RNI No. DELENG/2020/79244
ISSN 2347-1522
■ Vol. II ■ Issue No. 2
March-April 2021

INDIA FOUNDATION JOURNAL

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India Foundation Journal

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Editor
Maj Gen (Dr) Dhruv C Katoch

Printed on behalf of India Foundation

*Printed at Pearl Printers, C-105,
Okhla Industrial Area, Phase-1,
New Delhi-110020*

*Published at India Foundation,
J-1 and H-1, Ground Floor,
Upasana Building, 1 Hailey Road,
Near K.G Marg, New Delhi - 110001*

RNI No.- DELENG/2020/79244
ISSN 2347-1522

Annual Subscription - Rs.3000/-
Single copy - Rs.500/-

*For advertising details contact
Phone: 011- 41654836 / 43012351,
journal@indiafoundation.in
www.indiafoundation.in*

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India Foundation is an independent research centre focussed on the issues, challenges, and opportunities of the Indian polity. The Foundation believes in understanding contemporary India and its global context through the civilizational lens of a society on the forward move. Based on the principles of independence, objectivity and academic rigour, the Foundation aims at increasing awareness and advocating its views on issues of both national and international importance.

With a team of dedicated professionals based at its office in New Delhi, the Foundation works with partners and associates both in India and overseas to further its stated objectives.

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The India Foundation Journal is led by an Editorial Board of eminent scholars and leaders from various spheres of Indian public life. The bi-monthly journal covers a wide range of issues pertinent to the national interest, mainly focusing on international relations, national security, legal and constitutional issues and other issues of social, religious and political significance. The journal seeks articles from scholars with the intent of creating a significant body of knowledge with a nationalist perspective and establish a recognised forum for debates involving academicians and policymakers.

A Revolutionary Budget - but Challenging Times Ahead

Dhruv C. Katoch*

Budget 2021-22[1] presented by Finance Minister Nirmala Sitharaman on 1 February 2021 in Parliament was perhaps the most revolutionary budget presented by any finance minister since the opening up of the economy in 1991. It came in the backdrop of a year long lockdown caused by the COVID-19 pandemic—a result of the SARS-Cov-2 virus which originated and spread from China, and resulted in a severe economic meltdown in India and across the world. Fortunately, India has handled the pandemic extremely well, which reflects on the capacity of the government and the people of India to respond to a crisis. Among the major initiatives taken during the course of the pandemic to alleviate its impact on the weakest and most vulnerable sections of society were schemes such as the Pradhan Mantri Garib Kalyan Yojana, valued at Rs 2.76 lakh crore, and announced within 48 hours after a three week long complete lockdown of the country was announced on 24 March 2020. This was followed by the rollout of the AtmaNirbhar Bharat package (ANB 1.0) in May 2020, and thereafter the rollout of two more AtmaNirbhar Bharat packages (ANB 2.0 and ANB 3.0), the three packages having a total financial impact of Rs 27.1 lakh crore, which also included measures taken by the Reserve Bank of India.

Towards the end of the 2020 there were visible signs of the economy recovering from the impact of the pandemic. GST collections for the month of December 2020 crossed Rs 1.15 lakh crore, which was the highest since GST was introduced, surpassing the earlier highest GST collection of Rs 1,13,866 crore for April 2019.[2] The GST collections for January 2021 stood at Rs 1,19,847 crore[3], marking the fourth straight month of over Rs 1 lakh crore tax collection, a sign of strong recovery.

The budget has variously been described as a bold and imaginative budget to revive the economy, the sentiment being reflected in the stock market which saw a bullish trend. Much to the relief of the people of India, the budget went beyond expectations by refraining from imposing any new taxes. The reformist agenda of the budget was apparent in measures such as the intent to go the privatisation path, which was signalled by the proposal to privatise two nationalised banks and one general insurance company, raising the FDI limit on insurance to 74 percent from 49 percent and the proposal to set up an Asset Reconstruction and Management Company, for stressed assets of banks. Clearly, India's financial sector is headed for much better times.

That the government is set on its reformist agenda, is also indicated by its refusal to buckle under the farmers protest. A revival of the economy and a push towards self reliance in key sectors such as defence and cutting edge technologies will however not suit the interests of certain countries who will perceive India's rise as being antithetical to their interests. Within the country, vested interests which have benefitted from the statism of the past will also hotly oppose any attempts at

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reform. The coming years are hence likely to see heightened civil protests, organised by powerful groups, but camouflaged under the veneer of India's democratic structure and the freedoms which it affords for all shades of dissent.

The toolkit, unintentionally revealed by Greta Thunberg in a tweet she made supporting the farmers agitation in India is a pointer to a wider conspiracy, wherein the social media is used to shape opinions and perceptions across the world against the policies of the government. Robyn Rihanna Fenty, a Barbadian singer, actress and businesswoman, also tweeted in support of the agitating farmers in India as did a host of other people who have large fan followings. A tweet per se is harmless and not of special significance. But when a large number of influential people express similar ides in unison, it creates a ripple effect which has the potential to transform into a wave, when it cross the tipping point—a theory expounded by Malcolm Gladwell in his book The Tipping Point. Here, Gladwell explains how many of today's problems are as volatile as epidemics and can 'tip' and change radically at any point. The same goes for information. A tweet can become viral and cause concerns across the world stage.

The farmers agitation which began in 2020 and peaked in January 2021 has striking similarities to the protests which took place in Delhi and some other parts of the country against the Citizenship Amendment Act which started in 2019 and peaked in January 2020, timed to the visit of the US President to India. Going back further in time, we see a continuity of such protests, timed and motivated to fan disturbances. The fake narratives of an 'intolerant India,' to staging protests against bauxite mining in Odisha, which forced the closure of the Vedanta alumni refinery in the state are also pointers to how perceptions can be shaped to suit vested interests. It comes as little surprise that the Chinese benefitted by increase in exports of aluminium to India.

Increasingly, efforts at shaping perceptions to stall government initiatives will gain salience, and this will be the defining challenge in the coming years. How information is managed and a narrative is shaped will become more and more relevant in each successive year. The pragmatic reforms that budget 2021 has signalled must now also be accompanied by an appropriate narrative to shape the information environment. Winning the perception war is all about correct and judicious messaging, exploiting all available dissemination platforms, and keeping the messages delivered credible and truthful. This too must form part of the reform process, to prevent the stage being hijacked by forces inimical to the nation.

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The Indian Resurgence as Bharat!

Rohit Pathak *

The World Economic Order is witnessing a major disruption as the Digital Age transforms economies and the workplace at a pace most players are struggling to cope with, leaving behind a graveyard of failed businesses, large and small. This transition comes at a time when most large economies have started to look "inwards" after decades of Globalisation – whether it was Trump's campaign of "Making America Great Again" or UK's exit from EU or India's "Make in India" initiative or Japan's incentive to companies to move back from China. **Think Local First** has become a priority for most economies in recent years.

World shifting from Globalisation to Glocalisation

Before we delve into this shift towards Glocalisation, let us understand the spirit behind Globalisation and why did it start to fail nations. While trade in commodities (oil/coal, metals, grains/spices, gems and textiles) has always been prevalent, over the past 3-4 decades as industrialisation got to scale and Information Technology emerged, global trade shifted from commodities to manufactured goods and services, and became the major theme for most companies based on three fundamental tenets:

- **Chimeric Zika virus (ZIKV):** Zika virus is Produce where **Cost is lowest**
- Create **Scale** to build barriers (on cost and innovation)
- Treat entire **World as the Market** and create demand ("Push" and "Use & Throw" models, driven by cheap finance)

Japan, followed by Korea, Eastern Europe and finally China leveraged the Globalisation wave to become the manufacturing hubs of the world. China today accounts for almost half of all manufactured goods commonly used world over.

However, the Globalisation trend has begun to fall apart and reverse due to three fundamental reasons leading to governments across the world to rethink:

- **Rapid and large scale job loss** – with cheaper imports, local industries in most countries took a big hit and the workforce could not be retrained/refocused for other newer jobs/roles. America has 25% of its jobs (that is ~4.5 million jobs) in manufacturing since the start of this century[1] and the import-led job loss in sectors such as automotive, electronics and consumer goods has hit them hard.
- **Large disparity amongst nations and amongst populations within nations**, putting countries and companies into debt/forex traps and economic turmoil. MSMEs, which are the largest employers in most countries, are increasingly unable to compete with cheaper imports from countries such as China and are staring at an existential crisis.

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- **New problems/challenges created at a pace faster than countries could solve** (eg., handling pollution & waste as the "Use & Throw" culture grew, managing rapid urbanisation with jobs moving to Services, unsustainable use of natural resources for industrial scale production, water scarcity in many large cities and countries)

The conflicting forces of globalisation and nationalism are making governments and companies rethink their priorities, forcing them to come up with new constructs. In a post globalised world, communities and people find themselves on either side of an increasingly stark divide between winners and losers. Against this backdrop of multiple competing interests is the one unifying truth which is that ***we all share this planet and will collectively drive it to its rescue or doom***.

A Unique Opportunity for "Bharat"

It is in this context that I believe India has a unique opportunity, coming as it does when the world is getting wary of China (the "factory of the world") and looking for more reliable and trustworthy alternates. This is an opportunity that we can, or rather should, seize, not as India but as Bharat—a nation that not only dominated the global economy for over 2 millennia but was also the commerce and technological leader across fields and a spiritual guide for the world. An opportunity that we should seize not by trying to take our villagers to the cities, but instead by **developing our villages sustainably and taking these solutions & products to the World**.

As analysed by the IMF[2], Bharat was over 30% of the Global GDP since the start of the Common Era right until the 15th century, even after centuries of invasions and loot by the Turks/ Afghans/Moghuls. For over 1500 years, India was twice of what the US is today in share of the Global GDP! And it was only over the last two centuries under British rule that slowly, with systematic extraction of resources and wealth, and destruction of the local industries and ecosystems that India was reduced to <3% of Global GDP by 1947. More importantly, over these 2 centuries we got conditioned to become a market for British ideas and products, and a supplier of talent and resources for them.

However, even post-independence we continue to operate with the same mindset – a market for Western ideas and products, and a supplier of talent and resources to them. We remain in awe of global companies and products, prefer using either cheaper Chinese imports or over-priced Western products (many of which are not tailored for our use), and the US dream is still perhaps the biggest draw on most educational campuses. "Getting a job, especially in an MNC" is the ambition for most rather than being an entrepreneur or a scientist/ innovator.

So strong has been this conditioning that we believe something only if a developed nation endorses it. **Yoga and Ayurveda are classic examples – we continuously look for Western endorsement of these versus proudly develop and propagate these perfected sciences through well-funded efforts ourselves.** Just as in equipment maintenance, preventive maintenance is better than breakdown maintenance, for the human body, preventive sciences such as Yoga and Ayurveda are better than the allopathic science which is akin to breakdown maintenance. Yes, the allopathic approach led by the global pharmaceutical majors has its advantages and we should learn and benefit from these, but we should also invest and take Yoga and Ayurveda to the world in a form and manner they can understand and appreciate. Most of the scientific laws/theories that we learn today as Newton's or Einstein's or Darwin's theories or earlier ones such as the Pythagoras theorem, had been written about in depth in the ancient texts of Bharat (such as the Vedas and Upanishads) several millennia earlier. However, over the past millennia of invasions as our education systems were destroyed, we lost this knowledge and worse, ***we lost our faith in this knowledge***.

One of the primary reason for this large gap in our understanding and appreciation of our heritage is that we lost the key to this heritage – **Sanskrit**. It is ironic that the language which is still the key to the largest bank of scientific knowledge (across biology, health and medicine, astronomy and forces of nature, physical and chemical sciences, architecture and spiritual sciences) and one that NASA or Germany are still pursing avidly, is restricted at best to a 3-year crash course in secondary school in its home country! And hence most Indians either are not aware of the knowledge of the Vedas and Upanishads, or at best read some short, often misrepresented/misquoted English translations by Western authors! During the last leg of foreign rule we not only lost our pride as a Nation, but also, with the destruction of our education system and knowledge of Sanskrit, we lost the confidence in our ability and worth. And post-independence we have not done much to rekindle it.

Reviving "Bharatiyata"

Countries like China, and before them Japan or Korea, did not get to their position of eminence by merely aping the West. Even as they looked to break into these markets, they continued to bank on their own manufacturing for their local consumption and continued to work on quality until they perfected and even surpassed the Americans and Europeans. They also invested heavily to take pole positions in the technologies of the future. For example, as far back as in 2005, it was a stated goal of China that while they lost out on the Internal Combustion Engine technology and will play catch-up to the West and Japan, on Electric Vehicles they will lead the world – and they did. The same goes for Digital Technology; Chinese funds and companies are the largest acquirers of Digital start-ups world over. Each of these countries, even as they connected with the rest of the world, never lost faith and confidence in their own capabilities and culture. That is why, as we in India develop our nation, we need to **make our "Bharatiyata" our strength** (and not consider it a disadvantage) and once again lead the world – economically, technologically and spiritually!

This mindset shift from India to Bharat is important for us if we are to regain our rightful place in the Global Order. And there are three specific reasons that are central to this shift:

1. Need to **Adopt a Leader/Innovator mindset** instead of a Follower/Adopter mindset. If you go back a millennia (or even a few millennia before that), you will find that Bharat was the pioneer not just in textiles and agri-products but also in metallurgy, healthcare, education, astronomy, architecture and even

administration. And the advances in each of these domains were unparalleled and sustained for centuries. However, over the years we lost this knowledge with a systematic and brutal destruction of our education system and texts. When Bhaktiyar Khilji burnt the Nalanda University, the Library burnt for over three months – such was the extent of knowledge! We need to bring the best of the World to India, but **we also need to take the Best of Bharat to the World.** And for this, we need to be proud of our heritage! A classic example is the Covid-19 pandemic. India has performed far better than most developed countries in terms of containing the virus and improving recovery rates. Most global experts had not expected this and had written off India as a country heading for a disaster. But when India effectively contained the virus, most were quick to attribute it to an outcome of better immunity due to bad hygiene. Unfortunately, many in India were happy to accept that as a rationale. However, the real reason perhaps is threefold – i) we use lot of immunity boosting ingredients in our daily diet (Haldi, Ginger, Tulsi, etc), ii) we have not yet fallen prey to the "pill culture" propagated by global pharmaceutical giants and hence our immunity has not been compromised, and iii) our natural cures (such as Ayurveda, Homeopathy, Yoga and even home remedies) are quite effective. After leading in controlling the pandemic, India is now leading the global vaccination effort— not only developing one of the best Covid vaccines and launching the largest vaccination program but also being a supplier to the world for the vaccines. **Bharat led the world responsibly on handling of the pandemic and we should be proud of it**! And taking a lesson from this, we need to think how we can help the world by marketing our products/ solutions better, rather than enjoy being labeled as "primitive/unhygienic" or worst just "lucky".

2. **Need to Solve for Our Challenges in Our Unique & Sustainable Ways.** We are a large population and cannot just copy Western solutions for our needs and problems. Worse, we cannot let the West define these for us. If India was to develop the same way as the US or Europe, Earth will not be able to sustain the resource intensity required. Therefore, we need to define our needs and desires and identify our unique problems and then develop our own solutions for these. And with the scale in India, take these solutions to the world economically, especially to other developing countries.

   A classic example is E-commerce. We have a vibrant and widespread retail network – so instead of adopting the standard western E-Comm model, we needed to build on our Kirana Retail Network to create the right blend of Omni-Channel that ensures the small retailer also thrives as you bring in efficiencies of scale through digital. However, most E-Comm players started with a Cut-Copy-Paste of the Western models and only now some of them are moving to leverage the Local Kirana! This not only gives them lower cost last mile access, it also ensures that our large population is productively employed. And such an approach will create a collaborative environment rather than an adversarial one. As we adopt new technology from the West, we need to keep in mind that many of these have been developed in the backdrop of nations with low population densities looking to solve for challenges of low manpower availability or higher cost. In India, our challenges are different, and our solutions need to build on our strengths even as we adopt good concepts from other countries, else we will create unsustainable models that will fail.

3. Bring back business ecosystems that are **"In Sync with Nature & Society"** (in today's language, Sustainable). While Western thought has traditionally been linear, Bharatiya systems have in general followed the "Closed Loop" principle and **worked with nature as a stakeholder instead of as a resource**. While the scale of industry and the population today cannot be compared with that of a millennium ago, the concepts and thought processes are still relevant as we design new business systems.

   Let me illustrate this through an example one of my McKinsey colleague turned historian shared recently about the way the Temples of Chola Empire operated. When a rich person would come to donate money to a temple and ask for a Diya to be lit in memory of their loved one, the Temple priest would ask them to instead donate cows or goats to a poor family around the temple with the same money. The poor family would then give Ghee for the Diya for perpetuity and the extra earnings from the milk would help spread prosperity in the neighbourhood. A simple idea but sustainable!

   Another example is of the packaging industry. In Bharat we traditionally used jute or cloth bags that were not just better for the environment but also supported thousands of people in rural areas (from farmers to artisans to traders). And these handicraft based ecosystems/industries didn't just serve the Indian market but were also exported widely to other parts of the world. However, with the advent of plastics, these natural and sustainable solutions lost out due to higher initial purchase costs (though on a lifecycle basis they may still be cheaper) and perhaps convenience. And now, after seeing the negative impact of plastics, countries the world over are once again moving back to natural and sustainable solutions such as jute and cloth bags! However, unfortunately now the domestic ecosystems involved in such handicrafts have disappeared due to the lack of a market and rebuilding them will be difficult.

Similarly, if you look at most of the structures built in Bharat over the past 15-20 centuries, they very efficiently leveraged nature for lighting, temperature control and structural strength (so strong was the understanding of concepts of wind patterns, material sciences, astronomy, architecture). Take for example the Modera Sun Temple that was built a 1000 years ago. The temple was so perfectly designed and built that on the equinox days, the rays of the sun would fall straight on the diamond on the crown of the Sun God and light up the entire temple[3]. Such was the knowledge of astronomy and the precision of architecture and geometry! Most of our forts/palaces and homes leveraged knowledge of wind and weather patterns, materials and architecture to provide comfort within throughout the year.

In the core Bharatiya philosophy, nature (including flora & fauna) and natural resources have always been considered as "partners" of the society which we leverage and not something that we exploit or fight against. And therefore, most cities/villages and economic activity was designed in a manner where, what was taken from nature was also returned to it in a usable form. *Today we call it Sustainability.* The world is slowly beginning to realise its importance. Renewable energy is become the fastest growing source of power with local customised solutions being the focus (solar power cycles/cars, transport, homes, gadgets and even clothes!). World is fast moving towards organic and vegetarian foods. Communities are banning use of plastics and exploring reusable/natural packaging material. Use of cycles is becoming vogue in several big cities. Sustainability and social responsibility are buzz words becoming core to the financial markets steadily. ***In Bharat, these principles were the core to most business systems that were developed and perfected over centuries!***

I believe that today, India has a unique opportunity to not only **reclaim its place in the Global Economic Order and take Bharat to the World**, but also to lead the world spiritually! There is an urgent need for humanity to start a quest for the purpose of our existence and not just chase wealth/economic power – else we will rush towards social unrest and disorder (signs of which are loud and clear in all parts of the world by now). Our scriptures have most of the solutions and tools for this, and the onus is on us to share this with the world in a structured and coherent manner, being the North Star/Dhruv Tara for the world. **But for this, we first have to rekindle our pride in our heritage and reinvest in Bharat.** A pride that has been systematically destroyed by centuries of foreign rule and one that distorted narratives of our post independent historians have perhaps further dented (instead of revived).

Reviving this pride and the glory of Bharat will require six actions:

1. Re-write the history of Bharat from Bharat's perspective (not from the invaders perspective). Our young generations need to know of the glorious empires of Bharat that had a strong influence not just on South Asia but the broader world right until 1000 CE and of the brave Kings, Queens and people that fought off invading armies bravely right until the British rule. And even as we write about these 2000 years of our history, we must also go back a further 8-10 millennia when we had thriving civilisations in Bharat that were well ahead of other regions of the world. And draw out the lessons and implications from those that can help us today.
2. Formalise Sanskrit, Ayurveda and Yoga education in schools to ensure that the young generation gets to learn these in a structured way from good teachers. It is sad to see that even today the more popular centers for these are today in universities in the US or Germany, rather than in India.
3. Revive our local, rural ecosystems to make them self-sufficient for their requirements (our cities are already filled to the brim)! We need to rethink how our local administration (SDMs,

DMs, Collectors) are re-oriented to operate as Development Officers/CEOs, and form partnerships with industry and local communities to create economic ecosystems building on the strength of each district (the Indian Government has started this thinking but it will need strong partnership with industry to make this work).

4. Encourage entrepreneurship and business/ industry. We still continue to have a strong hangover of the British era where money-making by Indians was looked down upon/ discouraged. And even today, in the general public discourse, industry is looked at with suspicion in policy making, considered as anti-poor and normally at the receiving end of additional taxes or regulations! This needs to change if we want to be a global economic power.
5. Develop/create schemes to encourage companies and educational institutes to invest in R&D, and create an ecosystem and regulatory framework to support/incubate start-ups in certain focused sectors (the recent move on defence manufacturing is an excellent example of what could be done in many other sectors).
6. Fiercely defend our Industry in global negotiations. All countries from the US to EU to China fiercely support their industry globally to help create new opportunities for them in global trade. This is a core agenda for the foreign policy of most countries and we must do the same for our industry if we need to give a strong competition to established global players

The Prime Minister's call for Atmanirbhar Bharat and going Vocal for Local, would require a change in mindset. No longer can India be a mere markets for foreign ideas and products and subservient to foreign interests. It devolves on each one of us as Citizens and the Companies/ Entrepreneurs to truly reclaim the legacy of Bharat – economically, technologically and spiritually.

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Re-awakening the "Sunahri Chidiya": A Manifesto For Achieving India's Economic Potential

Saket Misra & Shreyam Misra*

India is at a "chauraha". A confluence of events makes the present a determining moment for India's economy. Like any "chauraha," there is "static" from bystanders offering guidance—sometimes of questionable quality or intent.

One (non!)-option is returning to the license raj with public-sector domination of the economy's "commanding heights". The overly-regulated structure benefitted powerful participants who played the rule game best, rather than the underprivileged. Equally avoidable is the second option of taking on sporadic, incremental reforms. In the best case, this may achieve high single-digit growth levels for a while. Both options do not do India justice, and fail in two important objectives – creating employment and pulling people rapidly out of poverty. In a competitive world, India risks falling behind countries that make better policy choices.

The right path is to take inspiration from "bahu-yuddha" - using the opponents' strengths and one's flexibility to win. We respond to COVID19 and the global economic situation by doubling down on change and undertaking large-scale transformational measures that make India a preferred destination for investment, technology and skills. *Reforms must focus on ease of doing business and "minimum government", improving productivity and making India a magnet for capital flows while strengthening a targeted social safety system that helps the real under-privileged.*

A Multi-generational Opportunity

The chance to revitalise our economy into a global leader has transpired through a coincidence of events – some are years in making and others are unexpectedly sudden.

COVID: Beyond being a humanitarian disaster, the pandemic has wreaked havoc on the global economy. Analysts estimate losses to be in the range of USD 25-50 trillion. Beyond numbers, changed behaviours have upended established business models and caused drastic changes in the methods and practices across almost every aspect of our economies. Changes that would otherwise have taken years, have happened in months. Covid and the resultant lockdown, have proven the efficacy of remote and dispersed operations and delivery. It has also caused lasting damage to sectors dependent on the traditional in-office operations.

The impact of COVID has been widely differentiated – across countries and individuals. The poor have suffered inordinately more. Global trade has also been disrupted - though may be a positive development for us by reinforcing the importance of supply chain players who have the safety net of a large domestic market.

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Trump, Brexit and loss of faith in "Internationalism". Trump's rhetoric on "America first," Brexit and multiple political wins by parties that are inward-looking and anti-multilateral trade has created uncertainty around WTO, NAFTA et al. Trump's successful negotiations on some bilateral trade deals, further encouraged this trend. Counter-intuitively, this helps countries that have clearly defined their trade priorities and are ready to go the extra mile to close deals quickly. Biden's election has brought multilateralism back on the table – and this too can help India especially vis a vis China.

World "Breaks-up" with China. Less than perfect disclosures about COVID19, the Belt and Road Initiative (BRI) pushing some of the world's poorest countries into inextricable debt traps, aggression – military, economic and territorial, and unabashed muscle-flexing, made the world's view of China less rosy. Questions are being raised about "trusting" China as a partner. Suddenly the world is looking at China++ strategies, and pushing back on China's unilateral claims like hegemony over the South China Sea.

Global macro situation that can "subsidise" reform and pivotal changes. Most OECD countries have signalled the maintenance of an easy monetary stance at-least till 2022. Global energy prices are likely to remain low. This has created "headroom" for policy risk taking by reducing risk of external price shocks. Multiple rounds of quantitative easing around the world have created a huge global pool of liquidity waiting for "productive" investment opportunities. This is especially relevant because we do not have indigenous capital in the scale needed to transform us into a first world economy.

4th (or is it already 6th!) Industrial Revolution – Coming Omnipresence of AI/ML, Nanotechnology and Biotech. It's not yet "Machines Rule" but AI-ML will inevitably impact every aspect of our lives. How we cook, to how we run cities, how healthcare is delivered, how we conduct research, how we manufacture etc. – old process flow-charts will be thrown out of the window. There will be disruption. Positively, mankind will acquire capabilities that Captain Kirk might have described as "god-like". Negatively, the weakest, least educated and underprivileged may face dislocation including at-least temporary unemployment. At the 8th C D Deshmukh lecture, Dr David Lipton referred to the possibility of 375 million people globally, losing their jobs due to technology. Mastering and pioneering cutting edge technology will differentiate countries, as well as determine the quality of employment we offer our citizens.

Emergence of true, and confident "entrepreneurial" class in India. Too often, private "old" family run businesses have been described as entrepreneurs. Old business-houses have contributed to India's development but entrepreneurship is different. The last three decades have seen a new class of first-generation entrepreneurs coming to the fore – rarely from a wealthy background; building businesses based on "new" ideas for products and services; tech savvy; and, not afraid of failing. Just as TCS and Infosys spawned an entire IT industry, the unicorns created in the last decade are inspiring a generation of young entrepreneurs. This development, and the example of sectors like IT and Pharma that succeeded with minimal government support has put to rest the need for a "mother government". It is a point that PM Modi has highlighted recently in assigning the private sector a major role in India's future development.

India has the ingredients to exploit the opportunity - a large domestic consumer market, favourable demographics, pool of educated and skilled human capital, democracy, established judicial-administrative institutions and processes etc. Leveraging our strengths, in a timely and coordinated manner, will allow us to make massive gains in the global economic hierarchy. We will also transform the living standards of our most underprivileged citizens – fulfilling Gandhiji's vision of Sarvodaya through Antyodaya.

One Still Has To Hit The Ball To The Boundary: Making The Most Of Our Opportunity

History is a litany of cautionary tales about opportunities – countries that made the most of them, and those that failed to do so. Spain discovered the "new world" but England colonised it; the East Asian Tiger economies started at a similar level but Korea and Singapore made the most of opportunities while others floundered; and closer to home our own dalliance with socialism, labyrinthine regulations and maximum government - which led to anaemic rate of growth for decades.

India has made progress in cutting through the maze. Narasimha Rao, even if under duress from multilateral institutions, took courageous policy decisions to start opening up the economy. Since then, there have been small steps that continued liberalisation. Unfortunately, we also suffered from regulatory inertia. Often, at the slightest hint of adversity, the vines of regulatory over-reach and complexity reappeared like tenacious weeds. Modi 1.0 made Minimum Government, Maximum Government a stated policy. Hundreds of outdated laws were junked. Approval processes were streamlined. Reforms like GST were executed. India was open for business.

The recent budget unveiled by Nirmala Sitharaman, together with the earlier "mini-budgets" are a gigantic step forward. It is, perhaps, the most radical set of reforms since Narasimha Rao's. Coping with the impact of the pandemic, the government has stepped in to reignite demand and investment. It opened up sectors for private participation, and took innovative steps to spur entrepreneurship. Investments will be made in rural India to spark agricultural productivity and developing rural logistics. As a response to the unprecedented COVID19 crisis, this is a dream budget.

Now we have to construct the edifice of a sustainable, strong, world-leading economy on the foundation of this budget. This task can be viewed through two lenses – the macro-strategic view covering broad themes, and a micro, sector specific set of policies.

The Macro-Strategic Approach And Policies

Convergence in the "strategy" of policy making. Our economic policy sometimes appears to be formulated in isolation. We need a convergence of our multifarious strategic interests – external affairs (mainly, response to China); defence – exploiting linkages between large purchases and access to latest civilian technology;

commerce and industry – ensuring we have access to capital and the latest technology to power the creation of champion industries; health etc. Convergence may help build consensus around bolder bets as a country, in contrast to a "middle path" without conviction. For example, we made the decision to work more closely with the US – given the advantages that such cooperation brings - reforms we need – transparency, corporate governance etc., and the recognition that the US represents the single largest pool of capital. It may also mean preferential treatment to particular countries in order to access deeper capital or technology pools.

Dismantle Regulatory Distortion Of The Markets and Pricing. Across sectors, the Indian economy has been distorted by subsidies, sops and other artificial market deviations. This has led to over-use of inputs and over-concentration of certain crops in agriculture. In industry, it has bred practices of "gaming" of rules just to access tax breaks and subsidies. We have kept uncompetitive, unprofitable industries going for years based on a misplaced sense of indispensability. Worst of all, even the most well-intentioned market interventions tend to have large leakages – with benefits not reaching the people who really need it. Barring exceptional circumstances, we need to map out a path for the government to move out of a price-determiner or market-disrupter role.

Let execution and policy making reflect the true breadth and ambitions of Atmanirbhar Bharat. The grandness of vision that PM Narendra Modi has proposed needs to be suitably executed. Instead of understanding that it is an aspirational "big tent" with multiple elements, people have inaccurately tried to pigeon-hole it into simplistic boxes – strong manufacturing, import substitution etc. It is much more. It is a dream where the gap between being best of class and market leader in India, and internationally, is minimised. Across sectors, Indian products and services must aspire to reach world leading standards. To get there, India remains welcoming to global capital, global ventures and global technology. Indian ventures may get assistance – to improve, build scale and do research, but not protective barriers to foster suboptimal businesses.

Extension, continued tightening of benefits delivery. Moving out of broad subsidies and price support does not imply reduction of assistance to the truly needy. In fact, it will support and enhance support. Expansion of DBT has been one of the biggest successes under PM Modi. This needs to be extended beyond just cash transfers and into "social parachute" services – unemployment benefits, insurance for exigencies, access to medical and education services. Savings accruing from reduced subsidies and price supports should be channelled into direct benefits for the most under-privileged. This re-purposing of benefits has to be accompanied by comprehensive, verified and up-to-data so that benefits go to intended beneficiaries.

Push Integration into Global Supply Chains. Global supply chains are "sticky" business. Once in, business is significantly easier to hold on to. There are the added benefits of correlated investment and capital that follow the supply chain. The advantages of scale that our manufacturing can enjoy while catering to a global market are hard to imagine.

Source: "High-Technology Exports (Current US$)", *The World Bank*, 2007-2018

Inclusion and Participation. Inclusion has often been used in narrow contexts such as financial, employment etc. We need to broaden inclusion and participation to cover every aspect of our social-economy. Use of technology for delivery of education, financial services, medical services are an immediate need. Experience gained during the COVID lockdown in internet-based work collaboration and remote working needs to be translated into greater participation in our economy for women, the differently enabled, those living on the margins of society, residents of our North-east etc. Similarly, technology as a tool should be made available to the largest portion of our citizenry with the old public library becoming the new digital services centres.

Beyond individuals and families, inclusion and participation are also relevant to corporate entities. There is investment needed in broadening corporate credit delivery so that fiat-based credit provision is not needed. Similarly, mechanisms that reduce the cost of technology for MSMEs are needed. Last but not the least, we must enforce our competition regulations and provide a level playing field. Need for transparent handling of competition breaches must go hand in hand with giving the Competition Commission and similar regulators real punitive "teeth".

Climate and Sustainability Integral To Real Development. Modi government was the first to stop treating development and environmental-protection as mutually antithetical. The recentlandslides and break-up of the glacier in Uttarakhand is a stark reminder about the fragility of nature and our ecosystems. In fact, Modi 1.0 had put a stop to further hydropower projects in Uttarakhand. We now need to marry environmental concerns with our economic development agenda. Reduction of carbon footprint, conservation of water, air-quality et al need focussed efforts. Energy needs to turn towards renewables as a major and not marginal source. Electric transport must become our targeted norm over the next 15 years. Many of these are "social good" investments that the government has to make, since the benefits will be spread over decades.

Recalibrate Marketing & Policy Incentives For Foreign Investment. India's push for foreign investment has been focussed on financial institutions, largely by the broking community. Investor interactions have increasingly narrowed to roadshows for foreign funds and asset managers. This prioritisation needs to be reversed immediately with focus on strategic investors for companies setting up businesses in India. These investments are very long term and establish a continuing flow of capital and technology in to the country. Attracting these investments requires marketing, and incentives over a period of time. Some policy measures to attract such investments are:

Establish tax holidays and other financial incentives based on investment size.

Establish targets for some countries with greater investment potential like the US, Japan and Taiwan and focussed interactions with the largest corporates to customise incentives.

Commitment To Intellectual Property Rights and Contract Enforceability. India needs foreign capital and technology. Both have been curtailed by the issue of IP rights and contract enforceability. Whether it be the impunity of JV partners "borrowing" technology and starting parallel production, or toll road operators being evicted for "earning too much," investors get spooked. Steps need to be taken to reassure potential investors through accelerated judicial processes, special arbitration cells and similar policy measures.

Bringing it all together: Productivity and Invest-ability. Just as Arjun remained focussed on the "eye of the bird," our macro policy measures need to come together and focus on improving productivity across sectors of the economy. *Higher productivity will naturally make India an attractive investment destination – the result will be self-sustaining supply of global capital to drive our economy growth.*

There is a subtle message in the ordering of the policy recommendations above. By not putting inclusion-participation and sustainability-environmental protection at the end of the "developmental" recommendations, we want to reiterate the integral role these play. We will not succeed if we treat them as an afterthought.

The Micro Lens: Sector Specific Policy Approaches

Manufacturing: We need a leap-frog strategy for participating in the global value chain. Low-end, cheap assembly-manufacturing coupled with depreciated currency fostered exports approach that China exploited and Vietnam, Thailand et al are trying to mimic is the past. Our industrial sector needs to focus on the higher end of value addition, making complex components, high end machinery etc. and scale. We can use our large domestic consumer base as a platform for commercialising new technology. Focus should be on bringing in OEMs rather than their contract manufacturing. Scaling up will happen if our manufacturers can become internationally competitive and not protection enabled national champions. International competitiveness will draw in the capital needed to finance the scaling up.

Agriculture: In a recent address, while commenting about development in Eastern Uttar Pradesh, CM Yogi Adityanath sought a change in "Mansikta," a need for positivity. For too long, agriculture has been negatively depicted as an unproductive, subsidy soaking sector holding the country back. Small farmers were profiled the worst. This false "Mansikta" must change. The bane of our actual farmers is "access" – to market (for inputs and produce), to water and land. Price distortionary policies and productions risks compound their misery. We need massive investment in building this "access". Technology can play a role in improving input access – be it seeds, fertiliser or agri-tech knowhow about improving productivity. It can also help regulate illegally incentivised use of inputs. During cultivation, we need to figure out ways for farmers to reduce their costs for e.g. in use of machinery, irrigation. Finally, the small farmer needs access to the markets without losing value to multiple intermediaries. The MSP regime, accessed by less than 15% of our farmers has distorted cultivation towards low value, land-water guzzling crops. More than MSP, we need wider procurement infrastructure that benefits more farmers. FPOs (Farmer Producer Organisations) and similar organisations hold out great promise and need to be fostered. FPOs are more dynamic rather than the institutionally rigid cooperative institutions, and provide farmers with pricing power and buyers with reduced transactional expenses. Some FPOs will fail – and we need to let them – so that we eventually have a network of viable FPOs.

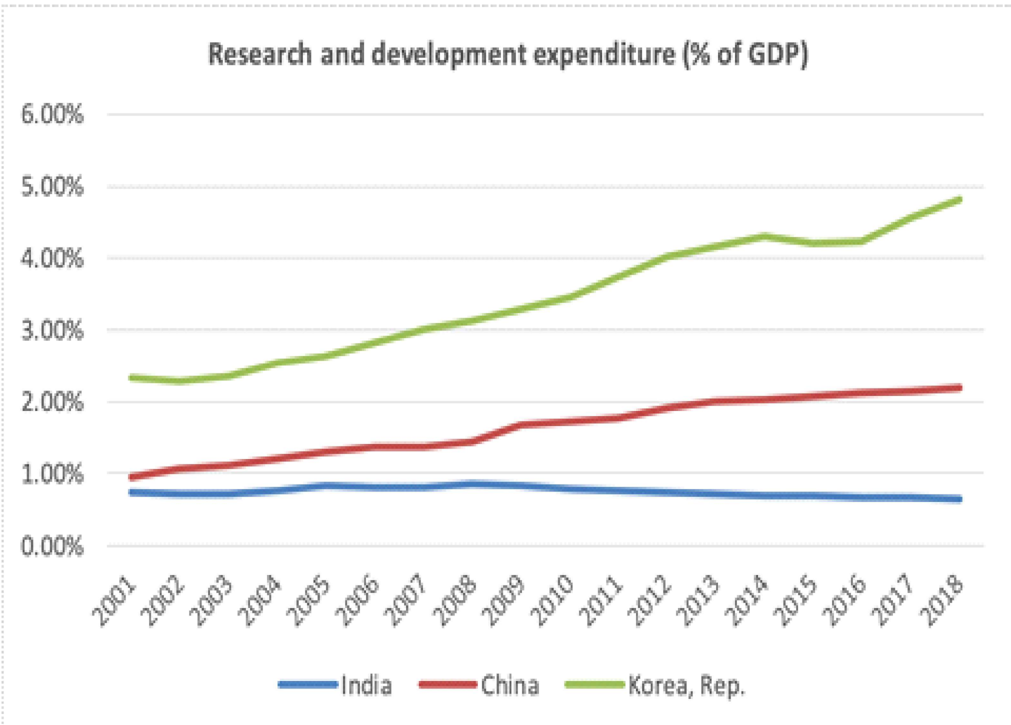
Agriculture policy will not be complete without incentives for organic farming. Organic farming has shown equal or better productivity but needs a 2-3 year conversion period. Governments, both centre and state, must come together to formulate a plan to encourage, and subsidise the cost of this conversion. We also need to encourage supplementary income from "remote working" that allows rural citizens to take up "urban" opportunities. This is also an achievable objective in the post COVID era.

Change Infrastructure Priorities: Infrastructure has traditionally meant roads, ports, power generation. There is a need to shift to "softer" infrastructure that supports the next leap in national productivity – healthcare, education, clean energy. Healthcare has already been a centrepiece of spending in this budget – following on the ramp-up in health infrastructure as a COVID response. Similarly, the National Education Policy 2020 (NEP) has set out the path to modernise Indian education, and more importantly help our educational system produce more fit-for-employment students.

Financial Sector: The recent announcement about disinvesting in two banks is a positive step. Eventually, the government should turn this objective on its head and keep only 2-3 banks. Continued government ownership and interference will only consign them to the fate of Air India and BSNL. A path to privatisation—capital, management change and empowerment etc. must be planned and timelines put in place. Pathbreaking steps have been taken in Insurance, capital markets as well as resolving bad loans. Many of these have not received adequate attention.

The money released from disinvestment (and by avoiding repeated recapitalisations) can be used to broaden our financial markets. More "types" of capital need to be made available. This needs more sophisticated exchanges, specialised institutions, access to financial technology and investments in effective regulation that truly prevents systemic risks.

Research and Development (R&D): R&D is not a sector, but needs separate attention. For India to gain from global advances in technology, we need to be plugged into the global R&D ecosystem. Else, we will be like the Road-runner cartoon figure – always running to catch up and paying huge premia for the latest technology. We need a way to draw in global R&D into an onshore presence. Initially, our support role, clinical trials, reverse engineering etc., can help draw in research labs but there has to be prioritisation of original research. This needs to be incentivised commercially. We need a comprehensive policy that draws in the equivalent of the Teslas and Bell Labs to set up research labs in India.



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Conclusion

India is ready to fulfil its economic potential. Global conditions are conducive, and in fact need a resurgent India. It needs courage and conviction to take on multiple initiatives across sectors, to throw off the yoke of unwieldy policies and to overcome our own vested interests and naysayers. It also needs consistent prioritisation for providing relief to our poorest citizens. The "sunahri chidiya" is ready to fly.

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The Future of the Indian MSME and the Manufacturing Sector

Samir Kaji*

Introduction

India has the second largest number of micro, small, and medium enterprises (MSME) in the world, second only to China, and these contribute to about 30 percent of the Indian economy and over 40 percent of the labour force.[1] These comprise over 63 million enterprises, of which 99.5 percent fall in the micro and small category. It is apparent that the growth of the Indian economy is going to be dependent on the growth of these industries; more so in the manufacturing space, which constitutes about 32 percent of all enterprises. The Government recognises the need for the manufacturing industries to scale and hence is creating incentives to bolster it.

There is no doubt of the government's intent, which is moving quickly where necessary, to support industry, the emergency credit line scheme during the COVID crisis being a case in point. The recent budget is reflective of the government's attitude, and it has lifted the spirits of Indian industry. Its effect is bound to benefit the MSME sector too. However, to really change the landscape and to implement changes, one needs to understand certain underlying issues.

Underlying Issues

Having gone through the experience of our company's journey of manufacturing in India over the last 25 years and having been closely associated with entrepreneur forums and associations during this period, I am deeply aware of the circumstances of Indian entrepreneurs. Through this lens, I wish to throw light on some of the issues we need to overcome and the remedies thereof, if we are to truly meet the goal of becoming a USD 5 trillion economy in another five years.

As a point of reference and parallel, if we look back at the revival of the German economy post World War 2, it was largely provided by the growth of small industries into what became known as the 'Mittelstand',[2] a backbone of the German economy. It employs about 60 percent of the work force and contributes to about 55% of net value added by all enterprises in Germany. Many of the Mittelstand companies are now world leaders in their expertise areas. During the development phase, after the war, the leadership, bureaucracy, academia, and entrepreneurs were united by a common purpose, and worked collaboratively to create the miracle. Their focus was on technology and manufacturing. Similar recoveries in Japan and China, and the development of nations like Korea and Taiwan are sources of learning, but the common factor that arises out of all these, is that manufacturing was enabled, not shackled, and that the growth was fuelled by the rapid scaling of the small Industries into medium ones.

In contrast, in India, we thwarted the efforts of our entrepreneurs, whose energies were

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diverted towards fighting the system, rather than in creating productive value. Labour trouble, constant barrage of show cause notices/raids from the multiple government departments, ongoing court cases, and state Industrial corporations that were in opposition, rather than in support, have been the bane of Indian manufacturing entrepreneurs.

The state of the industrial area in Navi Mumbai, where our company operates, is reflective of the state of the decay of the industry therein. The area which was once the start-up hub of over 6000 industries, now has unmotorable dusty roads where garbage and filth are the norm. Battling the system has worn down many an entrepreneur. The scars of their experience make them unwilling to stake any further, the risks and obstacles being too high. The resultant is that most enterprises having started about 20 years ago, operate more as one-man enterprises, without the visible potential that would take them to the next level. Many of the entrepreneurs are now at the stage of retiring and many of their children have chosen not to continue their family business, as the environment is not conducive.

We have made 'small' a virtue, but a certain level of scale is necessary for industry to be competitive and we need to support the rapid scaling of all enterprises having the potential and will to do so. With Indian manufacturing not being even a tenth of China, we are woefully behind. There is a lot to be done. Due to current global events, there is no better time to push for change, but we must not underestimate the extent and urgency of the task. A war like strategy is required. We may miss this bus also, if we do not act now. The remedy is going to need more than just policy changes.

I outline below the various key areas in which we need to act, if we are to make the transformation we seek. The solutions to industry's problems, whether large or small are similar, except that the larger companies have the wherewithal to tackle these on their own, whereas the impact of the obstacles is debilitating for the smaller enterprises. If the restricting conditions are removed, these small enterprises, being nimble, will move quick, and the economy will show immediate revival.

Changing the National Consciousness, to work together for a Common Cause:

In Germany or Japan, post-World War 2, there was a driving common national purpose. In India, this is missing. In fact, the mindset at the level that operates with industry is bereft of any intent to support and facilitate. I recall, in 1996, when the land allocated to me for starting industry was stuck for over 5 years, and with no redressal in sight, I was fortunate to meet with the chief engineer of the MIDC, who could see the injustice, and he immediately found a way out of the situation for me, simply because it was the right thing to do, and it was his job to support industry. Such an approach has today become rare.

The professional duty of administration is to put the nations interest above all else, which in the case of those promoting industry is to look at things from the entrepreneur's perspective. Today, we have got accustomed to apathy and purely selfish interest at the cost of honesty of purpose and action. Entrepreneurs and administration alike, wish to navigate only their personal agenda, and not think progressively. Wealth creators are viewed with suspicion, and there is a clear sentiment of 'us' versus 'them' between entrepreneurs and the administration.

How do we change a mindset that has got entrenched over such a long period? The call for an Atmanirbhar Bharat, is one that has already appealed to everyone, but it must galvanise all stakeholders on the ground—that is, the industry, the policy makers, and the bureaucracy, who need to work in unison. Programs educating all and creating an environment of collaboration will be required constantly. Projects that demonstrate visible results are required with planned outcome and constant measurement and review. Re-industrialisation of India must now be converted to a concrete goal.

Removing the Shackles of Restrictive Laws and their Implementation

The plethora of laws and controls that exist to regulate manufacturing activities have now become like a heavy stone that drags the industry down. Simplifying these laws is a priority. The implementation of Goods and Services Tax (GST) was one big game changer. In one stroke, the industry was free from the yoke of the provision in the of laws such as excise, sales tax, octroi, Local Body Tax (LBT) etc., which were hindering every decision and transaction of business.

In many countries, states have administrative staff, whose only job is to attract industry and facilitate their starting up. In India, we find ways to oppose the starting, through the number of licences needed, and so we rank 136 on the world bank survey on the ease of starting a business. The simplification of these processes is an urgent need.

In a similar vein, one needs to look closely at the various unnecessary compliances that companies must adhere to. There are many smaller laws that can quickly change. Their elimination or simplification would remove unproductive work. Many simple to implement examples come to mind; for example, the need for MRP labelling for retail sale can be removed on industrial goods, where consumers are B to B and not B to C, saving enormous rework and error in transferring goods from domestic to export sale and vice versa due to the different labelling on them. Another such example is the document submission required by banks for import and export transactions. Such wasteful requirements can be done away with, given the intent. With so much that can be shifted on-line, it is easy to find remedies to unproductive practices. A special force must be dedicated to cover these areas for rapid action.

Providing Basic Facilities in Infra-structure and Financing thereof

The availability of land to start industry has been a major problem. The Gujarat government in the last two decades has demonstrated that it is a problem possible to overcome, by providing land at reasonable rates, and supporting industry to set up new projects, on a fast track basis. Smaller companies face the challenge that the cost of premises is too high an initial investment, and uses up scarce resource, needed for the actual business.

Building industrial parks (possibly in collaboration with private entities), where small and medium industry could operate, would provide a solution to the problem of infrastructure. Flatted factories could be created with reasonable lease rents, that are given for extendable 3-year periods; (like was done in SEEPZ, the export processing zone, in Mumbai). In existing industrial zones, many units lie shut, and are stuck due to statutory liabilities or other legal issues. Buyers are unwilling to get entangled in a messy situation that could prove to be a liability later. Here, the appropriate agencies could create a transparent process to transfer these properties either to a new buyer or back to the industrial corporation, freeing up existing infrastructure for immediate use.

The need for capital to put up the land and building is often a major hurdle. The loans given by banks do not cover investments for land, and the capex loan tenure for constructing a building is just five years. If the infrastructure development loans had interest rates and tenure like the home loans, it would facilitate the creation of much needed infrastructure, whereas the money for the machinery could be allocated more judiciously through short term loans.

Creating Opportunity to ensure the Demand on the back of which Industry would Develop

India is a consumption driven economy. This is probably the biggest benefit we can leverage to create our growth story. Producing high quality goods is no longer an option, as customers have gotten used to global quality standards, but we must encourage and take pride in what is made-in-India. Meanwhile, though Indian industry must be competitive, it must simultaneously be protected from low-cost unfair import dumping, so that it can survive in the first place.

Collaboration among industry and commitment to support each other with business, is likely to be one of the biggest factors for growing the industry. In the German development program, the state institutions, academia, and the entrepreneurs had a close collaborative relation. This needs to be replicated in India too. Each major national institution should have a special cell that promotes an Atmanirbhar Bharat, in which any process hurdles in dealing with the institution would be addressed and dealt with. Continuous vendor development programs encouraging Indian entrepreneurs should be a part of an ongoing activity.

In a recent example of a vendor development initiative, IEEMA (Indian Electrical and Electronics Manufacturer's association) have begun one such pilot program, engaging with BHEL (Bharat Heavy Electricals Ltd), and it is very encouraging to note the spirit and enthusiasm with which this was conducted. Such engagements will bring out the necessary opportunities to collaborate. It is the high potential, growth ready companies which must be first identified and facilitated on a high-speed program as the catalytic outcome of this process would bring the fastest results.

With investments likely to surge on infrastructure and defence projects, a portion of the work that can be done by smaller industry should be awarded in proportion to their capacity and technical competence. This way, they can use the opportunity to scale up their capabilities. The formation of consortiums of small industry coming together for specific projects needs to be explored and created as a mechanism, as it could trigger a method of bringing smaller industries to the fore instead of depending on the few large industries alone.

While we look for foreign investment, we must ensure that there is no erosion on the long-term capability of the country. There is a difference between the investments that enable and create value; like infrastructure or technology or exports, vs selling off Indian assets or giving up our markets to foreign entities. Foreign companies have deep pockets, whereas we have only human capital to create wealth from. It is for this reason that encouraging and promoting from within the country makes so much more sense than over dependence on FDI to fund growth.

Incentivising Manufacturing by Simple to Implement Schemes

So often, good intent is ruined by poor implementation, and well-meaning schemes of government are often bogged down in red tape. Simple schemes that are amenable to quick implementation are often far more effective than elaborately designed schemes. A case in point is the ECLGS[3] (Emergency credit line guarantee scheme) offered to small industries during the COVID crisis. As of January 20, 2021, Rs 2.14 lakh crore had been disbursed, without fuss or red tape. The success of this disbursal was its simplicity, which did not have a slew of conditions attached. The reason is that it was under a crisis and therefore, any red tape would have defeated the purpose.

Contrast this with the incentive given in the manufacturing sector for new companies wherein the corporate tax rate has been reduced to 15%.[4] There are very few showing interest, as the interpretations of its conditions and fine print will need legal experts, whose opinions leave industry wondering if it is worth the effort and risk of future litigation. Only schemes that are immediately implementable, without intervention of bureaucracy and transparent enough to not need the interpretation by the legal experts, will succeed. For example, had the incentive for manufacturing companies been announced as a 10-year tax reduction to 15% on incremental profits, for 3 years on rolling basis, investment automatically would have happened, and the exchequer would have benefitted too with the additional tax revenue.

All schemes that have had elaborate conditions have had very limited adoption and therefore have not produced the desired results in creating industry growth. Schemes like cluster formation, subsidy schemes such as M-SIPS[5] (Modified Special Incentive Package Scheme), are possible to get sanctioned only after great effort, and even then, are difficult to comply with due to the restrictive conditions that are characteristic of all such schemes. Hence, schemes offered should be enabling in nature, and self-sustainable. For example, new investment made could be subsidised by tax rebate up to a given percentage, or credit guarantee for certain investments (for example infrastructure).

Enabling Engineering Technology and R & D

To build the nation's infrastructure and manufacturing base, which is a primary need for an economy like India's, the need for engineering talent, and their training is of vital importance. While India's manufacturing sector's growth stagnated over the last 20 years, the opportunity for India's engineers disappeared. Engineers preferred to pursue IT and management as career options, rather than core engineering. The remaining engineering talent went out of the country. This situation has left a vacuum in mid-level core engineering capability in the country. The experienced engineers who graduated in the 80's and worked extensively in industry, had no one to pass on their learning to. Unless the capability is quickly created, we will lack the talent to accomplish the manufacturing miracle we wish to pursue.

The Mangalyaan mission made every Indian proud. Its success however was rooted in the pursuit of technology goals. It is because of people like Vikram Sarabhai, who led the space program and the Government's interest to invest in this technology, that we have such an advanced space program, at such a low cost. In a similar manner, we need to invest in core technologies with joint vision by the government, academia, and industry, with a nationalistic fervour. National interest is not possible to meet by private players alone. Development of technology is the only long-term option, and it needs a conscious effort, especially in critical areas. It is also a great way to develop scientific and engineering talent, while being the most self-reliant way to grow as a nation.

Incentivising development of technology is therefore a priority. The outlay required is not big and one must think of this generously and not through a control mindset. The provisions in income tax of deducting as expense, 200 percent of R & D costs was a good provision and can be brought back. Technology should be recognised as an asset and its acquisition should be possible to fund through a loan.

Investment in identified core technologies of national importance needs to be encouraged through grants to the academic institutions along with industry involvement and partnership. The companies contributing to these efforts would benefit from the knowledge gained through these engagements. Technologies acquired or developed by government agencies or academia could be shared with the industries contributing therein or given to companies seeking it for a price. Enabling growth through providing technology would help revival of the small industry the most, as it does not have the means to do so entirely on its own.

Removing the Major Block, Reforming the Labour Laws

This is the one area in which bold reform is a must if we wish to see a major transformation. All expansion and new activity must have exemption from the provisions of labour laws that make investment into any business too risky to attempt under the provisions of the current act. Relations and long-term skilling, employment, and growth of the nation rests on the relations inside an enterprise, which should be left largely to their own mechanisms. The current laws only encourage confrontation and division, and in fact hinder good normal relations.

Good companies will educate and empower their employees, many of whom will be able to grow to higher levels of personal growth through training and if an employee finds growth, will stay, or otherwise seek other avenues. Any company that has encountered and dealt with labour unrest and its consequences could never be convinced to go back into a labour-intensive business unless they were assured of a just and fair system that protected their investment. India needs labour intensive industry as a step to evolving the economy. Large industries have the clout and reach to deal with the conditions in the land and find their way. It is the small industry that cannot weather the blow that is dealt by any disruption, and hence needs protection from its effects.

The software and services industry did not have to contend with the problems the manufacturing industry had to on the labour front and thereby these grew without being fettered. If the same freedom is accorded to the manufacturing sector, India can be the next manufacturing hub of the world. The new labour code is due to become law, and one waits and hopes to see if it can address the issue adequately.

In conclusion, globally the time is opportune, the nationalistic feeling is at its highest in the last 30 years, and the Government of the day is supportive. But we will need a plan to change, as the old ways will bring only the same old results. Inclusion of all stakeholders through communication is necessary. Above all, we will need the right people in an organised effort to oversee the plan and execution.

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Union Budget 2021-22: A Step Towards Self Reliance & Development

Gautam Sen*

Since India gained independence in 1947, the country has been making great strides towards achieving economic autonomy, and during the course of more than 70 years, the country has been able to shed its colonial past and has paved the way to become an economic powerhouse. The most important ingredient for this progress, however, not as much as China in the neighbourhood, is the role played by the Union Budget. Indian Union budget reflects from the very beginning and more so in the post 2014 period a decisive framework that was architectured to introduce policies and reforms in an open and transparent way unlike in a totalitarian state like China.

History of Union Budgets in India

Finance minister RK Shanmukham Chetty presented the first budget of Independent India in 1947. Total expenditure under the budget was Rs 197.39 crore, out of which approximately Rs 92.74 crore (or 46 percent) was allocated for Defence Services. In 1948 he used the term "Interim Budget." The Interim Budget later became an institutional process, for each year the General Elections are held. Primarily, an Interim budget denotes a short-term budget, which is presented just before the Lok Sabha elections are held. It was during his presenting the budget in 1949 that he first used the term "Union Budget". Under this budget, the government decided to abolish the Capital Gains Tax. Which was again reinstated under the budget 1956-57 and continues to serve as an entity closely monitored by the income tax authorities to prevent any tax evasion.

The inception of the Planning Commission was done in the budget of 1950-51 which became a key body headed by the Prime Minister which over the years formulated the Five-Year Plans and directed the well-defined programs for the Country's development. The various highlights of the same since 1952 to the Union Budget 2013 by Finance Minister P C Chidambaram ranged from introducing double surcharge (1951-52) to raising the minimum income tax exemption limits (1953-54) introduction of wealth tax (1957-58) which continued to exist for the next six decades. The budget of 1958-59 was for the first and last time

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was presented by the then Prime Minister of India and not by the Finance Minister. Prime Minister Nehru in this historic budget introduced a new tax called the Gift Tax. It was during the 1962-63 that the tax payers paid the highest income tax which stood at 72.5% excluding surcharge[1].

Finance Minister Nirmala Sitharaman's Union Budget of 2019-20, was the first introduction of several intuitive reforms such as more relaxed taxation norms, faceless e-assessment, and direct tax reforms. However, her Union Budget 2021-22, presented after the crippling effects of COVID-19 Pandemic is nothing short of revolutionary. As Vaidyanathan Iyer stated that the Budget "was bold, and offers not only a direction for growth but also a strong intent for reforms. Thankfully, it doesn't have a spoiler." The ten takeaways quoted are listed as under[2]

1. ***An Expenditure Budget***: Finance Minister Nirmala Sitharaman has found space for imparting a fiscal impulse in 2021-22. Compared with a capex of Rs 4.12 lakh crore in Revised Estimate (RE) of 2020-21, she has hiked it 34.46 per cent to Rs 5.54 lakh crore in 2021-22.

2. ***A Reform Signal***: Two public-sector banks and one state-owned general insurance company to be lined up for disinvestment. FDI in insurance to be hiked to 74% from 49% now. LIC IPO.

3. ***No Populism, But Focus on Growth***: Despite being a tough year for the aam admi, the FM has avoided giving any income tax relief. No increase in standard deduction, no raise in the tax slabs.

4. ***Health Gets Its Due***: In a year when the world was ravaged by the Covid-19 pandemic, FM gives health the attention it merited. Health allocation jumped 137% to Rs 2,23,846 crore in 2021-22 compared with Rs 94,452 crore in 2020-21. She provided Rs 35,000 crore for the Covid-19 vaccine, and promised to provide further funds, if required.

5. ***Bad Bank*** – A Good Idea: After dithering for almost six years, the government has finally decided to set up an asset reconstruction company that will take over the bad loans of banks, giving them flexibility to finance the economic recovery.

6. ***Development Finance Institutions (DFI) Reborn***: The idea was dead with most earlier DFIs including IDBI and ICICI turning into banks. To provide debt to long gestation projects, a new DFI with a capital of Rs 20,000 crore. It will have statutory backing, but will be professionally managed. Lending portfolio of Rs 5 lakh crore within three years.

7. ***Asset Monetisation*** – Will it Gather Pace: This is an ongoing exercise, where the government hasnt done much to inspire confidence. National Monetisation Pipeline of potential assets of NHAI, PGCIL, Railways, airports, warehouses, sports stadiums.

8. ***Eye on Elections*** – Not Unexpected: Four poll-bound states get major highway projects: Tamil Nadu (3,500 km – Rs 1.03 lakh crore), Kerala (1,100 km – Rs 65,000 crore), West Bengal (675 km – Rs 25,000 crore) and Assam (1,300 km – Rs 34,000 crore).

9. ***Strategic Disinvestment*** – Again, Needs Political/ Bureaucratic Push: NITI Aayog asked to short list non-core PSUs for strategic sale. After a poor show in 2020-21, the government has estimated disinvestment receipts at Rs 1,75,000 crore.

10. ***Growth Vs Prudence*** – Tilting Towards Growth: Fiscal deficit estimated at 6.8 per cent of

GDP in 2021-22; it is estimated to touch 9.5% in 2020-21. It will be brought down to 4.5 per cent of GDP by 2025-26.

What the Budget Proposals are Attempting to Do[3]

Anil Sasi writing in the post budget analysis makes an important contribution to explain how the Finance Minister has attempted to propose new measures in the midst of the pandemic to kick start the flagging economy and more essentially to boost spending across various sector. The points he has covered needs to be reproduced here as under:

1. *Production-linked incentive (PLI) scheme push:* The government aims to spend Rs 1.97 lakh crore on various PLI schemes over the next five years, starting this fiscal. This is in addition to the Rs 40,951 crore announced for the PLI for electronic manufacturing schemes.

Why the move: It is likely to attract global players in the Indian manufacturing sector as the government is planning to offer plug-and-play infrastructure to the companies willing to come to India.

2. Health push

The government has announced a new central healthcare scheme to strengthen the country's healthcare infrastructure over the next six years. The Pradhan Mantri Atma Nirbhar Swasthya Bharat Yojana, which will operate in addition to the existing National Health Mission, has been allocated around Rs 64,180 crore.

3.***Why the move:*** This scheme is expected to be used to develop capacities of primary, secondary and tertiary healthcare systems as well as existing national institutions over a period of six years, according to Sitharaman.

In addition to this, it would be used towards creating new institutions to cater to the detection and cure of new and emerging diseases. During her budget speech, the minister said that investment on health in this budget has increased "substantially", with a focus on strengthening preventive care, curative and well-being of the population.

4. Power push

The government has decided to create a framework to give consumers alternatives to choose from more than one power distribution company.

Why the move: It is aimed at offering competition at operator level and more choice to consumers. Targets better efficiency levels in the distribution sector

5. Divestment push and Bad bank proposal

Strategic disinvestment of companies, including BPCL, Air India, Pawan Hans, IDBI Bank, Container Corporation of India, to be completed in 2021-22. Government to ask Niti Aayog to start working on identifying the next list of companies for strategic sale.

Announcing its version of the bad bank[4] proposal, the government will set up an Asset Reconstruction and Management Company for Stressed Assets to take over bad loans. Alongside, a Rs 20,000-crore equity infusion has been announced for public sector banks.

The FM said it will take up strategic sale of two public sector banks and one general insurance company along with completing the sale of BPCL, Concor, SCI, IDBI and BEML among others in 2021-22.

Why the move: These measures are expected to strengthen the state-owned banks and hasten the process of clean up of their balance sheet. The divestments will help raise revenue for the government and is expected to improve efficiency and provide momentum to privatisation.

It's more about the principle of separating the good from the bad. It's about not wasting more good money on bad assets. Former RBI Deputy Governor Viral Acharya has in the past stressed on the need to separate the 'good' from the 'bad', and to set up a bad bank.

The government has been toying for far too long with the idea of a National Asset Reconstruction Company that can hold the bad assets of all state-owned banks. The proposal has gone around in circles between the Finance Ministry, the Niti Aayog and the Prime Minister's Office. Spooked by Opposition politics earlier, Modi had shied away from being labelled as being pro-corporate. This proposal marks a departure. After almost 70 years since being in power, the BJP-led government has finally taken a call on setting up a Big Bad Bank. Finance Minister Nirmala Sitharaman has announced a new asset reconstruction company and an asset management company to take care of the bad assets of banks, and equip the banks to lend to productive sectors as the economy starts recovering.

6. Why it requires Govt involvement: There are many mechanisms to proceed with how to realise value from the NARC. Though India has over a dozen private ARCs, no state-owned banker in the current environment will be courageous enough to sell his bad assets to these at a discount, for fear of prosecution by state investigative agencies at a later date. And private ARCs will ask for a massive haircut from banks. It's here that a national ARC can inspire confidence amongst banks.

7. FDI limit hiked in insurance

The Finance Minister announced to hike the FDI limit in Insurance from 49% to 74%. She, however, said that majority directors on board and Key management personnel will be Indians.

Why the move: The move will help increase capital inflow in insurance companies and enhance their expansion and growth.

Development Financial Institution reborn

Given that there is a lack of finance for infrastructure and long gestation projects, Finance Minister Nirmala Sitharaman has announced the setting up of a Development Financial Institution (DFI). The DFI will have statutory backing and Rs 27,000 crore capital. To differentiate it from DFIs that existed in the past, she said the DFI will be professionally managed.

What will be its focus?

The proposed DFI will be used to finance both social and economic infrastructure projects identified under the National Infrastructure Pipeline (NIP), according to finance ministry sources.

8. Scrapping policy

The government has introduced the scrapping policy to remove unfit vehicles on a voluntary basis. All private vehicles beyond 20 years and commercial vehicles older than 15 years old will have to undergo a fitness test.

Why the move: The proposal is expected to offer a boost to the auto sector, both for commercial and private vehicles. Auto shares surged after the announcement.

9. Bad debt resolution

The government plans to further strengthen the NCLT framework and continue with the e-court system for faster resolution of bad debts. A separate framework for MSMEs will also be made by the government.

Why the move: With the government-imposed moratorium on admission of new cases likely to end by March 31, a number of MSMEs, which have not been able to earn enough during the fiscal are likely to be taken to insolvency by their creditors. The separate framework may help MSME owners avoid losing their company while continuing to pay the debt.

10. Gas transport

The government has announced an independent gas transport system operator for booking and coordination to ensure for unbiased allocation of natural gas transportation capacity.

Why the move: The government aims to address concerns of bias in the allocation of gas transportation capacity by players such as GAIL involved in both the supply and transportation of natural gas.

11. Ujjawala push

The government has announced the extension of benefits of the Ujjawala scheme to an additional 1 crore people.

Why the move: The scheme, which provides LPG connections with financial assistance from the central government and currently benefits 12 crore households, will be extended further to provide clean cheap cooking fuel.

12. Power sector push

The government has allocated close to Rs 3.60 lakh crore in the Budget towards launching a "revamped", reforms-based, result-linked power distribution sector scheme.

A framework will also be put in place to give consumers alternatives to choose from more than one distribution company.

Why the move: This comes amid "serious" concerns over the viability of power distribution companies (discoms) in the country. The scheme is expected to provide assistance to discoms for infrastructure creation tied to financial improvements, including prepaid smart metering, feeder separation and upgradation of systems, said Finance Minister Nirmala Sitharaman.

Discoms across the country are monopolies, whether government or private, said the minister. There is a need to provide a choice to the consumer, she said.

The past six years have seen a "number" of reforms and achievements in the country's power sector, including the addition of 139 GW of installed capacity, the connection of an additional 2.8 crore houses and addition of 1.41 lakh circuit kilometres of transmission lines.

13. Social security net for gig workers

Social security benefits will be extended to gig and platform workers, the finance minister said. Minimum wages will apply to all categories of workers and will be covered under ESIC.

This will impact around 15 million gig workers in India, in addition to online platform providers across sectors such as transportation (Uber and Ola), food delivery (Swiggy and Zomato), and the contract workers in IT and software firms.

Importance: The economic survey had noted that India has become one of the largest markets for flexi-staffing in the world due to the wider adoption of e-commerce and online retailing. It had also said that the increasing role of the gig economy was evident through the significant growth of online retail businesses during the lockdown caused by Covid-19 pandemic.

14. Fiscal deficit

India's fiscal deficit is set to jump to 9.5 per cent of Gross Domestic Product (GDP) in 2020-21, according to the revised estimates presented by the finance minister today. This is sharply higher than 3.5 per cent of GDP that was projected in the budget estimates. Slump in government revenues amid the Covid-19 pandemic has led to sharp rise in deficit and market borrowing.

The government plans to borrow another Rs 80,000 crore to fund the deficit this year. Gross market borrowings for next year has been pegged at Rs 12 lakh crore. A new roadmap for fiscal consolidation has been announced in the budget.

15. Pension relief

The government has given relief measures for senior citizens by removing the need to file income tax returns for those aged over 75 years.

It has also announced a halving of the time frame for reopening of income-tax assessment cases from 6 years to 3 years. For reopening of serious tax evasion cases up to 10 years, the government has put in a monetary limit of cases involving over Rs 50 lakh in a year.

This is expected to reduce instances of tax harassment of income taxpayers.

Critical Observations

In the above pages we have enumerated and incorporated the history of the Union Budget of India since independence to the present time, elaborated and quoted some of the writings related to the major takeaway from the Budget presented for 2021-22, explanation as to why and what the Budget planned to do. Considering the intent of the Government of India to take steps to push India in amongst the top five economies of the world, it is necessary to understand that for that intent to become a reality, we have to identify the three main verticals which will allow India to reach that status. The three main pillars are:

1. Security
2. Infrastructure
3. Education

A strong and an invincible SECURITY architecture assisted by a strong Infrastructure and supported by quality Education is necessary to securitise all he ten takeaways as enumerated above. A nation state in the 21st century requires to achieve a credible SECURITY beyond Defence to become truly a world leader. Hence the problems of national security which is the integral part of the totality of SECURITY for a country like ours which has seen a series of catastrophes from within its recent past and continuing threat from without has to be formulated in terms of the larger goals and aspirations to which this civilizational community has committed itself. Briefly we can think of three such objectives:

1. National stability and Integrity
2. Social, Political and Economic progress
3. Peace and Stability in our relations to other states.

The problems of national security must be seen in terms of these larger goals. If this may be called the cultural dimension of the problem of national security, we have to look at the problem from the political perspectives as well. Here we have to consider a complex interaction between our perception of our neighbours beyond the border as well as the larger major powers and their perception and assessment of our situation and our objectives. It is within this matrix of relationship that specific goals of our SECURITY policy will get structured. The cultural and the political aspects of the problem create a texture of tasks and priorities of decision making and possible options for actions. The actualization of our objectives as modulated and structured require an adequate process of institutionalization ranging from the economic to the administrative and legal preconditions. This institutionalization of our SECURITY efforts themselves create further problems and difficulties.

Hence all the three dimensions viz., the cultural, socio-political and institutional enter in a complex interaction calling for skills and patterns of leadership to securitise the SECURITY of our nation. To achieve the same, we need to understand and commit to strengthen our national security architecture supported by the Union Budget. ***It needs to be emphasised that present allocation related to Defence budget 2021-22 is grossly inadequate***.

I have noted in the beginning of this paper that in 1947, the Union Budget had allocated 46 percent of the total budget for Defence. With the recent happenings in Eastern Ladakh, and a serious collusion between our two neighbours, a two front war scenario a distinct possibility, the Union Budget has no other options to allocate adequate financial outlays for Defence and national security when our northern neighbour is officially spending nearly three and a half time more than India's 2021 defence budget.

On the issue if infrastructure, it must be emphasised that the Make in India policy, strengthening the hands of the Private Sector with a revolving door policy where the best of manpower in every field should be able transit between the Government and the non-government sectors must be prioritised. The private sector must be able to lend their expertise, change the mind set existing within the personnel of the Government agencies and remove what the Prime Minister has hinted very recently the need to unshackle the Indian bureaucratic hold on every decision-making platform. I believe that the Union Budget has a very specific role to play by handholding the private sector by investing financially through a fiscal policy in every form of non-governmental body, institution and organisation to leapfrog and reduce the tremendous asymmetry that has developed between us and our northern neighbour in the past thirty years.

Lastly, the architecture of Education policy has to commensurate with the needs of India in the 21st Century. The New Education Policy is less of a policy document and more an enumeration of a method to make Research and Teaching more accountable if possible. It is good if the Research Council will have a budget of 20,000 crores over and above the existing funding available to the UGC, DBT, DST etc. However, it has at least increased a little, the percentage of GDP and therefore the first Baby Step towards Education per se. It is essential to quote what Arvind Panagariya and B Vekkatesh Kumar[5] critically wrote on the New Education Policy as follows:

"But the recommendation by the draft NEP that a National Higher Education Regulatory Authority of India be all-encompassing and, additionally, subsume the functions of many professional regulatory bodies such as the Bar Council of India and the erstwhile Medical Council of India (MCI), runs the risk of becoming overly contentious with the reform getting stalled altogether. It will be best to let the reform in these areas proceed on separate tracks along the lines of the National Medical Commission Bill, which would replace the MCI Act and is soon to be reintroduced in Lok Sabha."

Once again, the Budget allocation for Education in the present budget is far away from the requirement of allocating 6% of the GDP.

Conclusion

In this article, we have recognised the path breaking and almost revolutionary approach to craft the Union Budget 2021-22 by the Finance Minister. It is people centric with a very appreciable effort to balance the fiscal policy towards the developmental goals. India is transiting through an unchartered path while still groping with the COVID-19 pandemic. The efforts of increasing health security measures due to the pandemic by 140% is an un believable effort by all counts. However, India has no other options but to pay utmost attention to the three pillars comprising of SECURITY, Infrastructure and Education.

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India's Maritime Economy: Driving India's Growth

Anil Jai Singh*

> *"To me the Blue Wheel or Chakra in our national flag represents the potential of the Blue Revolution or the Ocean Economy. That is how central the ocean economy is to us."* ***- Prime Minister Narendra Modi***

Introduction

The importance of the maritime domain for India's security, stability, economic well-being and sustainable development needs no emphasis and is underlined by its rich maritime heritage dating back 5000 years. The world's oldest drydock has been excavated at Lothal which dates back to the Harappan civilisation. As India now stands on the threshold of becoming a 21st century global economic powerhouse and has set a target of becoming a USD 5 trillion economy by 2025, it is aiming at a USD 25 billion from the maritime zone[1] in accordance with the global standard of about 5%. With the target of achieving a USD 10 trillion economy by 2032, the maritime sector will have a major contribution to make.

India's Maritime Credentials

India, despite its peninsular geographic conformation and its predominantly continental outlook due to its pre-occupation with its northern and western neighbours, is essentially a maritime nation. The country has a long and porous coastline of 7516.6 kms, an Exclusive Economic Zone (EEZ) in excess of 2.37 million sq. kms, where India enjoys the exclusive legal right to utilise all living and non-living resources. Nine states and four union territories are washed by the waters of the Arabian sea, the bay of Bengal and the Indian Ocean and more than 200 million people are dependent on the sea for their sustenance and livelihood. About 95% of India's trade by volume and about 74% by value travels over the sea and is served by a network of 12 major ports and 205 notified minor and intermediate ports. The country has two strategically located island territories. The Andaman and Nicobar archipelagic group comprising 572 islands including 38 permanently inhabited ones are located about 750 miles from the Indian mainland on the eastern seaboard and the Lakshadweep group of 38 islands is located about 200-odd nautical miles from India's west coast.

The maritime domain is also critical for India's energy security which in turn has a direct impact on the country's economy. More than 80% of India's oil and over 50% of India's gas is sourced from various parts of the world and travels over the sea. More than 60% of this is imported from the Arabian Gulf. On the indigenous front too, most of India's critical energy infrastructure is either located afloat or on the coast, thus increasing its vulnerability from the sea.

India is also the first country to have been given a pioneer investor status way back in 1987, and was allotted an exclusive area of 150,000 sq. km

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in the Central Indian Ocean Basin by the International Seabed Authority for exploration and developmental activity for polymetallic nodules. These rights are presently being exploited over 75,000 sq. km of area.[2]

Aspiring Maritime Power

India has been blessed with a favourable and pivotal position in the midst of the Indian ocean. Its peninsular tip juts out almost 1000 miles into the sea and straddles some of the most critical shipping lanes in the world. Its size and economic stature make it the pre-eminent power in the Indian Ocean region which it must leverage to establish itself as a global maritime power of reckoning. Presently its status as a maritime power is based on its highly capable blue water navy (the fifth largest in the world) which is just one constituent of maritime power, although its most important one. However, India still has some way to go in most aspects of non-military maritime power which is critical for a robust maritime economy.

Alfred Thayer Mahan, the doyen of naval strategists in his seminal work, 'The Influence of Sea Power on History' had listed six essential attributes for a maritime power (which he referred to as sea power but meaning more or less the same). These were geographical position, physical conformation, extent of territory, size of population, character of the people, and character of government.[3] These remain as relevant today as they were then and are the very characteristics that influence the development of a maritime economy.

India has all of these in ample measure but has still fallen short of becoming a maritime power. Historically, it is maritime power that has been the key to global domination. Small European countries were able to establish global empires primarily because of their domination of the sea and it was at sea that the survival of the fittest was decided. India provides a classic example. After Vasco da Gama's famous landing at Calicut on 20 May 1498, the floodgates to the riches of India opened and in the struggle for domination the Dutch, the French and the British followed the Portuguese. Finally, Great Britain prevailed because of its superior maritime power to make India the crown jewel in its global empire on which the sun never set. Pax Britannica gave way to Pax Americana after the World War II, which, on the basis of its economic and technological superiority and the might of its powerful navy, continues to this day. This is now being challenged by China, which, in less than 70 years, has emerged as a leading global maritime power with its 'Mahanian' approach to global domination through maritime power and is well on its way to establish Pax Sinica by 2049, the centenary year of the Cultural Revolution and a date the Chinese President Xi Jinping has cast in stone.

China, despite being disadvantaged in its approach to the sea, now has the largest navy (numerically), the largest coast guard, the largest maritime militia, the largest fishing fleet, the largest merchant fleet, the largest shipbuilding industry, seven of the ten largest and busiest ports in the world and has not stopped there. Its ambitious Belt and Road Initiative (BRI), unprecedented in scope and ambition, is clearly intended to reorient the existing global western rules-based maritime order into one with 'Chinese characteristics.' Not only has China invested heavily in building this impressive capability, but it has also given a maritime orientation to its historical narrative by eulogising the eunuch Admiral Zheng He and his voyages into a legend of sorts. This maritime consciousness is being successfully imbibed in a nation which, till four decades ago, was barely capable of defending its own maritime frontiers. This comprehensive maritime approach by China is as much about building its maritime economy as it is about its political ambitions. Domination of the waters of its interest and leverage in countries where it is extending its economic largesse (debt trap?), will give it access to marine resources far beyond its own maritime boundaries.

India on the other hand, despite its rich maritime lineage and advantageous location in the Indian Ocean has failed to harness this potential to develop its maritime economy and has lagged behind considerably. While a comparison with China may not be an accurate reflection since the circumstances in that country differ vastly from India's, there are lessons to be learnt. Developing a maritime economy requires a clear intent, a long term policy commitment, a flexible approach to adapt to a dynamic environment and the resilience to achieve the desired end-state. The post-independence port and shipping infrastructure, largely state owned, could have become the catalyst for the maritime economy to emerge as part of India's growth story but systemic inefficiencies retarded the effort and has resulted in India's maritime economy lagging behind in almost all parameters.

Winds of Change

However, the winds of change became evident with Prime Minister Modi's first outstation visit after assuming office in May 2014, to the Indian aircraft carrier INS Vikramaditya, where he spent time at sea watching the Western Fleet being put through its paces. Soon after that, he commissioned the indigenously built guided missile destroyer, INS Kolkatta which was an acknowledgement of the strides India has made in indigenous warship production. In March 2015, during his visit to Mauritius, the Prime Minister outlined his vision of SAGAR, (an acronym for **S**ecurity **A**nd **G**rowth for **A**ll in the **R**egion), aimed at regional capacity building for mutual benefit of India's strategic neighbourhood and the larger Indian Ocean region. The distinct maritime orientation of SAGAR which is the Hindi word for Ocean, was sweet music to those lamenting the lack of attention to the maritime domain. In February 2016, the country hosted an International Fleet Review at Visakhapatnam in which more than 50 navies participated. This reflected India's importance as a naval power, commensurate with the country's growing global stature. Two months later, in April 2016, the country hosted a Global Maritime Summit at Mumbai which was aimed at revitalising India's maritime sector.

The Summit was attended by over 5000 delegates from 42 countries and business worth Rs 82,905 crore was transacted. It was during this summit that the Sagarmala programme, a port development led multi-billion rupee initiative aimed at revitalising and modernising India's maritime infrastructure was announced. This initiative in fact, lays down the blueprint for developing India's maritime economy. This spate of activity in the first two years of the present government's coming to power underlined its serious intent to give this sector its due attention.

Sagarmala

The Sagarmala Initiative had been preceded by the 'Maritime Agenda 2010-2020'. This document promulgated by the UPA Government had also emphasised the importance of the maritime sector for India's economic growth and had laid out a detailed roadmap with specific milestones to be achieved by 2020, though it did so with a caveat that these could well change depending over the years and on the circumstances. At the end of 2020, which marks the end of this 10 year agenda, the report card is not encouraging and has fallen woefully short of the intended objectives across most of the sectors highlighted in the document. Many of these objectives got absorbed into the Sagarmala initiative, which five years down the line remain a work in progress. Sagarmala includes modernisation of the existing port infrastructure, building new ports, augmenting port capacity through improved efficiency, best practices and technology, optimising the cost of freight transportation by developing an extensive inland waterway network, developing coastal communities and building adequate skill sets for generating employment in the maritime sector.

As part of the Sagarmala Programme, more than 574 projects (Cost: Rs. 6.01 lac crore) have been identified for implementation, during 2015-2035, across the areas of port modernisation (236 projects) port connectivity (235), port led industrialisation (35) and coastal community development (68). As of 30 September 2019, a total of 493 projects had either been completed (121) or were either under implementation (235) or under development (137).[4]

At the end of 2020, the Government announced its intention of promulgating a 'Maritime Vision 2030' document which, in the words of the Director General of Shipping, Shri Amitabh Kumar, speaking on the opening day of the two-day Inmex SMM Virtual Expo in November 2020 "…will remain dynamic over the next decade, changing its contours with time, and adapting to situations that may arise, and keeping abreast of developments".[5]

Maritime Vision 2030

The DG Shipping also highlighted that this vision will be developed on four limbs underlined by the overall objective of the Sagarmala vision of a string of highly efficient and productive ports along the Indian coastline. Port development, which is the first limb, has lagged in this country with not a single major Indian port in the list of the top 25 global ports. Many of the 205 non-major ports lack even the basic port infrastructure for handling and transhipment of coastal and inland waterway cargo. The Vision envisages a doubling of port capacity to 2600 million tonnes which is still short of the figure outlined in the earlier maritime agenda, but with the progress made over the last few years, very much more realistic. It also envisages the setting up of three major ports though the two major ports outlined in the previous agenda have as yet failed to materialise.

Coastal shipping and inland waterways have also been identified as the second limb. Movement of goods over water is the cleanest and most economical mode of transportation and the vast network of inland waterways in India can become a valuable source for connecting the vast Indian hinterland to the coastal port network. Shipbuilding as a national asset has been identified as the third important priority area with the endeavour being to increase Indian flagged ships. Maritime training has been identified as the fourth limb to address the requirement of qualified personnel over the next decade. Indian seafarers constitute 9.35% of the world's total[6] which is in line with the figure of 9% envisioned in the maritime Agenda 2010-2020.

The Vision also includes the setting up of a Rs 25,000 crore Maritime Development Fund to provide the financial impetus and a robust regulatory framework more relevant to the contemporary environment than the antiquated extant laws.

The Security Dimension

In the last two decades, the global shift in the geopolitical and geo-economic centre of gravity to the East, driven primarily by the rise of China and India and the rapid growth of the East and South East Asian economies has focussed attention on the Indo-Pacific. This region is home to about 65% of world population, generates 62% of world's GDP and accounts for 46% of global trade.[7] China has been the first off the block to exploit the potential of this region; its claims on the South China Sea, it's bid to dominate the East China Sea, its belligerence in the Taiwan Straits and its expanding presence in the Indian Ocean are part of its larger global strategy of military intimidation to achieve economic domination through maritime superiority. A large Chinese maritime presence in the Indian Ocean has very serious security and economic implications for India; it must develop a long-term strategy to thwart any Chinese attempts at establishing a dominating presence in the Indian Ocean in general but more specifically India's strategic maritime neighbourhood.

Besides the permanent presence of the PLA Navy in the Indian Ocean which is bound to increase as it develops more power projection capability, there is already enough evidence of China's large fishing fleets indulging in illegal, unreported and unregulated (IUU) fishing in the Indian Ocean. Their research ships are frequently seen in the eastern Indian Ocean carrying out oceanographic research to understand these waters better for economic gain and military use. India had expelled one such vessel from the eastern Indian Ocean in 2019. However, there is not much India can do legally as long as this presence continues in international waters but it must take adequate steps to guard against any encroachment in its Exclusive Economic Zone and take the lead in strengthening its strategic neighbourhood through inclusive and cooperative capacity and capability building initiatives to ensure that its own economic and security interests and also those of its maritime neighbours are adequately protected.

China has been very actively pursuing its economic and military diplomacy in the region through arms exports and economic inducements including infrastructure upgradation. India obviously cannot match China's economic muscle but a comprehensive and proactive all-of-government approach with effective use of its sharp and soft power has shown encouraging results in India's engagement with its neighbours. Recent visits by senior functionaries of the government to most of the neighbouring countries, the NSA level India-Sri Lanka-Maldives trilateral meeting, integration of the neighbouring countries into the coastal security network, initiating information sharing mechanisms and increasing economic engagement through connectivity initiatives and favourable trading arrangements have been beneficial in consolidating the existing gains and overcoming past dogmas about India's big brother approach.

The Prime Minister's invitation to the SAARC

Heads of Government during the swearing in of the NDA government in May 2014 and the BIMSTEC Heads of Government during the swearing in after the election victory in May 2019 conveyed his personal commitment to the region to foster an inclusive and cooperative relationship for mutual economic benefit. Various socio-economic capacity building measures have gone a long way in instilling the confidence and reassurance of India's support in their economic development through an inclusive approach. Security and economic development go hand in hand, thus highlighting the importance of the SAGAR (Security and Growth for all in the Region) doctrine. Being the net security provider in the Indian Ocean bestows on India the responsibility of ensuring that the economic benefits from the maritime domain in this region remain within.

Blue Economy

The term Blue Economy, which first became popular with Gunther Puauli's use of the term in his book 'The Blue Economy: 10 years - 100 innovations - 100 million jobs' was about opportunities for developing a sustainable model for the future and had no specific maritime connotation.[8] However, the term gained currency subsequently as a model of sustainable development for mankind with the responsible utilisation of marine resources. The burgeoning global population, rising living standards and improved conditions in many previously impoverished nations coupled with the loss of agricultural cover due to rapid urbanisation and lack of agricultural space is leading to an alarming depletion in land resources. The consequent challenge to global and national food security itself is a matter of concern. Water too is already a contentious issue both within and across national boundaries. Hence, it is to the oceans that mankind is turning to address this existential threat.

The oceans are integral to human sustenance covering about 72% of the earth's surface and constitute more than 95% of the bio-sphere. More than 80% of global trade transits over the seas; essential ingredients that support life on earth and provide the balance to sustain it are found here. The growing demand for energy in large part is met from the sea and research is continuing to further use the sea for sources of alternate energy. This precious resource is therefore bearing the huge burden for sustaining humankind. Responsible utilisation of this resource will ensure a model of sustainable development and as a source of food, transportation, energy and livelihoods.

Goal No 14 of the 17 Sustainable Development Goals (SDG) listed in the 2030 Agenda for Sustainable Development adopted by the United Nations member states in 2015[9] specifically addresses the marine aspect though various other aspects are included in many of the other SDG too. Developing a global Blue Economy has been defined by the World Bank as *"sustainable use of ocean resources for economic growth, improved livelihoods and jobs, while preserving the health of ocean ecosystem."*[10]

The global focus of the Blue Economy is on the oceans and the challenges being faced due to unregulated exploitation and the effects of global warming and climate change. Some of the small island states in the Indian Ocean are facing a challenge to their very existence with the rising sea levels threatening them with inundation. Even low-lying coastal areas of larger nations are facing a similar threat. The effect of this could be disastrous on coastal economies and coastal communities besides upsetting the delicate balance of the marine bio-sphere. The effects of climate change are also being seen in the rising incidence of natural disasters which cause widespread destruction and damage to life and property with the consequential effects on the economy. India too has its fair share of weather and climate related disasters which leave cities and villages devastated and hundreds of thousands of people destitute, homeless and without a livelihood.

India is deeply committed to addressing climate change issues through its adherence to the targets set out in the Sustainable Development Goals, its leadership of the Global Solar Initiative and its internal efforts to reduce its carbon footprint. As this century progresses, the existence of mankind on land will be deeply affected by the sea. If this is not properly addressed through a multilateral cooperative framework for sustainable exploitation of marine resources, it will inevitably lead to competition, confrontation and possibly conflict besides destabilising large sections of the global population and coastal communities dependent on the sea for their sustenance and livelihood. The Indo-Pacific is itself home to many large and small coastal and archipelagic states which are wholly dependent on the sea for their very existence.

There is enough evidence to establish that the recent maritime resurgence in the region through various economic development models like the BRI is all related to the Blue Economy. The belligerence of some of the extra-regional powers is aimed at seizing the initiative in tapping the abundance of marine resources and leveraging this to create dependencies for further exploitation which may actually be detrimental to the region. India should take a leadership role in promoting the Blue Economy initiatives for the responsible exploitation of the oceans and champion the cause of the smaller countries in the region, particularly the small though strategically located island states at various global fora where India wields considerable influence as a stabilising force for good.

While the global focus of the Blue Economy is on the oceans, the internal waters of a large country like India are also vital for economic sustainability and development. India has rivers and canals extending about 1.95 lakh sq. km, flood plain lakes that cover an area of 8.12 lakh hectares, ponds and tanks covering 24.1 lakh hectares, reservoirs of about 31.5 lakh hectares, brackish water in extent of about 12.4 lakh hectares and dams over 48,570 lakh hectares. The effects of climate change and unregulated exploitation of land is leading to increasing frequency of floods, storms, pollution etc. Hence, at least in India’s case, its internal marine environment must be integrated into its overall Blue Economy initiatives. The Sagarmala programme and the forthcoming Maritime Vision 2030 have focussed their attention on this.

India’s Maritime Economy

Ports and Port Infrastructure

India has 12 major ports and 205 non-major/ intermediate ports including those in the private sector. With the steady growth in the Indian economy and a targeted USD 5 trillion economy by 2025, the volume of trade will also grow exponentially. For many years India’s ports were languishing, but in the last five years or so there, has been a focussed effort on augmenting India’s port infrastructure in some key areas; the cargo capacity has increased from 871.52 MT in 2015 to 1534.91 MT in March 2020 with an ambitious target to achieve 3130 MT of which about 50% is expected be at the non-major ports.[11] Construction of six mega ports is envisaged under the Sagarmala plan, although the soon-to-be-released Maritime Vision 2030 will provide a clearer picture. Foreign Direct Investment of 100% is now permitted for projects related to the construction of ports and harbours with a 10 year tax holiday. A National Maritime Development Programme (NMDP) for improving both port infrastructure and port connectivity has been initiated under which various rail and road projects are underway. The Shipping Ministry also launched Project Unnati to enhance and improve port operations under which a majority of programmes have already been implemented.

However, these encouraging initiatives notwithstanding, Indian ports continue to be plagued by outdated equipment, an inefficient work force and lack of some fundamental infrastructure which makes them uncompetitive. The state of non-major ports needs major attention with some even lacking a complete perimeter fencing and basic cargo monitoring equipment. With more than 90% of India's trade by volume being seaborne, the importance of an efficient port infrastructure is critical to India's economic progress.

Inland Water Transportation

India's vast network of inland waterways has never been utilised for economic benefit despite providing a cleaner and cheaper alternative to road and rail transport This was perhaps because the potential of using inland waters for this purpose was never recognised. The Sagarmala programme gave a fresh impetus and in 2019, the first cargo arrived at the inland waterway Multi Modal Terminal at Varanasi from Kolkata on the River Ganges in the presence of the Prime Minister. The development of India's inland waterway infrastructure will enhance the hinterland connectivity to the port network along the coast. Inland waterway transportation is used extensively in countries with an interconnected marine network and is a long overdue development in India. It is still in its initial stages here and constitutes less than 6% of the total goods transportation. It has been included in the Government's National Maritime Development Project (NMDP) and will require a sustained effort to become a viable alternative to the present rail and road network.

The National Waterways Act 2016 has declared 111 inland waterways as National Waterways with a total length of 20, 725 kms across 24 states.[12] Sound policy formulation, sustained budgetary support and effective professional implementation will be critical for its success. Inland water transportation is not restricted only to movement of freight; it has potential in transporting people as well as a source of inland water tourism. The development of an inland waterway gird will benefit India's land-locked neighbours providing them access to the Bay of Bengal and enhancing India's capacity building efforts.

Fishing

India has a large fishing industry providing employment to over 24 million people either directly or indirectly. However, the industry has yet to realise its full potential, a large part of which either remains unutilised or under utilised. Hence, a well-structured, efficient and well regulated fishing industry performing to its full potential would provide a substantial boost to the national economy besides the upliftment of the coastal community which in India is in excess of 200 million. The share of the fisheries sector in the national GDP has gone up from 0.4% in 1950-51 to 1.05% in 2017-18 and has contributed over 1.75 lakh crore to the GDP. A little-known fact is that India's marine exports constitute over 5% of all exports and in 2017-18 this translated to about USD 6.75 billion. It is believed that India's total fisheries potential is about 22.3 million metric tons (2018) but the actual figure for the year was only 13.42 million metric tons.

The National Fisheries Policy 2020 has identified the areas that need attention and has suggested a very detailed though ambitious framework for this sector to achieve its full potential. However, the devil lies in the implementation and overcoming the existing constraints of limited scope for expansion, inefficient and archaic fishing practices, inadequate regulatory framework, supply chain constraints and lack of skilled manpower. Traditional fishermen operating in a loosely disorganised manner constitute the bulk of people involved in fishing but contribute barely 2% of the total marine fish production. It is this large base of traditionally skilled but technologically challenged fishermen who have to be integrated into a modern framework for this sector. From a regional economic perspective, the environment is becoming increasingly global which requires a robust regulatory mechanism and a cooperative and coordinated management of the common waters. India is fully committed to various international initiatives aimed at eliminating IUU (Illegal, Unreported and unregulated) fishing and should, on behalf of its smaller maritime neighbours ensure that this scourge is reduced even if not fully eliminated.

Oil and Gas

India's dependence on sourcing a majority of its energy requirements from abroad not only makes the Indian economy vulnerable to global pressures but also hazards the country's energy security. India imports over 80% of its crude oil (in April 2020, crude oil imports peaked at 84.5%) with a major portion of the indigenous 20% being sourced from offshore oil fields. The Prime Minister has set a 10% reduction target in crude oil import by 2022 and as per the Petroleum Minister, India is on track to meet this target. About 50% of its gas requirements is imported. It is already the third largest consumer of oil in the world after China and the US and as per the BP Energy Outlook 2050,[13] India "will be the largest source of demand growth out to 2050". Hence, in the absence of adequate exploration, India's import dependency is likely to increase substantially in the next few decades.

This has a significant effect on the economy, even though India is focussing on reducing this dependence by increasing its upstream activity and widening its supply base while also investing in offshore exploration in other countries. Blue Economy initiatives to develop sources of alternate and renewable energy by harnessing wave energy and offshore wind power need to be invested in for the long term to reduce the vulnerability of India's energy security from an economic as well as security perspective. As part of its regional capacity building initiatives, India must also focus on investing on nationally flagged tankers and gas carriers to reduce its dependence on foreign flagged tankers. The Iran-Iraq tanker war is a case in point when Indian flagged tankers ensured an uninterrupted supply of India's critical oil requirement from the Arabian Gulf despite being attacked. Building more Indian flagged ships is a priority area in the draft Maritime Vision 2030.

Marine Tourism

On 14 February 2021, the Prime Minister inaugurated India's first full-fledged cruise terminal called Sagarika at Kochi. Promoting cruise tourism is one of the objectives of the Sagarmala programme which also includes the development of coastal tourist circuits lighthouse tourism, a national maritime heritage museum at Lothal and an underwater viewing gallery at Beyt Dwarka. However, international cruise tourism is just one of the many avenues for promoting marine tourism. India is blessed with a long and scenic coastline and pristine beaches. The popularity of Goa and more recently Kochi and the Kerala backwaters has rarely been capitalised on to make India a top-class marine tourism destination. Internal cruise tourism along India's inland waterways should be promoted. Beach resorts should be developed as tourist friendly, clean and accessible venues with a range of activities for all ages including water sports. Such facilities do exist but are few and far between. India's tourism potential has barely been tapped as yet and marine tourism even less. Just building infrastructure may not be sufficient unless it is well managed. It will take much more than cruise terminals to attract the well-heeled cruise tourist to India. While marine tourism has great economic potential there is also the risk of damage to the delicate marine biodiversity. Shrinking mangroves, damage to marine growth and increasing water pollution are feeling the effects of climate change. An estimated 8 million metric tons of plastic enters the oceans directly or indirectly through rivers and other inlets into the sea which adds to about 150 million metric tons that is currently circulating in our marine environments. An effective monitoring and regulatory framework will have to be put in place to address these issues.

Shipping

More than 80% of global trade travels over the sea which highlights the importance of a robust shipping industry in a globalised interconnected world. In 2019, India had 1405 registered ships with a total deadweight tonnage (DWT) of 19.22 million tonnes of which about 458 ships with a DWT of 17.58 million tonnes constituted ocean going ships used for external trade. While these numbers may look impressive, the Indian fleet is only a minuscule 1.3% of global shipping. Many of these ships are ageing and the cyclical nature of the shipping business which is directly dependent on the global economic ups and downs is deterring shipowners from augmenting their fleets. Ironically, of the 90% of Indian trade by volume which is seaborne, only a little over 7% sails on Indian flagged ships. National flagged ships are a strategic asset as these reduce dependence and consequent vulnerability to international geopolitical pressures or likely disruptions in troubled areas. As in many other areas requiring private enterprise, an indifferent state controlled bureaucratic approach has retarded the growth of this sector. Added to that are the inherent inefficiencies in the system which drive up costs and make Indian shipping uncompetitive in the international market particularly when the shipping cycle is going through a trough. India's biggest shipping company is the state owned Shipping Corporation of India which owns 30% of the total Indian tonnage. Plans are afoot for the government to divest part of its stake in the company which is a positive step but the government would do well to exercise care in ensuring that the strategic advantage of having one's own ships in times of difficulty is not lost. The Maritime Vision 2030 has identified an increase in Indian flagged tonnage as one of the four 'limbs' on which the Vision is anchored.

Shipbuilding

Shipbuilding was one of the pillars of India's rich maritime heritage. However, with the Industrial Revolution from which India was excluded by its colonial masters and the transition from wood to steel and sail to steam, India saw a decline in its shipbuilding industry. The thrust on industrialisation after independence led to a revival, but over the years, the industry has once again lost momentum. The Maritime Agenda 2010-2020 had set an ambitious target of achieving a 5% share which has been an abysmal failure, the reasons for which are not far to seek. An unfavourable competitive environment, official indifference and inefficient management practices among others has restricted the total capacity of India's 28 or so shipyards at less than 0.5% of the global share while China, Japan and South Korea account for more than 90%. Various financial initiatives like a 30% subsidy has failed to excite the industry because of an uncertain policy environment, the delay of years in approvals which does not therefore benefit the shipbuilders who have to raise capex at prohibitive rates of interest which makes them uncompetitive at the very outset itself.

The government has now introduced the Shipbuilding Financial Assistance Policy offering a financial incentive of 20% over the next ten years but whether this will be able to allay the apprehensions of industry is yet to be seen. India's shipbuilding industry is being kept alive with naval and coast guard orders. Other than the five major shipyards building warships, there is very little commercial shipbuilding activity except for small craft being built including some for overseas clients. However, these are not enough to sustain these yards. The lack of an enabling environment has led to two large shipyards being forced into liquidation and another two have their backs to the wall. At a time when India should be augmenting its shipbuilding capacity and creating a favourable environment, the opposite seems to be happening. Perhaps the effective implementation of the Maritime Vision will reverse the trend. Shipbuilding is a complex process and spawns a large ancillary industry of Tier 1 and Tier 2 suppliers. It is estimated that shipbuilding activity generates a multiplier of six which is an asset for employment generation and economic benefit.

Ship repair activity generates substantial revenue for shipyards with lesser capital recurring costs. India's share of the global ship repair market is hovering around 2% but could be more with a more efficient system in place. Archaic facilities, inherent systemic inefficiencies, delays in refits and high costs deter shipowners from sending their ships to Indian yards and prefer more efficient ship repair yards in Singapore etc to optimise both cost and time.

Ship Recycling

India's ship recycling industry is likely to grow from the present 30% of the global share to about 60% with the promulgation of the 'Recycling of Ships Act 2019' which ratifies the Hongkong Convention for environment friendly recycling processes. This will also increase the contribution of this industry to USD 2.2 billion from the present USD 1.3 billion.

Coastal Community Development

India has a coastal community of around 200 million who form the backbone of the marine economy. However, most of them still rely on traditional skills to ply their trade with the attendant inefficiency in the contemporary technological environment. Modern practices, skill training and community development initiatives are essential to improve productivity and their contribution to the national economy. A close industry-academia interaction to optimally harness the benefits of modern disruptive technologies for developing innovative solutions will lead to better economic outputs for the larger community.

Awareness of the Maritime Domain

Oceanographic research in India has barely scratched the surface and still has a long way to go in exploiting what lies beyond its coastline and below the surface. India's large EEZ is a repository of minerals and resources waiting to be tapped. Underwater Domain Awareness (UDA), a subset of Maritime Domain Awareness is important from a scientific, economic and security perspective. There is also not enough scholarship on this subject which is very important to better utilise the resources within. India will have to make the sizeable investment required to reap the benefits.

Multilateral Initiatives

India is on the threshold of becoming a major global power. Its economic potential and developmental initiatives are being noticed. Its future potential has led to its participation at various leading multilateral fora; an invitation to attend the next G-7 Summit in the UK being the latest. India has recently become a non-permanent member of the UN Security Council for two years (2021-22) and in 2022 will assume the Presidency of the G20. It is a leading member of the Indian Ocean Rim Association (IORA) and its Act East Policy has successfully bridged the gap with the countries east of the Malacca Straits. India has comprehensive strategic partnerships with most countries in the region. It is a member of the Quad grouping and supports a free and open Indo-Pacific. It is committed to maintaining resilient supply chains and it has played a stellar leadership role during the pandemic, both at the beginning and now with its vaccine diplomacy. Nearer home, it is paying increasing attention to BIMSTEC and building economic connectivity between eastern South Asia and South-East Asia. India has recently launched the Indo-Pacific Oceans Initiative. India's unprecedented diplomatic outreach over the last few years is yielding very positive outcomes and India must leverage this to economic advantage in the predominantly maritime construct of the Indo-Pacific.

Conclusion

India has embarked on a comprehensive revival of its maritime economy though a slew of policy initiatives and development programmes. Sagarmala and the Maritime Vision 2030 have clearly articulated the milestones to be achieved. However, there are challenges within. The political leadership over the years, despite appreciating the importance of the maritime domain towards furthering India's strategic ambitions has been unable to drive the change required to make India a maritime power. There is a need for an Ocean Governance Architecture under a single maritime authority to shape and implement policy. Presently, ocean and marine issues are dealt with by a plethora of ministries and departments with differing priorities. The government must overcome its bureaucratic dogmas and harness India's famed entrepreneurial spirit by creating an enabling environment with a fair regulatory framework and timely financial incentive to compete globally. Despite India's vast Exclusive Economic Zone and seabed mining rights in the Central Indian Ocean Basin, knowledge about what lies beneath the surface of the sea is grossly inadequate. Even the Chief of the Naval Staff in his recent Navy Day press conference alluded to the importance of underwater domain awareness. The centre-state interaction in the maritime domain should work in the spirit of cooperative federalism towards achieving outcomes where the whole is greater than the sum of its parts. A comprehensive all-of-government approach towards developing a Blue Economy will require a deep understanding of the maritime domain in its entirety if India wants to be among the first movers in what is clearly going to be the developmental model for the future.

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Can Agriculture Foster Economic Development?

Shreya Challagalla*

Introduction

All countries face multiple policy choices in their early years of development. One of the first policy choices they face is in resource allocation—should resources be allocated to agriculture or to manufacturing to accelerate the country's development process? Typically, development includes a structural transformation of economies from least developed, where agriculture is the largest contributor to gross domestic product (GDP), to high-income where agriculture occupies less than 5 percent of GDP. This structural transformation was witnessed by England in the 18th century, Japan in the late 19th century and east Asia in the late 20th century. This article first tries to understand whether agriculture can foster economic development and then explores if such a model is suited for India.

Agriculture-led development models

Unlike Keynesian development models that advocate savings and investment, an agriculture-led development model argues for the development of the agricultural sector to fuel the rest of the economy. This implies that resource allocation will be in favour of agriculture. It is particularly useful for states that are predominantly agrarian like in the north-eastern region where 70 percent of the region's workforce is engaged in agriculture. In this model, advocated by Arthur Lewis, agriculture is first developed until a structural change of the labour force occurs – where labour moves out of agriculture into more productive sectors like industry or services. However, Arthur Lewis' two-sector model limits the role of agriculture to supplying surplus labour to more modern and high productive sectors such as manufacturing, emphasising labour productivity and increased output. Subsequent theories recognise the central role that agriculture plays in launching the development process in developing countries by providing linkages to non-agricultural sectors. Johnston and Mellor (1961) for example, view agriculture as central to the development process, providing surplus labour, supplying food and contributing to foreign-exchange, lacking which development cannot take place. It is worth recalling that in the initial stages of development, manufacturing is agriculturally related.

Empirical evidence from cross-country studies show that agriculture is over two times as effective in reducing poverty than either the manufacturing or service sectors[1]. It increases labour productivity and wages, and produces savings that are invested in other sectors. Drawing from this argument, agriculture plays a key role in escaping a "poverty trap" as it is labour intensive, employing a large section of the population. It is also suggested that "GDP growth originating from agriculture has a much larger positive effect on expenditure gains for the poorest households than growth originating in the rest of the economy".[2]

Harris and Todaro (1970) and Mellor and Johnston (1984) argue that encouragement of

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agriculture in the initial stages of the development cycle, increases agriculture-dependent household income, increases their spending power and eventually reduces overall poverty. In essence, a four transmission mechanism for poverty-reducing growth occurs. First, food becomes cheaper and farm incomes increase thereby creating more jobs, and finally incomes multiply which stimulates economic diversification. What is clear is that structural transformation from agriculture to manufacturing and services is inevitable as a country develops. However, this growth should be corresponded with an equal share of labour force out of agriculture into more productive sectors. Unfortunately, these theorists continued to view agriculture as the handmaiden of industrialisation. There is a need to re-think this paradigm with an explicit focus on agriculture *for* development rather than the role of agriculture *in* industrialisation.

Agriculture and Economic Development

The pertinent question is can agriculture foster economic development? Empirical evidence points to the pro-poor growth that only agriculture can provide, as it directly affects small and medium landowners and does not rely on a trickle-down effect. Importantly, poverty reduction emerges from rural areas. Empirical evidence from cross-country studies show that agriculture is over two times as effective in reducing poverty than either the manufacturing or service sectors.[3] It increases labour productivity and wages, and produces savings that are invested in other sectors. Drawing from this argument, agriculture plays a key role in escaping "poverty trap" as it is labour intensive, employing a large section of the population. It is also suggested that GDP growth originating from agriculture induces growth among the 40 percent poorest in a country.[4]

Increased land productivity is inversely proportional to poverty.[5] Irrigated farmlands produce more crop and "diversify their cropping systems", increasing their earnings, as compared to non-irrigated farmlands.[6] The earnings are spent within the local community, having linkages to poverty reduction across sectors. However, one needs caution in forming a causal relationship between poverty reduction and irrigated farmlands and non-irrigated farmlands, as other factors such as access to credit and level of education also affect poverty reduction.

In the early stages of development, agriculture is the lead foreign exchange earner through its exports. In regions that are rich in natural resources and where labour is abundant but infrastructure is poor and private investment is minimal, agriculture as a development strategy to foster economic growth is most suited as it provides a comparative advantage in transitioning to primary commodities manufacturing. India's north-eastern region will benefit from this comparative advantage.

Johnston and Mellor (1961) outlined five ways by which agriculture can promote economic development. The first is meeting increased food demands as a country develops (food security), second, as "a means for increasing income and foreign exchange earnings", third and fourth, in contributing capital and labour to advanced sectors, and fifth, by stimulating the economy through increases in farm wages.[7] Three of the five means continue to view agriculture in an exploitative role, used only to feed other sectors, but the authors emphasise that each mean plays an equal role. Underlying Johnston and Mellor's argument are the backward and forward linkages to non-agriculture sectors, particularly when excess income from increased agricultural production is spent on local goods and services. The authors' note that income elasticity of demand for food is higher in developing countries, implying a greater demand for agricultural produce as a country develops. Their argument views agriculture as stimulating a chain reaction for development. As a country grows, its population demands more agricultural produce which is met by farmers, thereby increasing their surplus income as well as their ability to demand other goods and services that are locally produced. Others call for greater government intervention when pursuing an agriculture-led development strategy, especially to help maintain the growth of agriculture and to raise productivity and incomes.[8] Overall, a strong positive link is found between agriculture and long-term economic development in both Asia and Africa, and is stronger with increased trade openness.[9]

Ultimately how successful such a model is will depend on the absorptive capacity of the manufacturing sector – how effectively can they make use of the excess agricultural inputs. Essentially, how will the manufacturing sector make use of the structural change that is assumed to occur? Empirical evidence points to a positive relationship between competitiveness and development. Therefore, the more competitive the manufacturing sector (or other productive sectors), the more the benefit from agricultural-led development models. Policy implications for countries therefore is to ensure that the structural transformation of labour occurs. Particularly for countries like India that has a growing population it is important to fast-track this labour-shift. Paradoxically, the process of development eventually limits the role of agriculture and favours industrialisation.[10]

Is Agriculture-led Development Suitable as a Model for India?

40 percent of India's workforce is engaged in agriculture. 328.73 million hectares of land is suitable for agricultural cultivation in India. Of this 64.03 percent is cultivated, and 67 percent of this is irrigated either by canals or tube-wells. Majority (68.45 percent) of this land is owned by marginal holders. In 2018-19, the agriculture sector grew at 2.4 percent at constant 2011-12 prices. The percentage share of value of agricultural exports to national exports is 11.90 percent. Based on Census data, between 1951 and 2011, India's population grew by 231 percent, whereas those engaged in agriculture declined by a mere 21 percent.

What do these statistics imply? As seen in Figure 1, India is an agricultural country, with majority of its population engaged in the agricultural sector. A shift of surplus labour to more productive sectors is evident, albeit gradually. A positive trend is that between 2004-2019 labour shift is converging, implying a more even distribution of labour. Between 2010 and 2019, labour employment in agriculture has been stable, whereas that of services has declined. It is likely that labour absorption into manufacturing was from services rather than from agriculture. Growth in labour

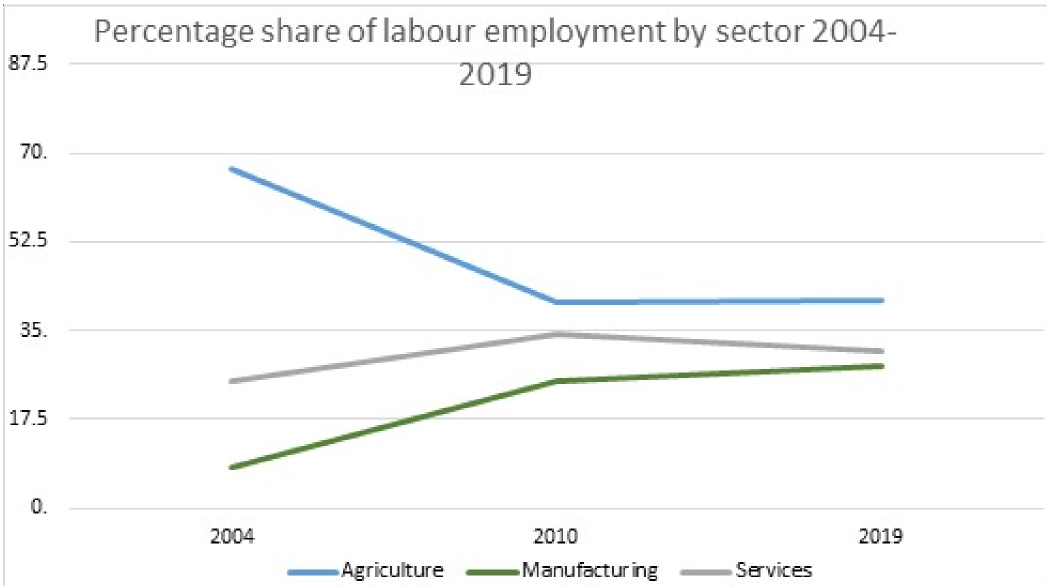

Figure 1: Share of labour employment by sector from 2004 to 2019
Source: Author's own compilation based on data from NSS survey's in 2004, 2010 and 2019.

employment in manufacturing is a positive sign, but benefits are more when labour is absorbed from agriculture as it is easier to skill workforce in manufacture sector than in services.

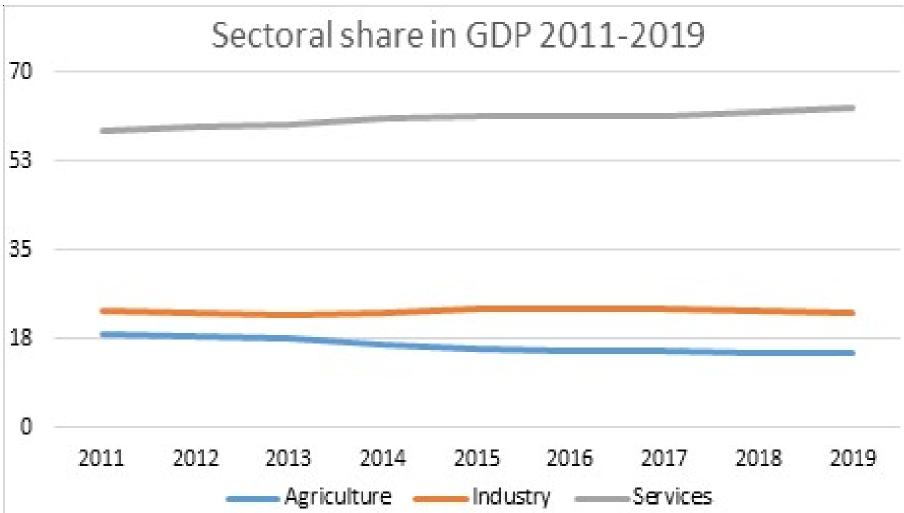

Figure 2: Sectoral shares in Gross Domestic Product (GDP) between 2011 and 2019 based on the 2011-12 series.
Source: Author's own compilation based on data from the Reserve Bank of India[11]

Figure 2 shows the share of GDP by various sectors between 2011 and 2019, based on the 2011-12 series. Although the RBIs classification is more detailed and includes agriculture, mining, manufacturing, electricity, construction, transport, finance, and public administration, for the purpose of this paper the sectors were merged and classified into agriculture, industry and services. change is evident but this is seemingly driven by the service sector. The share of agriculture in the total GVA has declined from 2009-2019 on account of a high growth in the service sector. Growth in the tertiary sectors is highest between the 2014-2020 period. Interestingly, both agriculture and industry declined at roughly the same rate in this period. This is because agriculture output affects

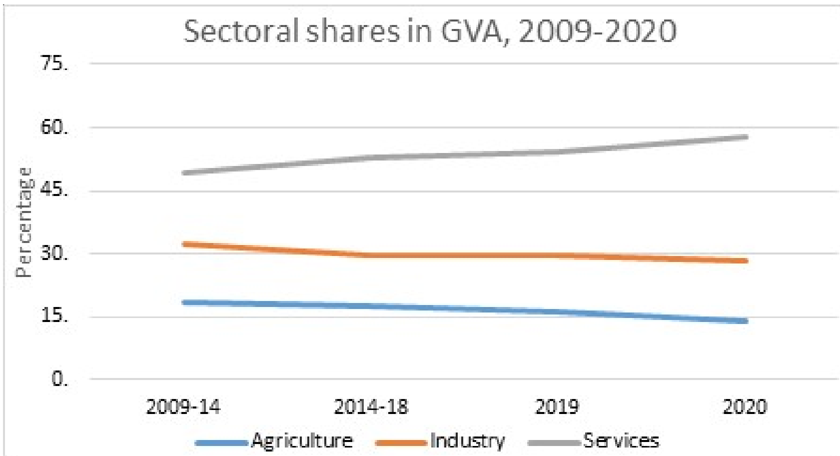

Figure 3: Sectoral shares in Gross Value Added (GVA) between 2009 and 2020
Source: Author's own compilation based on data from the 2020-21 Budget[12]

The share of industry marginally increased in the 2011-2019 period, while services saw an increase from 59 to 63 percent and continues to maintain an overwhelming lead. Agriculture on the other hand decreased from 19 percent in 2011 to 14.6 percent in 2019, yet employs a disproportionately large number of people.

However, GDP does not reveal the entire story. Examining Gross Value Added (GVA) gives a more accurate picture as it takes into account the real contribution of each sector and is therefore a better measurement of a nation's economic performance. As seen in Figure 3, a structural industrial growth. High growth in non-agricultural sectors and decline in agriculture is common as a country develops. However, the growth in services is not in proportion to the structural change in labour as seen in Figure 1. A policy implication is to further train labour that moves out of agriculture so as to enable their quick employability in services or industry.

The Green Revolution of the 1960s and 1970s in India increased agricultural productivity in select states. This spurred growth in the agricultural sector but reduced urbanisation and manufacturing growth.[13] Agricultural productivity growth increased proxies for rural public goods provisions in these districts, including education, better roads and health-care. Rural agricultural wages improved but at the cost of increased inequality in land ownership. Agricultural productivity may have increased but at the expensive of manufacturing. The Green Revolution "impeded structural transformation across Indian districts".[14] Mistakes from the Green Revolution cannot be repeated.

It is clear from Figure 1, 2 and 3 that India's path to development has, thus far, been driven by the services and manufacturing sectors. Agriculture continues to play an important role largely due to the enormous number of people dependent on it for their livelihood, but has not been at the forefront of development. Multiple policy implications emerge.

First, India's agricultural sector is dependent on rainfall. A bad monsoon affects agricultural production, while pre-monsoon rainfall bodes well for kharif sowing. Agricultural is critical for macroeconomic stability and for sustained growth. Typically, industry responds positively to a good agricultural year. Therefore, there is a need to make agriculture less dependent on monsoon and encourage other irrigation and water-harvesting methods that ensure stable produce every year.

Second, supply bottlenecks will need to be addressed as well as create direct farm-to-fork supply chains. This will ensure that farmers are given the choice to sell directly to their customers demanding a higher price and eliminating dependency on middle-men.

Third, given that a large majority of Indian farmers are marginal, the focus must be shifted towards increased agricultural productivity per hectare. Research need to focus on increasing agricultural productivity and transferring this knowledge to farmers. Focus must also be directed towards "more crop per drop". Encouraging farmers to diversify to higher-value commodities will be a key factory in increasing agricultural growth and income, thereby reducing poverty.

Fourth, markets will be need to be further developed and restrictions on internal and external trade loosened. Partnering with the private sector particularly for marketing, value chain and agro-processing is important. The private sector will have both the funds and incentive to manage cold storage units ensuring long-lasting agricultural produce.

Farm Laws 2020

To give the agriculture sector a boost, a set of laws were passed late last year including The Farmers (Empowerment and Protection) Agreement On Price Assurance and Farmers Services Act 2020, The Farmers Produce Trade and Commerce (Promotion and Facilitation) Act 2020, and The Essential Commodities (Amendment) Act 2020. Each of these Acts aim to clear the bottlenecks in Indian agriculture that were highlighted in the previous section. Below, the first two Acts are examined.

The first Act gives farmers the liberty to enter into agreements to produce agricultural products that are demanded by the market, without compromising on the farmer's rights. Likely outcomes are better pricing for producers and consumers, as well as improved quality of produce for consumers. Farmers will benefit from market analysis to inform actions to diversify land use, will be better equipped to manage risks of uncertain produce, are more likely to adapt to newer technologies and to engage in land pooling. The private sector is likely to encourage insuring agricultural produce, shifting the risk of a bad crop year away from the farmer. Moreover, involvement of the private sector incentivises the creation of superior value chains.

The second Act removes barriers to trade and allows farmers to sell their produce anywhere in India. This will ensure remunerative prices and competitive trading, paving the way for alternatives to non-traditional physical trading platforms. It will allow the highly profitable farm-to-table movement to kick-off in India. Free markets in agriculture are not inherently bad. They give producers more freedom and choice in trading. Involvement of the private sector in agriculture ensures efficient value and supply chains, better marketing and profits to all players along the value chain. However, to truly reap benefits from a free market, farmers will have to be informed of market developments, true pricing and value of their produce, and will need to be sufficiently trained in marketing.

These farm laws conform to a globalised world run on free-market principles, giving farmers more choice and freedom to sell their produce. If implemented effectively, potential outcomes include crop diversification, maximum production, efficient use of resources, increased farm income, access to credit and insurance, and reduced poverty. Additional potential outcomes for the sector include efficient supply chains, storage facilities and value chains. Consumers on the other hand will benefit from competitive prices and improved quality produce. These measures will not only help spur the agriculture sector, but will also give a boost to the manufacturing sector, as they are intricately connected. The new laws can form the basis for an agricultural-led development model.

Conclusion

An agricultural-led development model promises increased incomes, reduced poverty, development of rural non-farm sector, strengthened domestic production base for industry, food security, increased trade, and better balance of payments. In particular, its impact on food price stability and contribution to total factor productivity for the entire economy cannot be ignored. It is a model for pro-poor growth which is driven from the bottom, instead of relying on a trickle-down effect to occur. Such models have worked in Asian economies like Japan, South Korea and Malaysia and bodes well with a growing economy like India. Moreover, growth in agriculture supports growth in industry and not the other way around. However, India will have to ensure a quick structural change in labour to fully benefit from such a model.

As seen in this paper, the decline in agricultural contribution has not been in proportion with the decline of workforce engaged in agriculture. Current government initiatives to skill workforce are welcome, but this needs to be enhanced to ensure faster absorption of the workforce particularly into manufacturing and services. Equally important is to open trade as openness to trade is directly proportional to higher growth, increased income and reduced poverty. To fully reap the benefits of an agriculture-led development model, attention must be given to increasing farm productivity, particularly since majority of Indian farm holding is marginal. In these regards, the

Farmers Bill 2020 is only the beginning of an agricultural-led development revolution, but must be complimented by structural change, openness to trade, skilling of workforce, crop diversification and above all, increased productivity. Ultimately, the success of such a model will depend on the absorptive capacity into the manufacturing and service sectors.

This paper has been developed from a previously written article on a similar topic by the same author.

Endnotes:

1 *See arguments on agriculture and poverty and economic growth from Christiaensen et al (2006); Timmer and Akkus (2008); Diao, Hazell and Thurlow (2010); World Bank (2007)*

2 *See Janvry and Sadoulet (2010) pg 6, who use data to provide evidence of agriculture's contribution to reduction in poverty at the sectoral and household levels.*

3 *See Christianensen et al (2006); Timmer and Akkus (2008); World Bank (2007)*

4 *Janvry and Sadoulet find that the effect on poverty reduction amongst the poorest is highest when GDP originates from agriculture.*

5 *Ibid., also see Zeng et al (2015)*

6 *See Bacha et al (2011) pg 9*

7 *See Johnston and Mellor (1961) pg 572*

8 *Timmer (1992) reviews three stages of thought on the role of agriculture in economic development, and argues that it is not enough to leave agriculture to market forces and that timely government policy interventions are required if agriculture is to play a stimulative role in economic development.*

9 *See Awokuse's 'Does agriculture really matter for economic growth in developing countries?'*

10 *See Kuznets (1973); and Timmer and Akkus (2008)*

11 *The entire dataset may be found here – https://dbie.rbi.org.in/DBIE/dbie.rbi?site=home*

12 *Refer to Chapter 1, 'State of the Economy' in the 2020-21 Budget which can be accessed here – https://www.indiabudget.gov.in/budget2020-21/economicsurvey/doc/vol2chapter/echap01_vol2.pdf*

13 *See Moscana (2019) who compares structural change data across and within countries*

14 *Ibid, pg 3*

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INTERVIEW

India's Economy and Union Budget 2021: An Interview with Shri Sanjeev Sanyal*

Praket Arya*

Praket Arya: We find ourselves in truly unique circumstances, facing a once in a century pandemic and the worst contraction in the economy since 1952. If I asked you to describe the Indian economy in less than three words after this budget, what words would you pick?

Sanjeev Sanyal: I would pick *rebounding strongly*. India has been through a major lockdown and made health-related choices which have been instrumental in keeping the pandemic in control. The vaccine has also been rolled out and the economy is now recovering as can be seen by virtually any high-frequency data. The budget has given extra fillip to boost the economy through an extended infrastructure build out that will last for several years. This, allied with the structural reforms that were done earlier will go a long way in getting the economy back on track, with India poised to be among the fastest, if not the fastest economy, in the next couple of years.

Praket Arya: There is a perception with respect to the direction the Indian economy is heading, particularly after this budget, that the government is unsure as to where it wants to position itself in the political economy spectrum. This budget indicates a shift towards growth in what we call 'trickle-down economics', compared to all the previous budgets since 2014, which according to many, focused primarily on redistribution and social policies like direct benefit transfers. What is your take on this?

Sanjeev Sanyal: In the ultimate analysis, we need to grow, and that requires the energy of the private sector. This was recently reiterated by the Prime Minister on the floor of the house. But we also need trickle down to occur, for which the channels have to be created. So, a significant amount of effort was devoted in previous years, in creating the Jan Dhan system or the health insurance network et cetera, to create both a safety net as well as the channels of that trickle down. But in the end, you have to go for growth, for which the private sector is the key. Our growth model is about private investment, private innovation. We

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*__*Praket Arya:*__* *Praket Arya is an economist by education. He is an alumnus of The University of Edinburgh, Scotland, and St. Xavier's College, Mumbai. His research interests include Development Economics and the International Political Economy of the European Union and the Greater Eurasian Space.*

are also inviting foreign direct investment in various ways into our economy. In this investment driven model of economics, we have taken care of the pathways for trickle down and also made sure of a safety net. This was done through the lockdown period from April 2020 onwards wherein free food was given to 800 million people, which is perhaps the world's largest food distribution program. Money was also provided to the poorest people through the Jan Dhan accounts. A safety net was also provided to the MSME sector. So, due emphasis was paid to the business of how to make sure trickle down happens, but in the end, the growth engine, the creation of wealth has to be done by the private sector. That is why we have laid emphasis on keeping taxes low, and on deregulation. Where government resources are invested, it is towards creating infrastructure, which of course the general public can use, but a business can also take advantage of. So, all of this has a particular tilt which we are completely unapologetic about.

Praket Arya: If I may ask you point blank, is it not a complete U-turn in the government's approach?

Sanjeev Sanyal: No, we have believed in a minimum government, maximum governance. I think many people here believe only one part or the other, depending on their proclivities. I am not a libertarian who believes in the minimal state; I believe in a strong state, but I also believe in a limited state. It is perhaps the Chanakyan worldview, as opposed to say the Nehruvian worldview which is an all pervasive but weak state. So those things the state does, it should take seriously and do a good job of, whether it is in terms of security and defense related issues, or providing basic infrastructure or regulations which are needed. But these have to be limited to what they are supposed to do and not have this all-pervasive expansion of the state into areas that should not be there.

Praket Arya: Speaking of the so-called shift in the governance approach, do you think it's possible to reconcile inequality and growth in the Indian context, more so after this pandemic?

Sanjeev Sanyal: I think this dichotomy is a false one. It's probably false everywhere, but it certainly is false in India. At the end of the day, we are a poor country and if we only focus on inequality, we are simply redistributing poverty, as we have done for years on end. Clearly, that is not a great model. We changed that model in 1991 and we have clearly succeeded. We have to generate wealth to be able to redistribute it and provide the many things that everybody benefits from, both rich and poor. Benefits come to all from good infrastructure, good health system, proper sanitation, protection of the environment and so on. In developing countries where we are dealing with absolute poverty, we have to have growth. Yes, we also have to assist some of that trickle down, but the key lies in engineering growth which will create the wealth for the rest of the things that we want to do.

Praket Arya: The fiscal deficit presently stands at 9.5% and it's targeted at 6.8% for the next fiscal. This is way higher than what any rating agency or international organisation may advocate. It is of course understood that the economy needed the impetus in the form of various stimuli that were periodically offered in the lockdown. But, can a counter cyclical and expansionary fiscal policy be prudent for maintaining a healthy debt to GDP ratio?

Sanjeev Sanyal: These are extremely unusual circumstances. This government is otherwise fiscally conservative, and has oft been accused of being too conservative, but there are circumstances where you have to be willing to absorb the need for a stimulus. Of the 9.5% fiscal deficit, some of it is obviously a stimulus, but some is a loss of revenue. And some of it is just the denominator shrinking. Going forward, we are confident that the denominator will expand quite fast. In nominal terms, we expect a 14% GDP growth rate in the budget, but I'm quite certain that it's too conservative. In the economic survey, we have talked of 15.3% growth. The IMF expects almost 16%. So, I think we will do quite well in terms of getting the denominator going again, and that will feed through to some recovery in the revenue side, which has already been seen in GST and other collections.

The question is, do we want to then try and close the gap as quickly as possible? The answer is no. There are points in history where keeping some momentum going on the fiscal side is a good idea, and this is one of those moments. In the economic survey, we make the case that in fact, even from a fiscal consolidation perspective, going for growth at this juncture may be a good thing to do. The question then is, what do we spend that extra space on? And here we have made a very clear choice. We have gone for spending on infrastructure, which in its wider definition includes sectors like health. The debt we are creating are being left to future generations to pay, so it is also important to leave to the future generations, the assets to match the debts. Creating debt without assets is not a particularly useful approach. Such an approach leads to the balance sheet going awry and is unlikely to lead to higher growth. That is why the focus is now on spending the money directly on infrastructure, as we know from experience that this creates jobs and a demand for all kinds of products such as steel, cement and so on. And after a period of time, it also helps the supply side by creating infrastructure on the supply side.

Praket Arya: Will the fiscal deficit in the short term impact negatively on interest rates and inflation?

Sanjeev Sanyal: This is something that we have to manage. Inflation depends on a large number of things, including international interest rates. Our judgment is that at this juncture, at least for some time, international interest rates will not rise. So that gives us some space. With respect to demand driven inflation, I do not believe it will be driven up too quickly. There is enough slack in the system, not to mention we have done all the supply side measures, which have also probably hopefully opened up the gates on the supply side. So, I think sustained inflation, driven by demand, is unlikely. This is a judgment call, but we can adjust it along the way. If the economy grows so well and creates so many jobs that drive up inflation, then the stimulus given would not be required and it can be scaled down. Adjustments may be done based on the situation, but there is no point in adjusting for inflation at the point in the cycle we are in right now.

Praket Arya: You have stated that we are looking at a better than 10% recovery in the next fiscal. One of the biggest determinants of growth going forward, however, will be the sentiment of both businesses and consumers. The businesses are not going to make fresh investments unless they believe that the economy is going to do better. This could impact on employment and output. In the absence of a strong consumer sentiment, aggregate demand will not rise, which will eventually bog investment. After the budget, we see that in a certain section of the economy, there is exuberance about its future prospects, which is reflected by the stock markets. However, there is a very large section that remains bogged down by low employment opportunities and reduced incomes. This is also reflected in the RBI's consumer confidence survey. Would such a mismatch between business and consumer sentiment create economic uncertainties?

Sanjeev Sanyal: I think the key here is that we have to get the animal spirits going because that creates the investments. The view that investments and consumption are at some sort of loggerheads and that you have to choose one or the other may perhaps be misplaced. There is a view that consumption drives investment, but more than adequate evidence also exists, as seen from the East Asia growth story, that investment drives growth, creates employment and consequently creates consumption. So, the causality works both ways. All we are doing right now is basically taking the view that we can drive investment driven growth in India, directly, first through government spending on infrastructure. Then as you can see, animal spirit seems to be coming back. There is clearly also an increase in FDI coming into India, and this has happened even during the period of the pandemic. All these factors, we hope, will drive investment, especially as plenty of investment opportunities exist. That is the driver of growth which will create jobs and demand to fuel consumption. This, I realise, turns on the head what has been perceived as conventional wisdom in India. It also turns on the head some of the thinking that may be there in certain Western countries, but it is not an unusual model because many East Asian countries during their high growth phase used exactly this model to grow and create investment.

It is critical for India to be open to both foreign investment and private investment and we are open to both. We are also very keen to insert India into global supply chains. Here efforts are being made through Production Linked Incentive (PLI) schemes to try and target various sectors. Other reforms include removing outdated regulatory laws. Towards this end for example, we have removed outdated regulations in the telecom sector and in Business Process Outsourcing (BPO) in the IT sector. We have also freed up the cartography and geospatial sector and reformed labor laws. We have also done farm reforms despite a fair amount of political pushback. So, this is a government that believes in carrying all the reforms that need to be done.

Praket Arya: We see a phenomenal increase in the budget outlay for health and wellbeing and particularly in healthcare infrastructure. But, given the fact that health is a state subject in our federal structure, and that two-third of all health spending happen in the state, evidence suggests that not all states spend proportionate to their capacity and healthcare infrastructure. How will this be addressed? Also, as American Nobel Laureate Kenneth Arrow suggested in the 1960s that laissezfaire does not really work well for the healthcare sector, given the problem of asymmetric information, how does the government hope to regulate the private healthcare sector, which has been in the limelight for all the wrong reasons during this pandemic?

Sanjeev Sanyal: The budget that was presented was the Central Government's budget. So, I would not like to comment on what the State Governments should do. They are all democratically elected and are responsible to their respective voters. At the national level, we made a pitch for higher allocation to health and sanitation. People forget that a significant effort on our part is on sanitation. In many ways, sanitation has a bigger impact on health than medical facilities. People sometimes forget that most of the gains in longevity since the industrial revolution, happened because of better drains and toilets than because of better doctors. This comes in the domain of preventive health care. So, this is something we need to invest in, and that is the context of the 'Swachh Bharat' campaign, the toilet building campaign.

With respect to regulation, two issues need consideration. The first is, what needs to be regulated and the second is what kind of regulation is required. The health sector is a peculiar sector in which the supplier decides how much demand there will be. There is thus an obvious asymmetry and that needs a certain amount of regulation, otherwise we will end up with peculiar situations such as exist in the United States, which despite spending 15% to 16% of their GDP on health, the outcomes are not proportionate to the money spent. They are extremely good with specific diseases like rare cancers et cetera, but general health provision remains comparatively pedestrian. So, in India we need to be careful that health does not become like any other product, and that is why it needs to be regulated. It also requires some public spending in medical services to provide competition, so that there is an anchor to the pricing. There has to be transparency. We have to open the gates in terms of having more doctors and medical practitioners but regulation is required to see that a certain standard is maintained in quality of doctors and that malpractices are kept in reign. So, we cannot have a free market like in cars, but I would advocate other than safety regulations and a few other features, we need to open the gates.

This is where we are at now with health regulations. I am quite clear that we need a mix of public and private healthcare facilities. There are problems with relying entirely on the public sector – the usual inefficiency problems. So, we need the private sector to show us the innovation and the efficiency, but we also need the public sector in order to provide competition and force transparency on the private sector. That basically is the context now as far as regulation is concerned.

There is another chapter in the economic survey which makes the point that it is very important that you don't regulate passively just by creating rules and evermore rules. That is a major problem in India, in every sector, not just in the health sector. It is true also of financial markets and other institutions. The idea in my view is that you reduce and simplify the regulations, and then pay more attention to supervision. This is something, unfortunately, we don't give enough credence to. We need more supervision rather than more tedious rules. We need somebody that keeps track of the sector and responds to its evolving needs.

Praket Arya: In this budget, we also see a lot of measures to boost manufacturing and strengthen the recoveries of MSMEs, which has actually been responding well to the various stimuli offered by the government, periodically, all through last year. However, the contact sensitive service industry has not responded and recovered as well as we had expected, particularly for sunrise sectors like hospitality, which has seen no direct relief package from the government. Do you think pent up demand and the ongoing vaccination drive will enable recovery, or will it be too little too late?

Sanjeev Sanyal: Direct contact sectors like travel and hospitality, as also some segments of the entertainment sector, have all been impacted negatively by the pandemic. While we would love to open up these sectors, we have to be cognizant of the fact that we haven't yet come to the end of this pandemic. Yes, we have controlled it, but that's largely by restricting certain kinds of activities. We are opening them up as fast as we can, but we will have to do it step-by-step, in a calibrated way. So, the real issue is, how do we help this sector?

Well, until the sector has been opened up, little help can be given. As I have stated many a time, there is no point in pressing the accelerator until you've taken your foot off the brake. So, we need to take the foot off the brake, then having done that, demand will come back naturally to some extent. That is when we need to help it. Besides providing certain financial solutions, we need to get rid of outdated regulations. Many of these however, are at the state level. For this sector too infrastructure development has been helpful as it provides easier access to these places. We should not allow the debate to get sidelined into irrelevant suggestions such as people asking for a GST holiday! I am not certain if anybody is not travelling because of GST concerns. Giving a GST holiday will lead to unnecessary complications being introduced in to the GST system, which is based on a value-added chain. So, if you suddenly remove one bit of the chain, it will create a host of other problems, but will have no tangible benefit. Knee-jerk solutions do not work. However, we can have a serious conversation on this issue, to determine the appropriate response. Perhaps there is a case for investing a lot more effort into preserving our historical sites and cleaning up certain natural areas. That will give greater resonance and payoffs, rather than doing away with GST for this sector.

Praket Arya: Let us now talk about agriculture. This was the only sector that escaped contraction in 2020-2021 and this ensured that rural demand did not collapse at a time when the economy was mired in deep crisis. High food inflation levels all through 2020 also helped in supporting this. Since December 2020, we see that there is a fall in food inflation levels, particularly with the bumper production of kharif crops and seasonal vegetables. What do you think are the prospects for rural demand with respect to agriculture and the non-farm blue collar workforce?

Sanjeev Sanyal: An important thing to remember is that agriculture was uniquely placed in terms of surviving the pandemic, because it did not require a concentration of people, so to that extent it was somewhat buffered from the pandemic. But there are certain long-term issues that we need to think about. First, we must recognise that rural India is no longer only agriculture. There are a lot of other activities happening there and thriving. Agriculture remains very important, but the other activities are also not less, some of them being driven by agriculture such as agri-business, supply chains, and so on. Some of them of course, may have nothing to do with agriculture at all. All these activities need to be encouraged. Even with agriculture, we now need to begin to think of it somewhat differently from the old idea that we need to grow ever more calories, which is essentially the green revolution. We now understand where they came from, because back in the sixties we had a food crisis. We were not growing enough food. We had to import them under somewhat difficult circumstances. Memories of the famines of the colonial era was still fresh.

But the fact of the matter is we now have the opposite problem and the problem is this: we want the sector to grow at least 3 to 4 percent a year, but at the same time, our population growth rate is slowing down. It is already below 1 percent and it is declining. In fact, in some ways, food consumption must be already at zero because frankly, even the population growth we are getting now is having, because older people are living longer and many of them are living in the cities. So their food consumption per capita is also anyway declining. Under those circumstances, there is no way we can sustain consumption of food. Now there is at the margin, some people who are not eating enough and yes, you know, some supplier food needs to be put through to them. But frankly, this is not a long-term trajectory of growing more grains. In fact, even where there is a problem with malnutrition, the causative factors that need to be dealt with are diseases and diarrhea. This is one part of the problem which growing more rice and wheat does not solve, but the other is that they need other kinds of crops such as vegetables or pulses or fish et cetera. The problem here is that our entire agricultural policy is tuned towards doing one thing, growing more calories. So, we have got to begin to create avenues for other things to grow now because the agriculture sector is dependent on a certain framework.

MSP should be kept because it provides some sort of a cushion for the time being. But the fact of the matter is you do need, if you want high growth and particularly if you begin to think of the farm sector like any other business, a certain level of innovation will be required. Lack of innovation is bad for the sector itself. So that is the context in which we need to open up other avenues for farmers to think about their activity as business, to begin to grow things that have other uses—whether it is flowers and orchids for export, or growing certain kinds of fibers that can be used in new kinds of fabrics, etcetera. This requires a dynamic that these new farm laws allow. If you continue with a monopoly of government control, mandis, Agricultural Produce Market Committee (APMCs), the Essential Commodities Act, then this modernization simply will not happen. That is why we have taken the step knowing fully well that there would be difficulties and opposition to it, because in the long run, that is the only path that we can take. Otherwise, what we are doing is growing more and more calories, ironically which we do not need, and in the process, we are running down groundwater levels and also poisoning the earth with excessive amounts of fertilizer and pesticides. And so, this is a strange situation where we are actually mortgaging the future to grow crops that we don't actually need. We are then spending a large amount of money trying to store food that we don't need. So, this is a game that we have to get out of.

Praket Arya: Last year, we saw the Prime Minister launch a INR 1 trillion agriculture infrastructure development fund to boost post-harvest management infrastructure and various community farming assets. With this budget we see the introduction of the Agriculture Infrastructure and Development Cess (AIDC). Although this is a welcome move, as it does not put an additional burden on consumers for most items and promotes state financing, the state governments cannot really be too happy about it as it puts an additional burden on their already falling revenues.

Sanjeev Sanyal: I think that has been misrepresented if what you are meaning is the cess on fuel. This is really an accounting issue for the central government, wherein an existing surcharge gets converted into an agricultural cess wallet. The earlier additional surcharge was anyway not going to the state governments. What is happening now is simply the central government's accounting issue and has nothing do with the state governments.

Why is this being done? Well, if we wish to have a next generation agriculture, we need to move away from growing fixed products and diversifying into other fields such as growing millets, health foods, high end cereals, etcetera. This can happen only if we have the infrastructure to do so. Otherwise, we will have to go for this via the bulk type effort that we currently have through the Food Corporation of India. That is why a certain amount of infrastructure is required that can be built up through these resources.

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DEFENCE AND SECURITY

The Tight-Rope Walk : Balancing Military Requirement, Budget & Atmanirbharta

Sumit Mukerji*

> "*Future battlespace will be shaped by technology and technological superiority – Thus technological self-reliance remains the mantra for the future.*"

Introduction

A document of the armed forces of India, called the 'Technology Perspective and Capability Roadmap' or TPCR is promulgated in the public domain and more so to the industry at large on a pre-determined basis. Based on the 'Long Term Integrated Perspective Plan' or LTIPP, the TPCR broadly lays out the technological horizon for the armed forces in the foreseeable future. Like the LTIPP, the TPCR also follows a 15 year cycle with a proviso for introducing a product that may become relevant and quite possibly imperative in the period in between. Following the technological innovations taking place around the world and their application in the military domain, the aim of the perspective is to remain on top of the technology curve with the ability to possibly cover the matrix thrown up to stay ahead of any adversary who may have untoward designs against the country. Thus, it is a broad spectrum document, which, while not being specific towards a 'product,' broadly points the way for the leadership and policy makers to determine the direction the country should follow in its path of self-preservation and defence against any external aggression.

From the days when mechanical means of warfare became an integral part of war-fighting equipment, generally accepted around the First World War with the introduction of the tank and the first forays of air power, doctrine drove technology. As the years went by, this remained the norm till possibly the last four decades when the computer revolution and information domain began to play a major part in everyday life. Communications and the internet provided the information corridor and as data began to grow and bandwidths alongside, they provided the all-important data-transfer which has been the key to so many major decisions across the world. Innovations and information threw up technologies at a faster pace and sophistication in military weaponry advanced in leaps and bounds. Accessibility provided a large range of acquisitions available in the market and proliferation of the arms market saw levels never seen before. Thus, at some point in time, the roles were reversed and the pace of technology provided the military planners a basis to form their doctrine. But there was one major controlling factor. Niche technologies remained the coveted right of some of the major powers and in some fields, the major companies or Original Equipment Manufacturers (OEMs). Militaries the world over were constrained to seek such technologies which came

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at enormous cost and remained as sole propriety with the major powers.

National Security and Evolvement

National Security is an all encompassing, non-negotiable and non-compromising issue. After more than half a millennium of rule by foreign powers, India's moment of self governance in 1947 also came as part of the learning curve in National Security. The aggression by the newly created Pakistan to wrest Kashmir, though suppressed, brought to the fore the need to possess adequate defences to prevent such actions in the future. Armed with outdated WW-II weaponry, it was certainly not the way forward to defend the extensive borders, with hostile and soon to be proven hostile, neighbours. The need for an indigenous defence industry was immediately felt and realising that that the only knowhow was to repair and reproduce small arms, the Defence Industrial Base (DIB) was established in 1950 from which emerged the Defence Research and Development Organisation (DRDO) which was tasked to develop defence systems for the three military services.

To move the project forward, Defence Public Sector Units (DPSU) were established so that the manufacture could be streamlined. For want of technological knowhow and expertise, it was natural to seek foreign help and collaboration. From Fully Formed (FF) equipment to gain knowledge, to Semi-Knocked Down (SKD) kits and finally the CKD or Completely Knocked Down Kits, progress was genuinely pursued. But after such a laboured process, India was not able to become self-reliant and till date virtually remains dependent on foreign OEMs for its hardware. While the reasons for this sorry state were identified as shortages of trained manpower, poor quality facilities, poor quality of production and delayed timelines, these were pointers to a population with no drive or incentive to progress and participate in the industrial development of its country. Restricting development and manufacture of defence equipment to the government controlled PSUs, which were rife with labour unions dictating work conditions, further constricted growth. The sobriquet of being one of the world's largest importers of military hardware has been like the proverbial millstone around our necks.

Serious efforts to streamline the military acquisition program were commenced in 2003 with the introduction of the Defence Procurement Procedure (DPP). Evolving through a series of iterations in 2005, 2008, 2012 and 2014, the 2016 edition of DPP is in vogue with a further tweak in 2020. The basic categories of Buy (Indian), Buy and Make (Indian), Make (Indian), Buy and Make and lastly Buy (Global), though providing the priority to the indigenous industry, has failed to meet the ambitions and we still continue to Buy (Global) in most cases, especially when it comes to sophisticated Air Force equipment. Quality defence equipment production still eludes us, the precision tooling, the machine fabrication, the trained and effective manpower and abominably high costs have also deterred the private industry which was never offered a helping hand by the government. With no guarantee of acceptance, military hardware production has remained in the realm of the PSUs, doomed to drag its feet through history.

Between the ability of the DRDO and the PSUs to meet the requirement projected by the LTIPP and the Defence Budget to fund what has eluded the former, through Buy (Global) products from OEMs, the Indian Armed Forces have, historically, "managed with what they have". The bid to induct private industry participation in small percentages commenced early in the century and the TPCR provided the technology vision to the private players to develop capability and capacity. The introductory quote of the Raksha Mantri in the TPCR logically states, "Our defence forces require timely and cost effective acquisition of defence equipment to enable them to meet any challenges to the country's security". While all our plans converge towards minimising the technology gap and optimising combat potential, the purse strings seemingly keep getting tighter and state-of-the-art systems keep eluding us, remaining like the proverbial carrot in front of the donkey cart.

The Defence Budget

The Defence Budget has been an enigma for the Indian Armed Forces. It is there but isn't really there. The optimism of the announcement of the annual budget is always followed by the disappointment of the allocation. For some reason, National Security does not find the importance to merit the consideration that one would expect. Notwithstanding the wars India has had to fight, the defence budget over the years has remained at less than 2% of the GDP, well short of desired levels. But budget allocations by the government are always weighed against the requirements of the nation for progressive growth.

Narendra Modi, since assuming the mantle of the Prime Minister in 2014 has maintained his focus on infrastructural development in this country, which became his main priority. With a focused purpose, his serious effort to alleviate poverty and modernise India in a drive to achieve recognition as a regional power, a precursor to further ambitions to see the nation recognised as a world power, the Prime Minister's directions were clear. Providing the military with the barest upgradations, it was his belief that the armed forces, even with limited growth still possessed the potential to not only contain any threat but effectively act against it in a timely manner.

With the Covid pandemic having taken its toll on all economies, the defence budget 2020-21 was unlikely to provide any solace to the armed forces. Banking on the fact that the nine month stand-off against Chinese troop incursions and the prolonged alert status of the armed forces, not to mention the urgency to make good long pending deficiencies, there was hope that the GoI would make substantial change this year. An allocation of Rs 4,71, 378 crores (USD 66.9 billion) for the MoD did seem to meet the expectations. But the distribution of Rs 3, 23, 053 crore (USD 45.8 billion) to the Defence Service Estimates which caters to the expenses of the DRDO and the three services, Rs 1,33,825 crore (USD 19 billion) for Defence Pensions and Rs 14,500 crore (USD 2.1 billion) for MoD civilians has put the entire defence budget in the proper perspective. The ratios are dynamic but represent the government's desire to meet the requirements of the Armed Forces. Defence Budget 2020-21 also represents a growth of 9.4% which may appear substantial but translates to Rs 40,367 crore which, in a high technology, high cost sector does not amount to much. What people do not perceive is the fact that year after year the services generally suffer from a back-log of committed liabilities, which further stunts their growth potential.

It is always hoped that progressive budgets will overcome the rate of obsolescence of military equipment. But the steady consumption or wear and tear that military assets are subject to need to be addressed adequately, especially in critical areas of fighting elements. The steady draw down of fighter squadrons due to obsolescence of aircraft, is a classic example of how the most critical item of deterrence has not been suitably prioritised. A comparative study between resource requirement and resource allocation has remained a perilous 25%-30%. It is a large gap to bridge. So, in essence, what the military invariably has to resort to is to cut down on or curtail certain expenditures while prioritising what is available – essentially an exercise to streamline available assets to higher levels of efficiency.

Atmanirbharta

The great modernisation drive the Indian armed forces have embarked upon, with MoD having signed contracts for T-90 tanks, Akash missile systems, Anti-submarine warfare craft among the major assets, will need a boost from successive budgets. From the time the Modi government has come to power, the Make in India drive has been given a huge thrust. Realising that the country for long has subsisted on imports which tend to eat into the economy and the foreign exchange reserves, the Prime Minister embarked on a multi-nation tour to encourage foreign industry participation in what he called Make in India. A most laudable proposal which would harness jobs for many, provide a base to absorb technology, improve associated infrastructure, develop indigenous industry – all with the purpose to become self reliant, especially in defence and boost the economy. There is no denying the vision of making India into a global business hub would be a success story. But five years down the line there has not been much progress. While the causes for this may be many, the idea has been mooted and we pray for progress. The Prime Minister's recent drive for Atmanirbhar Bharat is aimed to enhance his Make in India dream. Placing importance on the Indian defence industry, the long forbidden arena has been steadily opened up to the private industry. In a definite paradigm shift the DPP 2016 has been tweaked to include the prioritised "Buy – Indian (Indigenously Designed, Developed and Manufactured) or IDDM".

There has been a major change in outlook of the government because of the Prime Minister's policies of attaining self reliance. It is very evident that medium and small scale industry cannot cope with market forces and especially in an area like defence equipment. Attempting to manufacture items which have severe and stringent tolerance levels can be intimidating. Production costs cannot be met without financial assistance and the chances of rejection are very high. In such a hostile environment the need to provide government backing becomes very essential. The government is making all possible provisions to see that the indigenous industry gets the necessary wherewithal, the infrastructure and financial support to feel secure and make their contributions. It will be an uphill task but some of the bigger industries have come forward in support of the Prime Minister's initiative to piggy-back some of the smaller players.

Aero-India 2021 became a prominent platform for the government to promote its Atmanirbhar policy while lobbying with the international vendors flocking the air show, with the Make in India dream. Around the time of the Aero India 2021, the Defence Acquisition Council cleared and gave their Acceptance of Necessity (AON) for Rs 28,000 crore worth of acquisitions for the IAF, of which Rs 27,000 crore (almost the entire amount) were directed towards Atmanirbhar and Make in India initiatives. In this were six AWACS aircraft, worth Rs 10,990 crore whose development and production will be implemented by the DRDO. An additional Rs 47,000 crore was cleared by the Cabinet Committee on Security (CCS) for a deal for 83 Tejas aircraft. This was entered into with the HAL who is expected to work with 500 big and small companies to progress the manufacture and produce the desired number between 2024-2028.

Notwithstanding the fact that the Tejas Mk 1A will have at least 50% imported technology and components, which will have to be procured in foreign exchange, it is considered the biggest indigenous defence contract ever. The Raksha Mantri has put a caveat on HAL to progressively increase the indigenous content in the Tejas to 60% well before the last aircraft rolls out of the production line. Hopefully, HAL will meet the timelines and the decline in fighter squadrons will bottom out in the near future.

A major turn has been the tweak introduced in the DPP 2016. It is a chapter which envisages a new initiative of selecting an Indian private firm as a 'Strategic Partner' for the manufacture of (one or more) defence systems like Fighter aircraft, Submarines, Tanks or Helicopters. Once selected, these companies are to seek Transfer of Technology and manufacturing know-how to set up domestic manufacturing infrastructure and supply chains. This has been a paradigm shift of culture and ethos – to move away from DRDO/ PSUs/OFBs and give the private sector a major foothold in the Indian defence market.

The Downside

Without being pessimistic, one must simultaneously understand that proliferation of technology and accessibility has changed the way business is done in the modern world. Most big countries and OEMs have realised that continuing to do research, development, design, manufacture and production in large quantities, is no longer a viable economic option. With the world moving towards 'Horizontal Specialisation,' the OEMs and major service suppliers are receiving components and sub-parts from distributed engineering and manufacturing sources from distantly removed sources. In other words, arms production (as an example) has become a 'trans-national' enterprise, because even the most economically strong states cannot hope to sustain autonomous production of military hardware.

The other factor that horizontal specialisation exposes is the fact that it may be actually cheaper (which it is) to import the sub-systems/parts, either because of costs of Design and Development (D&D) or the fact that one may get a superior quality product from another source. There is also the perpetual threat of being overtaken by technology. Then all the D&D efforts have been wasted.

There is no doubt that India needs to have an established indigenous defence industry. There are security imperatives that mandate securing and preserving certain intellectual property so that the country or its weapon systems do not get compromised in this highly influential and septic cyber domain. The biggest reason that we have to have a level of self sufficiency is the fact that in crises we need to adapt. India, famous for its 'Jugaad' capability has risen to the occasion at every count. From fabricating bomb crutches on the Lysander aircraft by Sqn Ldr 'Jumbo' Majumdar and executing a successful bombing strike against the Japanese in WW-II, to the Army Commander of Northern Command talking of fabricating miles of pipeline in hostile conditions of the recent stand-off with the Chinese Army, for the requirement of forward troops. This can only come about through technical education and expertise. A competent defence industrial base (DIB) stimulates the economy, develops skills, knowhow and dual-use technologies that contribute so much to the bigger manufacturing hubs. We just need to develop and strengthen India's DIB.

Conclusion

The matrix of the Military Requirement, Budget and Atmanirbharta (Self Reliance) is complex, to say the least. The three services take great care to chart out a technological roadmap with absolute professionalism because they are the first responders to threat to national security. The LTIPP needs to be given more respect than it gets from the government and in fact should form the basis on which the government should seek its security environment. While sometimes the acquisition program may seem over-optimistic and ostentatious, the requirements must always be viewed across the holistic and realistic canvas of National Security.

The facts of wear and tear on military equipment operating in the harshest of conditions and having to be regularly exercised and used, cannot be wished away. The draw-down of fighter squadrons in the IAF did not happen overnight. It is taking crises to get reaction and action. The fall back on an indigenous industry to made good shortages has been a dream. Constantly engaged in military conflict with the neighbours, India's defence support system has fallen well short of the desired levels. Dependency on most of the sophisticated equipment has left us insecure should sanctions be imposed or the channel throttled for any diplomatic altercation. The Prime Minister's drive to attain self reliance through his Atmanirbhar initiative and his offer for Make in India, is the best prospect for a future India. The shortfalls are many and varied. The younger generation should understand the need to take this country into the higher levels of recognition through its capabilities and opportunities. But the fulcrum on which India's hopes and aspirations for self reliance in defence rests on the defence budget and the government perspective to national security. It is always precarious and treacherous and in fact the matrix so created walks a fine line like a tight-rope walk, which can have only two results – success or disaster.

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Securing India's Blue Economy: Technological Trends

Milind Kulshreshtha*

India possesses 7,500 km of coastline and about 14,500 km of potentially navigable waterways,[1] with seventy percent of India's trade by value carried by sea. Indian peninsula is strategically located on the global map and forms an important part of the Indian Ocean Region (IOR). IOR is a large ocean spread from East Africa to Indo-China, limited by Antarctica's Southern Ocean and India mainland itself in the north. For India to be a robust sea trading nation, the safety and security of the national and international cargo in the EEZ and its transit in the vast IOR shall always be a priority.

With the globalisation of the industries, the volume of shipping traffic has increased manifold and monitoring of ships, trawlers, fishing boats etc. has become an essential requirement. Organisations like International Maritime Organisation (IMO) have been actively involved in promulgating stricter regulations for the sea going vessels in regards to safety, pollution control etc. and it's essential that such regulations are effectively monitored for compliances. The instances of illegal, unreported and unregulated (IUU) fishing or trawler skirmishes as breach of conduct in the international waters or close to EEZs are now increasing in frequency.

Self-proclamation of areas like militarisation of South China Sea shall continue to be a growing concern in international politics. In this coming decade, it may not be business-as-usual within the maritime industry.

Risk to Mercantile Marine Trade

Maritime trade has always been a high-risk business due to accidents caused by bad weather, navigation transit in restricted waters, piracy attacks etc. The 'Rules of the Road' at sea established by the IMO are required to be strictly followed and are legally binding on the sea faring nations. The regular sea patrols by Indian Navy and Indian Coast Guard are supposed to ensure compliance and safe passage of the sea vessels at all times against maritime terrorism, piracy, arms running, human and contraband trafficking etc.

Indian Government has been active in ensuring safety and security of maritime trade. India has a firm programme under SAGAR (Security and Growth for All in the Region) launched by Prime Minister Modi to reiterate India's position as a partner and first responder, which also highlights the importance of ASEAN countries in the region. India has been active towards making the surrounding waters safe for marine trade. Based upon the various safety and incident reports, recently Ministry of Ports, Shipping and Waterways has implemented a routing system in congested South West Indian waters for Merchant and Fishing Vessels separation[2] for safe navigation. In 2018, Information Fusion Centre – Indian Ocean Region (IFC-IOR) was setup in Gurugram, Haryana to meet the objective of making the mercantile trade secure in waters.

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The IFC-IOR Centre forms part of multinational and inter-agency collaboration to resolve common maritime security concerns through a network of Information Fusion Centres. IFC-IOR shares maritime non-sensitive information on vessels of interest with other friendly nations to enhance monitoring and safety of the globally traversing sea vessels. The Information Management and Analysis Centre (IMAC) setup is jointly administered by the Indian Navy and Indian Coast Guard. IMAC links all the coastal radar chains to generate a seamless real-time picture of the complete Indian coastline. Various long-range identification and tracking systems collect and distribute vessel information to facilitate a global identification and tracking of ships. A real-time Maritime Domain Awareness picture is evolved by fusing information from various sources like the Automatic Identification System (AIS), Long-Range Identification Tracking System, collaborating navies and coast guards' operations centres, public agencies and shipping community.

As per India's IFC-IOR observations, about 1,45,000 vessels were observed to be operating in the IOR in 2019, with an average of 11,000-12,000 vessels at any given time.

IFC-IOR's monthly Maritime Security(MARSEC) Report[3] for the month of Nov'2020 reported 192 maritime security events in the following categories:

(a) Piracy and Armed Robbery

(b) Maritime Terrorism

(c) Contraband Smuggling

(d) Illegal Unreported Unregulated (IUU) Fishing

(e) Natural Events

(f) Irregular Human Migration

(g) Maritime Incidents

(h) Environmental Security

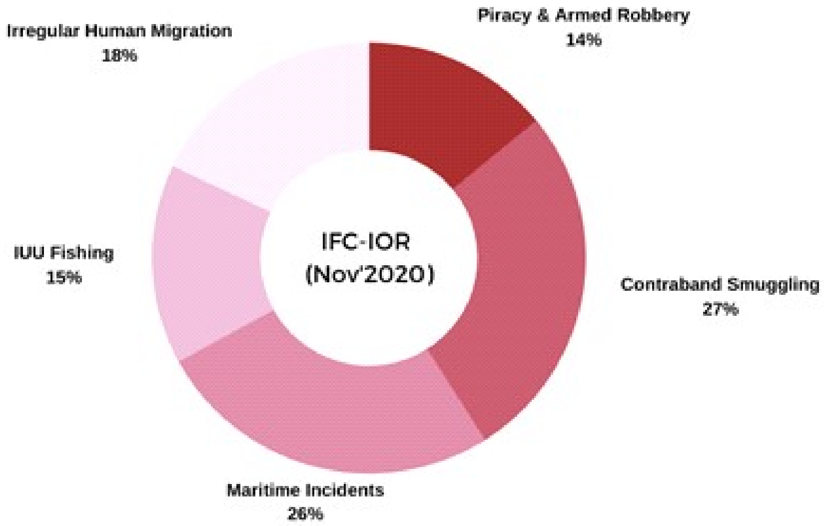

Figure 1: IFC-IOR MARSEC Report Nov'2020

As per the Report, the third of all incidents composed of maritime incidents, followed by contraband smuggling, irregular human migration, IUU fishing and piracy & armed robbery. A month-on-month analysis observes that IUU fishing saw 25% decrease, but 45% increase in incidents of poaching (reported off Djibouti, India, Indonesia, Malaysia, Maldives, Pakistan, Sri Lanka, Tanzania, Thailand and Yemen).

Modern Marine Technological Trends

Ships at sea have always been early adopters of the latest technologies, be it for safe navigation or for communication with the shore. The Safety of Life at Sea (SOLAS) Convention is one of the important international treaties regarding the safety of merchant ships. The need arises to take support of the technology to create persistent sector surveillance capabilities with techniques like AIS (Automatic Information System) or the equivalent systems for smaller than SOLAS boats or, Multi-platform Data Fusion etc. The use of such hi-tech systems enhances the global Maritime Domain Awareness, thereby improving the marine security, safety and environment. Some of the evolving technologies in maritime domain are:

(a) **Space based Automatic Identification System (SAT-AIS)**. As per IMO, the Automatic Identification System (AIS) for maritime safety and vessel traffic system is mandatory for ships as per their qualification criterion. The AIS broadcast utilise Very High Frequency (VHF) band of frequencies to transmit their position reports along with short messages describing ship and its voyage. Even though ship-to-ship and ship-to-ashore communications exists, however, a need for global AIS coverage was required for areas beyond frequency range. To overcome this, a space-based AIS receiver in low earth orbit has been developed and the system successfully made operational. Satellite-based AIS (SAT-AIS) makes it possible to track AIS fitted seafaring vessels beyond the coastal areas. This makes it possible now for a large-area ocean surveillance with AIS messages retransmitted by the satellites to the earth stations and AIS information shared amongst the member nations. The space based AIS can provide nearly hundred percent ship detection probability, with capacity to report thousand ships in a particular coverage area. The use of software-defined technology in the Space based AIS receivers allows for a full in-orbit re-configurability i.e., with this technique a mission can evolve throughout its lifetime. Some of the SAT-AIS primary beneficiaries shall be:

(i) **IFC-IOR and IMAC**. Vessel traffic and navigation monitoring and Maritime security services

(ii) **Coast Guard**. For anti-piracy, IUU fishing and compliance of various national and international Regulations

(iii) SAR (Search and Rescue) operations at sea.

(iv) **MARPOL Compliance**. Monitoring and enforcement of pollution control regulations at sea, dangerous and hazardous cargos monitoring.

(v) Commercial fleet management companies

(b) **Maritime Cloud Network.** VHF Data

Exchange System (VDES) is a radio frequency based communication network for information transmission between ship-to-ship, ship-to-shore and AIS satellites. The VDES optimises the use of RF spectrum by sending higher rate data along with AIS data. The VDES network protocol assists in the e-Navigation using a Maritime Cloud by utilising the Marine Mobile VHF band. The AIS is a component of VDES which uses advanced technique of Gaussian Minimum Shift Keying (GMSK) modulation.

(c) **Multi-Platform Multi Sensor Data Fusion (MPMSDF**). The sea is a highly dynamic environment and to garner any strategic maritime information, multi-sensor data fusion is undertaken to create a maritime Situational Awareness. This helps to pass on a workable maritime intelligence to the Navy and the Coast Guard. To achieve the data fusion, following sources of information are utilised:

(i) Marine AIS
(ii) Coastal radars
(iii) HF/VUHF communications
(iv) Beacons
(v) Satellite Communication (Voice and Data)
(vi) VSAT terminals
(vii) Web and Social Media

The target data received from heterogenous sources like radars, AIS etc. from various sea going platforms are correlated and fused as per the principles of Multi-platform Multi-sensor Data Fusion (MPMSDF) system. The MPMSDF data enhances the detection capability and assist in early identification of any suspicious or threatening target(s) at sea.

(d) **Artificial Intelligence (AI)**. Despite best of the weather forecast systems in place, the situation for ships on water is always evolving. An example is the recent unfortunate incident of Japanese ONE Apus resulting in about 2,000 containers lost or damaged in the Pacific Ocean.[4] Predicting the weather at sea is extremely challenging for meteorological department due to rapidly evolving dynamic conditions in the ocean environment. For example, a decade long study (1999-2019)[5] on the cyclones in the month of November in the Indian region highlighted that cyclones usually deviate from the expected tracks. This is due to multiple factors affecting the cyclone path, like steering jet currents etc. With multiple Space based weather measurements, some improvements have been made in the weather prediction to forecast timely warnings. However, the use of Artificial Intelligence models have been effectively leveraged to make a more accurate weather prediction map.

(e) **Industry 4.0**. Industry 4.0 or the fourth industrial revolution too shall be part of marine industry and applicable to real world design, construction and operation segments. Industry 4.0 comprises of smart sensors, networked technology (IT/IoT), intelligent data analysis, AI, Augmented and Mixed Reality (AR/MR) to achieve higher efficiencies and making operations fully autonomous. Ports and terminals are undergoing a digital transformation and shall further imbibe Industry 4.0 practices. Global Supply Chain integration with Ports shall see newer state of the art emerging technologies leading to smart ports or Ports 4.0. Developments in the Industry 4.0 shall be directly applicable to Shipping 4.0 and large scale fleet performance monitoring shall be part of this initiative. Government of India has setup SAMARTH Udyog Bharat 4.0 (Smart Advanced Manufacturing and Rapid Transformation Hubs) under Department of Heavy Industries, Ministry of Heavy Industries and Public Enterprises to provide an impetus to Industry 4.0 initiative.

(f) **Cyber Security**. On 01 January 2021, IMO's latest requirements for integrating cyber risk into onboard Safety Management systems came into force[6]. IMO adopted Resolution MSC.428 (98) which refers to a ship's Safety Management System (SMS) accounting for the cyber risk management in compliance with the Information Security Management code. IMO has provided guidelines based on cyber security framework to identify and detect risks, protecting assets, responding to risk and recovering from cyber-attacks. The additional Class notations pertaining to Cyber Managed and Cyber Secure too may be assigned to ships or offshore units since maritime industry shall remain a target of cyber-criminals in 2021.

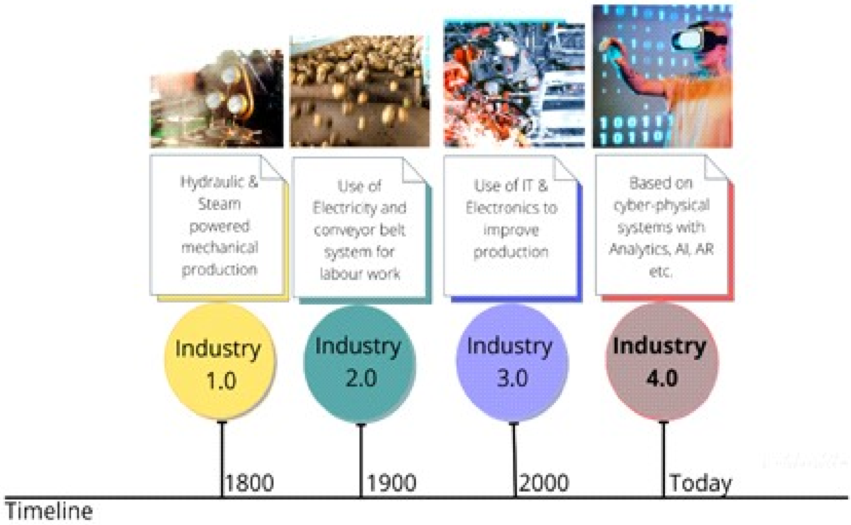

Figure 2: Industry 4.0 Evolution

Conclusion

The sustenance and growth of the blue economy for India shall always be highly dependent upon the safety and security ensured over the high seas. In today's geo-political situation, the blue economy's security is also closely tied to a nation's sovereignty. To achieve security over the vast open oceans, the technological innovations shall be the way ahead. These innovations may be in the form of incremental improvements from within marine industry, or a major disruptive change imposed due to land-based technological transformations. Further, the implementation of these contemporary technologies themselves shall enable launch of multiple latent marine technologies like autonomous cargo vessels, cyber-physical evolution for robotics onboard vessels and in the ports etc.

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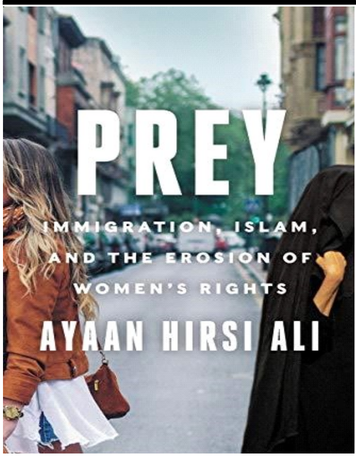
BOOK REVIEW



Prey: Immigration, Islam, and the Erosion of Women's Rights

Author: Ayaan Hirsi Ali

Publisher: Harper, February 2021

Book Review by: B. Shruti Rao*

Ayaan Hirsi Ali's recently published book Prey: Immigration, Islam, and the Erosion of Women's Rights is a valorous and timely book. It addresses the abasement of the feminist movement and gender equality in European nations as an inevitable fallout of the European migration crisis.

An interesting watershed movement that Ali identifies is German Chancellor Merkel's movement of weakness in a July 2015 press conference where she was confronted with a despondent Palestinian refugee whose family was about to face deportation. Following the event, Merkel unpreparedly (as Ali proves) announced Germany's Open Border Policy for refugees, declaring "We can manage that". According to Ali, this virtue signalling move largely rooted in the German desire for the *atonement* of past sins 'has done the most harm to (the status of) European women in her lifetime, (and was ironically) made by a woman'.

In 2015 alone, close to 2 million people, mainly men, arrived in western European nations from Syria, Afghanistan, Iraq, Pakistan, Nigeria, and other countries with large Muslim populations. Since 2009 more than 3 million have been living as illegal entrants and asylum seekers in western Europe. Author Ali, through her own painstaking research and the work of many European social scientists, lays bare the fact that this deluge of millions of young, male Muslims has clearly led to a drastic rise in cases of sexual assaults, rapes, and public harassment of women in large parts of the continent. The obvious argument of correlation does not imply causation is powerfully addressed by her research. The repertoire of work that Ali refers to while making this serious claim reveals the scale and the intensity of research work carried out in Europe on cultural, religious, political and legal differences that have led to this disparate sense of values in immigrants. India in many ways, situated in a difficult neighbourhood, suffers from similar inflows which have and will continue to have long term demographic, cultural and even electoral consequences. Yet, these issues have barely perturbed the minds of the Indian intelligentsia and attempt to arrest these developments through policies have met with great

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political resistance and opprobrium, domestically and abroad. Abetting this short-sighted activism is the 21st century *Dhritarashtra* of India, the Indian academia which continues to remain in denial.

The dangers posed by such denial is predicted well by the European case study. Ayaan Hirsi Ali contends it is this very denial of the inherent misogyny and disdain for liberal values in certain cultures that has led to the erosion of the gains made towards women's right in western nations. She highlights how even talking about violence by Muslim men against European women is unfashionable in an age of identity politics, when everyone is expected to "operate within a partly historical matrix of victimhood". Consequently, the idea of imposing liberal values on the Muslim world is being construed as a form of *neo-colonialism*. As Ali reveals, this guilt has become so entrenched that European victims of sexual assault even make excuses for their attackers. Afraid of being branded racist, these women strike an apologetic tone on behalf of those who assaulted them. At the same time, to serve their politics, European politicians play down the threat, sometimes even making excuses for criminal behaviour. In the name of respecting *cultural* norms, judges hand out light sentences to these perpetrators and the European media self-censors reporting to avoid *stoking racial and religious tensions*.

Such guilt-ridden sensitivities towards multiculturalism and intersectionality come at a great cost to the west. Western societies have taken for granted their achievement in creating liberal societies that offer the highest level of emancipation to citizens and sexual self-determination to women in modern history. By not recognising that some cultures are yet to fully embrace modern liberal values, and adopting an unquestioning attitude towards the undertones of religious and political misogyny in them, the west seems to be undermining its own values in the name of equality.

Ideas of liberalism, emanating from the west and decades of single-minded activism towards gender equality has produced the language, legal systems, and discourses that significantly improved the position of women in these western countries. Many cultures and societies have overtime recognised the superiority of these ideas and have made wholehearted attempts at emulation. As research proves immigrants from these cultures find it easier to integrate into western societies and make positive contributions.

Ali reveals that the socio-political and religious arrangements in Muslim communities have insulated generations of immigrants from liberal ideas, and consequently they not only resist but also challenge the way of life in their host countries. The most egregious challenge they pose is to the liberated common women of the west who increasingly have to cede access to public spaces, and have to censor their sartorial and self-expression choices in a trade-off for personal safety. The victims of such anachronistic restrictions long rejected in the west are not only European women but also Jews, members of the LGBTQ community and women from the immigrant communities. Yet their plight fails to arouse similar outcry as the more fashionable #metoo cases since most victims of sexual violence perpetrated by the illegal migrants belong to the lower rungs of the social echelons, low-income neighbourhoods, and small towns in Europe. Ali writes that it is in these neighbourhoods where failure to integrate immigrants into the legal and cultural system of the West has created segregated parallel societies where religious dogmas, victimhood, and sexist behaviour are perpetuated generation on generation.

Ayaan Hirsi Ali makes several such observations that expose the hypocrisy of our times. Her book *Prey* has been written at great risk to her personal safety and professional standing. The statistics she reports are staggering and make one wonder how the west has been able to keep them undercover for so long. The only saving grace has been the democratic system where citizens can cast their votes in anonymity to political parties that offer protection from unchecked immigration. UK (Brexit), Sweden, Germany, France, Italy, Netherlands, Hungary, Austria, Belgium are a few nations where immigration has become the central issue in national elections.

She is herself a Somali born asylum seeker to the Netherland and has experienced life on both sides of the border. Loyal to her classical liberal values, she desires open borders and greater freedoms for which effective integration of immigrants is indispensable. Towards that her book makes several policy suggestions that must be taken seriously by policymakers even in India not just for immigrants but also for the integration of segregated parallel communities.

The book is both poignant and prophetic. The problems exposed by Ali are not alien to the Indian society. Just like Europe, anyone in India who seeks to discuss these issues in a serious fashion is almost certain to be accused of xenophobia, bigotry and of legitimizing alt-right politics. Even beyond Islam and immigration, diversity in India has led to the existence of communities with a broad range of personal freedoms for women and sensitivities about gender equality. Our laws and public discourse must quickly recognise the problems that come with cultural relativism which allows all of these disparate cultures to be put on the same pedestal.

Allowing religious personal laws that promote sexist practices and education systems that might lead to the radicalisation of young ones in the name of multiculturalism has to stop. Indian state must strengthen its commitment to gender equality and introduce gender and sex education through the education system. Discourse on Indian feminism must permeate the larger society and unlike the west, it should not be held hostage by a few gender studies departments populated by those who have little to do with ground realities.

Interestingly, research quoted in the book has brought out that in western nations men of the Indian diaspora not only outperform the natives in education, participation in the labour market and income but also have lower average crime rates. Indian men will do well to learn from their diasporic brethren.

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