assembly lines with private sector assembly lines, nothing much will be gained, not even substantial job creation!

Jobs in any sector have direct correlation to "value addition". If we can focus on systems engineering for creating indigenous products then this 'Create in India' thrust will have both short- and long-term benefits for the Indian economy and for Indian defence. It is a well known fact that for defence products, life-cycle costs are usually four to seven times the capital acquisition cost and the cycle lasts over decades. Upgrades are critical to keep your weapon systems relevant in this era of rapidly-changing technology. Our current track record of importing foreign technologies for assembly in the Indian factories has delivered, at best, an expensive armed forces inventory where costly upgrades from the original equipment manufacturer (OEM) have been the order of the day. A few of the DRDO technologies, such as *Akash*, *Pinaka* and *Bramhos* (joint development with the Russians) have been successfully inducted. However, it is evident that the life cycle cost of the indigenously-developed systems are a fraction, maybe 20-25 per cent of the life-cycle cost being paid to foreign OEMs. Systems Integration only brings in low-tech, low-value jobs. However, if we move to 'Create in India' through system engineering, the upgrades and life-cycle support, and high value jobs will substantially benefit our economy.

DRDO, with an annual budget of $2

billion today, stands in similar league with DARPA, the US develop-ment agency, with about $3 billion annual budget, which is credited with inventions such as the Internet, unmanned aerial vehicle (UAV), stealth fighters, etc. DRDO is an organisation with over 60,000 people and DARPA has just around 300 project managers who deliver entirely working through the industry. It is DARPA and US DOD's famed CMMI certification that measures the maturity of systems engineering capability. Today, with many CMMI Level 5 companies, India has the knowledge pool to take on relevant system engineering projects and to create defence products and systems.

Earlier, defence used to lead the R&D spends in the world. Today, it is the Internet and communication (where India has inherent strengths), which is creating RMAs (Revolution in Military Affairs) by bringing network centricity to the tactical battlefield. Strategic electronics brings in the precision to modernise weapon systems. Today, India has very little strategic independence on electronics and the corridors of power do not know how to deal with Chinese origin chips being part of all our critical infrastructure, including the Indian Railways, power transmission and communications. Defence and security, where no WTO treaty obligations apply, offer the Government of India a chance to create indigenous capabilities that can eventually help in reducing civilian electronics imports, which threatens to exceed our oil imports by 2020.

To realise this dream, the first step is to take basic implementation steps under the defence procurement procedure and the government, especially Ministry of Finance, must differentiate and support defence R&D and manufacturing beyond what they normally do for other sectors. Some recommendations are:

Given our high inflation and consequent high interest rates in India, cost of the financing difference between an indigenous supplier and foreign supplier is

10-12%

per annum. If an Indian OEM is buying a complete sub-system from a foreigner, it will be imported at zero duty. Depending on the tenure of the supply project, foreign companies can be at a 6-10 per cent-plus cost advantage, if you consider just the financing cost

Allow defence manufacturers to own design, quality

Today, Indian defence companies do not control their own quality. MoD's quality agencies inspect even at the intermediate production state and act as an internal quality checking system for the companies. On the contrary, if a system or sub-system is coming from abroad, a mere Certificate of Conformance from a foreign company is acceptable. Therefore, on the shopfloor it makes no sense to indigenise a sub-system or develop progressively higher capabilities and upgrade, whereas the innovation is detested because of inspector intrusion and lack of openness to unfamiliar techniques.

Cost of financing long gestation programmes

Given our high inflation and consequent high interest rates in India, cost of the financing difference between an indigenous supplier and a foreign supplier is 10-12 per cent per annum. If an Indian OEM is buying a complete subsystem from a foreigner, it will be imported at zero duty (exemption certificate granted by MoD) and, that too, the Certificate of Conformance is accepted by MoD QC. Hence, it can be brought on time. Given the low interest rates or cost of financing abroad, supplier's credit till the product is delivered to the MoD and the money received can be negotiated. Depending on the tenure of the supply project, foreign companies can be at a 6-10 per cent-plus cost advantage, if you consider just the financing cost.

On the contrary, if the Indian OEM is brave enough to go for developing the indigenous sub system, despite the deterrence of losing independence to the defence quality agency, high cost of capital limits its risk-taking ability, and there is no support for such projects. While the technology development fund that has been talked about for years by the MoD and specific provisions for it were announced in the 2015/16 Budget, the scheme needs to be notified expeditiously.

The MoD gives Indian industry payment terms of 15 per cent advance, 75 per cent at factory acceptance test or at

the time of dispatch, and 10 per cent at the user acceptance stage on site through the Controller of Defence Accounts (CDA), the process takes more than six months to get the money. The Indian industry has been requesting similar payment terms as are applicable to foreign vendors (paid through Letter of Credit) and DPSUs (liberal stage payment terms akin to government infrastructure projects thus maintaining a positive project cash flow). There, foreign OEMs get timely payments and DPSUs have a float of cash, thus eliminating the issue of working capital and cost of financing, whereas the other industry players have pressures on funding the jobs.

The MoD gives Indian industry payment terms of 15 per cent advance, ***75 per cent*** *at factory acceptance test or at the time of dispatch, and 10 per cent at the user acceptance stage through the Controller of Defence Accounts, but it still takes more than six months to get the money*

Need for higher support for defence by Ministry of Finance

Defence R&D cycle is five to 10 years. MoF provides R&D 35(2AB) income tax benefit, which currently has a sunset clause till 2016/17. Usually MoF keeps extending the sunset timeline by a year or two. This causes uncertainty and is counterproductive for the defence industry due to long cycle times. The MoF needs to realise that the same talent and resources can be readily deployed for the export market earning tax-free returns at substantially lower risk. Therefore, the industry recommendation of a sunset clause for defence R&D till 2029/30 is a reasonable demand.

For capital-intensive projects, such as infrastructure, corporate tax benefits are granted under 80-I, which is available even to the hospitality industry, but not for defence manufacturing despite the need for substantial capital investment.

Unfinished agenda

It is to the credit of the present NDA Government that some long pending issues, such as a level-playing field, availability of government test infrastructure, and defence licensing, export norms have been addressed. However, there is still an unfinished agenda.

While parity on taxes and duties have been granted on domestic tax vis-a-vis DPSUs, parity with foreigners on imported system and sub system still remains an unresolved issue.

Exchange rate variation granted for all tenders issued beyond August 2015 will effect procurement after five to seven years, and the defence industry has requested its application to ongoing RFPs, too, especially where the price bid has not been opened.

In December 2015, applicability of Services for offset credits was reinstated. However, the methodology of value addition determination in Services for offset purposes is not yet defined, thus leaving a door open for potential misuse. Similar reasons for the Services being banned earlier under offsets.

Make in India - Defence is about exercising sovereign freedom over matters of our national security interest. This can only be realised through the Create in India campaign involving Team India. ◆

Defence Policy

Getting Our Defence Policy Right

By ADMIRAL ARUN PRAKASH (RETD)


RAJWANT RAWAT

ABOUT: New global geo-political realignments, rapid technological shift in arms and armed forces' preparedness call for a relook at India's defence policy. India might still be primarily Pakistan-and-China focused, but tomorrow's enemy may not necessarily be the proximate enemy. **Admiral Arun Prakash, former Chief of Naval Staff and former Chairman, Chiefs of Staff Committee,** outlines how to prepare for the new adversary.

When 20th century French Premier George Clemenceau said, "War is too important a matter to be left to the generals," he was not disparaging the military, but merely emphasising the political character of war; a thesis mooted by German strategist Carl von Clausewitz. Terming war as 'an instrument of policy', and a 'branch of political activity', Clausewitz placed the onus of responsibility for conduct of war squarely on the politician's shoulders.

The Indian politician, in spite of his strident emphasis on the principle of 'civilian control' over the military, prefers to accord priority to electoral politics. He has, thus, failed to provide strategic guidance to the armed forces and wriggled out of his responsibilities by handing over control to the bureaucracy. The Ministry of Defence (MoD) bureaucracy, unfortunately, consists of itinerant non-specialists who barely begin to grasp complex military issues before they move on to another ministry. The powerful bureaucrats have, however, fought tooth and nail to exclude the military from the MoD, as a consequence of which, India's national security and higher defence management are in disarray.

This overriding preoccupation of our ruling elite with electoral politics is also the reason why India's massive defence budget has rarely been debated in Parliament. A further cause for dismay is the fact that the observations and recommendations of the watchdog, Parliamentary Standing Committee on Defence, are generally rejected or disregarded by the MoD with total impunity.

AJAY THAKURI

India is a nuclear weapon state with conventional forces that count among the largest in the world. The 2015/16 defence Budget was $40 billion, and a somewhat lesser amount was probably spent on strategic missiles, nuclear weapons, nuclear submarines and on other projects. The home ministry, too, maintains nearly one million-strong central armed police forces to guard the borders and undertake internal security tasks. All found, India possibly spends close to $100 billion on national security annually.

While coercion may not be our style, India has not even been able to leverage its armed might to deter or dissuade any country from undertaking actions inimical to Indian interests. The international community may applaud inaction on India's part in the face of grave provocations, such as the 2008 Mumbai terror episode, but the Indian taxpayer is entitled to ask whether the annual

A few examples of 'game-changing' or 'disruptive' technologies that Indian scientists should be pursuing are: additive printing (3-D printing) to transform military logistics; autonomous or unmanned combat systems using ***robotics, artificial intelligence*** *and wireless networks; directed energy weapons using millimetric waves that have huge offensive and defensive capabilities; advanced* ***cyber warfare*** *techniques and nano-technology that will permit tiny military devices with enormous capabilities*

expenditure of \$100 billion is not too heavy a price for merely demonstrating 'strategic restraint'?

A totalitarian China, resolutely surging forward on the back of a burgeoning economy, is now within sight of great-power status. India's unique brand of democracy, on the other hand, continuously throws up impediments to progress on all fronts. The decade of UPA rule saw indecisive leadership, policy-paralysis and economic slowdown with long-term repercussions for national security. The early promise held out by the NDA regime, of visionary and resolute governance has, so far, proved illusory. With a log-jammed Parliament and palpable lack of vision within its ranks, the government seems to have meekly capitulated to a trenchant bureaucracy. This bodes ill for India's national security arena where bold and imaginative leadership is badly needed.

The Indian politician must acquire comprehension of security issues and involve himself directly rather than depending on an ignorant and obdurate bureaucracy

Lest the writer be accused of being alarmist, a brief look at whether India's security environment is in order. The nature of conflict has been changing rapidly and India's national security framework faces threats spread across a much broader spectrum. While the possibility of inter-state conflicts is said to be receding elsewhere, India's two revisionist neighbours, Pakistan and China, continue to stake territorial claims, backed by nuclear intimidation. At the same time, threats from non-traditional sources, such as terrorism, maritime crime as well as health pandemics and natural disasters, continue to pose security challenges. The development of cyber and space warfare capabilities in our neighbourhood and the availability of weapons of mass destruction add a menacing dimension to existing threats.

Apart from Pakistan-inspired cross-border terrorism, India faces other threats emanating from non-state entities. Al-Qaeda remains a deadly threat. A far more savage mutation, the ISIS, is now on the rampage in the Middle East and has declared that a cataclysmic battle, the Ghazwa-e-Hind, will soon be fought for control of India and establishment of a Caliphate.

At the grand-strategic level, while a diminished US plays a waiting game, we face Pakistani machinations for domination of Afghanistan, at India's expense, and China's quest for regional hegemony through its one-road-one-belt geo-economic gambit. These challenges promise to become the crucible for testing India's strategic acumen and diplomatic skills. With few cards economic or military to play, India would need to employ a skilful hedging strategy and buy a breathing spell while it builds economic and military muscle.

Given such a fragile strategic environment, the NDA government needs to bring sharp focus to bear on national security issues, which have suffered egregious neglect for the past seven decades. The most alarming consequence of this neglect is that India is the world's largest importer of arms and defence hardware. This not only undermines our security but renders all talk of 'strategic autonomy' quite meaningless.

Ironically, India has a vast defence-industrial complex comprising thousands of talented scientists working in a network of sophisticated DRDO laboratories. It is backed by advanced production facilities of the government-owned ordinance factories and defence public sector undertakings (DPSU). Among India's major technological achievements in the military field are nuclear weapons, a family of ballistic missiles and a nuclear-powered submarine. Our shipyards have delivered over a hundred modern warships, with many more, including an aircraft-carrier, under construction.

India's failure to attain self-sufficiency in weapons, despite these achievements, is rooted in three unpalatable realities. One, much of the hardware, claimed as 'indigenous', either uses borrowed foreign technology or is produced under licence; with few inputs by Indian scientists or industry. Two, DRDO scientists have often been over-optimistic in their estimates. Finally, misguided policies have deliberately excluded India's efficient private sector from defence production. Consequently, at the heart of every ship, aircraft, tank or missile produced in India, there are key items that are sourced from abroad, which creates a dangerous dependency for the life-time of the equipment on an unreliable foreign source and also takes away India's option to undertake military actions at a time of its choosing.

The term 'revolution in military affairs' was coined in the 1980s, when radical technologies relating to computers, guided weapons and surveillance emerging in the US promised to become 'killer applications' on the battlefield. Today's world is in the midst of the 'third industrial revolution', enabled by developments in information and communications technology (ICT). India's $100-billion IT industry, continuously throwing up innovations, demonstrates that India has the talent and, in tandem with other emerging technologies, can bring about a revolution in the Indian military.

The 'holy grail' of indigenisation can be attained only if the vast resources of the DRDO and DPSUs are disaggregated and re-cast along the lines of successful models that exist in countries like the UK, Israel or Singapore. A DRDO-centred, incremental approach will not succeed. The Prime Minister needs to **reach out to young Indians,** *like those who shine in Silicon Valley and Google, or those who created Aadhaar, Flipkart and Snapdeal; and mobilise them to undertake cutting-edge defence research*

A few examples of such 'game-changing' or 'disruptive' technologies that Indian scientists should be pursuing are: additive printing (3-D printing) to transform military logistics; autonomous or unmanned combat systems using robotics, artificial intelligence and wireless networks; directed energy weapons using millimetric waves that have huge offensive and defensive capabilities; advanced cyber warfare techniques and nano-technology that will permit tiny military devices with enormous capabilities.

None of the promises held out by the government, so far, whether it is Make in India, FDI in defence production or expeditious clearing of defence acquisition cases, can fructify in anything less than five to 10 years. India's national security structure needs urgent reforms. I list out five things that India needs to do urgently to get 'our defence policy right'.

One, the Indian politician must acquire comprehension of security issues and involve himself directly rather than depending on an ignorant and obdurate bureaucracy.

Two, we must know the destination before we can chart a path to it. In seven decades of Independence, neither the government nor Parlia-ment has considered it necessary to issue a defence white paper, or undertake a strategic defence review. Long-term strategic planning is just not possible in such a vacuum, and the defence budget is spent in an ad-hoc and wasteful manner by individual Services satisfying their hardware 'wish-lists'. There is an urgent need for the government to articulate national aims and interests and to promulgate a national security strategy to attain them. The appropriate and required military capabilities will emerge from this process.

Three, the imperative need for restructuring of our laggard military-industrial complex must be faced squarely. The 'holy grail' of indigenisation can be attained only if the vast resources of the DRDO and DPSUs are disaggregated and re-cast along the lines of successful models that exist in countries like the UK, Israel or Singapore. A DRDO-centred, incremental approach will not succeed. The Prime Minister needs to reach out to young Indians, like those who shine in Silicon Valley and Google, or those who created Aadhaar, Flipkart and Snapdeal; and mobilise them to undertake cutting-edge defence research.

Four, let us train and equip our defence-bureaucracy for its onerous responsibilities. With defence budgets likely to shrink, in real terms, there is not only a need for prioritising requirements projected by the Services, but also of ensuring every rupee is spent with prudence and probity. This calls for the urgent creation of a cadre, within the MoD, composed of civilian and military officers formally trained in equipment selection, acquisition processes, contract negotiation and contract implementation.

Finally, the current political establishment must show the courage to shed a toxic Congress-era legacy: paranoid suspicion of the armed forces and deliberate whittling down of their status through successive pay commissions. Ironically, by its clumsy handling of the one-rank-one-pension issue, a 'nationalist' BJP government may have outdone the Congress in alienating the military as well as its veteran community.

Whether it is Swachh Bharat, Make in India or Digital India, such dreams can prosper only within the paradigm of a Secure India, guaranteed by a confident and motivated military. A sagacious leadership would grasp this opportunity and boldly implement two of the national security reforms, promised in BJP'S 2014 election manifesto. One

To ensure every rupee is spent with prudence and probity, there is an urgent need to create a cadre, within the MoD, ***composed of civilian and military officers*** *formally trained in equipment selection, acquisition processes, contract negotiation and contract implementation*

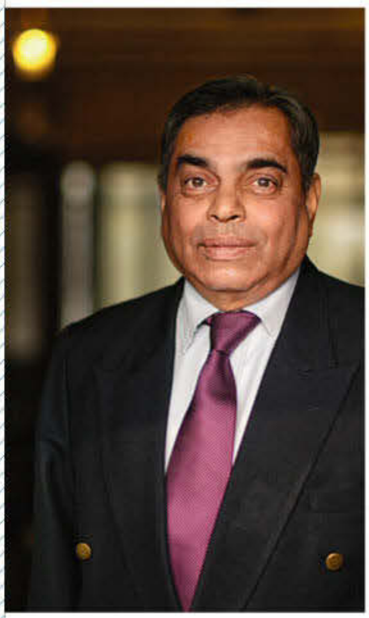
is to integrate the armed forces HQ with the MoD and eliminate the friction that delays decision-making and has stalled military modernisation. The other would be to put in place, the most critical component of a 21st century higher defence management structure; a Chief of Defence Staff (CDS) or a Permanent Chairman Chiefs of Staff Committee, thus creating a 'single-point source of military advice', so badly needed, for the political leadership.

India's national security has been endangered on many occasions due to a deep-rooted systemic inability to learn from past mistakes and implement timely corrective measures. Corroboration lies in the fact that every single post-independence military crisis has caught us by surprise. As our neighbourhood gears up for nuclear, cyber, space and integrated all-arms warfare, another Kargil could cost us dear. So, if history is not to repeat itself, it is vital that we get our defence policy right. ◆

Foreign Policy

India Must Share Its Success with the World

By T.C.A. RANGACHARI



VIVAN MEHRA

ABOUT: The cheerleaders of Indian economy love to say that this century belongs to India. What they mean is that India will move from being an emerging economic superpower to a full fledged economic and diplomatic powerhouse before the end of this century. But to be truly influential at the global level, India needs to relook at its current foreign policy. **T.C.A Rangachari, former ambassador to France and Germany, and former director of Academy of International Studies, Jamia Millia Islamia University,** writes about what India needs to do about the future in foreign policy.

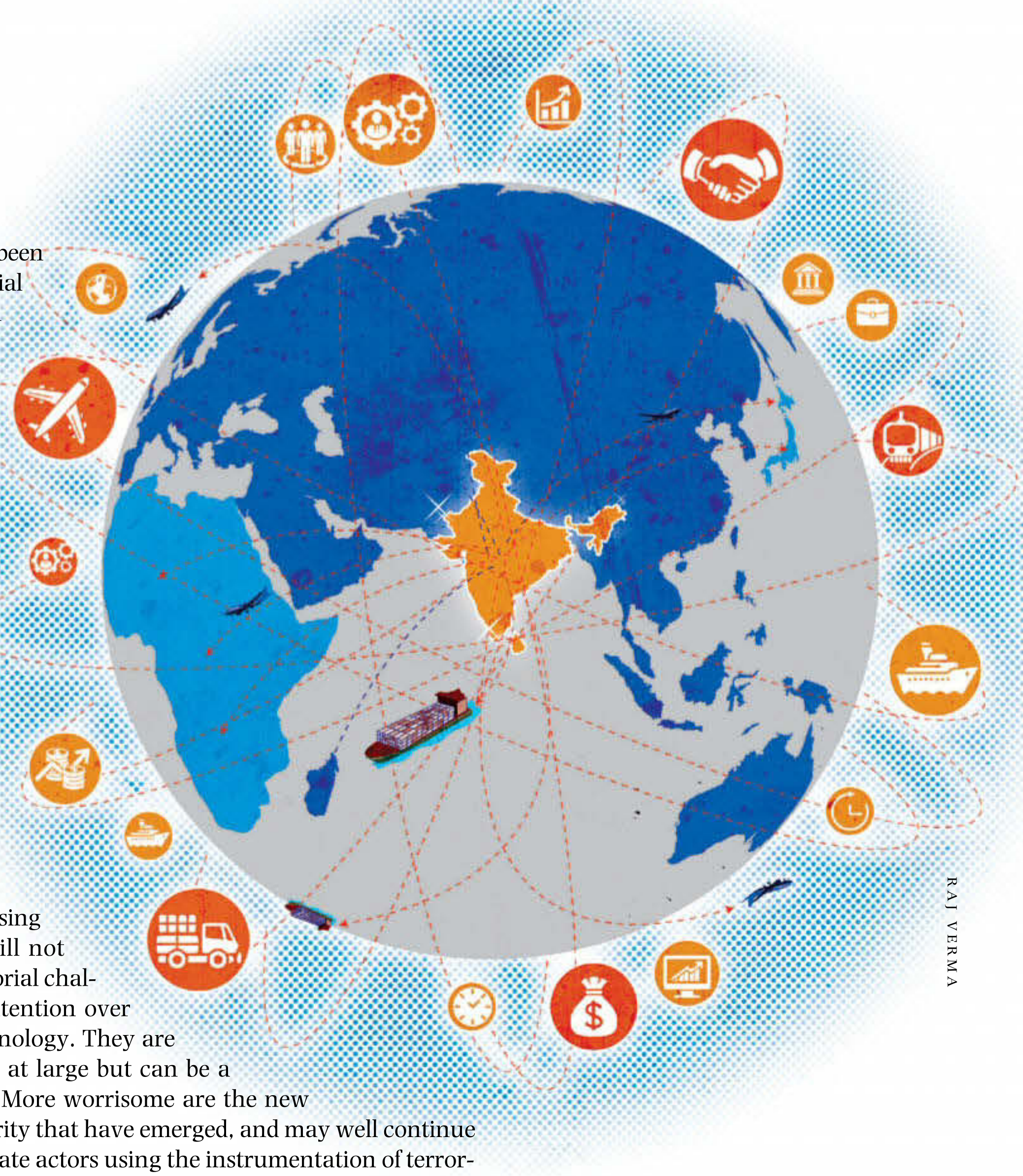
What would India's global posture and role be as it approaches its centenary in 2047? To answer that question, we need to consider what India and the world might look like then.

The shift in the centre of gravity of international affairs from the Atlantic to the Indo-Pacific region that is now hypothesised with increasing credibility might well be a reality. The rise of emerging economies around the world, in particular Asia, will result in the displacement of the established powers.

Multiple projections, now fast entrenching themselves as conventional wisdom, suggest that India will be the third largest economy in the world by 2050. Some estimate that this could happen by 2030. In that same period, India would have also become the most populous nation with 1.7 billion people. The effect of China's reversal of its 'one child' policy of over three decades' standing requires to be factored in. Economic strength, as has happened throughout history, will facilitate the acquisition of military muscle.

India's GDP, according to an optimistic projection will by then reach nearly $30 trillion. Depending on its success in augmenting its political union with a single market, and in sustaining growth rates, that GDP figure would make India richer than several G-7 countries Germany, Japan and the UK put together. In effect, the clock would have been turned back to the pre-colonial days when India was reputed to be the *sone ki chidiya*, or the golden bird.

The world around us would have China, with a GDP of some $50 trillion as the largest economy followed by the US with a GDP of over $40 trillion. In the top 10, Japan, Germany, the UK and France would be the four G-7 members; the emerging market economies are expected to be Indonesia, Brazil and Mexico. The quest for peace and prosperity will surely continue to resonate with the world.


RAJ VERMA

Conventional dangers arising from inter-state conflicts will not have been eliminated. Territorial challenges may give way to contention over resources, markets and technology. They are unlikely to engulf the world at large but can be a potent source of disruption. More worrisome are the new threats to international security that have emerged, and may well continue to exist, in the form of non-state actors using the instrumentation of terrorism and non-conventional warfare. The danger to peace may rise exponentially when non-state actors in different theatres of the world are backed up by state sponsorship. Even the militarily powerful will find themselves increasingly ineffective in eliminating threats to their own security. To be able to deal effectively with the dangers to international peace and security and other global challenges, it would be essential to base international cooperation on universal adherence to a globally-agreed set of rules. Unilateralism – singly or in association with like-minded states – will have to give way to genuine multilateralism.

As for prosperity, the promise of the peace dividend presaged by the end of the Cold War has not materialised in Europe in the last quarter of a century. Given the current economic and demographic projections, it might still remain elusive a quarter of a century hence. A recent study by the European Commission assessing different scenarios postulated a worst case scenario of global economic decline in which the EU share of the world GDP might fall by almost half by 2050 and a more attractive 'European renaissance' scenario wherein the EU continues to enlarge, becomes stronger, retains its competitiveness, innovation and share of global GDP at 15-16 per cent. Irrespective of which

More worrisome are the new threats to global security that have emerged in the form of non-state actors using the instrumentation of terrorism and non-conventional warfare.

The danger to peace may rise exponentially

when non-state actors in different theatres of the world are backed up by state sponsorship scenario comes to pass, the impetus for global growth is more likely to come from today's developing or emerging market economies. The continents of Asia, Africa and Latin America are better placed to grow and significantly enhance their share of, and contribution to, the global economy. Whether that would translate into their being able to play a more meaningful role in the management of global affairs remains in question.

As India grows, it should be more forceful in pursuit of the modification of the post-war international power structure dominated by the victors in that war, particularly since they are unlikely to retain their economic dominance, political clout or demographic depth. India should have no difficulty with the principles underpinning the global order. It supports democracy and fundamental freedoms, market economy and international cooperation for resolving international problems. Nor should it have any difficulty in joining in collective measures for the prevention and removal of threats to peace, including aggression, and for peaceful settlement of international disputes.

Indeed, with enhanced economic and military capabilities, India would be better placed to help enforce acceptable international conduct and to penalise misbehaviour. In order to be able to do so effectively, India should reinvigorate its pursuit of the democratisation of the international order replacing the post-World War II order with one that represents, more truly, the global realities of the times. This restructuring would have to be based on the fact of new and emerging powers, including India, being legitimate stakeholders in building and sustaining international peace and security, not least by virtue of contributing substantially to global prosperity. India's credentials as an upright international citizen buttress the country's entitlement. As the decades unfold, this process is inevitable. Yet, India's place at the global high table, including international financial institutions, UNSC, and other multilateral organisations, will need to be secured.

SHEKHAR GHOSH

There is much talk of the United States in decline. **However, the technological lead and military power that the US enjoys over India and China** *is likely to be more telling than the fact of its ranking behind China as an economic power. With enhanced economic prowess, this partnership can be more meaningful as India overcomes its insecurities and summons up the wherewithal and the political will to take on new global challenges*

In political terms, India should have the will to be more active and a vocal proponent of a global order inspired by a value system that has its roots in its own civilisational ethos. Mahatma Gandhi always spoke of the universality of human freedom. India's freedom, he said, would not be complete till all subjugated peoples are free. India should not settle for being a helpless bystander when citizens elsewhere are not treated with the dignity they deserve. A politically mature and economically well-off country should be able and prepared to be held, and hold others, accountable to this standard. We must stand true to the belief system that our founding fathers inculcated in this nation.

India has always advocated that the world cannot have peace if there are islands of affluence in a sea of poverty. India should be willing to be a partner in development of people less fortunate. Thus, we must ensure that prosperity is shared. The beginning made with our immediate and extended neighbours must intensify as India becomes more able. In South Asia, we have shared commonalities over centuries, derived from civilisational linkages and of living together in a multi-ethnic, multi-cultural, multi-lingual, and multi-religious environment. The divisions created by the colonial and imperial onslaught rent asunder complementarities of economies. As India progresses, being the larger nation, it will have to show leadership. It will need to assuage fears of smaller neighbours and treat them as equal. Indeed, within the constraints of respecting sovereignty, India should consider the development priorities of our neighbours as its own. Depending on the willingness of the neighbour, India should be agreeable to participate financially and otherwise as it might do with the states of the Indian Union. It could integrate India's development plans with willing regional partners and ensure everyone gains. A similar logic can be applied to our cooperation with the extended neighbourhood taking into account needs and resources that each side can contribute.

In the global commons, India should be able to play an increasingly leading role as the success of its developmental effort unfolds. For instance, if India succeeds in fulfilling its target of 100 GW of solar power, it would have significantly reduced its dependence on fossil fuel. That alone would make its contribution to reduction of its own, and global, carbon footprint unique. In addition, it would hold out an entirely different developmental model. It can intensify its role in the elimination of global terrorism by not limiting itself to combating just the threats faced by India but also those forces that are out to destabilise human existence elsewhere. Agriculture, dairy, medicine, IT, and other sectors offer scope for leaving a defining Indian imprint, globally.

But, how would India deal with China as it becomes the largest economy? China's willingness to uphold the extant international order is often times in question. Essentially, China is seeking a greater say in global decision making. President Xi Jin Ping has publicly stated that China seeks to "adjust and reform the global governance system and mechanism. Such reform is not about dismantling the existing system and creating a new one. Rather, it aims to improve the global governance system in an innovative way." The RMB has now become a reserve currency to hold Special Drawing Rights (SDRs). In due course, it would become a currency for international trade. Already, many countries have entered into RMB swaps. This increasing economic clout is natural given China's economic status. What makes China difficult to predict is its pursuit of undefined 'core' interests including territorial, as exemplified in our borders, South and East China seas. President Xi Jin Ping said at the CCP politburo session in January 2013 that while China would remain on a path of peaceful development, it would "never give up" legitimate rights or sacrifice 'core interests'. "No country should presume we will engage in trade involving our 'core interests' or that we will swallow the 'bitter fruit' of harming our sovereignty, security or development interests."

We have agreed to a strategic partnership. Yet, China looks at India and deals with it as a strategic adversary. This is evident from the military standoffs in the border regions in 2013 and 2014 even as the Chinese Prime Minister and President were on official visits to India. (Remarkably, the incidents have not been repeated in 2015.) It is evident also in China's $46 billion investment initiative to build the China-Pakistan Economic Corridor (CPEC) through PoK. There are other instances where China's pronouncements and actions (recall China's stand on the Indo-US nuclear deal of 2009) are adverse to Indian interests.

India and China, by 2050, are ex-

In the global commons, India should be able to play an increasingly leading role as the success of its developmental effort unfolds. For instance, **if India succeeds in fulfilling its target of 100 GW of solar power, it would have significantly reduced its dependence on fossil fuel.** *That alone would make its contribution to reduction of its own, and global, carbon footprint unique*

pected to account for some two-fifths of the global economy. That imposes an obligation on both countries to work cooperatively to promote economic stability and security. As Prime Minister Narendra Modi observed in his address at the Tsinghua University in Beijing on May 15, 2015: "The prospects of the 21st century becoming the Asian century will depend in large measure on what India and China achieve individually and what we do together."

India and China will need to work together in the coming decades to accommodate differing, competing, even conflicting interests in a cooperative arrangement. This is to mutual benefit. Both are large and populous, together constituting nearly two-fifths of humanity. Their primary objective is to eliminate poverty and want, and provide prosperity, or at the very least, livelihood security to their peoples. One way of achieving this objective might be to replace the balance of power approach that tends to shape strategic thinking by a civilisation state, humanist approach. This should not be impossible. China has often said that there has only been a brief interlude of hostility in the several millennia of friendly relations between us.

So, what of the US? There is much talk of the US in decline. However, the technological lead and military power that the US enjoys – and its demonstrated will and ability to maintain it - over India and China is likely to be more telling than the fact of its ranking behind China as an economic power. Neither India (nor China) will be able to reach the per-capita living standards of the US, nor will they have commensurate power projection capability. India and the US, fortunately, have a multifaceted partnership rooted in shared values, among others, of democracy and people-to-people ties. With enhanced economic prowess,

As India grows, it should be more forceful in pursuit of the modification of the post-war international power structure

dominated by the victors in that war particularly since they are unlikely to retain their economic dominance, political clout or demographic depth. India should have no difficulty with the principles underpinning the global order. It supports democracy, fundamental freedoms, market economy, and global cooperation for resolving international problems

this partnership can be more meaningful as India overcomes its insecurities and summons up the wherewithal and the political will to take on new global challenges. This partnership has already articulated tangible principles to guide ongoing efforts to advance mutual prosperity, a clean and healthy environment, greater economic cooperation, regional peace, security and stability for the larger benefit of humankind. Their engagement in the region, along with others, including Japan, Australia and the ASEAN nations, will play a key role in promoting peace, prosperity, stability and security in the Indo-Pacific region.

India's biggest strength will be its linkage with its traditional partners such as Russia and Japan, as also the developing world. It has a welcome presence because it is seen as non-threatening. It is attractive because it has pursued the difficult model of combining economic development with political freedoms. The more success it achieves in this unprecedented experiment in growth with equity and freedom, the more this model will be replicated when contrasted with capitalism per se, or authoritarian capitalism as the models. And as the developing world becomes economically stronger, irrespective of the model pursued, India will find willing partners in the joint effort to restructure the world order.

In sum, India should be well placed to play a leading role in global management. In the immediate aftermath of Independence, it was India which provided moral leadership by forcefully pursuing the agenda of anti-colonialism, anti-apartheid and racism, and of the right to development of the developing world. When the fruits of its labours over the last seven decades propel it to a pivotal position in the next three decades, it should give back to the people of the world, in moral and material terms, a selfless return. ◆

Police Reforms

Rejuvenate and Transform the Police

BY PRAKASH SINGH


DEEPAK G. PAWAR

ABOUT: Despite the appointment of multiple commissions to reform the governance of police forces across the country, the government has lacked the political willpower to implement their recommendations. **Prakash Singh, former DGP of Uttar Pradesh and the Border Security Force,** who leads a movement for police reforms and bureaucracy's accountability, explains how to create a professional, well-trained and equipped, and a motivated police force.

It is one of the ironies of modern India. While we are able to send a mission to the moon, while there has been a revolution in information technology, while we have taken a quantum leap in nuclear science, while we have today the fastest growing economy of the world, while we are preparing to run a bullet train, we are still saddled with a colonial police that has a feudal mindset. There have been any number of commissions, both at the State and Central level State Police Commissions, National Police Commission, Gore Committee, Ribeiro Committee, Padmanabhaiah Committee, Malimath Committee, to name only a few which made recommendations for reforms, but received no more than cosmetic treatment at the hands of the government. The result is that the common man does not feel secure or protected. On the contrary, he may be harassed or even persecuted by the police if he dares to take a stand against the establishment.

There are more than 20,000 police stations and posts across the length and breadth of the country, and their working impinges on the life of the common man from Srinagar to Kanyakumari and from Ahmedabad to Aizwal, irrespective of whether he has a complaint or not. It is a sad commentary on our republic that we have not been able to transform the police into an instrument of service upholding the rule of law and inspiring confidence among people.

It needs to be emphasised that police reforms are absolutely essential if India is to emerge as a great power. Economic progress cannot be sustained if we are not able to generate a safe and secure environment. The democratic structure may also crumble if we do not arrest the trend of criminals gaining ascendancy

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in public life.

The three greatest problems confronting the country today are: the challenge of international terrorism, the spread of Maoist influence over vast areas of Central India and the cancer of corruption. If we are to tackle these problems effectively, there is no getting away from having a professional police force, well trained and equipped, highly motivated, and committed to upholding the law of the land and the constitution of the country. The police are the first responders in the event of any terrorist attack or Maoist violence, and they are also the backbone of our intelligence, investigation and anti-corruption agencies. Thus, looked at from any angle – the security of the common man, the survival of democracy, maintaining the trajectory of economic progress or dealing with the major threats confronting the country – we have to have a reformed, restructured and revitalised police force.

The Supreme Court, in a landmark judgement on September 22, 2006, ordered the setting up of three institutions at the state level: state security commission with a view to insulating the police from extraneous influences, police establishment board to give it functional autonomy, and police complaints authority to ensure its accountability. Besides, the apex court ordered that the Director General of Police shall be selected by the state government from amongst the three senior-most officers of the department empanelled for promotion to that rank by the Union Public Service Commission, and that he shall

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have a prescribed minimum tenure of two years. Police officers on operational duties in the field would also have a minimum tenure of two years. The court also ordered the separation of investigating police from the law and order police to ensure speedier investigation, better expertise and improved rapport with the people. The Union government was asked to set up a National Security Commission for the selection and placement of heads of Central Police Organisations, upgrading the effectiveness of these forces and improving the service conditions of its personnel.

The aforesaid orders were to be implemented by March 31, 2007. The Thomas Committee, appointed by the Supreme Court to monitor the implementation of its directions in various states, in its report dated August 23, 2010, expressed "dismay over the total indifference to the issue of reforms in the functioning of police being exhibited by the states". States have passed executive orders purportedly in compliance of the Court's directions, but actually they have diluted or even subverted the directions with a view to continuing the supremacy of the political executive in the enforcement of law and order.

There is no getting away from having a professional police force (in pic: Mumbai Police), well trained and equipped, highly motivated, and committed to upholding the law of the land. They are the first responders in the event of ***any terrorist attack or Maoist violence****, and also the backbone of our intelligence, investigation and anti-corruption agencies*

Seventeen states have passed Acts, but not in keeping with the letter and spirit of judicial directions.

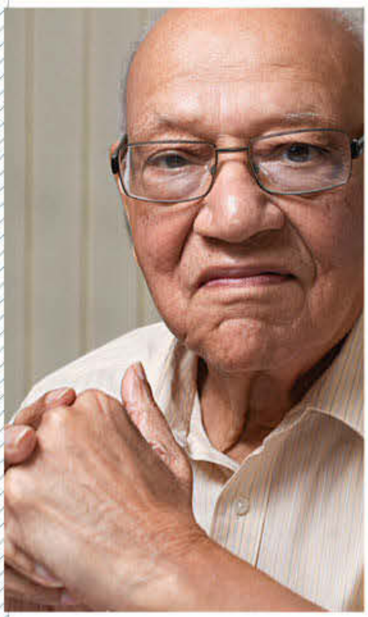
There were expectations from the National Democratic Alliance government. The PM, at the Guwahati Conference of the Directors General of Police on November 30, 2014, enunciated the concept of SMART Police   a police which should be sensitive, mobile, alert, reliable and techno-savvy. However, there has hardly been any progress in that direction because the police was not insulated from extraneous influences. You cannot have a sensitive police if it is under the thumb of the rulers.

The Supreme Court directions, it needs to be highlighted, are not for the glory of the police. They are to give better security and protection to the people of the country, uphold their human rights and generally improve governance. If sincerely implemented, they would have far reaching implications and change the working philosophy of the police. The ruler's police would be transformed into the people's police. The PM has taken tremendous initiatives in several directions. It is still not too late for the government to reform and rejuvenate the police. ◆

Police reforms

Operational Autonomy is Key to Run the Force

BY JULIO RIBEIRO



RACHIT GOSWAMI

ABOUT: The structure of the police organisation is essentially a relic of British times. Despite the amendments that have followed, Indian policing system remains stuck in a bygone era, even though the threats and the criminals they are supposed to tackle have changed beyond recognition. In this article, **Julio Ribeiro**, one of India's most feted police officers, a **former commissioner of Mumbai Police, and former director general of Punjab Police** during the era of militancy in that state, looks at what needs to be done to make the police in India fit for the next 25 years.

When I joined the Indian Police Service 62 years ago, in 1953, the British had just left our shores and, along with them, the English officers who had dominated the senior ranks. But their legacy of integrity and justice continued for many years. Corruption, which is the biggest problem, did exist even in the days of the British but it was confined primarily to the junior ranks. As far as the supervisory cadre of the Indian Police Service was concerned, there might have been a few odd exceptions, but even in those rare cases, there was peer condemnation that made them cautious. Since the senior ranks were predominantly honest and just, the subordinates did not openly and boldly transgress the written codes for fear of punishment.

These equations have changed now. The get-rich-quick-at-any-cost value system prevalent among today's young has spread in the police force just as it has spread in all other spheres of public life in the country. Many young entrants to the Indian Police Service join with the express purpose of amassing wealth by means that are far from legitimate. It is fortunate that still there are officers of integrity and competence towards whom people gravitate when rank injustice is perpetrated by elements patronised by political functionaries.

People ask me how I could enforce a measure of people-friendly policing 30

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or more years ago. I reply that I was a leader, in charge of my own men, and I was responsible for their discipline and performance. No bureaucrat or politician interfered in my management of the force under my command. The politicians confined themselves to their role as the protector of the rights of the people who had elected them to office. If there was miscarriage of justice or a rogue police officer out to make a killing, the politicians would bring it to my notice knowing well that I would carry out my constitutional duty of ensuring that the law is upheld and enforced by disciplining the officer. Sometimes a politician, eager to dispense patronage and garner voter support, would take the side of the rogue, but if I stood my ground and pointed out to him that I was merely upholding the law as enacted by legislatures, he or she would sagely retreat.

MANDAR DEODHAR

The most frequent interference in police administration comes in the form of requests for postings and transfers of subordinates, who approach politicians either through influential contacts or by other means which the reader can guess, but is best not spelt out. If a senior officer stands firm and does not surrender to such demands, he is ultimately respected and left alone, particularly if the general public has faith in his leadership. Politicians would hesitate to pick on senior officers who enjoy the backing of the general public and of their own subordinates. And, such support would come if and when the senior officer practices what he preaches, is honest in his dealings and does not take sides.

In my days, the head of the police force was a very respected official who represented an institution. His was the last word in all matters of discipline, transfers and promotions. If the senior officers were themselves men of integrity and honour, just and fair in their dealings without subjective biases, the administration ran smoothly. It was the duty of the political class, aided by the bureaucracy, to choose honest and competent police leaders at the cutting edge. In my early career I noticed that a minister and his secretary went strictly by the advice and judgement of the Director General of Police who knew each of his men and what each was capable of. It was only after the politicians started meddling in transfers and promotions with the active help and connivance of the bureaucracy that things went awry.

Presence of biases that are ingrained and not capable of being dispelled during training should disqualify the candidates. In fact I would even advocate that ***a diploma in police science*** *be introduced at the senior school level and a degree at the university level to qualify candidates for policing jobs at different levels of entry*

In the old days, all transfers and promotions up to the rank of deputy SP were made by departmental superiors. The politicians did not interfere. Personnel issues relating to officers of the rank of SP and those belonging to the IPS were controlled by the government, which meant the minister in charge of the home department, assisted by the additional chief secretary. Now, by law, this arrangement has been altered to enable the political class and the bureaucrats to decide, leaving the police hierarchy powerless and in a shambles.

All recommendations of the National Police Commission on Police Reforms have been accepted, except the crucial ones that curb the powers of politicians and bureaucrats to interfere in appointments and transfers. This is the real crux of the problem of command and control. If the subordinate ranks know that they can flout their boss's order because the power to discipline them has been taken away, the whole gamut of police administration collapses. This is what is happening today!

People feel that policing is in the grip of widespread inefficiency, incompetence and corruption. I agree with the corruption charge. It has grown exponentially because the grip of senior officers on their own subordinates has loosened to such an extent that it will take years to reverse the trend. I partly agree about the inefficiency, which is the direct result of corruption. However, it must be admitted that these are also times when the police have done very well even in difficult circumstances, particularly in law and order situations. I do not agree about incompetence. On the contrary, today, the officials and men are of much higher calibre than in my days. They are better informed, better educated and better trained. They are also better equipped and have the clear advantage of advanced technology. If they prove incompetent, it is only because of the culture of corruption.

When I say that the entrants in the police force are better educated and informed, I must record a rider – they may not be interested in the job of policing as such. Many join because of the absence of alternative employment. For instance, old police officers send the least qualified of their children for recruitment. It is essential, therefore, to test not only the mental and physical attributes of aspiring recruits, but also their suitability for policing, their attitudes towards the poor and the weak, their attitudes towards women, children, the depressed classes and the minorities. Presence of biases that are ingrained and not capable of being dispelled during training should disqualify the candidates. I would even advocate that a diploma in police science be introduced at senior school and a degree at the university level to qualify for policing jobs.

It is of utmost importance to ensure that entrants at all levels are not required to ***bribe selectors to secure jobs.*** *People who are required to pay for securing jobs are going to prey on the public as soon as they don the uniform. This is a sure recipe for encouraging corruption and merits a show of public displeasure to prevent it from happening*

It is of utmost importance to ensure that entrants at all levels are not required to bribe selectors to secure jobs. Our experience with the State Public Service Commissions and departmental bodies entrusted with recruitment has been wanting, at most times, though with some noticeable exceptions. People who are required to pay for securing jobs are going to prey on the public as soon as they don the uniform. This is a sure recipe for encouraging corruption and merits a show of public displeasure to prevent it from happening.

The bottom line is that the police force requires top class leaders who are not only competent, but men and women of unimpeachable integrity. Great pressure has to be applied on political leaders entrusted with the task of making such top-level appointments. Once good people are selected and appointed, they should be given operational independence to run the force, which includes appointments, transfers, promotions and punishments, as well as the prevention and detection of crime in accordance with the truth and the law of the land. About that there should be no compromise. ◆

TELANGANA

Where a fledgling state transforms your challenges into opportunities envisioning a golden future

India's 29th and youngest state, Telangana, is more sprightly and vibrant than any other. With the chief campaigner for its founding, K. Chandrasekhara Rao as the first chief minister, it has become more facile to drive your business in Telangana. Now, eighteen months in office, after slipping into the saddle, on June 2, 2014, when the state was formed, KCR, as the chief minister is popularly known, is pulling out all stops to ensure that Telangana is among the top investment destinations in the country. He is striving for a new era envisioned by him as Bangaru Telangana (Golden Telangana). "Our endeavour is to realize the vision of inclusive growth through investment inflows, growth in employment, balanced regional development and environmentally sustainable long term development," says KCR.

Telangana has an abundant land bank, excellent road – rail connectivity, rich natural resources and skilled manpower. This is also why it beckons investors, including global players, like no other state. Across the ten districts of Telangana a land bank of 1.50 lakh acres is readily available for potential investors. The Telangana State Industrial Infrastructure Corporation is spending Rs.100 crore to develop 60,000 acres of this bank in the first phase by March 2016.

Within a year, the state economy and revenues have started moving in a positive direction and the growth in Gross State Domestic Product enables the state to do everything to help investors. Appreciating that industrialization holds the key to economic growth and prosperity, the government has put in place a policy that that is on par with some of the best industrial practices in the world, to draw national and international businesses.

The new Industrial Policy – which aims to journey from research to innovation, innovation to industry, and industry to prosperity – comprises a business – friendly, peaceful and transparent framework for enterprise / established business houses; scope for large scale job creation, equal opportunities for marginalized communities and conservation of the environment. "Ours is pro – active governance that leads investors in maximizing on opportunities from the moment they file applications of intent," says KCR.

The outcome of the investor friendly initiatives is fast becoming evident and growing too. The Swedish retail giant IKEA Group is to set up a 50,000 square metre facility by buying 12.35 acres in the Knowledge City at Raidurg in the western suburbs of Hyderabad by investing Rs.600 crore. China's construction equipment makers, the Sany Group, have entered into two MOUs with the Telangana State government to set up a prefab concrete manufacturing factory and for dry port solutions. This is following KCR's recent visit to China. The group is looking to tap opportunities in dry ports, power generation,

"Ours is pro – active governance that leads investors in maximizing on opportunities from the moment they file applications of intent"

K.Chandrasekhara Rao
Hon'ble Chief Minister of Telangana

power distribution, coal mining, social housing, road development and logistic parks in the state. Mobile companies that have come forward to start their manufacturing facilities in Telangana include Micromax and Celkon. Toshiba Transmission and Distribution Systems is to invest Rs.290 crore to set up a transformers and switchgears manufacturing unit in Medak district. Telangana is not only offering land at much cheaper prices than several states but is also rolling out subsidies on electricity and other input costs to welcome investors.

TS-iPASS The pioneering Telangana State Industrial Project Approval and Self – Certification System, TS- iPass in short, is intended to help take the first few firm steps. It offers hassle free and effective single – window clearance to applicants in a first of its kind revolutionary law. Telangana is the only state in the country to issue automatic approvals based on self – certification, thus allowing projects to begin operations without having to wait for prior permission after land acquisition formalities are completed. The law mandates that all clearances required to begin a project must be provided within 15 days for mega projects and 30 days for others – the shortest anywhere in India. "The TS – iPASS is creating a positive environment in which a large number of industrialists and investors are evincing greater interest and preferring Telangana over any other state," says Jupally Krishna Rao, Minister for Industries and Commerce.

Bureaucratic hurdles and red tape are cut by introducing TS - iPASS, which is attracting more investments from across India and abroad. The government has taken a slew of measures galvanizing investors confidence. The India Credit Rating Agency (ICRA) has given 'A' credit rating to Telangana, in its latest report, highlighting the state's bright and better prospects because of its robust financial situation. This rating enhances Telangana's standing in the national and international credit arenas.

ICRA has also pointed out that Telangana has low loan component in capital expenditure when compared with other states. It is estimated that every rupee of capital expenditure in the state generates expansion of the order of 2.45 times in economic output. The per capita income of the state has increased to Rs.1,03,889 in 2014 – 15 from Rs.95,361 in 2013 – 14, registering a growth of 8.9 per cent and is much higher than the national per capita income of Rs.88,533.

> ***In a rapidly growing era of start ups, an incubation facility for start - ups called T – Hub has been set up as an 800 – seater facility spread over 60,000 sq ft. This is India's largest start up incubator facility***
>
> **K.T. Rama Rao**
> IT and Panchayat Raj Minister

The state's capital Hyderabad is synonymous with the growth of Information Technology (IT) and the area where it is located in the western quarter of the city is aptly called Cyberabad. Contributing 11 per cent of the country's IT exports, Telangana is the second largest IT exporter in India, with exports worth 10.30 billion US dollars in 2014 – 15. The state is now working towards doubling its IT exports in the next five years.

While the IT industry in the state, concentrated in Hyderabad, continues to grow at a healthy pace, more than the national average, there is a lot of room for growth. Many of these companies are looking for additional land to expand their presence and government help is needed to make this happen. Availability of

abundant science, technology, engineering and mathematics talent; good support from government and quasi – governmental agencies is making it possible. And with its investor friendly Industrial Policy, the state further hopes to strengthen this sector by expanding in newer fields like aerospace, multimedia and gaming.

In a rapidly growing era of start ups, an incubation facility for start - ups called T – Hub has been set up as an 800 – seater facility spread over 60,000 sq ft. "This is India's largest start up incubator facility," says the state's Information Technology and Panchayat Raj minister K.T. Rama Rao. Through three levels of training – Launch Pad, Accelerator and Propeller, the T Hub aims to familiarize 3,000 aspirants with the finer aspects of prototyping, management, technology, and the legalities involved in establishing a venture by the end of 2017.

The TS – iPASS is creating a positive environment in which a large number of industrialists and investors are evincing greater interest and preferring Telangana over any other state

Jupally Krishna Rao
Industry Minister

"No less important is our dream to make available a digitally accessible future for citizens as well as for those who invest in the state, "says KTR, as Rama Rao is better known. There are plans to connect ten million homes through optical fibre cables and introduce Google Fiber for superfast broadband service. Moreover, to deliver government services to rural Telangana through portals and kiosks, the e – Panchayat project has begun to make mobile governance a widespread feature of the state and innovative apps and services linked to it are also being developed.

Impressive road connectivity, large telecom bandwidth and relatively high teledensity among states, an installed power generation capacity of 4365 mw and plans to emerge as a power surplus state by 2018 has already placed the state on an accelerated pace and path of progress. The chief minister is encouraging the state to develop as a hardware manufacturing hub, be the veritable seed bowl of the world considering a large number of seed companies that sends supplies for farms both in India and abroad from Telangana are in Hyderabad and dispel the impression that the only noteworthy industrial and entrepreneurial activity in the state is in and around a software hub.

Telangana has a great potential for the development of industrial corridors, given its network of national and state highways and the availability of resources along these highways. To promote sector specific development in different regions and the setting up of industries in districts beyond and around Hyderabad, the state is to utilize the available land for developing the industrial corridors. Privately held lands will be accommodated into this plan through special zoning regulations. The Hyderabad to Warangal, Nagpur and Bengaluru corridors will be developed in the first phase and the other three – Hyderabad to Mancherial, Nalgonda and Khammam corridors – in the second phase.

There are plans to allow Chinese, Korean and Taiwanese companies who have expressed interest in starting industrial parks for their country's companies particularly in electronic manufacturing. Two clusters for domestic companies are also to be set up near Hyderabad. To encourage mobile manufacturing companies to set up their facilities in the state in view of the huge employment potential, the state is to encourage establishing the Anchor Unit, under the Electronic Manufacturing Clusters, by allocating land on cost basis and other fiscal incentives including a capital subsidy of 20 per subject to a ceiling of Rs. ten crore and waiver of Central Sales Tax. While offering incentives, the state is eager that four out of five jobs are to be given to locals and at least 1,000 are enrolled in the first two years.

A comprehensive analysis based on detailed studies of the state's topography, resources, skill force, manufacturing practices, and industry expertise has helped the state government identify 14 priority sectors – Life Sciences, IT and Hardware, Precision Engineering, Food Processing, Automobiles, Textiles and Apparel, Plastics and Polymers, FMCG and Domestic Appliances, Engineering and Capital Goods, Gems and Jewellry, Waste Management and Green Technology, Mineral and Wood, Solar and Renewable Energy, Transport and Logistics. "This is helping the state to play on its strengths, build its brand equity and showcase its potential as the leading investment destination worldwide with tremendous growth opportunities," explains Krishna Rao.

Having weathered the worst power deficit situation in the state to ensure power supply to agriculture, industry and domestic sectors within six months of assuming power, KCR has now set a deadline to make Telangana a power

surplus state by 2018 – 19. With its meticulous planning and increasing efficiency levels in the generation and transmission systems the state has improved the Plant Load Factor from 74 per cent to 80 per cent, cut down in transmission losses from 16.83 per cent to 15 per cent and made short and long term purchases through the power exchange and thereby checked the grim prospects of tripping and power cuts.

Even as it works towards boosting its industrial prowess, Telengana believes in harnessing non conventional energy such solar power. Through the Telangana Solar Power Policy, 2015, the state aims to benefit from its large solar power potential, promote solar parks and increase public and private investment in solar power generation. Besides solar power players the state is setting up research and development centres considering the long term affordability, cleanliness and cost effectiveness, of non conventional energy including that from the Sun and the Wind.

With the numerous initiatives steered by KCR, Telangana is working towards becoming to be numero uno in the country.

In all this, the Telangana State Industrial Infrastructure Corporation (TSIIC) plays a pivotal role in forwarding the state's Industrial Policy, given its primary responsibilities of identification, acquisition, and allotment of potential land areas for industrial parks; providing infrastructure facilities in all parks; identification and development of infrastructure projects under the public – private partnership model and coordinating with various agencies involved in providing communication, transport and other essential facilities for the smooth functioning of industry. The TSIIC also raises market loans and avails of budgetary support that may be required for the infrastructural development of industrial parks. Through its six zonal offices, it also ensures that water for industrial use and an uninterrupted power supply for each industrial park is provided.

Chief Minister Chandrasekhara Rao is, at the same time, addressing reforms in key areas such as housing, health, education and labour. KCR believes in facing challenges head on and has, therefore, set an ambitious agenda for himself and is working to achieving it, without any shortcuts, be it industrialization , economic growth or welfare schemes. Banking on the fact that his ten district state is among the richer ones in the country the chief minister is determined to implement the nuanced development and welfare programmes. He has put in place policies and practices besides the implementation infrastructure for the massive development programmes in drinking water, irrigation, plantations, urban infrastructure and housing which are also aimed to generate employment and revenues.

While the Mission Bhagirath (Water Grid) aims to provide piped drinking water supply to all homes in the state, Mission Kakatiya for the restoring at least two thirds of the 47,000 of local lakes in the state to serve as irrigation sources, Harita Haram for massive tree planting for the greening of Telangana and building Two Bedroom houses with a kitchen and toilets for the poor. His focus is on development that would change the face of the state and achieve, in a decade, his goal of Bangaru Telangana that has an ecosystem which promotes inclusive development and improve the quality of life. With the numerous initiatives steered by KCR, Telangana is working towards becoming to be numero uno in the country. The huge investments in the key development programmes including irrigation projects will create assets and boost the economy. These initiatives will also pave the way for sustainable and inclusive growth, lasting peace and prosperity and, above all, improvement in the quality of life of all its citizens. Bangaru Telangana, as the chief minister emphasizes, is more than vision – an attainable goal.

Pure Perfection

SETTING STANDARDS IN EDIBLE OIL INDUSTRY

India ranks fourth on the world index of largest edible oil economies after USA, China and Brazil with 15000 oil mills, 711 solvent extraction units and 264 Vanaspati plants and over 1000 refineries employing more than one million people. The total market size is at Rs. 600 billion and import – export trade is worth Rs. 130 billion. India being deficient in oils has to import 40 per cent of its consumption requirements.

The domestic turnover of the vegetable oil industry is Rs 70000 crores and import –export turnover of about Rs. 16000 cores per annum which consists of -Rs.10000 crore for import of edible oils - Rs. 6000 crores for export of oilmeals, oilseeds castor oil, groundnut oil & vegetable fats of tree borne oilseeds.

India's edible oil industry is growing at a compounded annual growth rate (CAGR) of 90 per cent. Currently, India accounts for 7.4 per cent of world oilseeds output; 6.1 per cent of world oil meal production; 3.9 per cent of world oil meal export; 5.8 per cent of world vegetable oil production; 11.2 per cent of world vegoil import; and 9.3 per cent of the world edible oil consumption.

India consumes over 4.5 million tons Palm oil and other Palm oil products per annum while domestic production of crude Palm Oil in India is hardly 60,000 ton per annum and rising very slowly.

Source: COOIT, SEA 41st Annual Report 2011-12

FUNCTIONS

B.L. Agro has identified quality sources of crude mustard oil mostly from Rajasthan and certain pockets of Uttar Pradesh. The company's state-of-the art Refinery Plant located at Parsakhera Industrial Area in Bareilly (U.P.) has installed facilities for Processing, Filtration, Refining and Blending. The automated plant is spread over a sprawling 10000 sq. meters total area. With the warehousing facilities of the firm located right next to an operational railway siding that is also used for transportation of company goods, there is considerable ease in transporting its produce to desired destinations.

The company has also set up a separate fractionation plant near the railway siding. Currently B.L. Agro products are distributed through a

network spread in over 200 cities across 6 states of North India.

Faced with an ever increasing demand for B.L. Agro oils in existing as well as newer territories, the distribution network is constantly expanding day by day.

The company enjoys a clear edge over its competitors in most parts of Uttar Pradesh and Uttarakhand. With its recent entry into the Delhi – NCR markets, Bail Kolhu Kachchi Ghani Mustard Oil has received an instantaneous acceptance and has already gained a substantial market share in a very short span of time.

ORIGIN

The origins of B.L Agro go back to over half a century when Shri Kishan Lal Khandelwal and Shri Bishan Lal Khandelwal set up the foundations of the firm. Presently led by Shri Ghanshyam Khandelwal, the management of B.L. Agro has gained an unmatched, in-depth insight of the industry with continuously evolving consumer needs.

The company's Managing Director, Mr**. Ghanshyam Khandelwal** is a true entrepreneur. He entered the mustard oil trading business in the 1970s at a very tender age. Beginning from Bareilly, he single-handedly expanded operations and soon transformed 'Bail Kolhu' into one of the most preferred mustard oil brand in the entire state of UP.

Known as a man of foresight and vision Ghanshyam Khandelwal has been the guiding force behind consistent growth of B.L. Agro Oils Ltd. With an eye on the future, he has, over the years, displayed a tremendous ability for anticipating the changing consumer needs and has repeatedly led the organisation to be a winner in a dynamic industry scenario. An undoubted achiever, he is a man of undaunted determination and courage along with exemplary business acumen.

Mr. Ghanshyam Khandelwal's philosophies originate from his commitment towards the community. A man of values, he strongly believes in business ethics and corporate social responsibilities.

Ashish Khandelwal a commerce post graduate, joined his father's business at a very young age as executive director. A quick learner, he learnt the nuances of the trade within no time and established himself. He brought with him new-age marketing concepts and innovations into the industry. With extraordinary abilities in sales and channel management, Ashish Khandelwal has developed a keen sense of business and an unmatched hold on the market pulse. Under his leadership, the company entered the consumer packs segment and the venture has witnessed an unprecedented success. Having spent over 15 years in this trade, Ashish Khandelwal possesses a rare combination of experience as well as youthful exuberance.

MILESTONES

1940s	**The foundations of B.L. Agro Oils Ltd. established, dating back to pre-Independence era when Kishan Lal Khandelwal and Bishan Lal Khandelwal started commodity trading business.**
1976	**The business received a spurt with the joining of young Ghanshyam Khandelwal who joined his uncle and father in the business in 1976.**
1986	**Ghanshyam Khandelwal starts expanding operations and introduced branded mustard oil by the trade name of 'Bail Kolhu'.**
1999	**In 1999, the family business was converted into a proper organization and a company called B.L. Agro Oils Ltd. came into existence.**
2005	**In 2005 B.L. Agro commissioned its processing unit with a capacity of 100 TPD.**
2014	**Refining capacity increased to 450 TPD, packaging capacity to 500 TPD and warehousing capacity to 26000 tonnes. B.L. Agro also developed personal Rail Siding.**
2015	**B.L. Agro established a complete automated line for packaging. Total refining capacity is now 600 TPD and packaging capacity is 1100 TPD. Warehousing capacity increased to 35000 tonnes.**
2015-16 PROJECTED	**Packaging Capacity - 1500 TPD, Refining Capacity - 600 TPD, Warehousing Capacity - 40000 Tonnes**

Richa Khandelwal, Director Marketing, for B.L.Agro is a B.Tech and MBA and has added a fresh dimension to management competencies at the company. Her path-breaking have borne new fruit for the company and undoubtedly Richa Khandelwal has played a key role in further strengthening the company's agro brand portfolio. She has led company's expansion into major geographical areas of the country by expanding the consumer base from rural to metro & cosmopolitan cities. With her efforts Bail Kolhu is steaming ahead to gain No. 1 position in mustard oil sales in all the regions. Ambitious and brimming with positive energy and exuberance, Richa Khandelwal has helped the organisation get into an overdrive with her astute marketing strategies and innovative techniques.

With a history that goes back to 50 years, B.L. Agro Oils Ltd. is a company with a focused corporate objective i.e. to manufacture, package and market the purest edible oil that would offer healthier and tastier solution to millions of consumers. Currently, the company is in the business of refining, quality control, packaging and marketing of branded mustard and other edible oils.

STRENGTHS

Ever conscious of its responsibilities to the consumer, B.L. Agro has ensured that the processes and facilities at the plant match the highest standards. The Double Filter Process for Mustard Oil ensures that only the purest products are dispatched from the B.L. Agro plant. Refining is undertaken by the chemical refining process through which flows out the purest form of cooking oil that can outdo the beats the best known brands in matters of quality and transparency.

Athe company uses the Nitrogen Blanketing process that reduces the loss of nutritional values and ensures Maximum Nutrition Retention (MNR) in the Refined Oils. B.L. Agro Oils Ltd. is also one of the selected oil players in the country to have been granted a Blending License thus enabling it to further expand its product portfolio. With vast possibilities in blending, the company is now in a position to develop many new products and cater to evolving consumer needs.

The company has secured sources for supply of crude oil. The identification of multiple regions ensures that supplies to B.L. Agro are not affected by climatic adversities or any other form of agricultural contingencies. With the company having its own facilities for manufacturing of packaging materials used for its products, this becomes its major strength. This results not just in controlling the costs and enhancing value but also in maintaining the product purity to the last possible level.

GROWTH DRIVERS

B.L. Agro leadership has unparalleled market and consumer insights. The

VISION

To become part of the lifestyle of every Indian.

MISSION

Establish benchmarks in purity and perfection and to be a leader in the Indian market.

QUALITY POLICY

B.L. Agro Oils Ltd. is committed to provide consumer satisfaction in compliance with regulatory bodies with maximum effectiveness.

company understands that food habits of consumers are very individualistic and vary from home to home. In order to establish a long-term relationship with the collective base, the company is keen to pack real customer delight in each pack that it offers. The company's ability to anticipate and adapt to market demand shifts resulting from either consumer living pattern shifts or other reasons has reaped further rewards for it and awarded it a leadership position.

Change is the one constant at B.L. Agro, be it the need to upgrade technological capabilities, or enhance the intellectual and professional skills of its manpower and collective efficiencies, B.L. Agro has always anticipated the changing environment and empowered itself for the same. The most important success driver at B.L. Agro is its ability to offer Consistency of Highest Quality Standards. B.L. Agro Oils Ltd. possesses India's largest mustard oil packaging facilities.

State of the Art quality control facilities, consisting of equipments like Gas Chromatography, Spectrometer, HPLC, and Digital Analysers for 100 per cent assurance of good quality have helped maintain its premier position in the market. The facility is at par with the best in the country. To further complement its efforts and enhance its performance the company has established Enterprise Resource Planning (ERP) systems and has obtained ISO 9001:2008, ISO 14001:2004 & ISO 22000:2005.

OPERATIONS

The operations of B.L. Agro Oils Ltd. are currently divided into the domains of Sourcing, Quality Control, Refining, Fractionation, Blending, Packaging, Marketing of Mustard, Soya bean, Palmolein and other Blended Edible Oils. The company has its own manufacturing unit of bottles, jars & cartons used in packaging of its products.

AIMS & OBJECTIVES

- **Stay abreast of the competition by understanding market dynamics and changing consumer needs so as to offer finest quality products which meet our customers' expectations and the ever-changing demands of the market place.**
- **Provide high level of service to customers with minimum cause for complaint.**
- **Develop a healthy & constructive work environment that enables personnel to produce optimal output.**
- **Comply with the requirements of ISO 9001:2008, ISO 14001:2004 & ISO 22000:2005 and other government regulations so as to continuously improve the effectiveness of our Quality Management System.**

WAVE

PRESENTS

business today MIND RUSH

POWERED BY Raymond Made to Measure

A HEADY COCKTAIL

The third edition of the Business Today MindRush was a mesmerising mix of awards, insightful talks by super CEOs, master classes by management gurus, and much, much more. **By DIPAK MONDAL**

The third *Business Today* MindRush – held on December 18 and 19 at Taj Palace hotel in New Delhi – got off to a flying start with a debate on 'Professionals and the Family Business'. The panellists included two professional CEOs – K.B.S. Anand, MD & CEO, Asian Paints; and Sunil Duggal, CEO, Dabur India. The 'family' side was represented by Jayadev Galla, Vice Chairman & MD of Amara Raja Group. The panellists concluded that in family-owned businesses, professionals need to be made partners in creating wealth for the organisation.

Earlier, welcoming delegates to the conclave, Prosenjit Datta, Editor, *Business Today*, highlighted the challenging business environment and said that technology and start-ups are redefining businesses. He said that though the government has taken

For full coverage, go to
businesstoday.in/mindrush-bt

PHOTOGRAPHS BY SHEKHAR GHOSH

THE CHAMPIONS (L to R): Siddhartha Lal, MD & CEO, Eicher Motors; Jayadev Galla, VC & MD, Amara Raja; Himanshu Kapania, MD, Idea Cellular; Tejpal Batla of TCS (for N. Chandrasekaran); Vineet Nayyar, Vice Chairman, Tech Mahindra; Rajeev Sharma, CMD, Rural Electrification Corp.; Arundhati Bhattacharya, Chairman, SBI; Aroon Purie, Chairman & Editor-in-Chief, India Today Group; Salil Singhal, CMD, PI Industries; Sunil Duggal, CEO, Dabur India; Rajeev Jain, MD, Bajaj Finance; Rajender Sehgal of HDFC Bank (for Aditya Puri); Nuti Chakravarthy of Axis Bank (for Shikha Sharma); Vedji Ticku of Page Industries (for Sunder Genomal)

steps to kick-start the economy, there are concerns on many fronts.

Aroon Purie, Chairman and Editor-in-Chief, India Today Group, said the theme for *BT* MindRush – Leading in the Time of Great Change – is very apt "because VUCA (volatility, uncertainty, complexity and ambiguity) is the new normal that companies and leaders have to deal with, especially in an age of rapid technological change". Purie added that despite the clear majority the current government enjoys, as well as its desire to kick-start growth, some important reforms are stuck in Parliament. And while there is some improvement in the ease of doing business, there are areas where enough progress is yet to be made.

The chief guest for the evening, Minister of State for Finance Jayant Sinha, said that the major areas that the government is focusing on are agriculture, start-ups, bankruptcy laws and ease of doing business. Dismissing the perception that there has been no substantial work done on the ground, Sinha pointed out that exemplary work has been done by the government in developing infrastructure, overhauling the financial sector and taxation.

In her address, Arundhati Bhattacharya, Chairman, SBI, said: "A CEO should be a vi-

"The government is focusing on agriculture, start-ups, bankruptcy laws and ease of doing business"

JAYANT SINHA
Minister of State for Finance

"I believe the single most important factor for a successful CEO is the culture he promotes"

AROON PURIE
Chairman & Editor-in-Chief, India Today Group

sionary, and have the ability to take decisions and have effective communication skills to put their organisations on the growth path in times of difficulty." Himanshu Kapania, MD of Idea Cellular, while speaking on 4G, said: "India is on the cusp of a digital revolution; in three to five years, industries such as banking, retail, brokerage, etc. will feel the ripple effects of disruption."

One of the main attractions of the first day was the *BT* Best CEOs awards. The winners included Siddhartha Lal of Eicher, Bhattacharya of SBI, Vineet Nayyar of Tech Mahindra and some others.

The second day 'fittingly' started with a session by Milind Soman, who completed the "Ironman Triathlon" in Zurich, Switzerland, earlier this year. Soman, who at 50 epitomises youth and fitness, shared the secret of his healthy lifestyle with eager audiences. His suggestion to fitness freaks and those fighting ageing was to not only work on the body but also on the mind.

Soman's session was followed by a masterclass by leadership development expert and executive coach Bill Hawkins. He presented some insights on the pitfalls of successful executives – they may be too optimistic for their own good and over-promise, for instance. In addition, he also pointed out a few habits that can hold you back from reaching the top, such as speaking when angry, withholding information, failing to give proper recognition, etc.

Then came an engrossing discussion on Internet-based start-ups. Titled "Online and on fire: Catch them if you can", the discussion had Amit Jain, President, Uber India; Amarjit Singh Batra, CEO, OLX India; Sanjeev Agarwal, Senior Managing Director, Helion Advisors; Suchi Mukherjee, founder and CEO, Limeroad; and Radhika Agarwal, co-founder and Chief Business Officer, Shopclues.com, talking about the opportunities and challenges for online start-ups in India.

While Soman's session was all about the health and well-being of the body and mind, the session after lunch focused on the health of the country's economy. It

"In the next 4-5 years, banking, retail, brokerage, etc. will feel the ripple effects of 4G"

HIMANSHU KAPANIA
Managing Director, Idea

"A CEO should be a visionary, and put the organisation on the growth path in hard times"

ARUNDHATI BHATTACHARYA
Chairman, SBI

was addressed by the country's former finance minister P. Chidambaram, who is known for his straight talking.

Not one to mince words, Chidambaram said that not everything is hunky-dory with the Indian economy as the government would like us to believe. He pointed out that the country's nominal GDP growth rate has come down to six per cent, something that only happened 50 years ago. According to Chidambaram, if nominal GDP continues to grow in the same fashion, it will have serious repercussions on the government's fiscal burden. He also talked about the fall in exports for the 12th consecutive month, and dismissed the government's claim that there has been an increase in public investment. He also said that there are few signs of stalled projects getting revived or private sector investments picking up.

After Chidambaram's rather critical analysis of the country's economy, the audience was pepped up by the second Masterclass by renowned leadership and motivational expert Susan Fowler.

Fowler busted the traditional thinking on motivation by saying that "incentivising people is no more relevant". According to her, the new norm is day-to-day motivation, where one's psychological needs are met, as opposed to one-time incentives.

The third edition of *Business Today* MindRush concluded on December 19 with renowned author Ashwin Sanghi's insightful session on how the Arthashastra, the treatise on economy, politics and diplomacy by Chanakya – touted to be the "Pioneer Economist of India" – 2,300 years ago, is still relevant for today's businesses. In fact, he said, it is the foundation for global governance and businesses.

The *Business Today* MindRush was presented by The WAVE Group, powered by Raymond, and had communication partner The HAVAS media Group, lifestyle partner Swarovski, and bespoke gift partner Hidesign. PwC India provided knowledge support to the Best CEO Awards. ◆

@dipak_journo

GOOD DAYS WILL BE HERE SOON

Jayant Sinha, *the Minister of State for Finance in the Government of India, was the Chief Guest at the* Business Today *MindRush held in New Delhi. In his keynote address, Sinha spoke at length on government's economic vision, and the initiatives it has taken on various fronts, including reforms in the social sector and financial sector, among others.* **Anilesh S. Mahajan** *reports.*

At a time when general dissent by the opposition parties is at its peak – the winter session of Parliament was badly disrupted – Minister of State for Finance, Jayant Sinha, emphasised that the government is committed to facilitate ease of doing business, rationalise tax structures and ensure business competitiveness is encouraged.

The minister, who was speaking at the *Business Today* MindRush, was the chief guest and keynote speaker at the event. He said the government is working on three key principles: it is pro-poor, pro-market-competitiveness and it promotes cooperative federalism. He said that the government has worked out a social security safety net for the poor. The NDA government, through various schemes, has managed to open bank accounts for most citizens in the lower strata. The social sector schemes are disbursing payments and subsidies directly into their bank accounts.

"All these are historic steps that the NDA has taken and would transform the way the poor are treated. There will be no middle-man, the poor will get their money directly in their accounts," Sinha said. "We are increasing the reach of banks, and licences for payment banks, commercial banks and deposit banks have been issued. This will not only increase the reach, but will also transform the way banking is done today. We are reducing corporate tax from 30 per cent to 25 per cent, as well as removing all the exemptions. Most will agree that there is a series of litigation at various levels only because of exemptions. We are doing away with this," he announced.

Sinha further added that the government is bullish on investments in infrastructure; this includes power, roads and railways, among others.

Minister of State for Finance Jayant Sinha's speech at businesstoday.in/mindrush-jayant

SHEKHAR GHOSH

"We want India to be a shining star in the world. We can do that by building India's productive capacity – factories, roads, power plants as well as the skills and employability of our people"

"We are a pro-poor and a pro-market government; they are two sides of the same coin"

"We have already unleashed five or six very major reforms. Big-bang, like beauty, lies in the eye of the beholder"

"Railway Minister Suresh Prabhu has prepared the blueprint for an investment of Rs 8.56 lakh crore by 2019. Some quarters are criticising the country's plan to invest in bullet trains; I am sure they haven't gone through the numbers. JICA (Japan International Cooperation Agency) is providing loans at 0.1 per cent, and the payouts will start after 15 years," he said. Similarly, he said, Road Transport, Highways and Shipping Minister Nitin Gadkari has accelerated road construction from 3 km per day to 18 km per day.

"Critics may say that there are no big bang reforms. But I believe that 'big bang', like beauty, lies in the eyes of the beholder," he remarked. He said that the Central government is working with the state governments to improve the ease of doing business. The Indian establishment believes that India may become one of the top 100 countries with respect to the 'ease of doing business' parameter in World Bank's annual report. "The target is to get into the top 50," Sinha confidently remarked.

"*Achche din aa rahe hai* (good days are approaching)," the minister emphasised. This was one of the poll planks of Prime Minister Narendra Modi, promising large-scale reforms. In the past 18 months, however, the opposition has taken a dig at Modi's plank in various assembly elections.

He added that the government is committed to get the Goods and Services Tax (GST) cleared by Parliament. "Through masterful efforts and deft handling of negotiations with most of the states, we were able to build consensus on the GST issue," he said, adding that it was imperative that the principal opposition came on board. "The time has come to pass GST. I implore my colleagues in the opposition to comply," he said. ◆

@anileshmahajan

THE CONTRARIAN VIEW

P. Chidambaram *is a man who minces no words. The former Union finance minister was a keynote speaker at the* BT *MindRush, where he attacked the government's performance and questioned its numbers.* **Joe C. Mathew** *reports.*

Former Finance Minister P. Chidambaram has contested the government's claims that India's economy is on a recovery path. Delivering the "State of the Economy" address at *Business Today's* flagship event, MindRush 2015, in New Delhi, Chidambaram said the findings of the mid-year economic analysis carried out by the finance ministry do not support the government's view.

"In the July-September quarter, India's GDP growth was 7.2 per cent. Depending on what you compare it with, it is good, bad or mixed. It is bad if you compare with the 8.2 per cent growth during the corresponding quarter last year, and it is mixed if you look at the 7.6 per cent growth during the previous quarter. It is good if you look at expectations. Hence, some of you may argue that the government is doing everything possible. I want to push back against this complacent view," he said.

Analysing the growth numbers, he said they were driven by low oil

Former finance minister P. Chidambaram's speech at businesstoday.in/mindrush-chidambaram


SHEKHAR GHOSH

"Except for a few bright spots, there is no evidence that the government has an overarching vision, a definite work plan"

"Some of you may argue that the government is doing everything possible. I want to push back against this complacent view"

"At 9.8 per cent, the IIP growth looks impressive, but this high growth in October was because of base effect"

prices that overstated the GDP deflator and increased government expenditure. The 7.2 per cent growth number hides the nominal GDP growth of six per cent, he said.

"The GDP deflator is minus this time, because of low commodity prices that have pushed inflation into the negative territory. Even the RBI has suggested that the deflator is lower than it should be. It is overstated. This is the reason why a nominal growth rate of six per cent translates into seven per cent growth. The last time the nominal growth rate was this low was in 1965/66," he said.

According to Chidambaram, if nominal GDP continues to grow in the same fashion, it will have serious consequences for the government's fiscal burden. "Government debt as a percentage of GDP will increase, and this will make borrowing increase, thereby increasing the interest burden. As a result, the government will have to cut expenditure further to meet the fiscal deficit target," he said.

Chidambaram was also critical of the government's claim that its expenditure has helped kick-start private investments. "There is no evidence that increase in public investment has crowded in public investment," he said, adding that there are few signs of stalled projects getting revived or private sector investments picking up. He also highlighted the poor performance of the manufacturing sector and the decline of Indian exports. "Exports declined for the 12th consecutive month, but that was not because of petroleum products," he said.

He even questioned the latest industrial growth numbers. "At 9.8 per cent, the IIP growth looks impressive, but this high growth in October was because of base effect. Adjusting this growth, it remains in the range of 2-3 per cent. I suspect there is distress in rural India. There is growing stress in the agricultural sector," he said.

Chidambaram wanted the government to stop blaming the global situation and get its act together.

"Except for a few bright spots, there is no evidence that the government has an overarching vision, a definite work plan. If there is, there is a lot of activity, but little action. When it acts, it does without strategy. Every now and then a project is announced, but not strategy. I think it is time to get serious about governance," he said.

On GST, Chidambaram reiterated the Congress's stand that the party is willing to support the legislation provided the government makes the three amendments it has been asking for. He also expressed doubts over the government's intention to legislate Direct Tax Code and accept the recommendations of the Financial Sector Legislative Reforms Commission. ◆

@joecmathew

YOU AIN'T SEEN NOTHIN' YET

India's Internet economy, despite the hype and brouhaha, is still nascent and has miles to go, say some of the country's top digital entrepreneurs at the Business Today *MindRush.* **By TASLIMA KHAN**

One of the highlights of *BT* MindRush was a discussion featuring some of India's top internet companies. The panel comprised Radhika Aggarwal, co-founder and Chief Business Officer, Shopclues.com; Limeroad Founder and CEO, Suchi Mukherjee; Amit Jain, President, Uber India; and Amarjit Singh Batra, CEO, OLX India. The discussion was moderated by Sanjeev Aggarwal, Co-founder and Senior Managing Director at venture firm Helion Advisors, one of India's leading start-up investors.

Helion's Aggarwal started off by pointing out that the size of the Indian internet economy is only $30 billion, compared to the $2-trillion digital economy of the US – including companies like Apple, Google, Uber and so on – and $1 trillion of China. "The reason I cite these numbers is that many people question whether the story has played out, but to my mind these architects of modern India [pointing to the panellists] are just starting this journey," he said. "We believe that $500 billion-$1 trillion of market cap will be created in India over the next decade."

Session on start-ups at businesstoday.in/mindrush-startup

SHEKHAR GHOSH

THE INTERNET-PRENEURS (L to R): Amit Jain, Suchi Mukherjee, Amarjit Singh Batra, Radhika Aggarwal, and Sanjeev Aggarwal

Radhika Aggarwal of Shopclues, a mass market marketplace with 300,000 merchants shipping out three million products each month, could not agree more. "We get asked the question often – has the war been fought already, and have the winners been announced? We feel that we have just scratched the surface."

Batra of OLX India pointed out that while globally the online classifieds market is about $100 billion, the market had not existed in India till recently, and companies like OLX had changed old habits of Indians by urging them to sell old stuff instead of passing on to others or letting them gather dust. "I believe that India is going through a very interesting curve. There are lots of great ideas."

Limeroad's Mukherjee delved on the opportunity beyond market size and said that the huge difference between retail prices and manufacturing costs allows for a lot of disruption. "15-20 per cent of Indian women come to Limeroad, and our conversion rate is nine per cent," she said. "What that means is that we are mimicking offline behaviour."

For others like Uber, there is an opportunity to create an impact on people's lives. "The vision is to make transportation available to everyone just like water and electricity," said Jain of Uber India. "We have about 250,000 driver partners in India and we are offering them a fundamental difference to their lifestyle by helping them earn more and providing them the flexibility of entrepreneurship."

However, with all the hype around such businesses raising huge rounds of investment at sky high valuations, Aggarwal of Helion raised concerns of sustainability of such businesses, which are driven by high cash burn. "Will the wheels come off?" was the question to all entrepreneurs on the panel.

The Indian Internet economy is $30 billion; the US is $2 trillion; China, $1 trillion

The panellists offered some justification to burning huge amounts of cash to lure consumers into buying online. "When you are building a new industry, there are certain hooks that you have to give the consumer. This is what discounting did for the first two to three years. But now investors want to know about the path to profitability. That's a question that will be answered fairly soon," said Aggarwal of Shopclues.

Mukherjee added: "The hook has to be sustainable for industries to be sustainable. You have to create something that fundamentally solves a problem for a user for a lifetime." However, she agreed that capital has been easier to come for ecommerce than other businesses. "Initially, the burn is higher because the cost of capital was lower. Cheap capital does make you a little bit lazy and indisciplined." To overcome that, Limeroad accelerated growth, she said.

Helion's Aggarwal said that the practice of losing money to become monopolies is being dealt by investors across the globe and the trend is not specific to India. He also brought up the issue of local Indian players competing hard with global players. To which Uber's Jain said: "You have to be a local company to understand the environment. Companies are becoming better at adapting to local conditions. We are in 67 countries. Technology and processes come to our aid."

The discussion ended on an interesting note, when Shopclues's Aggarwal turned to the investor – Sanjeev Aggarwal – and asked him whether he was seeing any models that would disrupt the current internet businesses. "When we invest, we see two things – the horse, which is the market that you are trying to disrupt, and the jockey, which is people like you," said Sanjeev. "No one can answer where disruption will come from." ◆

@KhanTaslima

WHAT LEADERS NEED TO DO

Leadership development experts Bill Hawkins and Susan Fowler raised the bar at BT *MindRush with their incisive insights and advice on leadership dos and don'ts, and on motivating employees.* **By GOUTAM DAS**

On December 19, the day Susan Fowler spoke at *BT* MindRush, she was trending on Twitter. Someone asked her how she felt. "I am thrilled because social media is the thing I came into sub-optimally motivated to do and now I understand the power of it," she said. In an animated act, she punched the air with her right hand, and shrieked, "Ya-hoo!".


SHEKHAR GHOSH

Leadership development expert Bill Hawkins (left) and motivation guru Susan Fowler at *BT* MindRush

Over the course of her talk, leadership and motivation expert Fowler drew up a list of what doesn't work and what does when it comes to motivating employees. She debunked many traditional ideas of getting work done – the traditional thinking on motivation was in terms of quantity – incentivise employees and get them to do what you want; apply pressure, demand accountability, rely on power, focus on metrics, at times without meaning. Chances are, all these lead to a sub-optimal motivational outlook that translates into an opportunity loss in terms of creativity, productivity, sick days and absenteeism. People's sense of wellbeing could be threatened.

Motivation has a spectrum, she said. There are three sub-optimal outlooks – 'disinterested', 'external' and 'imposed'. At the optimal level, there are 'aligned', 'integrated', and 'inherent' outlooks. To shift leaders and employees from a sub-optimal to an optimal outlook requires the meeting of high-quality psychological needs with self-regulation.

Psychological thriving, she elaborated, depends on the concepts of autonomy, relatedness, and competence. Autonomy is not the same as freedom. "It is the perception of choice; it is the perception that you are doing something because you choose to, not because of outward circumstances, or pressure, because pressure and tension can erode productivity," she said. Relatedness is the human need to care about people, find meaning in the work they do. It is about inter-personal relationships. Fowler thinks relatedness can be destroyed by focusing on metrics without meaning. "If you are numbers-driven, make sure people understand the meaning behind those numbers – what's in it for them," she said.

Competence is about focusing on training and learning. "Ask people every day, what did you learn? Not just, what did you do?" she said. This psychological need can be easily killed, for instance, by bringing training expenditure costs down during economic hardship. If the three psychological needs are not met, it could end up abusing the three biological needs – food, water and sex – which, in turn, would impact an employee's wellbeing.

But guess what happens when these needs are met? "If every day, employees have a greater sense of autonomy, relatedness and competence, they will have optimal motivation. Research shows then they are going to be more productive, sell more, and over time, become more engaged," Fowler said.

Of course, the psychological needs have to be coupled with self-regulation, where an employee proactively manages his feelings and attitudes. Fowler's model talks of promoting self-regulation through 'mindfulness' or helping people understand 'why' they are doing what they are doing, aligning values and the purpose.

That could help the transition to optimal motivation, akin to Fowler's understanding of social media's power.

The second thought provoking talk at MindRush came from Bill Hawkins, a leadership development expert, who elaborated on the challenges effective leaders run into. It turns out that the "I-can-succeed" mindset of the successful has its downsides. Here's why:

1. Most successful people in the team resist change. They have great belief in previous successes, and tend to be delusional and superstitious.
2. Successful executives also tend to overrate their performance. At the same time, they may discount opinions of people who don't match up to their worldviews.
3. Successful people are optimists – optimism is a key predictor of success. But optimists tend to over-commit. Chances are, if you over commit, you may under deliver.

Hawkins came up with a to-avoid list for leaders: passing judgement on others; starting conversations with "No", "But" or "However"; telling the world how smart you are; speaking when angry; withholding information; not giving proper recognition; passing the buck.

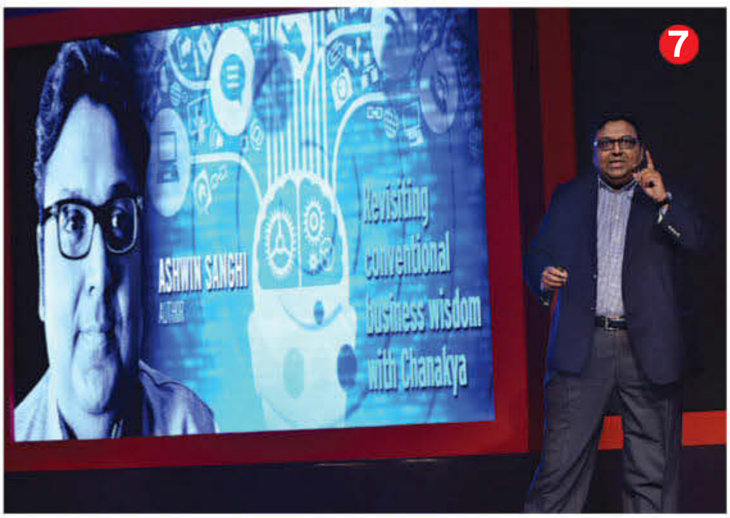
Invaluable tips for every leader.

@Goutam20

FEAST FOR THE MIND

Business Today's *two-day MindRush conclave, held at Taj Palace hotel, on December 18 and 19, was a refreshing change from the usual business conferences, with the Best CEO Awards, master classes by top management gurus, a talk on Chanakya's epic 'Arthashastra' by Ashwin Sanghi, a fitness talk by Milind Soman, and much more. Presenting some vignettes from the show.*

PHOTOGRAPHS BY SHEKHAR GHOSH



1. (L-R) **Sunil Duggal,** CEO, Dabur India; **Jay Galla,** VC & MD, Amara Raja; **K.B.S. Anand,** MD & CEO, Asian Paints; **Vivek Law,** Editor-Business TV, India Today Group

2. (L-R) **Jayant Sinha,** Minister of State for Finance; **Arundhati Bhattacharya,** Chairman, SBI; **Aroon Purie,** Chairman and Editor-in-Chief, India Today Group

3. (L-R) **Amit Jain,** Uber India; **Radhika Aggarwal,** Shopclues.com; **Suchi Mukherjee,** Limeroad.com; **Sanjeev Aggarwal,** Helion Advisors; **Amarjit Singh Batra,** OLX India

4. (L) **Vineet Nayyar,** Vice Chairman, Tech Mahindra, with CEO & MD, **C.P. Gurnani**

5. **Deepak Kapoor,** Chairman, PwC India

6. **Siddhartha Lal,** MD & CEO, Eicher Motors

7. Author **Ashwin Sanghi**

8. **Milind Soman,** Actor

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Job ID: 17925746
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Novartis Healthcare Private Limited
Head of ERP Factory Services Delivery
Location: Hyderabad / Secunderabad,
Job ID: 17899684
Description: Realizing the ERP business case through, Defining /Standardization and Implementation of new Factory Services.

Sampoorna Computer People
SDM & Director-Development
Location: Bengaluru / Bangalore,
Job ID: 17927151
Description: Managing a team of 20-40 developers, including Managers, to deliver on Product roadmap.

Parexel International I Private Limited
Senior Director, Legal & Risk Management
Location: Hyderabad / Secunderabad,
Job ID: 17135638
Description: Ability to analyze complex business and legal issues/risks in order to advance practical solutions.

Saicom Consulting Services Private Limited
Head - Internal Audit
Location: Coimbatore, **Job ID:** 17927977
Description: Responsible for Finance & Systems audit as well as Process audit of the organisation.

Thomson Reuters
Senior Management Systems Engineer
Location: Bengaluru / Bangalore,
Job ID: 17839137
Description: 4 – 6.5years experience with Management Systems, Windows Server, and Solaris (Unix) environment.

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Genpact Headstrong Capital Markets
Java Team Leads
Location: Bangalore, **Job ID:** 17911183
Description: 5-8 yrs Experience Leads with hands on designing and development skills on Core Java, J2EE, XML, Multi-Threading, Design Patterns, Spring / Hibernate, SQL. Preferred to have Financial Domain expertise.

Larsen & Toubro Infotech Ltd.
Oracle IPM
Location: Mumbai, **Job ID:** 17549834
Description: Should have 4-10 Yrs experience in oracle IPM, Travel ready & Shift Ready. Excellent working knowledge of Oracle Service Oriented Architecture Suite.

IMSI India Private Limited
HTML
Location: Bengaluru / Bangalore,
Job ID: 17783588
Description: Bootstrap Experience of at least 5 big projects, Expert knowledge of HTML5.

Sapient
Senior Developer - Demandware
Location: Gurgaon, **Job ID:** 17928468
Description: Translate client requirements into technical designs, design schemas, implement Demand ware extensions etc.

Polaris Consulting & Services Limited
IOS Developer
Location: Hyderabad / Secunderabad
Job ID: 17928076
Description: 5+ years of experience in IOS Development.

Teradata
OpenStack - VMWare Specialist
Location: Hyderabad / Secunderabad
Job ID: 17642167
Description: 2 to 3 years of hands on development experience in OpenStack components.

Janya It Technologies Private Limited
IOS Developer
Location: Hyderabad / Secunderabad
Job ID: 16528160
Description: Experience designing and developing n-tier applications using IOS SDK.

Cybage Software Private Limited
Senior Java Professionals
Location: Hyderabad / Secunderabad, Pune, **Job ID:** 16607894
Description: 4+ years of experience in core Java as well as advanced Java.

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Carpel Consulting Private Limited
Area Manager -Corporate Division
Location: Mumbai, **Job ID:** 17926461
Description: Providing Solutions to Corporate Institutions through Employee Benefits Solutions - Risk business & Fund Management.

Quotient Consultancy
Sr. Business Banking RM
Location: Mumbai, **Job ID:** 17926124
Description: Looking for Cluster Business Banking Retail Assets / Working Capital for Mumbai Contact.

EcomNets India Private Limited
Business Development Executive
Location: Hyderabad / Secunderabad,
Job ID: 17862508
Description: Good communication skills, presentation skills, with best understanding of Sales Process.

2COMS Consulting Private Limited
Sales & Marketing Executive
Location: Kolkata, **Job ID:** 17926256
Description: Must have excellent communication skills. Dealing with Coperate Clients East India.

KRM Global
Business Development Manager
Location: Bengaluru / Bangalore
Job ID: 17925037
Description: Regular MBA with 3+year experience in sales out of which min 1 year should be in key account management.

Replicon
Account Manager
Location: Bengaluru / Bangalore
Job ID: 17898141
Description: 7+ years of inside sales experience with demonstrated achievement of quota/revenue goals.

Meteonic Innovation Private Limited
Business Development Executive
Location: Bengaluru / Bangalore
Job ID: 17869889
Description: Must have good communication, Must be able to convert the Leads into Deals, Must be active & energetic at work.

CRY-Child Rights and You
General Manager – Communications
Location: Mumbai, **Job ID:** 17924070
Description: Ensure that CRY's strategic and tactical communication campaigns are in sync with the goals and priorities of the organization and the communications function.

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Letter from the Editor

A Good Time to Reflect

A new year is always a good time to reflect on both the year gone by, as well as what could lie ahead. The year 2015 will go down, in my mind, as the year in which great expectations from the government were belied. Despite some sincere efforts by the Modi government, the economy failed to improve as quickly as people expected or even as much as the government itself had forecast. Indeed, the mid-term review of the economy that has just come out from the chief economic advisor's office moderates expectations talking about growth in the 7-7.5 per cent range instead of the 8.1-8.5 per cent that was being projected by the government at the beginning of the year. Part of the reason was that the global economy itself was in a state of flux, and the Indian economy was not immune to global uncertainties. But an equally important reason was the failure of the government to push through some crucial reforms including the GST bill which would have had significant impact on business and investor sentiment. Also, corporate debt and public sector bank non-performing assets remained a big worry.

Still, there is no reason to be completely pessimistic about 2016. For one, some of the macroeconomic indicators are showing signs of a recovery albeit a slow recovery. Then, the Modi government seems conscious that it needs to push ahead with economic reforms, and there is a growing realisation that it can do quite a lot through executive action, even if it gets into a logjam in Parliament. Three, oil prices are expected to remain benign for at least much of this year, which would give the government some breathing space. And four, consumer spending has picked up, and there are expectations that even business spending will pick up by the end of this year.

Of course, almost everyone agrees that whatever happens in the short term, the long-term future of India is very good. Over the next two decades, it will be the third most significant economy in the world, behind only the United States and China, which is precisely why our Anniversary Issue is focused on the long term.

I hope you have enjoyed reading through the issue and gained as much from the insights of our eminent columnists as I have.

Happy New Year!

Prosenjit Datta

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