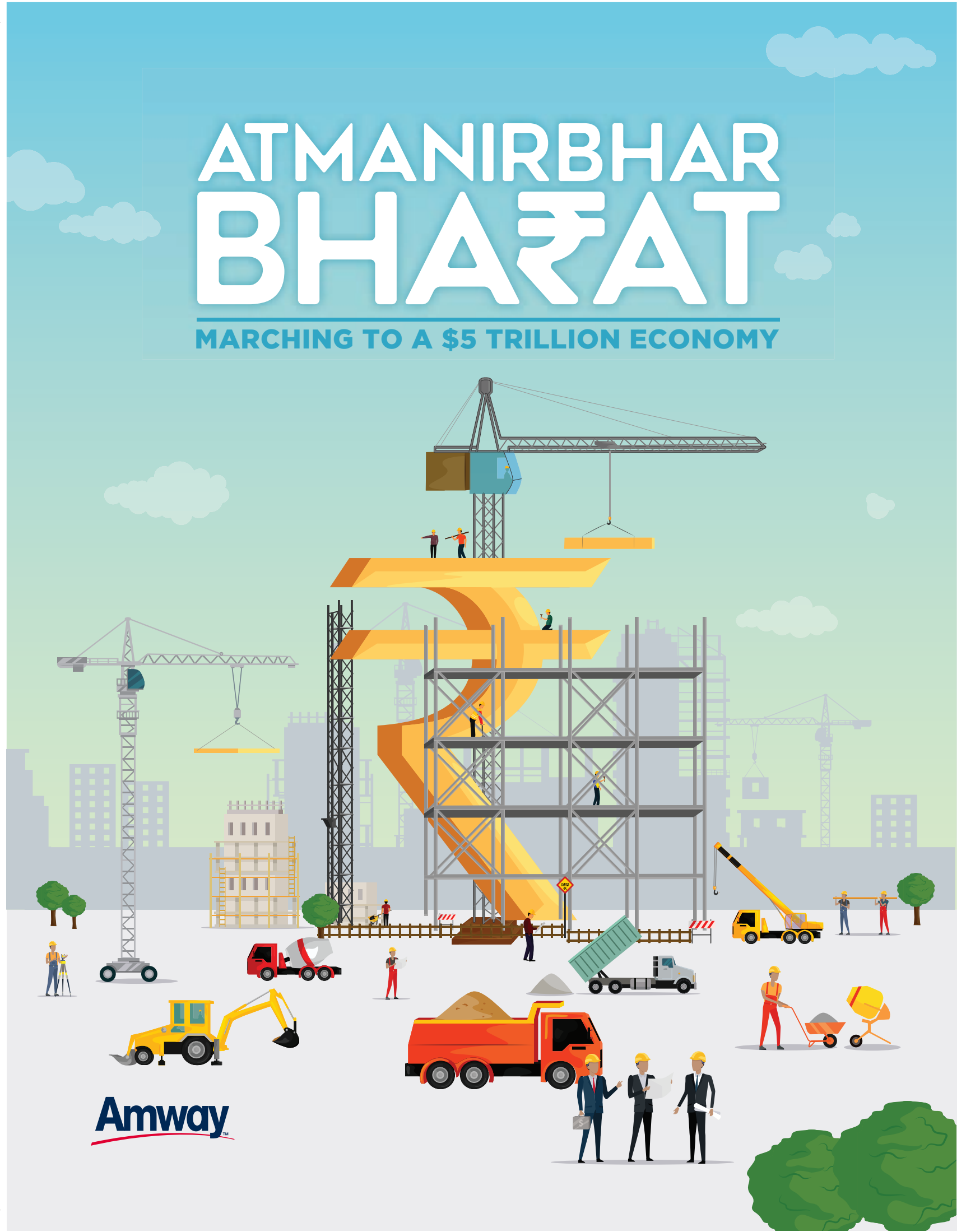


ATMANIRBHAR BHARAT

MARCHING TO A \$5 TRILLION ECONOMY

Amway





ATMANIRBHAR BHARAT

Marching to a \$5 trillion
Economy

March 2021



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Anand Mishra

FOREWORD

Union Cabinet Minister in Ministry of Jal Shakti

Mr. Gajendra Singh Shekhawat is presently the Union Minister of Jal Shakti of the Government of India. Prior to his present assignment, Mr. Shekhawat served as the Union Minister of State for Agriculture from Sep 2017 to May 2019. He has been a member of Lok Sabha since May 2014, representing the Jodhpur constituency. Mr. Shekhawat has been the Chairperson of the Fellowship Committee of the Lok Sabha and also been a member of various other committees such as the Standing Parliamentary committee for Finance; the Joint Committee on the Enforcement of Security Interest and Recovery of Debts Laws and Miscellaneous Provision (Amendment) Bill, 2016; and the Consultative Committee of the Ministry of Water Resources, River Development and Ganga Rejuvenation. As a parliamentarian, he has been instrumental in expansion of the Jodhpur Airport, and completion of the All India Institute of Medical Sciences, Jodhpur. A popular student leader, he graduated from Jai Narayan Vyas University, Jodhpur, majoring in Philosophy.



Gajendra Singh Shekhawat

The year 2020 tested the resolve of humankind as never before. The Covid 19 pandemic not only killed millions across the world, and continues to do so, but also put enormous strain on the global economy, the likes of which was not seen since the great depression. It also forced countries and societies to take a close look at how they managed their economies and social interaction. The pandemic also impacted India in more ways than one. It stretched the medical infrastructure thin and put a huge burden on the economy which had to be slowed in order to prevent the uncontrollable spread of the virus, resulting in the loss of livelihood and well-being of many millions. Atmanirbhar Bharat initiative was India's answer to the challenge thrown by the Covid 19, and was designed in a way to simultaneously provide a monetary cushion to economically weaker sections of the society, create

a conducive employment-generating environment, and incentivize entrepreneurship.

Contrary to the opinion of many who alleged that it is a new mantra to close the Indian economy from the rest of the world, the Atmanirbhar Bharat is a new way to integrate with the global economy and value chain which empowers Indian industry and economy. For this, sectors of India's competitive advantage need support and nurturing. This is the reason why steps such as collateral-free loans for and equity infusion in MSMEs, easing of working loan financing, and programs like Production Linked Incentives for 13 champion sectors have been initiated. A massive boost has been provided to infrastructure and agriculture sectors, besides initiating schemes to increase grassroot employment, as elucidated by many experts in this volume. The thrust of the entire

monetary package of the Atmanirbhar Bharat initiative – over 13% of the GDP – has been to strengthen India's economic agents under five pillars of the initiatives, namely, economy, infrastructure, system, democracy, and demand. Another crucial aspect of the initiative is how efficiently it integrates with the other major initiatives of the government such as Make in India, Startup India, and Vocal for Local. Nothing exemplifies the success of Atmanirbhar Bharat and Make in India, for example, than the recently placed order for 83 Tejas fighter aircrafts, at a cost of INR 48,000 Crores, the largest single defense deal of India.

The bedrock of the initiative, however, has been and continues to be the people and the weaker section of the society, in the true spirit of the Antyodaya philosophy of Deen Dayal Upadhyay. As we saw in the initial stages of the initiative, 80 crore people were provided free foodgrains, 20 crore women received money in their account, 8 crore families were provided free LPG cylinders, 8.7 crore farmers received INR 2,000 under PM Kisan scheme, and EPF contributions were reduced for business and workers helping over 4.5 crore workers, among other many others which were directly targeted to improve the lot of the bottom of the population pyramid, which is so crucial to nation-building. The focus on people's wellbeing has continued to this year's budget, in which a new scheme, PM Aatmanirbhar Swasth Bharat Yojana, has been announced with an outlay of over INR 64,000 crore; the overall budget for health and wellbeing has been increased by over 135%.

The creative capability and resilience of the Indian economy and its industries have been amply underscored by many experts in this volume, who have mentioned how, in wake of the Covid 19 challenge and in a very short time, Indian industry and research labs came together to create the world's largest PPE infrastructure. India has already been hailed as the best and most trustworthy source of Covid 19 vaccine and is among the very

few countries that have developed their own vaccines. All these show the innate strength of Indian industry, its manpower, and its intellectual capital. A constant theme that has emerged in this compendium, is the need to strengthen these bases to ensure that the Indian economy, industry, manpower, and academic/ research institutions can compete with the best in the world and emerge as global leaders. This is the essence of self-reliance that the Atmanirbhar Bharat initiative aims to achieve.

Every crisis is also an opportunity and those who can seize them, emerge stronger and victorious. Under the leadership of PM Narendra Modi, the government has shown that we Indians are capable of turning crises into opportunities and stand as a model for the rest of the world, as many experts have said. Atmanirbhar Bharat initiative has been a great tool to not only provide a cushion to withstand the unprecedented shock generated by the pandemic but also to inherently strengthen the economy and empower domestic economic stakeholders.

A compendium on the subject could not have come at a more relevant moment. As we gradually emerge from the pandemic induced slump and disruption, it is a good attempt to encapsulate and showcase how India has planned and is executing a well-crafted program to tackle an exogenous challenge, and is leading the world in this fight. I congratulate Amway, Rajesh Mehta, and Anand Mishra for creating a compendium that brings together the opinion and knowledge of experts from around the world and from the most relevant segments of policy, industry, academia, think tanks, diaspora, and diplomacy. These include illustrious academics such as Dr. RA Mashelkar, Dr. Amit Kapoor and Dr. Rakesh Mohan Joshi to business and economy experts such as Rajendra Pratap Gupta, Deepak Bagla, Sanjay Bhattacharya, Dilip Chenoy and Nisha Biswal, and diplomats such as Freddy Svane and Sandeep Chakravorty. I wish this compendium a well-deserved success.



PREFACE

Anshu Budhraja, CEO, Amway India

At Amway, we remain committed to the Atma Nirbhar Bharat vision as espoused by the Hon'ble Prime Minister of India, Shri Narendra Modi, and are well on course to support a self-reliant India. We Make in India (our plant is near Madurai, in Tamil Nadu), have commenced exports from this plant, and we are also sourcing raw materials from organic farmers in India, ensuring that our footprint is from farm-to-factory. Moreover, Amway spokespersons including our CEO – Milind Pant have reiterated this both at national as well as available global platforms.

But first, a few lines on Amway and direct selling: Amway India is a wholly owned subsidiary of Amway with headquarters in Ada, Michigan, USA. Amway is the world's No 1 direct selling company with presence in over 100 countries & territories. Its wellness brand - Nutrilite - is the world's No. 1 selling vitamins and dietary supplements brand. Nutrilite has established itself as a leading brand in the vitamins and dietary supplements category in India as well. Artistry is India's No. 1 premium skin care brand. Amway India also offers 'Attitude', an entry level premium skincare and cosmetics brand targeted at India youth. The product range has been developed taking the needs of Indian consumers into consideration.

Simply put, direct selling is when the product reaches a consumer directly via individuals who may be neighbors, friends or even family-members. If a direct selling entity/company has a turnover of, say, Rs 1000 crores, between Rs 300-350 crores are earned by the individuals who sell products of a direct selling entity. Direct Selling entities, thus, encourage micro-entrepreneurship and self-employment. Atma Nibharta at an individual level.

Globally, Amway is 60-year-old Company, with a turnover of US\$ 8.4 billion, and a manufacturer and direct seller of quality consumer goods. Amway's innovation and industry-leading R&D has seen more than 750 patents granted and another 220 patents pending. Amway has more than 500 scientists, engineers, and technical professionals who extend our innovation and science capabilities through 11 locations to deliver global, regional, and local product research and development. Thus, we take great pride when we say that Amway products are by far, the best in their category.

Amway India sells more than 140 daily use products across categories like Nutrition, Beauty, Personal Care, Home Care and

Consumer durables through Amway Direct Sellers who make personal recommendations regarding the use of distinctive quality products. Amway products are widely recognized and appreciated for their quality and value. These products are backed by a money back guarantee for 100% satisfaction of use.

As the demand for herbal nutrition category records a drastic rise with consumers shifting towards healthier living, Amway India, foresees its herbal nutrition category to double in the next three years. To accommodate the growing demand for herbal products, Amway has geared up to strengthen its local sourcing of herbal extracts in India, reinforcing its commitment to the Government of India's 'Make in India' agenda, Amway continues to locally source ingredients for the manufacturing of its high-quality Amway Nutrition products.

The rising inclination for preventive healthcare remedies has given a fillip to traditional preventive systems. The trend of going 'back to local' has accelerated the consumption of ingredients such as Tulsi, Ginger, Turmeric, Amla, and more, in 51% of the households in India. With a growing preference for herbal nutrition supplementation, Amway forayed into the NTHR in 2018 that received an overwhelming response, registering sales of over INR 100 crores in its second year. Comprising just six products made from ingredients such as Tulsi, Ashwagandha, Mulethi, and more, the herbal nutrition range is showing a consistent upward trajectory with the projected growth of 14% at INR 110 crore.

We will continue to strengthen the category by promoting our existing offerings and adding more products to the portfolio. With the consumers showing strong resonance for the herbal products, we anticipate the herbal nutrition category to grow at a CAGR of 26% from 2020 to 2022. Nutrition and Wellness is the largest business category for Amway India,

contributing more than INR 1000 crore to its total revenue. The company foresees the nutrition category to grow faster with the current contribution of 56% to 65% to the overall business in the next couple of years, which includes a significant contribution from the herbal nutrition segment.

As part of strengthening its hold in the herbal nutrition category, Amway India is building a strong partner network, in line with the company's vision of making a tangible difference in the lives of its stakeholders. Currently, Amway India works with 12 Nutricert Certified partners to procure ingredients such as Boswellia, Cinnamon, Garcinia, Ginger, Gymnema, Holy Basil, Bacopa, Marigold, Pomegranate, Turmeric, and so on. Lately, Amway India has witnessed a sharp rise in demand for specific herbal extracts, especially Tulsi extract (Basil), Vasaka Extract, and Ashwagandha (Withania Somnifera).

With this, the anticipated sourcing requirement for Tulsi is to cross over 200%; Withania Somnifera (major ingredient for Ashwagandha) by over 160%, Vasaka Extract by over 100%, among others. The current consumer skew towards nutrition is reflected in the spike, observed by Amway India, in the sale of immunity supporting SKUs by almost four times, including the herbal range. Consequently, the organization has also ramped up the production of immunity supporting SKUs by 4 times. To cater to the rising demand, Amway is evaluating to expand its organic farm based in India. The organization is eyeing to add more organic certified herb farms to encourage local produce in the country, in the coming two years. Amway's investment in organic farming solutions is further supporting the transformation of the local economy and the overall lives of the medium and small-scale farmers. Amway is one of the world's largest owners and operators of organic farms adding to its renowned traceability program.

With our present edition, we are carrying forward our endeavor to contribute to the lively and stimulating debates on the crucial socio political issues facing the society, community and the nation. In our previous editions, we have helped bring to forth for deliberation, issues like women entrepreneurship, skill development and water management. All these have tremendous significance for socioeconomic progress and governance of the country. With our present edition, we are trying to contribute to the noble attempt by the government to create a self reliance and confident India, proudly marching towards a \$5 trillion economy. As opined by multiple experts featured in this compendium, the concept of Atmanirbhar

Bharat is not about isolation, but for engage with the rest of the world from a position of strength and confidence. At a time when world is working with its entire wherewithal to fight off the unprecedented challenge thrown by the Covid 19, the mantra of Atmanirbhar Bharat has acted as a galvanizing force to unite all Indians and stride forth. We are participating wholeheartedly and proudly in this march.

This compendium would not have been a reality without the generous help by experts coming from various segments who agreed to share their precious opinions and thoughts. We extend our sincerest thanks and gratitude to each of them for taking time out of their busy schedule to help our endeavor.

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INTRODUCTION

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ATMANIRBHAR BHARAT: AN AGENDA TO REBOOT INDIAN ECONOMY

In May this year, PM Modi announced an ambitious program to virtually reboot the economy through the Atmanirbhar Bharat initiative. This was the time when the whole world was in a near standstill and locked down mode as Covid 19 was raging strong in most countries, industrial to agrarian and most developed to laggard developing ones alike. But for the Indian economy, the problem had not started with Covid, it was just accentuated because of it. The economic slowdown was already deeply entrenched and there was near unanimity among experts that the government needed to intervene at multiple points simultaneously if the economy had to be nursed back to a high growth trajectory. This double trouble of a pandemic and entrenched economic drift thus formed the background in which the idea of Atmanirbhar Bharat was announced. The intent was to put India firmly on the path to a \$5 trillion economy, a long stated goal of the government.

While the initial push was to create a cushion for millions losing jobs and relocating, the longer term goal – as revealed by later steps and reforms – is to structurally reform the economic system to simultaneously empower the economic agents to perform better, and to remove structural inefficiencies that impede businesses' efficient functioning. As the thought has progressed from Atmanirbhar 1.0 to Atmanirbhar 3.0, there is a widening of scope and depth of intervention to address the long-standing problems ailing the economy. This can be seen in the various sectoral reforms, which were undertaken simultaneous to the

packages that were being rolled out. So, in Atmanirbhar Bharat 1.0, support came in form of providing cereals, free supply of cooking fuel and direct transfer of monetary relief to people most directly and harshly hit by the pandemic, but the Atmanirbhar Bharat 3.0, announced in November last year, laid the focus on providing production-linked incentives for key sectors and releasing INR 3,000 crores credit line EXIM bank in order to promote exports.

A major concern or confusion among experts and people is that the initiative is an attempt to hark back to the autarkic era of the first few decades after independence when the government planned to shut the economy and do everything inhouse, a policy which was largely responsible for condemning the country to suboptimal growth. These fears get more fuel as India opts out of RCEP, the world's largest trading block which recently came into existence. As Nisha Biswal, President, U.S.-India Business Council (USIBC) and Senior VP for South Asia, U.S. Chamber of Commerce says, substantial uncertainty remains about what Atmanirbhar Bharat means. She further notes the if Atmanirbhar Bharat deters US investors and American companies, Indian growth could slow down leading to slower poverty reduction.

But nothing can be farther from the truth. A close look at the steps and announcements of the government over the last few months shows that instead of shutting itself to the world, the focus has been on empowering the domestic businesses to compete with the rest of the

world. Sanjay Bhattacharyya, Secretary, (Consular, Passport, Visa and Overseas Indian Affairs) in the Ministry of External Affairs, clearly mentions that the Atmanirbhar Bharat initiative involves developing global partnerships and integration with value and supply chains to leverage India's greater role in the emerging world order.

Simultaneously, it seeks to strengthen the domestic industry so that it is not overly dependent on any other country for any part of its value chain. Another stated objective of the initiative is to make the Indian economy more closely integrated with the global value chain. Finally, it aims to put in place the systems and infrastructure that could make India a preferred investment destination.

Key elements to self dependence

Historically, countries have economically progressed based on either of the three factors, namely, geography, geology or jeans. More precisely, countries exploit their location (geography), their natural resources (geology) or their low cost labour to produce for the world (jeans). Looking at the Indian example, while it has missed the initial cheap labor led growth bus – which was dominated by Southeast Asia and then China – it still has an edge on some sectors like textiles and agri products where it can produce for the world, based on its cheap labour, as suggested by Dr. Amit Kapoor, Honorary Chairman of the Institute for Competitiveness. At the same time, however, since India is also a major industrial power with globally recognized capabilities in high tech sectors such as pharma, IT and engineering, it needs to broaden its focus to a bigger portion of the sectoral spectrum. Additionally, with a huge unorganized sector and MSMEs dominating the employment generation, what we need is policy intervention at multiple spots to strengthen the economy.

This is precisely what we see in progressive supports announced and steps taken under the Atmanirbhar Bharat initiative. The five key

pillars of the initiative, namely, economy, infrastructure, system, democracy and demand clearly show that the intent is not just to offer a temporary stimulus, but to increase the overall strength of the Indian economy, and rebooting the systems and institutions that govern the economy. As stated above, the initial push under the initiative was for providing monetary support for poor individuals and small businesses. Emergency credit lines, equity infusion and subordinated debt relief for MSMEs were provided. E-market linkage and quicker settlement of dues were announced to take care of their marketing and liquidity needs, important to make them commercially stronger. Similarly, credit guarantee schemes were given to NBFCs and liquidity was injected in power discoms to ensure their financial viability.

Under Atmanirbhar Bharat 3.0, however, the focus was on bigger industrial health. Atmanirbhar Bharat Rozgar Yojana was announced to incentivise the creation of new employment opportunities. Scope of Emergency Credit Line Guarantee Scheme was increased, govt. contractors were subjected to lower levels of guarantee deposits, and infra debt financing platform was launched. In all, nearly INR 21 lakh crores, which is about 10% of the GDP, has been earmarked by the government and RBI to support multiple sectors and businesses. This pump-priming has been supported by reforms in key industrial and strategic sectors such as coal mining, defence, power sector, space and aviation which as per Dilip Chenoy, Secretary General, FICCI, "are likely to bring in much required momentum over the medium term."

Most importantly, Production Linked Incentives (PLI) was announced for 10 champion sectors, in addition to the existing three. The idea is to allow these sectors, ranging from API and drug intermediaries to electronics and automobiles, achieve global competitiveness. According to Dr. Prashant Yadav, Professor, INSEAD and Lecturer, Harvard Medical School, self-reliance without guaranteeing global competitiveness will lead to sources of supply which are

unsustainable in the long term and will be a drag to the exchequer.

However, to increase the efficiency and scope of the Atmanirbhar Bharat initiative, it should leverage other programmes of the government. The most obvious synergy can be found in Make in India program with the Atmanirbhar Bharat initiative. As Sandeep Chakravorty, Joint Secretary (Europe West) in the Ministry of External Affairs mentions, "the world wants a dependable 'factory of the world', which India can easily be. Noting the ability of Startup India, eminent scientist, Dr. R.A. Mashelkar underscores how various startups have done a sterling job in coming out with Covid related products. These can be empowered and incentivized to grow in size and develop technologies besides providing employment. On similar lines, Invest India can be leveraged to define policies for specific regions and sectors because it has expertise in defining policies for promoting investments, besides working on unique programs like the One District One Product (ODOP) scheme, as Deepak Bagla, CEO of Invest India mentions.

A key element of the initiative is to engineer local economies that can sustain themselves with local resources and local human capital with suitable policy inputs and integrate these local systems with the bigger systems. Rajiv Ranjan Mishra, Director General of the National Mission for Clean Ganga (NMCG), informs about the program of setting up of skill development and livelihood centres in the Ganga states by NMCG that offers training in health and wellness products from locally grown organic products and also opens shopping centres where these could be sold. This is a classic example of Vocal for Local, an integral part of Atmanirbhar Bharat.

Managing import dependence

The inordinate dependence on imports for crucial pieces of the value chain is a cause of concern for India. Multiple experts have suggested the potential negative fallouts of this

dependence in case of supply disruptions. The year 2020 will be remembered not only for the deadly infection of Covid and the millions of deaths it caused, but also for the economic stress it generated globally. A large part of this pain was because of supply disruption in various industries that had high exposure to China for any input. Moving forward, the industry, economy and broadly, the country needs to be prepared for supply shocks or demand shocks from the external sector and for that the domestic resilience is necessary. As Dr. Mashelkar says, Atmanirbhar Bharat is "about standing up confidently in the VUCA world that is volatile, uncertain, complex and ambiguous." He cites high import dependence on China for Pharma API (68%), Electronics (45%), Manufactured Capital goods (32%) and 34.1% foreign value added contribution of China in Indian exports as examples of the vulnerability of Indian industry.

Specifically, the dependence of the pharma industry on API imports from China is well documented. As the Indian pharma sector has graduated to higher value added segments of the sector, it has largely outsourced the API business because of the wafer thin margins in the business, as well as because of the polluting nature of the API segment, as mentioned by Dr. Mashelkar. The government is, however, alert about the excessive dependence on imports for crucial sectors like pharma and also regarding inputs like rare earth metals on which China has near monopoly and has taken steps to address it. Besides pharma, defence is a key area in which the country needs to develop core technologies that could allow weapons design, development and manufacturing domestically. This is why Dr. Shekhar Mande, DG, CSIR, includes aerospace, advanced materials, electronics and robotics as key sectors in which India should pursue technological self sufficiency.

Another issue in this regard is the necessity for planning as per capacity. As Sumathi Chakravarthy and Sandesh Dholakia write in their article, a major reason for high import dependency of the Indian auto sector on China in the last couple of years is the sudden change

of emission norms from BS4 to BS6. As Indian auto manufacturers didn't have the time to ramp up capacity for BS6 compliant products, they had to depend on imports creating unhealthy and concentrated import dependence which is best avoided.

Empowering domestic industry

However, some areas require immediate addressing if the economy has to perform at its potential. Reforms in labour and land acquisition laws, as per Anil Nair, editor of the Policy Circle, are necessary. Similarly, to unlock the potential of other programs that could help in achieving self dependence, liberal norms are required. Dilip Chenoy also suggests giving API sector infrastructure status and providing single window clearance to incentivize domestic players to invest in the business which will ultimately reduce imports. Giving the example of start ups, which have the ability to create large number of jobs and self employment alike, Rameesh Kailasam, CEO of IndiaTech.org mentions that a "relook is required for onerous clauses in GST that currently force online service sector start-ups to unnecessarily open multiple offices in all states and UTs when their overseas competitors are exempt." He also bats for allowing all startups below a certain income being given the benefit of relaxation on ESOP taxation compared to the present practice of allowing only DPIIT registered or Section 80 IAC listed startups to avail these benefits.

If any program or initiative to make the Indian industry structurally strong, old yet thorny issues need to be addressed. Sanjay Jain, CEO, TT Ltd. cites persistent problems such as power cost, interest rates, land cost, compliance costs, logistics, infrastructure, delay in permissions and getting refunds/incentives from various government agencies as factors that make Indian cost uncompetitive to imports which are seeing declining duties. Dr. Pramath Raj Sinha Chairman of Harappa Education, and founder of the Indian School of Business and Ashoka University, also underscores the higher cost of production in India and the importance of

removing bottlenecks in manufacturing before it's too late.

Beyond specific problems, there is also a need to strengthen the institutional framework of the Indian economic and public services system. Sub-par operational efficiency of Indian bureaucracy and institutions is a well-documented reason for low rankings that India is relegated to in global indices of ease of doing business or competitiveness, recent years improvements notwithstanding. Prof Rajendra Pratap Gupta, Chairman, Dynamic Coalition on Internet & Jobs, Internet Governance Forum, United Nations, lists governance and leadership, administration and judiciary to be among the top dimensions of self-dependency mentioning that as a young and aspirational country, India should have a "performance based, project-based time bound recruitments instead of tenured bureaucracy."

The cascading power of large and ambitious projects on the domestic industry, especially the small and specialized entities cannot be overemphasized. In the current techno-economic paradigm, the small units which receive or generate an intellectual property to be used in a large product, are the engines of growth of knowledge based economy of tomorrow. These are the new harbingers of the knowledge economy who will hire top-class talent and leverage the same to become big in due course of time. The Light Combat Aircraft (LCA) Tejas is a brilliant example of this mode of ecosystem development. While Hindustan Aeronautics Ltd. is the lead integrator and tech developer of the project, there are over 550 units of various sizes that have participated in it. And with the order of 83 Tejas going through, a large number of these units will emerge as leaders in various technologies and subsegment categories in the coming decade. This is an example of empowering domestic industry that India needs to replicate as much as possible.

Leveraging technical enablers

The importance of developing technologically sound manpower and infrastructure can hardly be overemphasized. India not only requires a workforce that is capable of working on high tech shopfloors, but also has a large enough pool of scientists to develop next-gen technologies. As Sanjeev Varshney, Adviser & Head - International Cooperation, Department of Science & Technology, Government of India says, "The role of science, technology, and innovation (STI) is fundamental to balance social, economic, technological, and financial resources to achieve the goals of Atmanirbhar Bharat initiative." To allow science and technology to play that role, a concerted effort is required.

The Science, Technology and Innovation Policy (STIP) 2020 is a key enabler that can radically alter the way knowledge is created and used in the country. According to Badri Narayanan Gopalakrishnan and Roja Vikram, it will have a positive impact on key sectors of education, healthcare and agriculture by making manpower efficient, ensuring increased investment in research and allowing crop diversification. India's expertise in biotech and space exploration shows that with concerted efforts and enough resource allocation, India can compete with the best in the world. The challenge, however, is whether STIP 2020 can create a similar enabling environment for other sectors too.

The second biggest enabler is education. A key ingredient of a well-designed education system is that it brings together the expertise of the entire value chain of sectors to improve the efficiency; from human resource to knowledge creation and commercial exploitation of the intellectual capital. This is what the New Education Policy (NEP) attempts. For example, in the pharma sector, the policy brings together institutes like National Institute of Pharmaceutical Education and Research (NIPER), IITs, and the IIMs to improve the entire value chain, as Dr. Yadav opines. For long,

education in the country was kept separate from research which resulted in a lack of fresh ideas as well as result-oriented teaching. The proposed National Research Foundation of the NEP addresses this gap and would result in focused research in key thrust areas. An education policy aligned with applied research is necessary for technology adoption for the development of efficient technology solutions, an important recommendation of technology expert Dr. Satyam Priyadarshy, to make the Atmanirbhar Bharat initiative a success.

Indian diaspora is among the most technologically advanced ones in the world and has earned a reputation for efficiency and ingenuity. Indian government must not let this massive source of tech know-how go untapped. As Dr. Vidya Velagapudi, Associate Director, AstraZeneca, says, India should explore the knowledge and technology transfer between the countries by leveraging the bilateral co-operations via Indian embassies. It should also financially support student exchange internships abroad, and facilitate researchers and faculty's short visits with other countries to enhance the quality of Indian science and technology (S&T). It is worth noting here that the GOI has set up a dedicated, one-stop platform for S&T diaspora engagement, "PRABHAS," through which it aims to harness the expertise of Indian S&T professionals globally and encourage collaboration among India based and global scientific community of India origin.

In the end, when we look at the Atmanirbhar Bharat initiative and its elements both in terms of vision announcements and policy steps, along with sectoral reforms, we find that the idea is to go beyond providing sops to kickstart the industry or put more money in accounts of poor countrymen. It is about generating the internal strength of the country to be able to sustain in face of any adversity. Prof Gupta most accurately captures the essence of Atmanirbhar Bharat as an initiative is "being able to think, decide and take care of this big nation (India) on our terms and not necessarily be self-sufficient in just terms of manufacturing or producing."

SEGMENT

1

GOVERNMENT AND POLICY EXPERTS

Regardless of the program or initiative, the most important stakeholders are the policymakers manning the relevant regulatory bodies. Not just because they are in charge of making policies and defining rules and regulations that ultimately govern the program, but also because they have the most and latest data that are required to take the most informed decisions. Since the Atmanirbhar Bharat is an all encompassing initiative, it requires interventions from a large number of ministries and departments, ranging from finance to commerce and science and technology to external affairs.

As we interact with multiple officials from different departments, the most common and shared opinion we come across is about the urgency, vast scope and the ambition of the initiative. Most important of all, there is unanimity that Atmanirbhar Bharat is about engaging with the rest of the world from a position of strength and not about closing our gates. Second, domestic businesses should to be made competitive with right incentives. Finally, all express their desire to leverage new technologies for achieving economic goals. Our independent policy experts also underscore the need to remove structural inefficiencies that hinder domestic, private players' ability to perform up to their potential.

Atmanirbhar Bharat Mission will create more job opportunities and stop the brain drain

Sanjeev Kumar Varshney

Adviser & Head - International Cooperation, Department of Science & Technology, Government of India

PROFILE

Sanjeev Kumar Varshney is a Scientific Officer with Government of India, working with Ministry / Department of Science & Technology, Government of India since 1990 facilitating international scientific cooperation of India from the Department of Science & Technology with its bilateral, multilateral and regional scientific partners. He is Indian Co-Chair, Governing Body, Indo-German Science & Technology Centre, Member, Board of Directors of a private limited company, Global Innovation & Technology Alliance (GITA) and is Member, Governing Councils of the: (1) US- India Education Foundation (USIEF), (2) International Advanced Research Centre of Powder Metallurgy (ARCI), and (3) Indo-US Endowment Fund. He is Indian Sherpa for Carnegie Group of Science & Technology Ministers, Indian Focal Point for BRICS Working Group on Science & Technology and OECD Committee on Science & Technology Policy. He is Member, Board of Research Studies in Department of Geology, Aligarh Muslim University. He has worked as Counsellor (S&T) with Embassy of India in Moscow to facilitate bilateral scientific cooperation between India and Russia during April 2008 - June 2011. He completed M. Sc. (Geology) in 1984 from Aligarh Muslim University and was awarded University Medal for obtaining first position. He was also awarded Dr DN Wadia Research Fellowship in 1986 for his research on Himalayan Geology.



INTERVIEW

What are your observations about the Atmanirbhar Bharat initiative launched by the GOI? How do you think it would help Indian economy?

The Atmanirbhar Bharat Mission aims towards cutting down import dependence by focusing on the importance of promoting “local” products. It will promote local manufacturers and service providers, strengthen the economy, and improve the standard of living. It will assist the country from manufacturing to supply, help to reduce the trade deficit and will eventually lead to a trade surplus. More importantly, it will create more job opportunities and stop the brain drain from India.

How can DST assist in this initiative to make India Atmanirbhar?

Science and Technology (S&T) are necessary to solve real-world challenges, many reports revealed that 75% of all new jobs would require skills in STEM (Science, Technology, Engineering, and Mathematics) while 90% of jobs will need digital skills in the next 2 to 5 years.

The Department of Science and Technology (DST) is an apex funding agency of the government of India and responsible for the planning, formulation, and implementation of all science-based programs. The ongoing and new need-based programs of DST are continuously facilitating the goals of Atmanirbhar Bharat.

The DST is working at the grass-root level through science-based programs directly with societal concerns. These programs aim to develop a need-based, location-specific, and appropriate S&T intervention for economically viable, ecologically sustainable, and socially acceptable development. Our initiatives catalyse and support research, development,

and adaptation of relevant and appropriate technologies for empowering and improving the quality of life of artisans, landless labour, women, and other disadvantaged sections, particularly in rural areas.

We are also inculcating the culture of research, developing technologies, and working for capacity building in the cutting-edge scientific fields like Cyber-Physical Systems, Artificial Intelligence, Quantum Physics, and Nanoscience.

Apart from these, the exemplary role played by the DST in the global fight against COVID-19 has been recognised widely. The DST supported strong research programs to address COVID-19 related challenges, which are primarily focussed on research, diagnostics, managing/ treatment of this disease. The Indian scientific community, in close collaboration with industries and start-up companies, is engaged in scientific research as well as in the development and production of Personal Protective Equipment (PPEs), rapid diagnostic systems, therapeutics (both vaccines and other medicines), ventilators, disinfectants, anti-viral coatings, Informatics (AI based Apps), anxiety and stress management, as well as on repurposing devices and medicines during this period.

Could you comment on the international collaborations that can help India in this initiative?

Openness, transparency, sharing of research data, and international collaboration may help the world to achieve the Sustainable Development Goals (SDGs). This will also lead every nation to become more independent and Atmanirbhar.

In absence of self-sustainability, international

cooperation will have mutual benefits to all partners in terms of complementary need-based research, time, capabilities, and resources, resulting in impactful outcomes that may not be achieved individually. Every nation should realise the need to collaborate and work together by sharing responsibilities/ work modules, best practices to gain faster and fruitful results.

No nation is capable to tackle global crises like climate change, disaster management pandemic, etc. I would again like to quote the example of COVID-19 to emphasize that apart from the developments of protective equipment, diagnostics kits, and therapeutics; research, manufacturing, and distribution of vaccine against COVID is not an easy task for any single nation.

The government recently announced the STIP. Could you share your impressions of the policy and its objectives? How will it help India develop technical capabilities?

Atmanirbhar Bharat shall stand on the five pillars of Economy, Infrastructure, Technology, Demand, and a Vibrant Demography. The role of science, technology, and innovation (STI) is fundamental to balance social, economic, technological, and financial resources to achieve the goals of Atmanirbhar Bharat initiative. The STI community can help drive progress on the technology development, searching for the innovations to address the local needs; and monitoring its progress and the challenges it may face. Indian start-ups and innovators will play a vital role in the success of the mission.

The fifth S&T policy of India is being formulated at a crucial juncture when India and the world are facing the pandemic. The STI Policy will also integrate the lessons of the current pandemic and the building of an Atmanirbhar Bharat (self-reliance) through ST&I by leveraging our strengths in research and

development, capacity building of the S&T workforce, and inculcate the culture of entrepreneurship.

One of the prime objectives of the new Science, Technology, and Innovation (STI) policy is to promote all science and technology-based entrepreneurs and support the vision of the Prime Minister of India of making India a self-reliant nation.

The National Science & Technology Entrepreneurship Development Board (NSTEDB), of DST, is playing an important role to change "job-seekers" into "job-generators". One of the major objectives of DST is to promote and develop high-end entrepreneurship for S&T manpower as well as self-employment by utilising S&T infrastructure and by using S&T methods. The department also helps in networking with the academic institutions and Research & Development organisations to foster entrepreneurship and self-employing.

It is widely acknowledged that India would need to leverage its advantage in low cost manpower to achieve sustainable growth. Do you think the new education policy can deliver such a manpower base?

India has the capacity to produce the highest number of young skilled manpower to lead the world, The Indian government acknowledges the consequences of the lack of vocational courses and importance of pathways to enter a highly competitive world and it is keen to implement such programs through a new education policy to fulfil the dream of the 'Skill India' program.

The new educational policy clearly stated that a concerted national effort will be made to ensure universal access and afford the opportunity to all children of the country to obtain quality holistic education—including vocational education - from pre-school to Grade 12. Recognition of these vocational

courses will certainly help to deliver low-cost manpower to achieve sustainable growth.

What would be your recommendations to make the Atmanirbhar Bharat initiative more effective?

There is a need for rigorous implementation of all new initiatives of the government of India at local, regional, national, and global levels. We

are fortunate to have a large number of young generations that may become our strength if we can train them in different skills.

It is not the responsibility of one person; our government, policymakers, academics, schoolteachers, parents, and industries are equally responsible to contribute to the mission of Atmanirbhar.



A key aspect of Atmanirbhar Bharat is to harness our resources efficiently

Sanjay Bhattacharyya

Secretary, (Consular, Passport, Visa and Overseas Indian Affairs): Ministry of External Affairs, Government of India



PROFILE

Mr. Sanjay Bhattacharyya is Secretary (CPV & OIA) in Ministry of External Affairs. He is responsible for our relations with the Arab World, passport services, consular relations and diaspora affairs, Sherpa to BRICS and representative to Jal Jeevan Mission. Earlier he served as Ambassador of India to Turkey (2018-2020) and Ambassador of India to Egypt (2015-2018). He studied Economics at St. Stephens College, University of Delhi and at Delhi School of Economics. He learnt Chinese at the Chinese University of Hong Kong. He contributed a chapter "India and China: New Directions" in Indian Foreign Policy – Challenges and Opportunities (2007) and "India and Egypt: New Partnership in the New Era" in Asian Perspectives (2017).

INTERVIEW

Could you share your understanding and expectations from the recently announced Atmanirbhar Bharat initiative of the GOI? How do you think it will impact the economy?

Atmanirbhar Bharat, announced by Prime Minister Shri Narendra Modi, aims to take India to the next stage of economic growth and development. It focuses on 5 pillars: economy, infrastructure, technology in governance, demography and demand. The aim is to make India self-reliant and dynamic and not inward looking. It involves developing global partnerships and integration with value and supply chains to leverage India's greater role in an emerging world order.

Since the new economy is all about innovation and leveraging technology, how in your opinion can India foster and encourage the culture of innovation and research?

The new economy is propelled by disruptive changes in technology, continuous innovations and spirit of enterprise. Human capital will have to adjust to Industrial Revolution 4.0 through new age skills and R&D focus will help stay ahead of the curve. India will have an advantage with our strong STEM skills and spirit of entrepreneurship.

Indian diaspora is among the Most technologically advanced groups. How can India tap its vast potential to help India achieve self reliance on key sectors/ technologies?

The Indian diaspora is one of the largest in the world and also the most dynamic, highly qualified and enabled. The success stories of Indian diaspora in science and technology, medicine, management, arts and culture,

politics and social work are well known. They provide a bridge between India's aspirations and diaspora achievements. Integrating our diaspora to our national development endeavours is a key priority.

Strengthening the farm sector and water management is a key component of ensuring national food security. How should India approach Atmanirbharta in this segment?

A key aspect of Atmanirbhar Bharat is to harness our resources efficiently, in a sustainable manner and provide benefit to citizens. We have attained self-sufficiency in food and are net exporters. We are committed to usher in the next phase of reforms in agriculture to realize the potential of research, agricultural practices and integration with domestic and global markets. Water is emerging as the next frontier and needs to be managed sustainably for generations. An integrated approach towards water management including, agriculture and distribution of potable water to all families, especially in rural and remote areas, is our priority.

What regulatory/ infrastructure incentives would you suggest to make Atmanirbhar Bharat initiative a success?

India's continuous reforms over the last few decades helped adapt our economic and social environment to the conditions of a globalized world. At the same time, reforms have focused on better governance, efficiency in providing services to citizens and simplification of rules and regulations to facilitate economic activity. As India marches towards a more prominent role in global affairs, Atmanirbhar Bharat provides a foundation for this objective.

Arth Ganga aims to integrate economic development with Ganga rejuvenation

Rajiv Ranjan Mishra

Director General: National Mission for Clean Ganga (NMCG)



PROFILE

Mr. Rajiv Ranjan Mishra, is the Director General of National Mission for Clean Ganga (NMCG). He is also in-charge of National River Conservation Directorate. Mr. Mishra has held several important positions in the Govt & states with rich experience in areas such as river basin management, irrigation, environment, water and sanitation, housing, and urban development. Spearheading the Namami Gange, he has taken up several innovative steps to develop a comprehensive set of interventions and a model for river rejuvenation in India. He has been developing a framework for mainstreaming river conservation into urban planning and has richly contributed earlier as Additional Secretary, Housing and Urban Affairs for enactment and implementation of Real Estate (Regulation and Development) Act, Policies for Affordable housing including PPP models and New Urban agenda. Mr. Mishra is a Mechanical Engineer from IIT, Kanpur.

As an administrator and part of the government, how do you see the importance of the Atmanirbhar Bharat initiative? What benefits do you think it would bring to the economy and society?

In this modern dynamic world where countries are competing at an unprecedented global scale, the vision of Hon'ble Prime Minister is to position India as one of the leading global powers. Atmanirbhar Bharat is the need of the hour where India and its citizens become self-reliant. Five pillars have been outlined for Atma Nirbhar Bharat – Economy, Infrastructure, System, Vibrant Demography and Demand. Several bold reforms such as Supply Chain Reforms for Agriculture, Rational Tax Systems, Simple & Clear Laws, Capable Human Resource and Strong Financial System, have been taken up by the Government. Similarly, Namami Gange approaches river rejuvenation by focusing on involving people living on the banks of the river to attain sustainable results. Cleaning of Ganga has the potential to bring about massive socio-economic transformation delivering increased job creation, improved livelihoods and health benefits to the vast population that is dependent on the river. 'Jan Bhagidari' is the backbone of our mission. To connect river with people, Namami Gange has taken various initiatives for improving amenities, with community outreach through programmes like Ganga Vihar Manch, Ganga Praharis, Ganga Mitras, Ganga Task Force with ex-serviceman and activities like Ganga Utsav, Ganga Run, and Ganga rafting expeditions etc.

I would like to highlight about the Ganga Praharis, they are self-motivated and trained volunteers from among the local communities working for biodiversity conservation and cleanliness of the Ganga River with the ultimate objectives of restoring the Nirmal and Aviral Dhara. To make this initiative sustainable and reduce direct dependencies on the River, Ganga Praharis' livelihoods have been linked with biodiversity conservation and instead of

short-term direct monetary benefits, emphasis has been laid on their skill development through regular training. NMCG along with WII Wildlife Institute of India (WII), established skill development and livelihood centres in the Ganga states that offers trainings in sewing, handicrafts, nursery development, health and wellness from locally grown organic products, incense making, value added food products and biodiversity-based tourism. To create market linkages for these products, floating livelihood centres known as "Jalaj" are being developed. Jalaj comprises of a small shopping complex where Ganga Prahari products are being sold and through nature-based tourism services providing glimpses of Ganga biodiversity, cultural heritage and village life. This is one such example how by doing our bit we are contributing in the Atmanirbhar Bharat mission.

Where do we stand in terms of self-dependence in achieving the objectives of Namami Gange?

Namami Gange has been launched as a comprehensive river rejuvenation programme with a long term vision of Nirmalta and Aviralta. Learning from the past and considering the efforts of GAP-I and GAP-II, a need was felt for integrating various schemes of the Government relevant for Ganga Rejuvenation in order to enhance the size & scope of interventions for long term results under overall framework of Ganga River Basin Management Plan for the integrated Namami Gange Mission. A much detailed vision has been built, with self-dependence as one of the leading principles. With innovative financing solutions like Hybrid Annuity and One-City-One-Operator, Namami Gange aims to create a 'performance linked' culture of infrastructure development. Sewage infrastructure is being developed to meet the sewage generation capacity till the year 2035. Urban Local Bodies are being taken up to make them self-dependent in managing these

rejuvenation infrastructure, including sewage treatment plants, Ghats and crematoria, biodiversity and riverfronts. Open defecation free sanitation has been achieved in all 4465 Ganga villages. We have also recently launched India's first Urban River Management Plan, a framework to mainstream rivers into long term city urban planning processes. We are innovating by using latest technology, adapting and amalgamating our learnings to reach a unified vision of cleaning India's river systems.

For the first time, district administration has been directly involved in Ganga rejuvenation by constituting District Ganga Committees chaired by District Magistrate for overseeing and closely monitoring interventions for Ganga rejuvenation and for taking ownership for conservation of the river in the district. DGCs are responsible for the prevention, control and abatement of environmental pollution in the River Ganga. This is a strong formal institutional framework with required authority to guide the program in right direction by involving stakeholders and develop community participation. A composite strategy has also been adopted for strengthening people river connect through development of community-based cadres of different nature, innovative mass awareness campaigns and organizing focused events of varied nature with special attention on involvement of youth and students. This has been a major change in approach under Namami Gange from earlier programs. These attempts for behavioral changes has been transforming the program for the first time as a People's movement to connect people with Ganga, its importance and the need to keep it clean and healthy. A change in narrative from – 'Nothing can happen for Ganga' to 'Yes, lot of efforts are being made for Ganga cleaning on the ground' - is taking place. Public awareness has not only changed the attitude and behavior of the communities but has also made them more sensitive towards water, biodiversity and Rivers and it has now become a people's movement

How do you think we can collaborate with our partner countries like Israel to achieve technical prowess for becoming Atmanirbhar in developing thriving river systems in the country?

Based on the locally available resources, talent, and skills of the human capital, India has been transforming its river systems through long term infrastructure development, innovative finance structures and creating an environment of Jan Bhagidari, where all sections of society can come together for a collective vision of river rejuvenation. We have been collaborating with several countries aiming to integrate engineering, technical and policy innovations with our tradition knowledge to co-create a more adaptive and refined approach. We have MoUs with countries of Germany, Japan, United Kingdom and Scotland and Jal Shakti Ministry's MoU with Australia and Israel to support Namami Gange in various activities including sustainable management of water resources through collaborative programmes. We can take benefit of learnings and technical prowess of Israel's water management and recycling techniques, which helped it overcome a water crisis following years of drought. Israel has also set a template for reusing wastewater for irrigation. It treats 80 per cent of its domestic wastewater, which is recycled for agricultural use, and nearly 50 per cent of the total water used for agriculture. Our aim will always be to create infrastructure that enables city governments to become SMART river rejuvenators.

In a recent interview, you mentioned about the concept of Arth Ganga. Could you explain it for our readers?

'Arth Ganga' was envisioned by Hon'ble Prime Minister during the Meeting of National Ganga Council as an approach to develop an organic linkage between economic development of area along Ganga with rejuvenation of river basin. To augment the Ganga conservation efforts, Hon'ble PM suggested to link Ganga

conservation with the development of local economy. The Namami Gange Mission was directed to take the lead in developing a sustainable and viable economic development framework for the Ganga Basin as 'Arth Ganga', with an aim to integrate people's participation and economic development with Ganga rejuvenation. He also suggested that all the actions taken in this regard should contribute in harnessing 3% of Gross Domestic Product (GDP) from Arth Ganga Programme. The Ganga River plays a significant role in India's economic growth and hence must be understood as not only a spiritual entity but also an important economic resource in order to balance the conservation and development goals. It is proposed to achieve this by working on the following objectives - Strengthen the local economy in the basin, Enhancing resource use efficiency, Sustainable forestry, Water Conservation, Biodiversity conservation, Strengthening capacity and public awareness, and Promotion of multi-sectoral coordination. The focus areas of intervention will be agriculture, including horticulture and floriculture, fisheries, tourism and culture, handicrafts, including artisans in village subsistence industries, renewable energy, sustainable forestry, and biodiversity and wetland conservation.

How do we develop the manpower to sustain the Atmanirbhar Bharat initiative?

Atmanirbhar Bharat has twin objectives- short term and long term - Reviving different spheres of the economy in the short term and insulating India from any future global economic downturn, by making it robust in the long run. The Abhiyan seeks to build capacities across

sectors and promote local products. Further, it would focus on scaling up manufacturing, accelerating infrastructure development, attracting investments and promoting a consumption-led growth. About 65 per cent of India's population is below 35 years and 50 per cent is below 25 years. The India Skills Report-2020 says that currently, millennials constitute nearly half (47 per cent) of the country's working population. This is likely to remain the largest chunk of the Indian workforce for the next 10 years. With a huge, educated young population, India is uniquely poised to realize its demographic potential. There is a need to upgrade the skills or upskill the youth to meet the employment needs of technology-driven 21st century. In the backdrop of the call for Atmanirbhar Bharat, there have been reassuring developments in the country. The production of several lakh PPE kits, collaboration of automobile industries to produce ventilators, manufacture of more than 70 Made in India products by the DRDO, development of the low-cost ventilator Prana-Vayu by IIT Roorkee, and the products developed by start-ups in Karnataka to tackle COVID-19 are just a few examples of India's capability. Atmanirbhar Bharat is poised to trigger a paradigm shift in all areas for Indian products to be globally competitive. If we talk about the Ganga Basin, to make this initiative sustainable, livelihoods need to be linked with different river rejuvenation activities. In absence of employment opportunities for local communities, providing them with a platform wherein they can be trained with various livelihood skills can prove to be a milestone in building their trust, confidence and ensuring their participation in conservation.

Expenditure of education should increase at least to 10 percent of GDP

Prof. Rajendra Pratap Gupta

Chairman, Dynamic Coalition on Internet & Jobs, Internet Governance Forum, United Nations



PROFILE

Prof. Rajendra Pratap Gupta has been a leading policymaker for over a decade and has played a crucial role in drafting the policy of the Modi government by drafting the election manifesto of the BJP in 2014. Besides, he has played a key role in National Health Policy, National Education Policy and programs for labour and employment. He has been associated with various multilateral organization and international bodies for various initiatives He has written five best-sellers and chairs the Dynamic Coalition on Internet & Jobs at the Internet Governance Forum, United Nations. He has served on the nine-member team tasked to draft the National Education Policy and is a former advisor to the Union Health Minister, Government of India.

INTERVIEW

What according to you, Atmanirbhar Bharat means in the current context? How do you differentiate it from the self-sufficiency drive via import substitution that was pursued in initial years of our independent history?

Firstly, India will have to define a long-term vision and give up the five year – election year based political trade-offs. India needs to plan for the next 50-100 years. Also, we have to identify the core strengths of India, the building blocks of Atmanirbhar Bharat and invest in science & technology through universities, and revamp the education system in line with the National Education Policy 2020. India has a serious challenge of the 'missing class' (given, that we have 1350 million total population and out of that, 400 million is middle-class, 250 to 300 million poor and in the best case, 10 million HNIs. So, what constitutes, the remaining 640 million? In which class do I put this huge number? In my view, and based on the analysis I have done, the middle-class in India in the best-case scenario is about 20 crores, and if we have to become Atmanirbhar, we need to expand this to 80 -100 crores. That to me is the pre-requisite of Atmanirbhar Bharat. Atmanirbhar Bharat is about being able to think, decide and take care of this big nation on our terms and not necessarily be self-sufficient in just terms of manufacturing or producing. That, to me appears to be a definition when you consider India as a mere market and not a Nation.

Also, Import and export substitution will be based on primarily three premises 1) Moving to renewable and nuclear energy to cut down our oil import bill 2) Become a leader in fundamental research with not just proper IP protection, but a clear IP monetization policy 3) Stop leaning on multi-lateral agencies, foreign nations and Multi National Corporations to

come, collaborate and help a country of 1350 million people. Which to me will never deliver Atma Nirbhar Bharat.

Also, history is behind us. Now, we have to see the post-COVID world, and prepare ourselves for the new world order with the 'New China' in mind. We will need some of the finest brains to navigate India for the next decade.

If you were to pick top 4-5 dimensions of self-dependency, what would they be and why?

- Governance and Leadership – If we are led by the leaders who cannot understand the future and plan for it, India will be back to pre-1947 days in the next decade. We need a new breed of 'educated and enlightened leaders' at all levels.
- Administration: India is a young and aspirational country with majority being youth and with a burning desire to do something. But, India as a nation is run by the feudal mindset of 14th century and bureaucratic system of 18th century. No worthwhile progress is possible if we don't change the bureaucratic system. So, bureaucratic system has to change to performance based, project-based time bound recruitments instead of tenured bureaucracy.
- Judiciary – In absence of judiciary no rule or regulation can be enforced. So, this needs to be reformed
- Education system of India should move beyond the four walls, and I think the National Education Policy has done its bit and now, it should be implemented within a decade and the expenditure of education should increase at least to 10 percent of GDP

- Healthcare system will have to move from preventive to pre-emptive care and this calls for leveraging technology amongst other initiatives
- Defence – India will have to move to space and cyber warfare to protect the nation from our adversaries
- Agriculture and MSMEs will form the core strength of India, and this must be focussed

There is widespread allegation that the move towards Atmanirbhar Bharat could roll the clock backward and may lead to the closing of the economy, with severe consequences on efficiency and growth. How do you respond to these allegations?

I think it is answered in the earlier question but I will still repeat, Atmanirbhar is not just limited to export and import, and it is just a small subset.

What are the most critical requirements that would be needed to achieve Atmanirbharta of self-sufficiency in your opinion? And how are we Indians placed vis-à-vis those factors?

- We have a 25-year window to become a developed nation and we are still way behind to leverage that opportunity.
- Value the assets which matter the most – people, and invest to develop them along with the changing needs of time.
- We need to disrupt every sector and transform it.
- Importing failures of the west will never be enough to lift us to become a developed nation. We need to define our rules of the game.

Since you have long been associated with the technology sector, how do you think technology can play a role in advancing the cause of self-sufficiency or self-dependency?

Technology is merely a platform and not a total solution for India. We have to leverage technology, and in the case of India the scenario is quite different. We are not a European country with 5 -10 million population, we are a Lower-Middle income country with 1350 million population. In as much we have to use technology to leverage the full potential of our population, but we must be careful not to replace people with technology and this calls for what I say 'sustainable automation.'

How can India achieve self-dependency in healthcare considering that it imports a large part of its high-end equipment?

- First, we have to move to -Population Health. We need to do a digital risk assessment for the entire population, then screenings those at risk, and moving the people who have a medical condition or potential to have a medical condition to a case management protocol based system
- We need to open institutes which focus on MedTech or HealthTech and fund them with grants and risk-capital
- Set our standards rather than blindly copying global standards and then, making them an important compliance requirement to bid for Indian contracts. We need to encourage and incentivise local entrepreneurship
- Government must follow what I have mentioned in the National Health Policy; to invest in public health infrastructure. Falling totally in the hands of the private healthcare will increase investments in healthcare with no commensurate increase in health outcomes

Do you think the recently announced NEP will be able to create a workforce that can undertake high end technical work needed for self-dependency?

Only If we implement it in the next 10 years and not take more time.

How do you think governance especially in the high-tech domain needs to evolve to achieve self-dependence in crucial areas of digital data, information and commerce?

Data sovereignty and Data localization needs to be enforced without any delay or else, we will be digital slaves of the first world. This will be worse than the slavery of pre-1947.

R&D has remained a critical weakness for India because of lack of long-term focus on R&D-oriented planning

Sameer Patil

Fellow, International Security Studies Programme, Gateway House, Mumbai



PROFILE

Mr. Sameer Patil is Fellow, International Security Studies Programme, Gateway House. Prior to this, he was Assistant Director at the National Security Council Secretariat in Prime Minister's Office, New Delhi, where he handled counter-terrorism and regional security desks. Sameer has written extensively on various aspects of national security. He is also a dissertation advisor at the Naval War College, Goa. In 2019, he was a recipient of the Canberra Fellowship, awarded by the Department of Foreign Affairs and Trade, Australia. He tweets at @sameerpatilIND.

INTERVIEW

As a defense analyst, what is your expectation from the Atmanirbhar Bharat initiative of the GOI?

I expect the 'Atmanirbhar Bharat' initiative to primarily address three things: a. encouraging domestic projects with a greater involvement of the private sector; b. opening greater opportunities for the Indian companies in the global supply chain; and c. strengthening India's defense R&D base. The GOI has already begun working on these issues.

Which five reasons you would cite for low indigenization of weapon platforms that India has? To what extent government policies have been responsible for the same?

My five reasons, not necessarily in that order, are:

- a. the unwillingness of Soviet defense companies (which became India's main defense supplier after the India-Pakistan War of 1971) to transfer design and technology;
- b. lack of long-term focus on defense R&D oriented planning;
- c. the 'import lobby' in the form of "middlemen", who coveted the kickbacks from foreign contracts;
- d. inadequate involvement of the private sector in defense manufacturing from early-on;
- e. less than optimal utilization of the defense offsets policy. Restrictive regulatory frameworks indeed played a role in inhibiting the indigenization, but in the last few years, the government has attempted to correct these. It is a long way to go, though.

What is your assessment of the research environment in general and DRDO in particular? How do you think needs to be done to improve the domestic research in defense arena?

A strong R&D base is key to achieving self-reliance in defense manufacturing. But this has remained a critical weakness for India as the DRDO's lack of long-term focus on R&D-oriented planning resulted in a failure to develop the technology, relevant for the defense forces. As expected, the defense forces have been deeply frustrated and have repeatedly accused the DRDO of following a 'foot in the door' policy, where the organization over-commits beyond its existing capabilities, binds the defense forces to sub-standard and under-powered equipment, and more importantly misses deadlines.

To drastically improve the situation, the government has already begun encouraging the private sector to focus on R&D. India needs to initiate domestic flagship defense technology development programs catering to future acquisitions. Ideally, these flagship programs should be based on existing competencies, such as information and digital technologies, which will help in integrating commercial and manufacturing dimensions with R&D efforts and expedite the commercialization of these technologies.

There is a widely held belief that unlike Chinese PLA, Indian armed forces are not sufficiently involved in weapon development program and that defense R&D and military rarely talk to each other, resulting in poor weapons specification and design. What is your take on this?

I believe the comparison with the China is unfair not just because of different political systems and civil-military relations, but also due to a

different approach to achieve self-reliance in defense. It is widely known that the Chinese path to self-reliance has heavily relied on “reverse engineering” of the Western and Russian equipment.

Yes, there is insufficient dialogue between the defense R&D and military. Moreover, as mentioned previously there is also deep frustration with the DRDO’s performance. But these problems are not insurmountable. With enough push from the political executive, I am certain military as the final customer of the product, can work in a harmonious manner with the DRDO and other elements of the defense R&D ecosystem. The opening of this ecosystem to the private sector has also helped to address this issue.

OFBs are known more for their unionism and poor product quality rather than their efficiency. What can be done so that they are relied upon by military for high quality product on schedule?

You have rightly identified the deficiencies of the OFBs, but we have to remember that they have the experience and the infrastructure – which is an asset we need to utilize going forward. To make them a valuable partner in the quest for ‘Atmanirbhar Bharat’, we should encourage the OFBs to initiate collaborative industry research to identify global trends in emerging technologies and their implications for the Indian defense industry. This can be the first step towards building those capabilities for India. This R&D needs to be done independent of the DRDO.

How satisfied are you with the private sector participation in defense manufacturing? How can they be made more useful partner in overall defense planning?

The two government initiatives – ‘Strategic Partnership model’ and the ‘Innovations in Defence Excellence’ – seek to augment private sector including the start-ups’ participation in domestic defense manufacturing. These are in their initial stages, but if executed right will give the private sector an equal opportunity. Since there is a political will to reduce India’s dependence on arms imports, it is certain that domestic defense-industrial capacity will only expand henceforth. Realizing the vast opportunity offered by the Indian defense market, foreign OEMs too appreciate this quest for self-reliance.

Separately, in the aerospace sector, Indian companies have formed partnerships with the American, European and Israeli aerospace companies, which have made them part of the global supply chains. To ensure that the private sector’s role expands in defense manufacturing, the government will need to address the lengthy defense acquisition process.

Looking at the state of technological capability that India has what platforms you would suggest India to fast-track for building self-dependency?

When we speak of ‘Atmanirbhar Bharat’, we have to remember that we cannot achieve self-reliance overnight. It requires years of planning and execution as well as building on the existing capabilities and expertise. If one looks at our defense forces, we can see that the Indian Navy is the most indigenized. We are executing a fairly large degree of ship-building projects domestically. Therefore, ship-building and naval systems is something we should fast-track. This will add to India’s power projection capabilities, particularly as the Indo-Pacific becomes a strategic reality.

Media need to reinvent themselves by adopting a “digital first” strategy

Anil Nair

Editor, Policy Circle



PROFILE

Mr. Anil Nair is a TV and Print journalist and commentator based in New Delhi. Presently he is the Editor of Policy Circle. He has served as editor of financialexpress.com and executive editor of public service broadcaster Rajya Sabha TV. He has worked with the country's top news organisations such as the Economic Times, Times of India, Hindustan Times, Times Internet and Business Standard.

INTERVIEW

As a journalist who has seen the media sector evolve over the last 25 years, how do you see the impact of Aatmanirbhar Bharat on the sector? What impact the recent move to cap FDI in digital media at 26% would have on Indian media industry?

The media industry is struggling in terms of profitability. Legacy media has seen profits eroding while new media ventures are facing a funds crunch. The Prime Minister has clarified that he is against India closing its door to the world. Most Indian media firms are owned by a few corporates and the industry could see monopolies emerging. Corporate interests could also see an erosion of quality. There is a need to regulate corporate ownership of media through a ban on investment in multiple companies and cross-holdings.

The 26% FDI cap in digital media can throttle the growth of the sector. This will give unfair advantage to foreign players. In a globalised world, FDI cap could mean Indian media firms losing audience to foreign media firms or aggregators such as Google and Facebook. The government should open up digital media for 100% foreign ownership.

What do you hear from foreign correspondents about the Aatmanirbhar Bharat initiative of the GOI?

There is unanimity among foreign correspondents that India should step up its efforts in manufacturing. Self-reliance can only be achieved through heavy investment in physical infrastructure and energy. The country needs heavy investment in roads, ports, airports, power sector and cold chains. There is a need to attract foreign investment into infrastructure and technology. The government needs to do more to attract foreign investment into these sectors.

Since you speak with businesses and industry experts, what kind of responses you get when you ask them about the efficacy of the move?

Industry is enthused by the efforts towards self-reliance. But there is a feeling that the government hasn't backed its pronouncements of Aatmanirbhar Bharat and Make in India with bold reforms. There is a need to roll out reforms in labour laws and land acquisition rules. Apart from this, India still doesn't have reliable power supply to support a world class manufacturing industry and services sector.

How has COVID-19 impacted the Media Industry? What is the way forward?

Indian media was already facing a crisis when the Covid-19 pandemic broke out. The economic crisis that followed saw the industry struggling with low consumer demand and profits, leading to huge cuts in ad spend. This has affected all media houses. The industry has seen large-scale job losses and salary cuts.

The media industry's business model which is dependent on advertisement income itself will be put to test in the coming months. The print media is facing an existential crisis, after the pandemic saw circulations fall drastically. They need to reinvent themselves by adopting a "digital first" strategy. Like their peers in the West, they should shift to a paid subscription model for their digital operations. The New York Times earns two thirds of its revenues through paid subscriptions. But for that, Indian media need to invest heavily in quality of content. They need to revamp newsrooms by hiring leaders who are adept in handling print, online, audio and video content.

The Essence of Atmanirbharta

Yugal Kishore Joshi

Director, Swachh Bharat Mission,
Ministry of Jal Shakti



PROFILE

Mr. Yugal Kishore Joshi is a co-author of the internationally acclaimed book Singapore Water Story, which has been translated into Chinese, Japanese, Mongolian and Hindi, and Creating Shared Value, on sustainable development. His other books are Boons and Curses: Legends of the Mythological Mother, Women Warriors in Indian History, and Ram: The Soul of Time. Mr. Joshi is a recipient of Prime Minister's Award for Excellence in Public Administration for Information, Education and Communication (IEC) in Swachh Bharat Mission and also an awardee of Indian Police Medal. He is the Director, IEC, Swachh Bharat Mission, Department of Drinking Water and Sanitation, Government of India since 2016.

Article

Ishopanishad has two beautiful philosophies. The first says from wholeness comes wholeness and the second assigns a divine responsibility on those who are capable and conscious.

The second mantra of Ishopanishad puts onus of sustainability squarely on human beings. Awarding trusteeship of resources of entire cosmos to conscious ones, it advises them to leave a better world behind. On the other hand, the first mantra is about the infinite nature of the divine and affirms that even if infinite is taken out from infinite, what remains is infinite.

Then there is a third mantra. It appears in Rig-Veda, Atharva-Veda, Mundakopanishada, Shvetashvataropanishada and at various other places. Indian philosophy does not acknowledge a single subject instead it presupposes a dual subject. Thus, it postulates the duality of mind; one that perceives and the other that contemplates the action of the perceiver. Its depiction through the two birds sitting on the same tree, has also been carved out in stones. Most prominent one is the sandstone bas relief at Sanchi Stupa.

It talks about the two birds sitting together. One of them eats the sweet berry and the other watches the first bird eating the berry. Ancient Indian texts describe one of the two birds as the Self, or the Aatman, and the other as I, or the Aham. The Aham is intrusive yet insubstantial and the Aatman is supreme and untarnishable. How to discover or how to attain the Aatman has been the ultimate goal for Indian seers.

To achieve this ultimate has been dealt at two levels, the individual and the collective. At individual level, as Lord Krishna says, it is done by Yoga. By freeing the mind, intellect and the

Aham from restless desire and to bring them and to yoke them with the Aatman. This journey has been explained in Bhagavad Gita and then in Kathopanishada and other texts. It is given a definite structure of eight limbs of Yoga is enumerated by Patanjali in his Yoga Sutras.

This instils a sense of discipline, detachment and focus in the person to follow what Ishopanishada prescribes: to be a true trustee of the resources of the world. But, as Aristotle says, a man is by nature a social animal. It is in the community that we find our outwardly expression. The community is that big canvass where we paint our materialistic needs and ambitions. Thirukkural says he alone is alive who is in tune with the world. We need people around us for our survival and well-being. Thus, like disciplining the self, there is a plethora of treatise on an individual's duty towards the society and also on how a society should function.

How to ensure that the society does not become an impediment to the individual quest for the Aatman and this individual quest does not lead to unrest and disintegration of the society, has been a big question often pondered upon by the great men. How individual and collective growth can be achieved, has been answered by different thinkers in different ways.

For Gandhiji, in an ideal society, an atmosphere of mutual respect and trust must be established without creating a violent conflict between the classes and the masses. For him local institutions were the models of non-violent organisations, as these were based on direct democracy, social cohesion and mutual cooperation. Echoing Huxley's mantra of

decentralisation and responsible government as the foundation of a better society, Gandhiji advocated that India must progress according to her own genius and ancient culture. He wanted her to plan for progressive economic system that leads to greater prosperity without sacrificing higher values of life.

This does not mean an aversion to scientific and technological advancement and to machinery. In fact, Gandhiji categorically said that he would prize every invention made for the benefit of all. Gandhiji welcomes every machine that made the lives of poor better.

The idea of self-reliance arises from the fact that an over reliance on others leads to vulnerability. For a country as diverse as India and teeming up with more than 1.3 billion human resource, there should not be any reason why should it not be self reliant? It is also a matter of utilising its full potential. For example, when India found itself caught in Covid-19 pandemic, it realised that it was not producing even single Personal Protection Equipment (PPE). And when India took the task in hand, within few months it was producing about 2 lakh PPE kits daily. Similar success story was repeated in making life saving ventilators. These two examples clearly manifest Indian's ability to rise up to the challenges and grab the opportunities.

Atmanirbhar Bharat focuses on five pillars of economy, infrastructure, system, vibrant demography and demand. The five phases of Atmanirbhar Bharat are businesses including MSMEs, poor – including migrants and farmers, agriculture, new horizons of growth and government reforms and enablers. The pillars and the phases clearly demonstrate an inner

desire of decentralisation, holistic growth and a responsible government.

A decentralised and self-reliant system fulfils the two conditions of an ideal society – individual and collective growth. It is not a self-centred system. Every country finds its peace and happiness if its superstructure is consistent with its roots. According to those roots a country picks up how it will rise above the ground. Therefore, self-reliance in no way is aloofness or isolation from the rest of the world. It does not mean we don't learn from others or don't help them. It is strengthening one's capacity and stretching one potential to maximum.

Such self-reliance can not come without the persons endowed with rich human attributes. As Lord Krishna explains these qualities are: fearlessness, pure knowledge, cultivation of new knowledge, charity, discipline, sacrifice for a noble cause, studies and research, austerity, simplicity, non-violence, truthfulness, freedom from anger, renunciation, tranquillity, aversion to fault finding, compassion for all living entities including environment, freedom from greed, gentleness, modesty, steady determination, vigour, forgiveness, fortitude, cleanliness, passion for honour and freedom from envy.

A person possessing these qualities will certainly follow a sustainable way of life, what the second mantra of Ishopanishada prescribes. She, devoid of greed, will treat resources of nature with the spirit of trusteeship. Such responsible behaviour from a self-reliant society will make the country innovative, vibrant, strong, peaceful and a happy place to live.

(Views expressed are personal.)

SEGMENT

2

COMMERCE AND INDUSTRY

If the idea of Atmanirbhar Bharat is to empower economic agents to play their role in nation building up to their potential, it is necessary that their perception and recommendations are sought. Industry faced extreme stress during Covid led economic slump and output declined sharply in middle months this year. However, they were offered major sops and reforms were undertaken to empower this crucial economic agent group. So, how does Indian industry and commercial sector feels about the initiative?

Four major themes emerge from our interaction with representatives of industry, trade bodies and industry experts. First, the initiative has the ability to strengthen the Indian industry when coupled with the other sectoral reforms that the government has undertaken. Second, India needs to capitalize its entrepreneurial talent which is not only capable of delivering tech solutions of tomorrow's economy, but also generate substantial employment. Third, the digital and other next generation technologies will form the bedrock of tomorrow's industry and for that, education has to change to churn out technically sound workers. There is broad consensus that the new education policy has the potential to deliver such a work force. Finally, there is also a realization that unless core structural inefficiencies like high power cost, infrastructure problems, regulatory bottlenecks etc. exist, it will be hard for the Indian industry to become globally competitive. In totality, there is a cautious optimism for this initiative among commercial sector.

Atmanirbhar Bharat – Role of Digital India and Artificial Intelligence

Prasoon Sharma

Founder CEO, WUS



PROFILE

Mr. Prasoon Sharma is the Founder & CEO, WUS - A Unified digital community for Workers and Trade Unions. He is also a Pentland-Churchill fellow for Global Public Policy leadership at New York University (NYU) and University College London (UCL).

Article

On August 13, 2020, Prime Minister Narendra Modi launched a digital platform, 'Transparent Taxation - Honoring the Honest', to promote transparency in tax collection. Taking one more step towards seizing the 'Digital India' dream, the Transparent Taxation platform is expected to reinforce efforts of reforming and simplifying the tax system, bring transparency in income tax systems and empower taxpayers.

In the last five years, the Digital India program has driven rapid technology implementation in the country. Some of the top digital technologies supported program that has engaged huge space in e-governance model include Aadhaar expansion, Direct Benefit Transfer, Common Services Centers, DigiLocker, mobile-based UMANG services, participatory governance through-MyGov and Jeevan-Pramaan.

Similarly, easy access to e-government schemes, like Ayushman Bharat, e-Hospital, PM-Kisan, e-NAM, Soil Health Cards, National Scholarship Portal, and e-Pathshala, have taken better governance to remote areas.

In terms of digital payment, Bharat bill payment system (BBPS) has achieved notable growth with a CAGR of ~1,590% in volume and ~1,650% in value from FY 2017 to FY 2020. Further, Aadhaar Enabled Payment System (AePS) has been a game-changer for the government in achieving its aim of financial inclusion, and its acceptance will continue to grow in the coming years. The AePS platform observed a growth of ~253% in volume and ~264% in value.

Still, there are many challenges for Digital India program. The biggest and critical challenge is to create a national database of an estimated 450 million informal sector workers and provide them with universal social security coverage.

The Indian government is planning to count rickshaw pullers, street-side vendors and hawkers, and other unorganized workforce.

As part of this exercise, the Indian government will collect details about informal sector workers that would include their occupation, monthly incomes and days of employment. Subsequently, their profiles would be seeded with Aadhaar to deliver the benefits.

Nearly 90% of India's workforce is in the informal sector, with no minimum wages or any social security. The national worker database is expected to yield crucial employment data on the informal sector, filling a critical gap in India's statistics.

The National Statistical Commission has been asked to compile data on the size, distribution and economic contribution of these unorganized workers to the national output. The exercise will start soon and take at least a year to complete.

In order to build "Atamanirbhar Bharat" digitally, The national worker database is a must. Amid coronavirus pandemic, we have seen atrocities and suffering of migrant workers. Neither Bharat lack resources nor willingness to empower its workers. Bharat considers its workers as भारत भाग्य बधिता. The national worker database will enable the government and society to provide resources and support to workers at the right time and in the right quantity. Indian government should partner with private players especially Indian start-ups to build not only the national worker database but also solutions for them.

Digital India, backed by Artificial Intelligence (AI) is the future of e-governance in India. The recent launch of 'National AI Portal' and 'Responsible AI for Youth' is expected to take governance through AI-powered future.

AI is not a distinct sector. Instead, AI is an enabler for all sectors, including mobility AI, education AI, health AI, agriculture AI etc. AI could be used in helping farmers make better decisions, expand tax collections and healthcare. The Supreme Court of India is using AI to translate legal papers from English to nine Indian languages and vice versa.

AI has two elements: technology and data.

As per a German survey, the tentative worth of an individual's data is 140 euro. On this basis and considering other local aspects, our research predicts the worth of India's data is \$2 trillion tentatively. Thus, India's data protection bill should safeguard and boost the political economy of data. In the era of Artificial Intelligence (AI), data has tremendous value. For example, a cancer patient pays 40% -50% of his treatment cost by investing his treatment /health data in training a pharma company's AI model.

The politics (e.g. Controlling public opinion) and economics (e.g. enforcing companies to invest locally on data centre and data processing) shape the data policies of a country.

In order to safeguard political economy of data while ensuring the availability of data to local AI

industry, the Government of India has set-up a committee, led by Infosys co-founder Kris Gopalakrishnan, on governing non-personal data. Recently, the committee put out its draft report for public consultation. At the report's core is an effort to ensure that non-personal data is shared and made available widely to enable the development of a strong domestic AI industry. The report typifies data collected from a community or society as "community data", and recommends for it to be shared for the community or society's welfare. Such data should be available to the local AI industry. Data governance is a daunting and complicated task. Thus, to build "Atamanirbhar Bharat" digitally, robust data governance policy is needed to safeguard and boost the political economy of data.

In conclusion, to build "Atamanirbhar Bharat" digitally, the Indian government's flagship program- Digital India has prepared a strong base. Further, the government and society must digitally empower the workers - भारत भाग्य वधिता- by building the national worker database. Furthermore, creating a robust data governance policy to safeguard and boost the political economy of data while ensuring the availability of data to the local AI industry will enable Bharat to realise the "Atamanirbharatha" in all the sectors.

Why promoting the domestic start-up story is a key element of an Atmanirbhar Bharat

Rameesh Kailasam

CEO, IndiaTech.org



PROFILE

Mr. Rameesh Kailasam is the CEO of IndiaTech.org and is considered as the emerging voice of the Indian start-ups in the internet space. Prior to joining IndiaTech, he was heading APCO Worldwide's India operations. Prior to APCO, he served as vice-president for governmental programs at IBM for India/South Asia. He was also a contributor to the National Solar Mission policy on renewable energy. Rameesh has been involved in the creation of next generation administrative reforms and e-Governance in various states and central government, and was actively involved in the set-up and running of the Centre for Good Governance at the Government of Andhra Pradesh. He has authored more than 100 papers and reports many of which have been adopted for driving policy in India and internationally. Mr. Kailasam holds multiple qualifications in accounting, finance, technology, as well as policy and governance reforms.

Article

The Free Dictionary defines "Self Reliance" as the "Reliance on one's own capabilities, judgment, or resources and independence". Self-reliance is built on the belief that you can, and should, change and control your circumstances. This term first featured in an 1841 essay written by American transcendentalist philosopher and essayist Ralph Waldo Emerson. Many others have defined "Self Reliance" in their own way but none of the definitions do any justice to the concept as it is much beyond and larger in concept and context depending on an individual, society, region, state or country.

Looking from a country's standpoint, it may stand for economic self-sufficiency and may also partly imply practically seeking a reasonable amount of independence from other nations. While India needs to achieve reasonable momentum backed by a consumer behaviour that embraces products and services offered within India and made in India in brick and mortar space, it is also essential for the new age start-ups to focus, create and offer products and services in the online and offline world for the new age consumers of India.

India is currently amongst the top five countries in the world in terms of startups. Startups have demonstrated promising potential and have been in central focus in India. They also play an important role in economic development given the fact that they have a potential to create jobs across the economic strata of society. India, with its vast consumer and seller base in goods and services, can easily aspire to become one of the world leaders in the space of Internet-based startups. Start-ups are the centre of innovation and growth for economies across the world and will soon become a critical pillar of the Indian economy that not only

enhances economic prosperity but also creates a huge number of jobs for a large self-employed gig economy. Start-ups in fact are beginning to create more jobs than conventional companies since they are generating both formal and informal employment opportunities and are a major contributor to the gig economy and workforce.

As a crucial arm of the Indian economy, it is important for start-ups to receive all the support that they can to compete with the big tech emerging from the other economies. Start-ups need to continue to have easier access to capital as well as conducive policy frameworks that would accentuate ease of doing business for businesses across sectors. More importantly, it is critical that an environment that allows these start-ups to be self-reliant, is provided and enabled.

In order for India to become truly Atmanirbhar and to create an enabling mechanism that can allow startups to scale up and go to the next level, India needs to put in place a few regulatory unlocks. The Indian Government has been supporting the Indian start-up ecosystem immensely. There has been a slew of measures both fiscal and non-fiscal that have been introduced with the intent of supporting this budding sector. That said, there continue to be some reforms that if introduced can bring significant difference for the start-up ecosystem.

In case of high-growth technology companies and start-ups, exempting the promoters from complying with the minimum promoters' contribution requirement should be considered. This provision would ensure that Indian Founders are able to retain decision making and strategic control even after having

gone through multiple rounds of capital infusion from institutional investors and list in India instead of listing elsewhere. This way wealth creation will be in India.

Reconsideration of certain direct tax regulations like sec 194O that relate to compliance burden issues not only for start-ups, established businesses, and regulated sectors but also for millions of gig economy workers besides blocking working capital for all. Other provisions like Section 206C (1G) (b) inconveniences all tax filers and salaried taxpayers and risks moving away business from Indian travel agencies by granting unfair advantage to overseas travel agents and suppliers.

While goods and services tax (GST) has been an indirect tax game-changer, it has also been a bottleneck because invaluable working capital is trapped and unutilised. This is due to a peculiar so-called inverted structure for many industry sectors including textiles and a huge 'level playing field' issue in services sector in the consumer Internet space. Relook is required for onerous clauses in GST that currently force online service sector start-ups to unnecessarily open multiple offices in all states and UTs when their overseas competitors are exempt. Fixing the discrepancy that exists due to inverted tax rate structures in many sectors for start-ups that has locked in valuable working capital of the industry with the government will pave the way for a stronger Atmanirbhar Bharat.

Another area that's requires relook is ESOP taxation as most employees who co-found and co create a start-up initially work without any major considerations. This is the true essence of any start-up that builds cutting edge products and services hence a more liberal yet practical applicability of ESOP taxation rules can unlock huge amount of innovation and attract talent in the country. While the government attempted in its bit to bring out clarifications on demands from industry in this regard yet the definition of 'eligible start-ups' is still restricted to only those startups registered with the DPIIT or listed under 80-IAC and IMB. If the scope of relaxation can be extended to other start-ups having a turnover below a certain threshold, this will boost ownership by employees in the companies and allow start-ups to hire talent and consequently provide a boost to the economy.

Start-ups have undeniably proven to be the foremost factor in creating an Atma Nirbhar Bharat.

Start-ups today are present across sectors, making access to all services and facilities a tap away. With the ease that they provide, they are exceptionally important for India to compete with innovative technologies from across the world. India needs to be positioned as a creating nation and not only as a consuming nation. It is only then that a more Atma Nirbhar Bharat can be achieved.

Atmanirbhar auto industry in India: The Road Ahead



Sumathi L Chakravarthy



Sandesh Dholakia

PROFILE

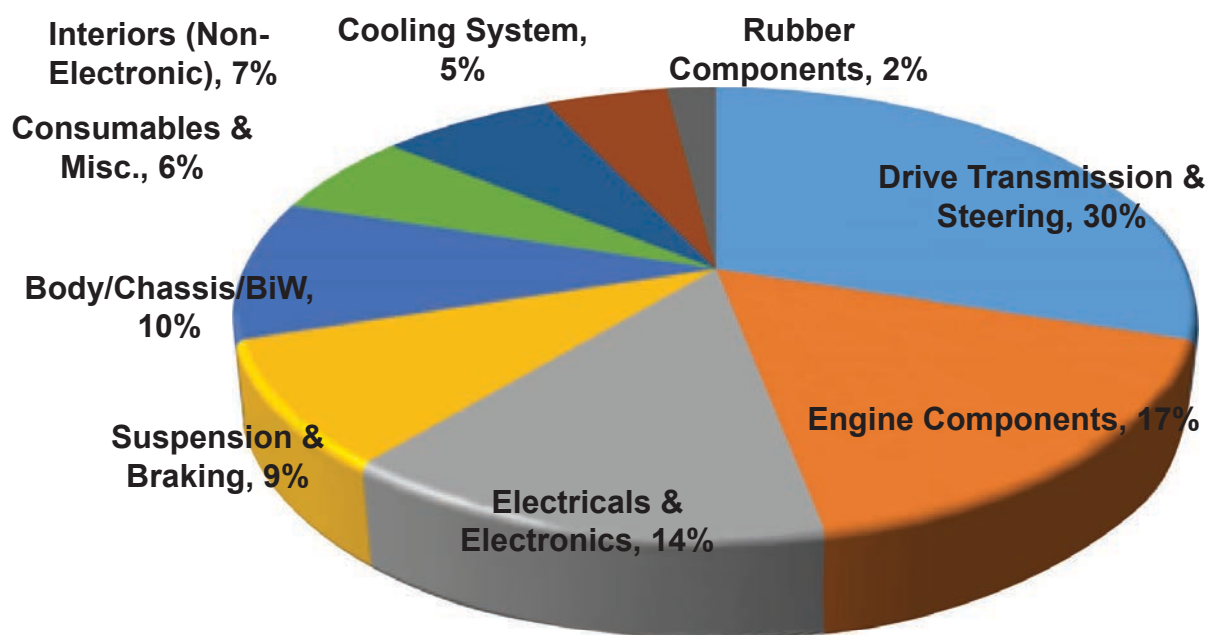
Ms. Sumathi Chakravarthy is an experienced industry leader in logistics sector and has in past worked with some of the leading companies in the world such as Amazon, Subaru, and Wipro. Currently as a partner and director at Infinite Sum Modelling, her focus is on leading team's effort on data ingestion, handling, statistical analysis, and economic modelling. She received her MBA from Purdue University, US and Bachelor's in Computer Engineering from Anna University, India. Mr. Sandesh Dholakia is currently a Research Intern at Infinite Sum Modelling with deep interests in areas of Public Policy, Macroeconomics and Finance. As President at International Finance Students Network, he aims at bringing financial literacy among young people to create more informed decisions in matters that affect their lives to a very great extent.

Article

With the current upheaval in diplomatic ties between New Delhi & Beijing, we look and analyze how Atmanirbhar (i.e. self-reliant) is the Auto sector really and the ways in which the industry has been impacted owing to humongous supply chain disruptions that the Galwan Valley clashes has brought with it.

As enticing as it may sound for India to be self-reliant, especially from what China is exporting to us, the numbers beg to differ greatly in China's favour, at least as of now. The 2019 official figures from Embassy of India at Beijing show an export of \$16.32 Billion worth of goods and services from India to China while the imports from China to India stood at whopping \$68 Billion, indicating a current account imbalance as high as \$51.68 Billion. Post sweeping nationwide Anti-Chinese sentiments, the trajectory of the imbalance seems to be shifting in favour of India but the numbers still indicate us far from being Atma Nirbhar in a real sense, as we see from the latest available statistics for January to September 2020: India's exports to China has been \$15.32 billion which is 14.9% higher than the number for the same period in (January to September) 2019, while India's imports from China has sharply declined by 19.8% to \$45.18 billion. This implies a substantial reduction of trade imbalance to \$29.9 billion. Overall trade, which is the sum of exports and imports, between India and China, has come down by 13.1% in 2020, to \$60.5 billion.

From the perspective of Indian Auto Industry, we have been majorly importing components like Suspension & Braking, Body/ Chassis/ BiW, Drive Transmission & Steering, Engine Components, Cooling System etc. from our trading partners.

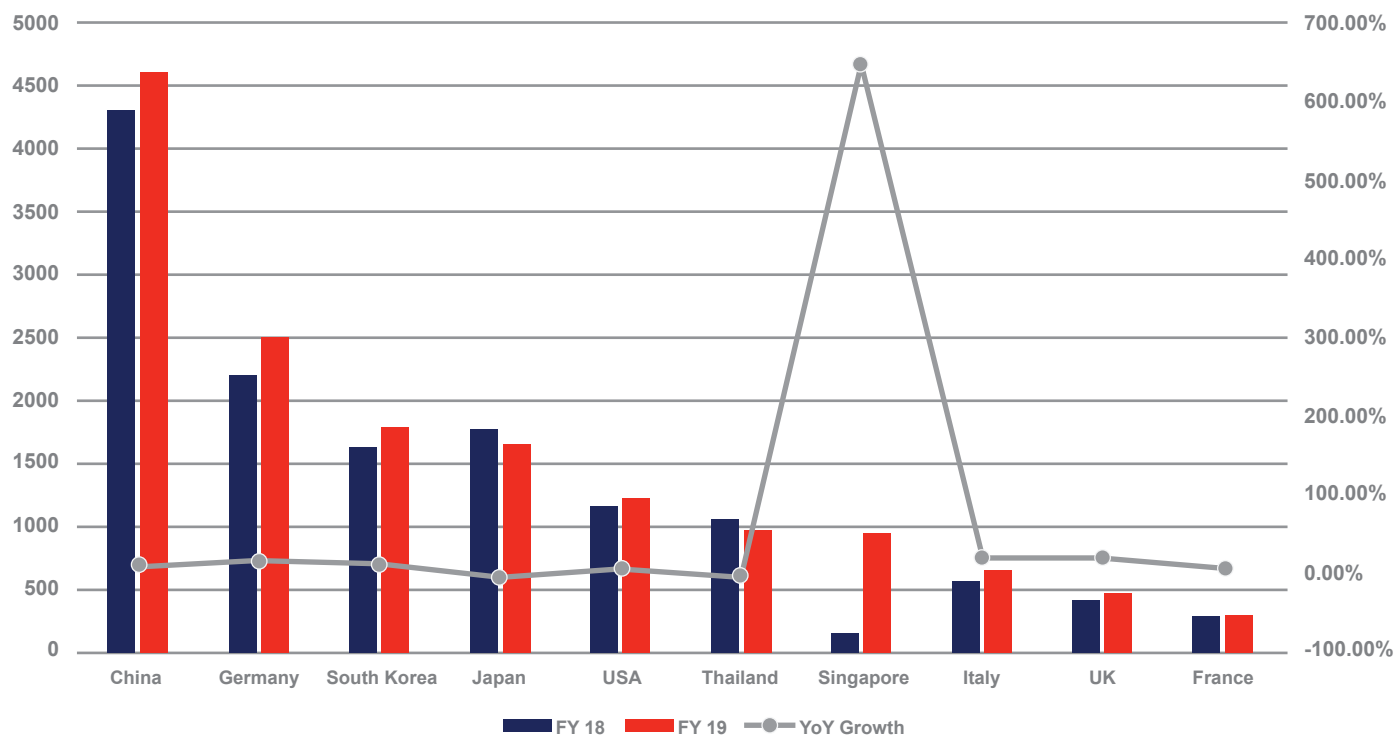


Product wise segmentation of Imported Components. Data Source:- India Auto Component Industry Performance FY 19, ACMA

In FY 19, the total imports for auto components stood at \$17.6 Billion. Amongst source countries, China happens to be the largest exporter of Auto Components to India. Out of the entire pie, a quarter (27% to be precise) of India's auto part imports came from China, including engine and transmission parts, according to data from the Auto Component Manufacturers' Association of India (ACMA).

| Country | FY18 | FY19 | YoY Growth |
|-------------|------|------|------------|
| China | 4304 | 4609 | 7.09% |
| Germany | 2202 | 2505 | 13.76% |
| South Korea | 1607 | 1775 | 10.45% |
| Japan | 1759 | 1634 | -7.11% |
| USA | 1152 | 1209 | 4.95% |
| Thailand | 1035 | 962 | -7.05% |
| Singapore | 124 | 925 | 645.97% |
| Italy | 538 | 628 | 16.73% |
| UK | 390 | 458 | 17.44% |
| France | 257 | 269 | 4.67% |

Country Wise Import Segmentation- Top 10 (Figures in USD Millions)



Source- ACMA Annual Report

Foreign reliance of auto industry just doesn't end here, in 2020, Indian automobile sector saw the highest foreign direct investment (approx. \$988 Million) followed by metallurgical, electric equipment and services.

On delving deep into the reasons why we are devoid of options, rapid regulatory reason emerges as a major candidate. For example, the industry was forced to upgrade from BS-IV emissions to BS-VI emissions in a span of just three years, a time frame too short to allow the industry to set up cost effective domestic supply chain, thus forcing the sector to look out for cheaper and more efficient global supply chain alternatives. Given the technical expertise of China combined with its extremely cheap labour, auto companies found them to be the best natural option to have trade with. "We don't import because we like to, but because we have no choice," said RC Bhargava, chairman of Maruti Suzuki India Ltd, the country's biggest carmaker.

Over and above the constantly evolving bilateral arrangements, Trump and his policies have also had a huge impact on the way business unfolded between India and China and will unfold in future. Adding to this is the shutting down of the representative consulates in both the countries, leading to further rift between both the two parties and also a slowdown in their trades. The industry therefore is also keenly looking up to the new US President and the trade policies it adopts.



Drawing an analogy from what happened with Iran, it is very much likely that in this tug of war, India (a strong ally of USA) may come out as a collateral damage if further sanctions & tariffs involving trade with China come across. Keeping aside the nationalistic sentiments, this can really hurt the budget of common Indian citizens when they see a strong upward pressure in the prices of goods & services at least in short run before things gradually settle in the longer run.

The Caixin China General Manufacturing PMI (an Index which measures the performance of the manufacturing sector and is derived from a survey of 430 private Chinese industrial companies) rose to 52.8 in July 2020 from 51.2 in the previous month, beating market consensus of 51.3 whereas the IHS Markit India Manufacturing PMI (an Index which measures

the performance of the manufacturing sector and is derived from a survey of 500 Indian manufacturing companies) declined to 46.0 in July 2020 from 47.2 in the previous month.

The numbers clearly show us that while China has recovered almost completely in its core manufacturing business, India still struggles to overcome the Covid-19 scar and thus the need to be more cost efficient in its operations.

Rajan Wadhera, president, Society of Indian Automobile Manufacturers, said in a note, "Inordinate delays in clearance due to congestions at port could impact manufacturing of vehicles. The industry is piecing itself together as growth is limping back; any further disruption now is best avoided,"

Electric Vehicles (EV) segment, a rapidly growing market in India seems to be getting affected the most because of the current situation. Most components of such vehicles like lithium-ion batteries and cells, electric motors etc. are imported from China. Echoing the problem of supply for the segment, a recent report from Mint says “Most of the low-speed electric scooters and three-wheelers sold in India have localization levels of less than 20% as they are made mostly of parts from either China or Taiwan.”

Though numbers at this point suggest a not so favourable position for India but the market seems to be picking back up especially since

many multinational firms have decided to pull out their businesses from China and come to India. Given the current political constraints, there’s not much that could be done except to try and keep things as gradual as possible to not suffer from the massive disruptions that the industry can face if not given ample time to adjust its globally spread supply chains to a more inward looking and self-reliant end-to-end manufacturing model.

Given the political constraints, the best that can be done is to follow a gradual progression which can help ease off any massive disruptions that may otherwise occur.

Covid-19 has provided us with this opportunity to integrate with global supply chain

Dilip Chenoy

Secretary General, Federation of Indian Chamber of Commerce and Industry



PROFILE

Mr. Dilip Chenoy is the Secretary General of FICCI. Previously, he served as Managing Director & CEO of the National Skill Development Corporation (NSDC). He has also been Director General of Society of Indian Automobile Manufacturers (SIAM) and Deputy Director General of the Confederation of Indian Industry (CII). Mr. Chenoy is a member of the Board of Governors, IILM, New Delhi, and is on the Board of studies, All India Management Association (AIMA). He was awarded the Indian Achievers Award in 2018, the Game Changer Award in 2015 and the Rashtriya Media Ratan Award in 2013.

INTERVIEW

As an industry organization, what is your impression of the Atmanirbhar Bharat initiative of the GOI?

The Covid-19 pandemic has been an unprecedented shock, calling for an extraordinary response to minimize both the economic and health impacts. The Government of India has done its best to not only address the healthcare crisis but has also displayed persistence and proactiveness towards addressing the economic challenges.

The vision of creating “Atmanirbhar Bharat” or a Self-reliant India is another step by the government to create a robust economic foundation. With sources of growth from outside facing limitations in recent times, it remains of utmost importance to strengthen the domestic markets. The initiative also reflects the resolve of the government to convert this crisis into an opportunity. The series of measures spelt out has given us the confidence that our government is ready and will lead from the front in taking India out of the covid-19 storm and emerge better and stronger.

Through the INR 20 lakh crore package announced earlier this year, not only have the vulnerable segments – migrants, farmers, MSMEs, street vendors – been taken care off but the spate of reforms related to coal mining, defence, power sector, aviation have also been notable and are likely to bring in much required momentum over the medium term.

How can Indian industry contribute to this endeavour?

The industry holds the centre stage in fulfilling the government’s clarion call to make for India as well as for the world. The key essence of

Atmanirbhar Bharat initiative is not inward-looking, but it is aimed at boosting India's capabilities and competencies. The emphasis on self-dependence has opened up opportunities in a plethora of sectors both in the manufacturing and services domain. The industry stands ready to forge new partnerships and re-evaluate existing markets and product portfolios. For this, it will be imperative that we continue to move in a direction that enhances not only the ease of doing business in India but the cost of doing business as well. We can look forward to new strides in India’s manufacturing capabilities.

For instance, India has long been one of the biggest defence importers in the world and this has been despite India having a capable defence ecosystem. Now with 74 per cent Foreign Direct Investment (FDI) permitted in defence production through automatic route, we certainly look forward to a boost in domestic manufacturing and development of new technologies with greater role for the private sector. In fact, India also holds the capability of becoming a defence supplier for many countries with which it has friendly relations.

There are some sectors like pharma which are highly dependent on Chinese import. How can India achieve self-reliance in these sectors?

The pharmaceutical sector is a great example where India has been able to create a niche for itself and certainly holds the potential of achieving self-reliance. In fact, the Indian pharmaceutical industry is 3rd largest by volume and 11th largest in value terms, in the world. FICCI in consultation with Industry leaders estimates that the industry revenue can

grow from the current USD 41 billion to USD 120–130 billion by 2030.

However, there are some serious structural challenges that the pharma industry faces across the value chain and there is an urgent need to address these through appropriate interventions. Undertaking pending reforms in the sector like giving the API industry infrastructure status and creating a single window clearance system for establishing an API production unit in India for all licenses related to testing, imports, development can lend a fresh lease of life to the sector.

Likewise for some other sectors as well, changes in the regulatory and governance systems to solve issues such as those related to approval timelines, process complexities and capacity constraints, augmentation of skill base, digitalization, creation of project management structures with definite accountability, and strengthening coordination mechanism between states and the centre, can give a much required thrust.

There is widespread concern about the sustenance of the global supply chain in the post-Covid environment. What kind of preparation India needs to do to cope with the new realities?

While India may have missed the first bus to integrate with the global supply chains, the Covid-19 has provided us with this opportunity once again. Even though the pandemic had brought the world to a standstill with a considerable disruption of supply chains, it remains extremely critical that we have in place a seamless domestic as well global logistics infrastructure.

India has been making steady progress in scaling up infrastructure across the country. However, infrastructure gap is still huge with imbalances and lack of integration amongst the

different modes of transport, leading to sub-optimal utilization of available infrastructure. Our dismal showing in entering global value chains (GVCs) is due to poor logistics, unpredictable power supply and comparatively greater labour disputes. Logistics costs in India are around 14% of GDP as against 8-10% for some of the other major economies. We need to continue addressing these areas on a priority basis.

India largely missed out on the trade in networked products (NPs), where its share in global trade in NPs has been miniscule (just at 0.5%), as against China's share of 20%, Korea's 5%, Singapore 3.5%, Malaysia 2%, Thailand 2% and even Vietnam at 1%. We cannot afford to make this mistake yet again.

How do you think Atmanirbhar Bharat initiative can gel with other schemes like Make in India and start up India?

As mentioned before, the very aim of Atmanirbhar Bharat initiative is to strengthen India's economic foundation and enhancing our competencies. This, we think, totally resonates with the spirit of earlier schemes announced by the government like Make in India and Start-up India. The Make in India initiative envisioned India as a global manufacturing hub and for this the government embarked on an overhaul of outdated processes and policies keeping in mind the underlying principle of minimum government maximum governance. The Start-up India initiative, for example, is aimed to give a boost to the entrepreneurial spirit, and thereby aid employment generation. All these schemes, thus, intend to brand India as New Home for Businesses, while at the same time creating quality job opportunities for the youth of the country.

What regulatory/ policy support can the government provide to make Atmanirbhar Bharat initiative a success?

Being competitive and innovative is the only way forward to success. While there have been significant improvements in the country's ease of doing business ranking, the key challenge facing industrial sector in India stems from factor market regulations, which increase the cost of doing business. While we have seen some progress on labour related reforms, other areas namely land, capital, power and infrastructure/ logistics need attention.

Moreover, if India has to remain relevant in this era of globalisation, it is clear that cutting-edge R&D is crucial and the current pandemic has only reiterated this. Our presence in the global market is also determined by our indigenous

R&D efforts. India's R&D spending is quite low at 0.67 % of GDP, vis-à-vis countries like Korea (4.92% of GDP), Japan (3.14% of GDP), Germany (2.94% of GDP) that spend substantial amount on R&D. India needs to enhance public spend on Research and Innovation from the current 0.67% to at least 1.5% of GDP.

Indigenous R&D must be supported through fiscal incentives and by having a robust innovation ecosystem. While in the new corporate tax regime, all deductions and exemptions have been phased out, investment in R&D must be given differential treatment as this is a key source for innovation and growth.

Government should explore knowledge and technology transfer between the countries

Dr. Vidya Velagapudi

Associate Director, AstraZeneca



PROFILE

Dr. Vidya Velagapudi is currently working as an Associate Director at AstraZeneca. She has an interdisciplinary educational background and has been working in cross-functional life sciences areas (Academia, CRO, Industry) for over 15 years. She has been actively involved in promoting Indo-Nordic bilateral co-operations, women in STEM, and gender equity. Dr. Velagapudi holds a Ph.D. in Biochemical Engineering (2005) from University of Saarland and Max-Planck Institute for Informatics, Germany, and did her Post-doctoral research at a Biotech CRO, VTT Oy, Finland. She has published 65 research articles (h-index: 30); and is a reviewer for EU funding proposals and many reputed scientific journals.

INTERVIEW

What is the role of women in Atmanirbhar Bharat?

I have participated in a panel discussion on this topic organized by CSIR-NEERI in October-2020. In my opinion, for women to contribute towards "Self-reliant India," a visionary mission initiated by Hon'ble PM Mr. Narendra Modi, women should be self-reliant first. We do have almost an equal representation of women, at 48% of total Indian population, but this numerical equality doesn't get translated at various operational levels. Women have been discharging a multitude of responsibilities but unfortunately this innate multi-tasking ability has been limited to certain segments only. We should capitalize and invest on this inherent quality in women in order to build the next-generation India.

In order to make women self-reliant and to obtain gender equality, women should be empowered in all sectors. In this context, I would like to mention Hon'ble Union Minister for Women and Child Welfare, Mrs. Smriti Irani's statement at United Nations that "India is working towards a paradigm shift from women development to women-led development." This is the most important and timely transformation that is needed now, which enables women to contribute substantially to the Indian economy.

A nurturing environment should be created right from the school level to encourage girls to take part in STEM areas. To shape future self-reliant India, an equal representation of Women in STEM is needed. This year, there are 3 women noble laureates in Science, which is

really inspiring. We need more women in scientific and executive leadership positions in India, where younger generation gets motivated from these women role models. A self-reliant woman can provide solutions to a number of problems. This is also directly related to their confidence and inner strength, which come with adequate security (social and physical) and a sense of equality. I believe that women have a key role to play in science and technology and while we have come a long way, there continues to be a need for balancing the gender diversity.

How can Nordic countries contribute to Atmanirbhar Bharat?

I have been living in Nordic countries (Finland and Sweden) for 16 years and have been working with CRO, academia, international research institute and pharmaceutical industry. Nordic countries have the world's best education system, healthcare, social security and they regularly top the happiness index and also in other key strategic and innovation areas (e.g., circular (bio)economy, clean energy, climate research, imaging and digitization, biobanks and clinical registry data, 6G, artificial intelligence etc).

In my view, Indian Government should consider exploring the knowledge and technology transfer between the countries by leveraging the bilateral co-operations via Indian Embassies and other channels. In this context, Indian Government has initiated some steps - VAIBHAV summit that was organised in October 2020 being an example, where I had participated in a panel discussion on Precision

Medicine, and how India can benefit with the help of Indian diaspora to uplift Science and Technology. There is a need to conduct such events on a regular basis to keep up the collaboration, to form international consortia and work together to solve societal issues, technology transfer and knowledge sharing. In this direction, Indian Government has just initiated a national digital database to engage with global Indian S&T community in collaboration with all major ministries and the Ministry of External Affairs – PRABHASS. We all need to capitalize on the efforts collectively to make better use of the new portal.

Do you feel India's new science and technology policy & education policy would help create a workforce that can adopt and explore new technologies to make India self-dependent in key tech areas, including healthcare & pharma?

Yes, definitely. India has the world's largest pool of talent in S&T and the right emphasis on practical education methods by the new policies would help to hone logical and problem solving skills, critical and analytical thinking. Here is another opportunity to adapt some of the teaching methods from the Nordic countries, where right from the school age students are given enough space and time to develop on their own thinking and knowledge. They lay a lot of emphasis on practical things, "learning by doing".

Another important direction could be in upskilling and reskilling of Indian students and researchers. For instance, financially supporting student exchange internships abroad, researchers and faculty's short visits between the countries would help in enhancing the quality of Indian S&T manpower. There are some Government's programs already in place

(e.g., VAJRA, GIAN etc.), that mostly tie ups with the top institutes and universities in India. However, there is a need for more visibility and outreach especially in sub-urban areas. We all need to work together with the National and Regional State-wide skill development programs to create awareness and exposure to the state-of-the-art technologies and latest research trends; preparing students for the healthcare and pharmaceuticals industry jobs, as well as in important soft and communication skills such as values and behaviours that are required to thrive in corporate sectors.

What kind of policies would you recommend to improve the impact of Atmanirbhar Bharat initiative?

India has a large pool of scientists and engineers with a potential to steer the industries to greater heights through Self-reliant India movement. India can encourage a large set of small players and focus on improved production as well as quality upgradation, backed with cutting-edge innovations from micro-enterprises. Creating a supply chain ecosystem is another important initiative to focus, in order to be self-reliant. A series of small and medium enterprises can mobilise locally and serve as an integral part of the large supply chain network and thus strengthening to scale up and become competitive in the longer run.

The Government's funds can be utilised efficiently to promote "Make in India" movement initiated by Hon'ble PM Mr. Narendra Modi, for instance in manufacturing across several fields, while generating more opportunities for the domestic talent pool, thus significantly enhancing the sector's growth. Encouraging SMEs, providing tax benefits, relaxing or simplifying rules and regulations for

investors, creating funding opportunities, women empowerment and socio-economic stability throughout India are some of the key issues that should be addressed to have greater impact of the “Atmanirbhar Bharat” – Jai Hind.

*Disclaimer: All views expressed here are my own personal opinions and suggestions and not related to my company, AstraZeneca – **Dr. Vidya Velagapudi.***

Atmanirbhar Bharat is where India has a chance to grow its inherent manufacturing capabilities

Deepak Bagla

Managing Director & CEO, Invest India



PROFILE

Mr. Deepak Bagla is the Managing Director & CEO of Invest India, the National Investment Promotion and Facilitation Agency promoted by the Government of India. Invest India is also the execution agency for Government of India's Start-up India initiative. Mr Bagla has a professional career spanning three decades. He has worked at organisations such as the World Bank, the Citibank Global Corporate and Investment Banking team and has held several responsibilities across Europe, Africa, Asia and Australia.

INTERVIEW

As the chief of Invest India, how do you see the Atmanirbhar Bharat initiative of the GOI? What benefits do you see accruing to India through this initiative?

Covid-19 has inspired unprecedented disruption to the international economy and global supply chains. Closed airspaces and complications in securing supplies through the highly diversified means of production during the lockdown has raised concerns across the world. Countries are now eager to onshore their supply chains closer to their markets. India benefits from this move. It is strategically placed at the confluence of major trade and business routes, and provides the single-largest market opportunity with 1.4 billion people by 2024. Atmanirbhar Bharat is where India has a chance to grow its inherent manufacturing capabilities, and where the world can take notice of India's capacities.

During the pandemic, India proved its capability to meet challenges and mounting pressures. Its MSMEs showcased their strength and ability to pivot their business models create solutions at competitive cost points and with globally acceptable quality. We were able to manufacture ventilators, PPE kits and supply emergency medicine to the world. The pandemic has unleashed India's potential and going forward, we can utilise it, for ourselves and the world. Landmark reforms in agriculture or labour markets or the tax cuts from last year have created a welcoming environment and profitable conditions for business to thrive in India. Additionally, upcoming industrial clusters, multi-modal connectivity and our frugal innovation, combined with the recently expanded production linked incentives (PLI)

scheme, will welcome more companies to set up operations in India. As they leverage its favourable conditions, both India and the world can profit from job and wealth creation.

How do you think India can leverage Invest India with Atmanirbhar Bharat initiative? What would be your recommendation in this regard?

Invest India is the national investment promotion and facilitation agency of the government of India, working under the Ministry of Commerce and Industry. As the only platform with contacts across state government and central ministries, we serve as a crucial nodal agency. We also maintain close contacts with bilateral forums, industry bodies and industry leaders and undertake policy initiatives for local and global investors. Working the intersection this milieu, Invest India's various teams are cognisant of India's potential and its challenges. Having thus acquired a deep understanding of the various sectors of our economy, Invest India has identified many areas for growth and investment. We are actively working on the One District One Product (ODOP) scheme which will be launched nation-wide shortly. We are also developing the unprecedented National Single Window System which will fast-track approvals and mark the greatest change in investor experience in the country. In a sense, Invest India has always been striving towards the missions underlined in the Atmanirbhar Bharat initiative: to attract more investments, make India a manufacturing hub for the world and transform the country as an export base. Going forward, Invest India will continue to align with foreign investors and domestic officials to achieve India's potential.

Since you track different segments of the economy, what are the most promising sectors and regions that would benefit most from the Atmanirbhar Bharat initiative? Can India build special economic zones dedicated for specific sectors to generate fast growth in key areas of importance?

The Indian government recently expanded the Production Linked Incentives (PLI) scheme to 13 sectors. Already with electronic manufacturing and pharmaceuticals, the scheme had proven promising. Now it is expected to amplify domestic manufacturing and foreign investment. The government has also identified various sectors with more than USD 1 trillion dollars of businesses in which India can substitute in the global supply chains. In many of these sectors, including pharmaceuticals, mechanical equipment, textiles, and auto parts India has natural strengths and is fast becoming a major global player. In addition, it is a leading global participant in the food processing industries, research and development, and is fast emerging as a competitive player in renewable energy, defence and the banking sectors.

For manufacturing driven sectors, India has enabled setting up of economic zones. The defence sector is coming up in a major way in Uttar Pradesh, in Andhra Pradesh, there is a textiles special economic zone and a MedTech Zone, both of which delivered key commodities during the pandemic. Similarly, such zones are being set up in Maharashtra, Gujarat, Telangana, Tamil Nadu and other states, that seek to leverage the state's own manufacturing strength.

With global trade and supply chains in stress, how should India push for bringing back businesses and processes that had gone out, and also seek to lure investments from multinationals presently not having production bases in India?

The FDI inflow into India over the last few years has consistently been on the rise. For 2020-21, between April and August alone, India received a total FDI inflow of USD 35.73 billion, the highest ever in the first five months of any financial year, and 13 per cent higher as compared to first five months of 2019-20 (USD 31.60 billion). The pandemic has highlighted the vulnerability of concentrated supply chains. For investors, India offers a chance at diversification with millions-large skilled labour force, easily available land and a constantly improving ease of doing business.

To make India more investor friendly, the union government and industry bodies continuously take investor feedback and streamline policy and regulatory procedures. A number of these policy measures have taken based on investor feedback and have received a very good response from the global investor community. In the recent past, the government of Prime Minister Modi has enacted the National Policy on Electronics (NPE) 2019, undertaken initiatives such promotion of bulk drug parks, production-linked incentive scheme, and brought reforms to ease the experience of doing business in India. These include setting up a single window clearance system, project development cells in every ministry, fast-tracking clearances, and reformed laws governing industrial and labour policies.

The government has also brought reforms in the FDI policy, opening multiple sectors to a 100 per cent FDI without government approvals. India is actively establishing its economic position in the world by partnering with global corporates to help establish their manufacturing units in India. Investor interest has matched this vision and to meet their requirements, we are actively improving our logistics and addressing.

How can India leverage its economic relations with leading innovators like Sweden to achieve self-sufficiency?

India and Invest India are both committed to working closely with our global partners to develop solutions to pressing problems, build a robust global business environment and imbue best global practices. We have startup bridges with 12 countries and are looking to establish more such relations with other leading startup ecosystems. India also breached an important milestone, becoming the top destination for MNC's R&D offices outside of their home country.

With Sweden too, we share a special relationship. Notable Swedish brands like IKEA and H&M have an expanding footprint in India, bearing the potential to significantly alter their respective sectors. India's growing middle class can be a promising and loyal customer base for these affordable brands. In telecom, likewise, India and Sweden collaborate extensively, with a recent partnership between two leading companies on either side further cementing the partnership. At present, Sweden is the 20th largest investor in India. With its innovation knowledge, it can invest heavily in India for the development and realisation of new-age technologies. There are also several incentives relating to production, and research and development under the Atmanirbhar Bharat initiative to benefit from.

How can India build an entrepreneur base to excel in high end tech sectors that would allow India to attain self-sufficiency in key technical areas?

India's innovation during the pandemic hints at its inherent talent base. We are home to the second largest number of startups in the world, and a majority of them are in the technology field. We also produce the most number of graduates every year, so one can be sure that the talent base is only likely to grow. To enable these entrepreneurs to attain their objectives and propel the tech sector forward, government initiatives like 'Make in India', 'Skill in India,' and 'Startup India' are indispensable. At Invest India, for instance, we have a startup India team that attracts investments for India's startups. Our portal has registered nearly 40,000 DPIIT recognised startups and nearly 450,000 users. Both numbers are likely to continue growing.

As India grows and capitalises on its increasing economic relevance in the world, these startups and entrepreneurs will play an important game changing role, as innovators and problem-solvers. To help them, the government has also entered into partnerships with other countries. Most recent and notable is the UK-India startup launchpad which aims to foster deeper collaboration between the startup ecosystems of the two countries. Indian tech entrepreneurs will benefit immensely from this.

Indian organizations are transitioning from a conventional model to a reformed approach

Nadira Hamid

CEO, Indo Canadian Business Chamber



PROFILE

Ms. Nadira Hamid is the CEO of Indo Canadian Business Chamber. She started her career with the ITC Group of Hotels, looking after their corporate affairs across India. In order to capitalize on her entrepreneurial skills, she started her own company Lafance Overseas Private Ltd which dealt with Human Resources and Structural Steel Detailing. She then moved on to managing corporate affairs for Mitchell Group (an Australian Based company) for India and Bangladesh. In her present role as CEO of the Indo- Canadian Business Chamber, she exhibits her strong background with top level Government and Industry players for their engagement in the India- Canada space. She is also responsible for facilitating trade promotion between India and Canada, nationally and on international forums.

INTERVIEW

What is your assessment of the Atmanirbhar Bharat initiative of the GOI? How do you think it will impact the Indian economy?

The Atmanirbhar Bharat Initiative is certainly a progressive element and will definitely act as a major transformational reform in India's journey to become a \$5 trillion economy. A "self-reliant" India will indicate a stable economy that is supported by strong long-term policies, minimal challenges for foreign investments, and an educated workforce. On the economic level, self-reliance will raise the confidence of domestic markets, offer more scope than before, lesser dependencies and improve tactical measures for the private sector.

How can India collaborate with Canada to achieve self-reliance?

For achieving self-reliance, the profile of dialogue needs to be heightened while accurate policy decisions by leaders in the private industry will substantially aid in further growth. Considering India offers a large market to Canada and a plethora of options, it's crucial for the Canadian private sector, especially SMEs to engage deeper with Indian MSMEs. The MSMEs form a major part of the Indian economy. Procuring products and services from such small & medium enterprises will raise self-reliance capabilities. As a Chamber, we ensure the communication channels are open.

In a disrupted global supply chain brought on by Covid 19, how can Indian businesses reorganize their operations?

Indian organizations are transitioning from a conventional model to a reformed approach where employee welfare, stakeholder relations, budget optimization are the key priorities to reorganize their operations as the global supply chain system resets. The short-term focus is on being resilient and efficient at the same time.

In which respects can the Indian diaspora help India achieve this goal?

In the last 10-20 years, the diaspora in Canada has consistently evolved to be an able partner. In the following decade, India's self-reliance and position of strength will largely be identified on two factors, 1. the growth capabilities of Indian residents and 2. investments in advanced technology, energy, and manufacturing domains by NRIs. In the present-day scenario, the financial sector has very good options for the diaspora to invest in Indian projects and startups.

What are the key sectors in which India can emerge as a world leader, and what suggestions do you have for the Indian government in this regard?

Although there are several key sectors such as advanced manufacturing and auto/e-mobility, the emphasis should be on enhancing the advanced technology (artificial intelligence hubs), life sciences domain (medical devices/pharmaceuticals), energy provision, and agri-food processing. These four sectors are critical areas where increasing demand and supply will depend on Government provisions of liquidity, and easing regulatory policies.

Making our factor of production truly cost competitive are the need of the hour

Sanjay Jain

Managing Director: T.T. Limited



PROFILE

Mr Sanjay K Jain is the Managing Director of T.T. Limited, an INR 7 Billion vertically integrated textiles company. He is a double gold medalist from IIM (Ahmedabad) apart from being a rank holder Cost Accountant and Company Secretary. He is the Immediate past Chairman of CITI, Textile Sector Skill Council, NITRA and NITMA. Mr. Jain is also the Vice President of FOHMA and WBHA and Chairman of ICC Textiles Committee. He has been awarded the prestigious World HR Congress CEO Award (2019), BW Business World & GOPIO Global Business Award (2018), Asia Pacific Entrepreneur Award (2017), TOIBP award by JCI International (2012) and Udyog Ratna Award (2010). He has been a guest faculty in educational institutes like ISB, and IIMs, and a part of MentorEdge of IIM, Ahmedabad. He is the author of "Pinch of Salt in the Recipe Called Life." Mr. Jain is also a mentor for the social entrepreneurship program of Santa Clara University, USA.

INTERVIEW

What is your assessment of the Atmanirbhar Bharat initiative of the GOI?

Undoubtedly very noble intentioned and very important for a nation of the size of India. However, most people are understanding it as “India shall produce everything we need,” which is a dangerous understanding and not tenable in today’s globalised world. I think it is a word, not to be taken literally but to be understood in spirit as India becoming a strong and dominant manufacturing force globally and providing a strong and reliable alternative to China. However, though the intent is great, but the steps taken till date to fulfil this dream are lacking and need much more teeth. Unless Indian industry is given an internationally competitive platform to grow on, this dream will remain a pipe dream. In so many years, despite Make in India campaign, our share of manufacturing in GDP is stagnant. Some real revolutionary steps to make our factor of production truly cost competitive are the need of the hour. I hope to see a totally new Industrial Policy that has a 360 degree perspective.

Broadly, what is Indian industry’s expectation from this initiative?

As advised above, industry needs a cost competitive environment where its factor of production are at parity with our international competitors. Some critical issues are power cost, interest rates, land cost, compliance costs, logistics, infrastructure, delay in permissions and getting refunds/incentives from various government agencies and so on.

Textile industry is among India’s most employment generating and traditional strong ones. How can it benefit from the Atmanirbhar Bharat initiative?

Textile industry is one of the best poised industries to see double digit growth in

production and employment if it receives a level playing field. Despite having all the raw materials and other required inputs, exports are stagnated for years and FTA route is being used for imports at zero import duty. Industry does not need any subsidies, it just needs a level playing field and a push to take on the world. It can easily see 15% growth in the coming decade and be a remedy of our huge unemployment problem and also provide inclusive growth as it provides employment opportunities to women. A new Textile Policy is expected shortly and its hopeful it will address the problems.

What needs to be done to make Indian human resource capable enough to support the Atmanirbhar Bharat initiative?

Skilling initiatives are being undertaken by central and state governments. However, the same has not percolated to the MSME segments as they are not equipped to handle the formalities for directly benefiting from the various skill programs. The government needs to do area wise skill gap analysis and set up training/skilling centres on lines of schools/colleges, with industry connect so that masses can be skilled and also reskilled. The current compulsory direct link of skilling and employment can be continued and general skilling needs to be done like we teach in schools and colleges hoping they will find employment.

Do you feel India’s new education policy would help create a workforce that can adopt and explore new technologies to make India self-dependent in key areas including textiles?

It is too early to comment on the same. Here again the intent is there, but need to see how it pans out. In India, policy has a huge execution risk – hence need to see to believe.

SEGMENT

3

SCIENCE AND EDUCATION

If big engineering defined the economy and nation building of 20th century, small, smart and often disruptive technologies will differentiate winners from losers in 21st. Needless to say, to address this changed reality, a highly technologically sound and adaptive work force will be required along with policies that bring together knowledge from different streams to deliver unified, complex solutions. Indian tech human resource is a global leader but domestically, their record is checkered and large segment of human resource is incapable of meeting tomorrow's challenges.

When we interacted with luminaries of science and technology to know what they felt about the Atmanirbhar Bharat initiative and how the new education policy and the recently announced science, technology and innovation policy would impact the needs of Indian economy, they were unanimous that these policies are excellent and can deliver the type of talent pool that is required for tomorrow's India. Citing the sterling performance of Indian tech pool to deliver Covid related challenges, they reposed faith in Indian S&T establishment. Secondly, most opined that India needed to pursue self sufficiency in basic science driven sectors such as materials, agro food, electronics, healthcare, robotics etc. Thirdly, they felt that India needed to leverage the hugely talented and successful Indian tech prowess stationed abroad to address Indian tech requirements.

STIP 2020: A way to Atma Nirbhar Bharat



Badri Narayanan Gopalakrishnan



Roja Vikram

Senior Economist, University of Washington; economic researcher, Infinite Sum Modelling

PROFILE

Dr. Badri Narayanan Gopalakrishnan is a Senior Economist with University of Washington Seattle, Senior Fellow with European Center for International Political Economy, Brussels and Center for Social and Economic Progress (formerly Brookings India), New Delhi. He is on the Board of Directors of British American Business Council. He is also a consultant with ICRIER, UN, World Bank, ILO, FAO, WHO and several other international organizations as well as government/private bodies across the world. Ms. Roja Vikram is an economic researcher with Infinite Sum Modelling, Seattle.

Article

The STIP 2020 is a landmark policy initiative , launched by the Government of India. It is one of the most significant events of the past decade. The STIP 2020 is a bottom-up, decentralized policy that aims to re-strategize priorities, sectoral focus, and methods of research and technology development for larger socio-economic welfare. It will act as a strong pillar to various central and state government initiatives like Make in India, Digital India, and Swachh Bharat Abhiyan. Being aware of the fact that approximately 62% of India's population falls within the working-age group, that is 15-59 years, and 52% of the population is below 25 years of age, a policy that uses the well-groomed minds of the youths will increase productivity thereby improving our ranking in the Global Nation Index from 52nd to 40th or better . It will be a step forward towards becoming an Atmanirbhar Bharat. The prime aim of the initiative is to make the country and its citizens independent and self-reliant in all senses.

In the present times of COVID-19, science technology, and innovation play a significant role in achieving self-sufficiency as investments in technology, research, and development would increase the pace of development thereby attaining self-sufficiency. Self-sufficiency necessarily does not imply we are isolating from the world. The Government has identified 12 sectors including auto components, textile, industrial machinery, and furniture, where focus would be given to make India self-reliant. This will increase India's share in global trade. Earlier India used to import electronic goods, but now with the introduction of STIP 2020, these industries would flourish in India. The STIP 2020 also focuses on maintaining strong international relations, which would again help to attain self-efficiency.

The new STIP 2020 focuses on the development of new and innovative technology that can then be used to utilize many underdeveloped resources, which would

otherwise be a wasted resource. This would be a solution for many problems in the economy like poverty and unemployment. When technologies develop, new and efficient industries come up which will employ people and give them money to sustain their livelihood, thereby tackling dual problems of unemployment and poverty. Also when people are employed, the economy could make better utilization of resources which will increase our country's production. So many goods which we imported earlier can be produced in our country itself, which would decrease the deficit balance of our country and would make our country self-sufficient.

Apart from all this, STIP 2020 focuses on two important sectors of our country i.e., health and education. The impact of STIP 2020 in the education sector will make the future generation efficient. This ensures that in the future our country will be equipped with all the perquisites that are required to achieve 100% full and efficient production that are, knowledgeable human resources, efficient resource utilization, advanced technologies, etc. In the health sector the introduction of STIP 2020 will result in increased investment in research and development projects, which will allow the country to be better equipped for dealing with such adverse conditions as COVID-19. Which would not only make our country medically advanced but also financially independent.

The STIP 2020 along with the Atmanirbhar Bharat initiative will have a positive impact on the agricultural sector as well. The development of innovative technologies would enable us to create an artificial environment in our country for the growth of some crops which was earlier imported from other countries. It will also diversify farmers into other methods and ways of farming. The most important feature of the policy is that it has its positive impacts in all the sectors which were neglected in the previous policies. These impacts would raise the standard of living of the citizens without any bias.

1 This policy is explained in this official link: <https://www.mygov.in/campaigns/stip-2020/>

2 For more details, see this link: <https://www.investindia.gov.in/atmanirbhar-bharat-abhiyaan>

It is necessary to promote innovation generation as well as innovation culture in India

Dr. Shekhar C. Mande

**Secretary, DSIR and Director General,
Council of Scientific & Industrial Research,**



PROFILE

Dr. Shekhar C. Mande is the Secretary of Department of Scientific and Industrial Research (DSIR, Ministry of Science and Technology) and the Director General of Council of Scientific and Industrial Research (CSIR). He has served on many advisory committees, including task forces of the Department of Biotechnology and Department of Science and Technology, Govt of India. Dr. Mande has served as a member of the management council of the Tata Institute for Fundamental Research (TIFR), Mumbai as a representative of the Maharashtra State Government. He is also a member of the Governing Body of the Indo French Centre for Promotion of Advanced Research (CEFIPRA). Dr. Mande earned his PhD in Molecular Biophysics at IISc, Bangalore.

INTERVIEW

What are your observations about the recently announced Atmanirbhar Bharat initiative of the GOI?

The Atmanirbhar Bharat is a timely initiative which gains more importance after the emergence of the COVID-19 crisis. The pandemic has created an unprecedented urgency to become self-reliant. India needs to introspect so that dependence on foreign countries can be limited to only a bare minimum of necessities and a crisis originating in a remote land does not leave a major impact on the country's economy. Supply-chain disruptions due to the pandemic and other geo-political reasons have led to a growing concern about our dependence on other countries for critical products and technologies. Honourable Prime Minister has urged the nation to come together to build a self-reliant India, an "Atmanirbhar Bharat." In response to this call, CSIR wishes to utilize its manpower and research capabilities to its full potential to fulfil this dream of a self-reliant India in the most critical sectors. To reduce our dependence on imports and to strive for a positive trade balance, CSIR has conducted a mapping of the critical products and technologies which are imported. This mapping considers the strategic need for imports and robustness of the supply chain, in addition to volume of import. This mapping is being used to reorient the diverse skill set and infrastructure available within CSIR in an optimum manner toward achieving the goal of an Atmanirbhar Bharat.

How can CSIR assist in this initiative to make India self-reliant?

Over the years, CSIR's efforts at bringing in desired Science & Technology interventions have enhanced self-reliance contributing to nation building. Several technologies developed by CSIR have been commercialized by the industry and have led to creation of niches, leading to socio-economic

development in the Country. It has given the Nation - Amul baby food, a portfolio of generic drugs, oral contraceptive pill for women, malaria and asthma therapy, a multi-role aircraft, India's first parallel computer, tractors for agricultural use and an indelible ink which adorns the finger of a proud Indian voter during elections - just to name a few. CSIR is well equipped to continue on its path to make India self-reliant. The path going forward will need more coordination between its various laboratories, and improved coordination with other national laboratories and the academia toward achieving common goals for the nation. Industrial research requires industrial partners. CSIR can contribute more effectively in nation building by involving the industry more in its various research initiatives, by exchanging scientists and technologists with the industry so that CSIR scientists become accustomed to the industrial environment, and the industrial partners also become aware of the facilities available within various CSIR laboratories and how to best utilize them.

What in your opinion are the sectors in which India should pursue technological self-sufficiency and why?

India should pursue technological self-sufficiency in the following sectors:

Aerospace - To improve connectivity to remote corners of the country by building small/medium sized civilian aircraft; and to reduce dependency on foreign powers for military aircraft and engines; India's satellite launch capabilities are already strong which should be further strengthened which has a wide range of implications for the country's economy. India is capable of developing aircraft engines - a capability that needs to be strengthened further so that aircraft like the LCA can be integrated with indigenously built engines.

Manufacturing and Materials - There is an urgent need to become self-reliant in advanced manufacturing techniques, such as additive manufacturing. Without proper manufacturing facilities, many other sectors will suffer due to lack of indigenous products. Advanced materials are required for making aircraft engines.

Agro-food technologies - For socio-economic transformation.

Healthcare - To ensure availability, affordability, accessibility for all citizens. Without a proper healthcare system, society cannot flourish in other directions.

Electronics, Instrumentation, Robotics – To nurture futuristic technologies. To automate using artificial intelligence, which is a modern trend. Also, this has military implications, and use of robotics, automated drones and underwater vehicles will strengthen the country's defence capabilities.

Chemical Technology, Petrochemicals and Energy, Renewable Energy like Solar and Wind - To address the energy needs of the nation. Investment in solar/wind power technologies will enable remote areas to have modern amenities.

How should India improve its manpower to take up the challenge to adopt and absorb new technologies which would be critical in making India self-dependent?

India should carefully evolve its HR strategies to develop and nurture highly competent and agile human resources. Some key ingredients of a national policy on improving the manpower of the country are

- promotion of knowledge based enterprises for commercialization of generated IP
- development of a platform for encouraging entrepreneurship
- development of a structured skill development initiative

Indian academic Institutes already have attractive incentives for professional growth of aspiring individuals. Some more steps can be taken such as:

- attracting, through the provision of appropriate facilities, bright young talent in a transient or floating mode
- recruiting and nurturing young talent through global search
- promoting a cross flow of personnel through interchange programs between CSIR and other organizations and
- liberalizing sabbatical leave and scientist-entrepreneur schemes to encourage CSIR scientists to venture out and re-align their knowledge and skills-base.

Good career advancement prospects and a healthy work environment are some basic necessities for maximizing the returns from the available human resources. CSIR has already initiated reward schemes linked to group performance and output, and these efforts need to be further consolidated for securing a competitive advantage in the global context.

Coming to education, GOI released its new education policy. Do you think it is well designed to make India sound in technical R&D? If not, what are the improvements you would suggest?

The New Education Policy 2020 is very much required in the Indian education system. This reformation will help India to provide high-quality educational opportunities to the young talents. Multidisciplinary approach across the sciences, social sciences, and humanities is the current need of the society. Collaborative research is required in various fields of current needs. This policy moves towards less content but more scope to think critically to solve problems, to be creative and innovative. This policy also has the scope for improvement of boards and facilitators, thus restructuring the entire education system as per the global benchmark. This new policy will help

students to grow in accordance with global standards with the rich heritage of ancient Indian knowledge in mind. It is very likely that this policy is going to completely serve its purpose of developing good human beings capable of rational thought and action, possessing compassion and empathy, courage and resilience, and a good scientific temper.

Do you think India can leverage its technical collaborations with leading tech partners like the US and the EU to achieve self-dependency? If yes, how should India go about it?

Technology would play a major role in achieving the Self-reliant India Mission or making the country Atmanirbhar.

Therefore, it is necessary to promote innovation generation as well as innovation culture in India. It is important that our research and development is focussed towards enabling and empowering our industry.

USA and many of the EU nations including Germany and France, are technologically much advanced as compared to India. Leveraging Science, technology and innovation collaborations with these nations, especially in areas where indigenous capabilities do not exist and are minimal, would help boosting technology development. Moreover, partnership with these countries will help us learn from their experiences and best practices which would help us leapfrog.

We should consider setting up national / global innovation centres in India focussed on specific subjects, e.g. on Manufacturing, through partnerships with R&D institutions. Topical programmes e.g. for developing medical

devices, or Vaccine (joint vaccine development efforts for Covid-19), or speciality chemicals should be helpful.

What would be your recommendations to make the Atmanirbhar Bharat initiative more effective?

Technology development for an Atmanirbhar Bharat requires an ecosystem of partnerships involving national research laboratories and industries. Comprehensive programs are needed for each industrial sector that relies heavily on imports so that researchers, technologists, manufacturers and skill developers come together to achieve a common objective. Trivial and incremental programs which cannot be integrated with a larger goal are to be discouraged. Micro, small and medium scale entrepreneurs who are constrained by limited capital and skills and marginal equipment need government interventions and support so that they can grow through collaborative programs with government organizations and established enterprises. Schemes for skill improvement of these MSMEs are to be developed - efforts which at present are mostly notional.

It is also important to educate the academic institutes about their role to fulfil the national mandate. If opportunities are created with national interests in mind, there will be a more evenly distributed fresh manpower coming out of the universities. A prime example of an important field that does not attract students in good numbers is the field of Turbomachinery. This lack of academic attractiveness of an industrially important area has to be compensated through government policies so that a steady induction of bright students can be maintained into this very important domain.

In addition to a future-looking NEP and STIP, we need greater allocation of resources to education

Dr. Pramath Raj Sinha

Founder & Chairman, Harappa Education
Founder & Trustee, Ashoka University



PROFILE

Dr. Pramath Raj Sinha is a pioneering force in Indian higher education. He is the Founder & Chairman of Harappa Education, which strives to become India's largest online institution focused on teaching habits and skills critical to workplace success. He is the Founding Dean and a member of the Executive Board of ISB and the Founder & Trustee of the acclaimed Ashoka University. He has also been a media entrepreneur, education consultant and management advisor at the 9.9 Group, which he founded, the CEO of the Ananda Bazar Patrika Group, and a Partner at McKinsey & Company. Mr. Sinha received a Ph.D. and an MSE from the University of Pennsylvania and a BTech from the Indian Institute of Technology, Kanpur, where he was honored with the Distinguished Alumnus Award in 2018.

INTERVIEW

As a professional who has donned hats of both an academic and industry captain, what is your impression of the Atmanirbhar Bharat initiative of the GOI?

I believe self-reliance is an imperative for India, especially as the world comes out of Covid. To me this initiative is about truly realising India's potential as opposed to cutting off India from the world. I expect the initiative to catalyse growth in all aspects of the economy as well as in key enablers such as infrastructure, education and health.

Is India in a position to cash the opportunity created by the supply chain disruption from China? Which sectors should India pursue to become world leader?

I think India has the potential but key barriers remain. The costs of manufacturing and supply chain in India remain higher than in competing locations around the world. There have been various studies done on the bottlenecks to India's manufacturing competitiveness and it is urgent that these bottlenecks are removed before the window of opportunity closes for us. Provision of key enablers like a trained workforce, affordable and reliable energy supply, world-class public infrastructure in terms of roads, ports and airports, and, of course, friendly regulatory and trade policies are well-established drivers of building a robust manufacturing sector and contributing to the global supply chain. These have been improving gradually but we need to scale up and speed up our efforts in all of these areas to catch up with China and other emerging hubs for manufacturing. Hi-tech manufacturing, food and agriculture, biotech and pharmaceuticals, and renewables are some sectors worth pursuing.

What is your opinion about the recently announced New Education Policy and Science, Technology and Innovation Policy (STIP)? Can these create a suitable workforce to make India gain self dependence in key technologies?

Yes, the policies are in the right direction. It is

important, however, these policies are implemented in their entirety. Given our massive existing educational infrastructure bringing about the changes necessitated by the new policy will be a huge challenge, but getting the policy in place is a welcome first step. The STIP needs to help spur research if India has to leverage its talent to build technology leadership in the future. Again, the investments made by China far outstrip our own, and that is where in addition to a future-looking NEP and STIP, we need greater allocation of resources to education if we want to leverage our demographic dividend to achieve self-reliance in key technologies and talent pools.

Government is planning to allow foreign universities to set up their centers in India? What impact will it have on the education sector and the drive to make Indian work force capable of making India self dependent?

I don't believe this will have a major impact, since the foreign universities unlike corporations are not looking to expand beyond their shores. At least the good ones are not and most of them have been hit hard by Covid. They will be in self-preservation rather than expansion mode. Some of the 2nd tier and 3rd tier institutions may want to invest in India but it will be decades before they will materially impact education in our country.

What would be your recommendations to make the Atmanirbhar Bharat initiative a success?

It is important to focus on a few key areas in mission mode and make them a success. My bet would be on becoming the manufacturing hub for the world, on transforming our entire education system from K-12, to vocational, to higher education, and finally to improving health outcomes especially for children and women who are our investment in the future. Digital technologies should be the backbone for each of these three missions so that they can overcome traditional handicaps in infrastructure, costs, and scale and become the foundation for making the country Atmanirbhar.

To be competitive, Indian API manufacturing needs to focus on productivity and infrastructure improvements

Dr. Prashant Yadav

Professor, INSEAD Lecturer, Harvard Medical School



PROFILE

Dr. Prashant Yadav is a globally recognized scholar in the area of healthcare supply chains. He is a Senior Fellow at the Center for Global Development, Affiliate Professor of Technology and Operations Management at INSEAD, and Lecturer at Harvard Medical School. He is the author of over 50 peer-reviewed scientific publications and his work has also been featured in prominent print and broadcast media. In addition to his roles in academia and think tank, Prashant serves on the boards of social enterprises and nonprofits working on healthcare supply chains. His previous roles have included: Strategy-Leader Supply Chain at the Bill & Melinda Gates Foundation, Vice-President for Healthcare Research at William Davidson Institute at the University of Michigan; and Professor of Supply Chain Management at the MIT-Zaragoza International Logistics Program. Prashant is a Chemical Engineer and obtained his PhD in Management Science & Operations Research.

INTERVIEW

How do you think the Atmanirbhar Bharat initiative will impact the healthcare & Pharma sector in India?

India's healthcare and pharma sector will gain the most if under the aegis of the Atmanirbhar Bharat initiative the government and private sector focus on further enhancing the competency of the pharmaceutical and medical devices industry and increasing the production of quality products which are globally cost-competitive. The Atmanirbhar Bharat initiative should focus on equipping the domestic industry with the technical, financial and regulatory tools for global competitiveness across product categories and across all steps in the medical products value chain. That is the path to a long term sustainable growth for this sector. If the government and private industry take this approach for the initiative, then we will growth in India's pharmaceutical and medical device industry not only to guarantee supply to the domestic market but will make India a much stronger player in the global medical product market. I do worry though that if measures are put in place which focus on self-reliance without guaranteeing global competitiveness on price and quality, it will lead to sources of supply which are unsustainable in the long term and will continue to require government subsidies for eternity.

India is heavily dependent on imported APIs, especially from China. How can it achieve self sufficiency in this crucial healthcare sector?

Dependence on China for APIs has been an ongoing concern for the pharmaceutical industry in the last decade. Firstly, it is important to recognize that the dependence on China for API is the highest for APIs which are relatively low margins products e.g. fermentation based APIs where Indian manufacturers did not see as much economic benefit in manufacturing themselves. Price increases, decreases in supply, and aspirations of API suppliers based in China to forward integrate into the formulations business, have led to a policy debate around how to incentivize and enable the backward integration

of finished formulators into API production. Initiatives being planned in this regard need to keep in mind that the API industry in China has some intrinsic cost advantages due the economies of scale and know-how they have achieved over the last 3 decades. Large API producers in China have also received concessional capital and some of them are state owned enterprises. It is important to examine where the cost advantages of China based API producers come from—lower cost of capital, lower power/electricity and other infrastructure inputs, lower logistics costs, and lower environmental compliance costs. To be competitive, Indian API manufacturing needs to focus on improving each of these through productivity and infrastructure improvements. Some of it could be achieved through co-located API manufacturing hubs where multiple API manufacturers share infrastructure and other auxiliary services.

Do you feel India's new education policy would help create a workforce that can adopt and explore new technologies to make India self dependent in key tech areas, including pharma?

The higher education ecosystem in India is not well designed to serve the needs of the pharmaceutical industry of the future. The new education policy offers the policy umbrella to bring together institutes like National Institute of Pharmaceutical Education and Research (NIPER), IITs, large research focused universities, and the IIMs to bring similar focus to improving the entire value chain for the pharmaceutical sector in the same way that it has been done for the IT and other key export industries. Each of these institutions need to reconfigure their curriculum on pharma manufacturing, chemistry, chemical engineering, and operations management to have action based learning for students. Students should be able to take cross listed courses across these institutes. Only then would they be able to contribute meaningfully from Day 1 to making the industry globally competitive in sub-sectors where it is lagging e.g. specific APIs, and some advanced formulations.

Our industry must become future proof against all our current and future vulnerabilities

Dr. R. A. Mashelkar

National Research Professor, Former
Director General, Council of Scientific and
Industrial Research (CSIR)



PROFILE

Eminent scientist **Dr. Raghunath Anant Mashelkar** is National Research Professor. Dr. Mashelkar served as the Director General of Council of Scientific and Industrial Research (CSIR). He was also the President of Indian National Science Academy, the President of Institution of Chemical Engineers, UK, the President of Global Research Alliance and Chairman of India's National Innovation Foundation. He was a member of the Scientific Advisory Council to the Prime Minister set up by successive governments. Dr. Mashelkar has been awarded with Padma Vibhushan (2014), Padma Bhushan (2000) and Padmashri (1991). Dr. Mashelkar is only the third Indian engineer to have been elected (1998) as Fellow of Royal Society (FRS), UK in the twentieth century. He is also the first Indian to be elected (2017) as a fellow of National Academy of Inventors (NAI), US.

INTERVIEW

How do you see the Atmanirbhar Bharat initiative by the GOI? What does Atmanirbharta mean to you in today's globalised world?

'Atmanirbhar Bharat' means self reliant India. But in today's globalised world, the idea of self-reliance cannot be about a return to import substitution, or to licence-permit raj and inspector raj but an active participation in post-COVID global supply chains coupled with a strategy to attract foreign direct investment.

Atmanirbhar Bharat must be built with Atmavishwas, i.e. with self-confidence. It is all about standing up confidently in the VUCA world that is volatile, uncertain, complex and ambiguous. It is not about isolationism behind "narrow domestic walls" but about integration with the world.

Also 'make in India' has to be converted from assembled-in-India to invented-and-made-in-India.

In 2020, the situation has changed dramatically. With the Chinese Government and their companies being viewed with great suspicion by the global business community, India has a great opportunity to establish itself as a global manufacturing hub. India will be able to attract global investment provided it brings in the much-needed reforms in terms of land, labour, law, logistics and cost of inputs.

We must also protect our industry from vulnerabilities of different kinds and make it resilient.

What are these vulnerabilities? How do we make our industry resilient?

I have recently proposed ten tenets of resilience for Indian industry. These are, adaptability, agility, resilience thinking, scenario based planning, building a purpose driven organisation, platformisation, digital readiness, ability to foster self-disruption, climate

preparedness and autonomous innovation. Our industry must become future proof against all our current and future vulnerabilities.

What are these vulnerabilities? Let's look at the Chinese import component in various sectors of Indian economy.

In descending order, it is Pharma API (68%), Electronics (45%), Manufactured Capital goods (32%) and the list goes on.

Secondly, let us look at how strongly our exports are dependent on Chinese imports to produce our own exports.

The Foreign Value Added (FVA) contribution of China to India's exports as a total FVA is overly dominated at 34.1% as against that from imports from Germany (5.2%), US (4.9%), South Korea (3.6%) etc. That's a very heavy dependence. There is no other option but to reduce it.

We can't suddenly go Chinaless, we have to go for 'less China' and more precisely a pragmatic China +1 with a calibrated strategy.

Can you illustrate this calibrated strategy that you have in mind by taking some sector specific examples?

India is known as the pharmacy of the world in terms of manufacturing of very high-quality generic drugs and therapeutics, which we export to the whole world. But this industry is hugely dependent on the imports of APIs from China. We had shocks during the COVID times, because for some time, the Chinese exports stopped. Now new shocks are coming because China is recently increasing the prices of APIs. What happens if they altogether stop the supply of APIs just as they stopped the import of coal from Australia?

Now there is a welcome rethinking at a national level in terms of boosting indigenous API manufacturing. The proposed new incentives

and investments, setting up of API parks, etc. are exactly the right steps.

We must, however, remember that we stopped manufacturing not only because imported APIs were cheaper but also because API manufacturing was polluting. So now we must gear up our great Indian strength in process chemistry and process engineering for green manufacturing; that will produce cost competitive APIs.

That will be the challenge in our quest towards make in India, with invent in India. We have already received these shocks of the penalties for just going for assembling and not inventing, when we make in India.

Very interesting. Can you cite some more specific examples and say as to what are the lessons from these for building Atmanirbhar Bharat of our dreams?

Indian mobile phone manufacturers had begun dominating the domestic market. Home-grown brands, such as Micromax, Karbonn, Lava and Intex, held a 45 percent smartphone market share in 2015.

However, demand for these brands was decimated quickly once Chinese competitors like Xiaomi, Vivo and Oppo entered the Indian market.

From a mere 9 percent market share in 2015, these Chinese brands reached 68 percent by the end of 2019, while the Indian brands in the smartphone category plummeted from 45 percent to a mere 7.5 percent by 2019, just in 4 years!

How did Indian brands lose their home turf despite having early movers' advantages, in a short span of four years?

It happened because these Indian companies largely adopted a trading business model. They were not Original Equipment Manufacturers (OEMs). Their 'manufacturing' activity was limited to mere assembling; they were importing Semi-Knocked Down (SKD) kits, instead of Completely Knocked Down (CKD)

kits. Further there was no product research or innovation.

Chinese did aggressive innovations, localised to reduce their tariff tax and transportation cost, innovated and customised for local customers, and built large economies of scale. The lessons for us on what not to do and also on what to do are obvious. Innovate or perish.

Has the Indian scientific community risen to the challenge posed by the pandemic? Have their actions given you the confidence that they will not just be at the periphery but at the centre, while building Atmanirbhar Bharat?

When the pandemic arrived, we had negligible diagnostic capability, no point-of-care diagnosis, no vaccines, no therapeutics, and the biology and mechanism of action of the virus was unknown. Our scientists delivered actionable science to the decision-maker that was timely.

Indian innovations during the COVID pandemic have made a difference in all areas. Also, they came from young startups to big industrial enterprises, from universities to national research laboratories, from foundations to NGOs. All Indian hands have been on deck in this time of crisis.

Can you give us some specific examples?

Let us just take Council of Scientific and Industrial Research, our largest chain of publicly funded R&D institutions.

In March, 38 laboratories of CSIR formed one 'Team CSIR,' which quickly identified the unmet needs, assessed its strengths and capabilities for addressing the pandemic and adopted a multi-pronged strategy of working on diagnostics, surveillance, drugs and therapeutics, vaccines, hospital assistive devices, personal protective equipment and supply chain and logistics. Over 100 technologies in the last 6 months have been developed with strong partnership with major industries to MSMEs to start-ups.

CSIR laboratories contributed to the molecular and digital surveillance and also development of diagnostics and augmentation of COVID-19 testing. In the drugs and therapeutics vertical, the strong chemistry expertise and experience in pharmaceuticals of several CSIR contributed immensely to the development of repurposed drugs such as Favipiravir, Remedisvir, Umifenovir and others for COVID-19.

They also had world class breakthroughs.

Let's just talk about one world class breakthrough that is in the news. IGIB laboratory of CSIR created a game changing innovative test called FELUDA, which uses cutting edge CRISPR technology for detection of genomic sequence of novel coronavirus with 98% plus selectivity and specificity. Its main advantages are its rapidity (detection in just one hour), affordability (Rs 500 only), relative ease of use and non-dependency on expensive Q-PCR machines. A company from the TATA group is bringing it out in the market, with an aggressive drive of these diagnostic test kits

Just imagine we were importing millions of them from China, when the pandemic started earlier this year!

How do you feel Startup India, the flagship program of the GOI to encourage private entrepreneurship can play a role in Atmanirbhar Bharat initiative? What type of incentive should entrepreneurs provide?

Indian startup ecosystem has risen magnificently to the challenge. Here are some examples first in health and then in education.

Mylab startup in Pune is nearly all female team of researchers, that developed a PCR diagnostic tool using RT-PCR in a record setting six weeks. It was the first Indian medical kit to receive the commercial approval from CDSCO.

Mumbai-based startup Qure.ai uses an artificial intelligence powered solution to identify 24 abnormalities in a chest x-ray including ones indicative of a Covid 19 infection. And does it fast and very cheaply.

Hyderabad -based start-up Salcit technologies addressed the issue of pre-screening of Covid 19 patients by re-proposing its mobile application that uses artificial intelligence to analyse the coughing.

Dozee is another start up, which created a contact free health monitor that can be placed below a mattress and track vital parameters, which can convert any bed into a continuous health monitoring unit, almost like converting normal beds into step down ICUs.

Take education now. Because of the lockdown, classrooms have been forced to shift online and digitise in a short span of time. Ed-tech startups have gained immense popularity post lockdown. At least 15 ed-tech startups including Vedantu, Classplus etc. have raised funds during COVID-19, even before that BYJU's and Unacademy had raised large investments.

Are the startups floundering or flowering? Six Indian start-ups beat the pandemic to become unicorns this year. They are Pinelabs, Razorpay, Zerodha, Unacademy, Postman and Nykaa.

The way to incentivise start-ups is by making life hasslefree for them.

For instance, I chair the Maharashtra State Innovation Society. We created a new start up policy with several incentives for them but also a special tendering process for the start ups, so that they get work orders from the government departments based on their excellence and not get handicapped due to of lack of experience, which is the handicap of a normal Government tendering process.

I am happy to see that different states are competing with each other now in this space!

Recently, the GOI came up with the new education policy (NEP). What improvements would you suggest in the same if we have to create a workforce that is capable of undertaking all types of roles required to make Indian Atmanirbhar?

The NEP is excellent. However, in terms of the

workforce, I suggest that nationwide audit of all the higher educational technological institution should be undertaken to understand the current level of preparedness in terms of exponential technologies, industry 4.0 and the needs of future jobs, that will replace the old jobs in Industry 3.0.

These exponential technologies, as you know are Internet of things (IOT), Artificial Intelligence (AI) (Machine Learning), Robotics Process Automation (RPA), Virtual/Augmented/Mixed Reality, Sensors, 3D Printing, 3D Visualisation, Mobile Internet and Cloud, Big Data Analytics/Open Data, Blockchain etc.

In what way are they exponential? The New skills in the era of industry 4.0 will be the ability of the students in managing complexity, critical thinking, emotional intelligence, cognitive flexibility, creativity, etc. Compared with creativity, India's education system has given more importance to logical thinking and reasoning capabilities, but now, with AI, the new jobs will be more focused on creative thinking.

Universities of the future need to transition towards a learner-centred education model

where learning and work go hand in hand. Customised learning modules coupled with adaptive, dynamic and agile life-long learning should be the focus of the universities to create workforce with long-term sustainability.

Indian academia must adjust to the power of open disruptions such as open knowledge (Udacity, Coursera, Khan), open source development/collaboration (GitHub), open innovation (Quirky) and open research (Materials project, OSDD). The disruptions post COVID in terms of huge acceleration of digitalisation must be factored into NEP, which was written in the pre COVID era.

India will have to move from 'right to education' to 'right education' to 'right way of education' in view of the great disruption that exponential technology is going to create. NEP, that was framed in the pre-COVID era must factor this in now.

Further, new exponential technology will be high technology. It will be based on a solid foundation of high science. India must continuously raise its investments in high science, so that India's high science base remains strong and globally competitive.

We should identify areas where we already have competency and provide support

Dr. Anil Sahasrabudhe

Chairman, All India Council for Technical Education (AICTE)



PROFILE

Dr. Anil Sahasrabudhe is the Chairman of All India Council for Technical Education. He has in his illustrious career of over 30 years held several important academic, research and administrative positions. He is a recipient of Praj entrepreneur award (2011), and Edupreneur Award 2013 from Engineering Watch. Mr. Sahasrabudhe earned his PhD and ME from IISc, Bangalore.

INTERVIEW

As an academic, how do you see the Atmanirbhar Bharat initiative of the GOI? How in your opinion will it benefit India?

The education sector creates trained manpower and such well-trained skilled manpower shall be able to drive all developmental activities of the nation and the society, be it Make in India, Atmanirbhar Bharat, or Digital India etc. Further, the new National Education Policy has several features for creating skilled manpower with lots of flexibility, innovation, research support and autonomy and this will further ensure Atmanirbhar Bharat.

Do you think recently announced New Education Policy and Science, Technology and Innovation Policy (STEP) can help in this initiative. If yes, how?

Obviously yes. NEP has several elements like multidisciplinary universities opening up the horizons for students, exit and re-entry for those who do not fit in the format or who had some compulsions to quit, flexibility in choice of courses that will empower students, National Research Foundation for supporting research and research culture, support for innovation in curriculum and examination, support for holistic development of students etc. All of these enhance employability potential of graduates, and their ability to create innovative startups in emerging areas which will support self-reliance by development of indigenous products and applications.

What steps you think are required to make Indian workforce useful in making self-dependency possible in high tech areas?

The regular revision of curriculum, bringing in all the latest technologies and areas, training of faculty, providing courses in SWAYAM for anytime anywhere learning, AI based personalised learning, certification in new

emerging areas, and mandatory internship etc. will all help in creating efficient well-trained workforce.

Government is planning to allow foreign universities to set up their centers in India? Do you think it will impact the education sector and the drive to make India self dependent?

The permission to open campuses of foreign universities in India will be not for anyone and everyone but globally top universities. This will save a lot of foreign exchange and students will get quality higher education in India. These top universities and their faculty and best practices shall be available for Indian students and other universities in India. The competition and collaboration with such foreign universities obviously shall improve Indian universities. Over time, our universities will also improve in their rankings and attract foreign students to India.

What policies would make India a preferred destination for high tech R&D?

Setting up of National Research Foundation for large scale funding of research, selection of problems which need attention for Indian challenges, all projects being sanctioned only when they are in collaborative mode with industry, universities and faculty from abroad. Once there are concrete outcomes after a couple of years, many foreign funding agencies will also start looking at India for the solutions and improve our R&D.

Broadly, what would be your top 4-5 suggestions to make Atmanirbhar Program a success?

- There should be a clear strategy for short-term, medium-term, and long-term goals.

- We should identify those areas such as services sector, IT, agriculture, healthcare pharmaceutical products, education products, where we already have some preparedness and competency to start off in a big way, and provide government support to create confidence.
- We should also source our age-old Indian knowledge systems such as Vedic mathematics, Ayurveda, Yoga, traditional healthcare, sustainable agriculture etc. and leverage these to address current requirements and start research to create new products.
- Govt. should encourage collaboration and partnership between Indian industry, educational institutes and the provide support in the form of research and innovation grant, tax concessions for research etc. which will strengthen the ecosystem and we will start enjoying low hanging fruits soon.

Atmanirbhar Bharat should not focus on the manufacturing sector alone

Dr. Amit Kapoor

Honorary Chairman, Institute for Competitiveness



PROFILE

Amit Kapoor, PhD, is Honorary Chairman at Institute for Competitiveness, India; Visiting Scholar at Stanford University; President of India Council on Competitiveness and Editor-in-Chief of Thinkers. He is the chair for the Social Progress Imperative & Shared Value Initiative in India. He is an affiliate faculty for the Microeconomics of Competitiveness & Value Based Health Care Delivery courses of Institute of Strategy and Competitiveness, Harvard Business School and an instructor with Harvard Business Publishing in the area of Strategy, Competitiveness and Business Models. He has been inducted into the Competitiveness Hall of Fame which is administered by Institute for Strategy and Competitiveness at Harvard Business School in addition to being the recipient of the Ruth Greene Memorial Award winner for writing the best case of the year, by North American Case Research Association (NACRA). Amit is the author of bestsellers "Riding the Tiger", which he has co-authored with Wilfried Aulber and "The Age of Awakening: The Story of the Indian Economy Since Independence" published by Penguin Random House.

INTERVIEW

What are your first impressions about the Atmanirbhar Bharat initiative by the government? Do you feel India should even pursue such a path which appears like closing itself to the world?

If one looks at the growth of the East Asian economies and China, they managed to accelerate their growth mainly by rejecting the neoclassical idea that state intervention impedes progress. Instead, they resorted to protectionism along with making their exports competitive in the global markets. In that sense Atmanirbhar Bharat is a great initiative if it is introduced along similar lines. However, it is too early to say anything on the matter since the government is yet to define the contours of the policy. As for appearing to the world like India is closing itself, that will not matter as long as it manages to develop a thriving export economy.

Which industrial sectors you think are most suitable to pursue self-sufficiency as per your understanding of India's sectoral competitiveness? Surely, we cannot be competitive in everything?

Absolutely. India cannot and should not compete on everything. It needs to build its competency in sectors where its strengths lie. A crucial aspect of the economy that needs to be tapped is India's low-skill labour. Again, no country in history – whether it be modern-day China or 18th century England – has developed without utilising its low-skilled workforce to produce cheap products for the world. India, for instance, can focus on its textile sector where it has had historical strengths and the potential to develop an export competency. Also, Atmanirbhar Bharat should not be focused on the manufacturing sector alone. India also needs to reform its agriculture economy and can develop inter-linked manufacturing sectors through it like food-processing.

Do you think the new education policy is capable of giving a qualitative push to the innovative and competitive position of India? What would be your 3-4 recommendations in this regard?

The New Education Policy (NEP) is a welcome move by the government. It has been long-pending since the last education policy was introduced back in 1992. In the three decades that have passed since then, a lot has changed in education. Most significantly, the online medium of education has introduced new techniques in teaching, and it was time for policy to catch up. The increase in public spending on education, the "5+3+3+4" structure instead of the traditional "10+2", the focus on vocational training and extracurricular streams are all welcome moves. The more freedom India manages to give school-going children to pursue their own interests, the more innovative the future workforce can become. However, the challenge lies in successful implementation of the policy. The 6% GDP spending, for instance, has been often talked about since independence but never achieved. It will be helpful if there is clarity on where these funds will be obtained. This is absolutely necessary for upgrading the country's education infrastructure and hire quality teachers. The targets to achieve 100% GER till class 12 by 2035 is also an ambitious one and it will be helpful to build a roadmap for achievement.

Late last year, NITI Aayog came up with its innovation index in which you mentioned India could emerge as an innovation hub, because of certain factors India has blessed with? Do you feel Indian innovation and R&D is strong enough to sustain a drive towards self-sufficiency in high tech areas?

India has done well in high-tech sectors like biotechnology and space exploration because it has two key advantages: high proportion of

engineers and lower wages for high-skilled talent than the rest of the world. These factors make India a competitive economy for the development of sectors that require high-skilled talent. And when it is combined with the provision of an enabling environment by the government for any specific sector, India has managed to excel in those areas. Now, India's spending in R&D is low when compared to nations around the world. That needs to change urgently. Adequate funding, enabling government support, and a focus on a few key sectors with potential for growth will go a long way in making India an innovation hub.

How can we leverage the Atma Nirbhar Bharat program to feed into other key economic programs like Make in India or Startup India? What steps would help?

Again, like I said, more clarity is needed on the Atmanirbhar Bharat programme to make any concrete comments. But instead of it leading into initiative like Make in India and Startup India, it would do well for the economy if the Atmanirbhar Bharat programme revitalises

economic thinking along the lines of the East Asian economic growth models. India has the benefit of hindsight to draw lessons from what has worked for global economies and can drive economic growth by combining it with its domestic nuances.

How can India leverage its technological and commercial relation with key partners like the US in achieving self-dependency?

It is no secret that the US needs a partner in Asia to counter China's weight. India can utilise this situation to its benefit through bilateral agreements. India needs to find a middle-ground on recent concerns with high tariffs and visa bans. Apart from such agreements at the national level, India's efforts to attract US companies like Apple to manufacture in the country is also a major win. The US is a major market for Indian goods and a key ally in its path towards self-dependency. It would not be a bad strategy for India to concede on some of the thorny issues that have developed recently.

We need to seriously introspect and address the challenges that have crippled our productivity

Dr. Sujata Sharma

Professor, Department of Biophysics, All India Institute of Medical Sciences (AIIMS), Delhi.



PROFILE

Prof. Sujata Sharma is an Indian structural biologist, writer, biophysicist, and a professor at the Department of Biophysics of the All India Institute of Medical Sciences (AIIMS), Delhi. She is known for her studies in the fields of antibiotic resistance, protein structure determination and drug design. She is the author of the books, "The Secret of the Red Crystals" and "A Dragonfly's purpose." She was conferred the Kalpana Chawla Excellence Award for Women for her contributions in science and literature. She has also been the recipient of the National Bioscience Award for Career Development and National Young Woman Bioscientist Award by the Department of Biotechnology of the Government of India for her contributions in biosciences.

INTERVIEW

How do you think the Aatmanirbhar Bharat initiative will impact the healthcare & Pharmaceutical sector in India?

The Aatmanirbhar initiative essentially translates to being self-sufficient, but is a more complex and cohesive term, encompassing a spectrum of sufficiency, generation and provision of India relative to the rest of the world. In the future, the coming generations would be able to turn back and demarcate the history into pre-Covid and post-Covid eras. The emergence of the Covid pandemic and the resulting shutdowns have led to a watershed moment in the history. A definite need to become self-sufficient as a country has surfaced, which needs to be addressed urgently. The world will always remember this pandemic as the alarm bell which not just led to a colossal medical emergency and economic devastation, but also projected a spotlight on vital issues that had been neglected so far. While in the pre-Covid era it was assumed that the world is an interconnected global village with diffuse boundaries, the post-Covid era demands a new definition and more practical solutions to the obvious lacunae. During the pandemic, sudden and complete shutdowns exposed the glaring need to be self-sufficient as a country.

It was now evident that over-dependence of our country on the supply chain of other countries could lead to not just an explosive crisis during emergencies like wars and pandemics but in the long run, would also impact the gross domestic products (GDPs) of the country permanently. Hence, the Aatmanirbhar Bharat initiative was born, which when implemented would have a resounding impact on almost all key sectors of the nation. Amongst the major industries, it is expected that the face of the Healthcare and the Pharmaceutical sector would be completely transformed.

In the past, this sector has been heavily dependent on imports, with meager self-sufficiency. There is a need for augmentation of domestic capability in terms of land use, power, human resources as well as proper regulation and compliance of pollution guidelines by the government. These steps would lead to the much desired essential breakdown of the foreign supply chain, and give the necessary boost to the domestic industries within India. However, the onus of building a self-sufficient nation cannot be left on its government alone. The society needs to contribute substantially for the collective goal of the nation. The overall temperament of the nation has to shift on its axis. Every citizen has to make sacrifices for the larger good of the nation. Each individual has to make a pledge of cutting off the convenient and easy routes of dependence and focus on thinking out of the box to deliver and consume made in India products.

India is heavily dependent on imported APIs, especially from China. How can it achieve self-sufficiency in this crucial healthcare sector?

Almost thirty years ago, the dependence of India on China for active pharmaceutical ingredients (APIs) was less than one percent. However, due to a boom in the healthcare industry, the dependence increased exponentially and it has reached almost seventy percent now. Though there had been attempts in the past to cut down this dependence and become reasonably self-sufficient, none of them were pursued seriously. While it is universally concurred that we definitely need to take steps to improve our self-sufficiency, it is necessary to analyze the reasons why India became dependent on China in the first place. The main factors were the challenges faced by the health care sector in India, namely, high

costs of production, complexity of various regulations and long timelines for approvals. That led to falling back on the easiest route of dependence on China, which on the other hand, offered economical costs, simpler policies and quicker results. Hence, if we hope to achieve to realize our dream of Aatmanirbhar Bharat, we need to seriously introspect and address the challenges that have crippled our productivity and plummeted our self-sufficiency. There is a need for careful refurbishing of guidelines, loosening of tight policies and approvals, coupled with a powerful economic boost in this sector by the government.

How is India building Aatmanirbhar Bharat & overcoming Covid 19?

The Covid pandemic, the biggest health crisis of this century, suddenly erupted at the end of 2019 when no country in the world was prepared to fight it. Amidst chaos and fear, India has fared better than many countries. Always ready to take up a challenge, India has emerged as the country which not only produces a large supply of PPE kits, ventilator and masks for national marketing and consumption but also exports them all over the world. The numbers of testing labs for the SARS-COV-2 virus have increased from being a single digit to several thousand within a few months. Several companies in India are working at a breakneck speed on the production of Covid-19 vaccine, with clinical trials being fast tracked. Even in the past, India has been regarded as the major vaccine manufacturing and supplying hub, igniting hopes that it could play a key role in the manufacturing of Covid-19 vaccine in the future.

Do you feel India's new education policy would help create a workforce that can adopt and explore new technologies to make India self-dependent in key tech areas, including healthcare & pharma?

We have come a long way since the year 1986, when the first education policy of India was implemented. Since then, India has witnessed powerful winds of change, which have uprooted the traditional ways of viewing education and learning. Gone are the days when Indian students were expected to just cover a limited, defined syllabus in a restricted time construct, using rigid and inflexible methods. Recognizing an imperative need to transform the vision of education in India, the New Education Policy was unveiled at the end of July in 2020. In a well-rounded approach, the fundamental goals of the New Education policy and Aatmanirbhar Bharat are intricately interlinked.

The New Education policy is focused on building a nation where high quality education is accessible to the students of all socio-economic backgrounds. Under its aegis, there would be stress on the Indian languages and art as the medium of the education, thereby reinforcing and sustaining the Indian culture. The new policy introduces essential structural changes within both the early foundation learning and higher education which aim at making the students adept at technology and contemporary skills. It is expected that as the New Education policy would get implemented in phases, there would be a paradigm shift in the mindset of Indian students, as well as the way this world views India as a nation. Instead of opting for education abroad, the students of India would prefer to stay back in India, help in giving back to their nation, thus fostering a self-nurturing fountain of learning and giving the much needed boost to the existing education system. Additionally, National Research foundation under New Education policy would strengthen cutting edge research on basic and applied sciences, arts and technology, leading to the inception and production of indigenous products such as drugs and vaccines made in India, thereby giving the much needed muscle power to being self sufficient in the healthcare and pharmaceutical sectors.

What is the role of Women in Aatmanirbhar Bharat?

India boasts of an enormous human resource multiplied with willingness to propagate diverse strategies to solve complex problems, which makes the Aatmanirbhar Bharat dream seem like a potentially real vision of future. However, not much can be achieved if we do not actively accelerate the inclusion of women

in the nation building. Indian women have been known to be resilient, hard working and industrious. However, women in India still need to be given financial empowerment and freedom to realize their potential. They need to be encouraged to participate proactively in the building up of Aatmanirbhar Bharat through small and large scale entrepreneurial startups, thus generating employment and opportunities.



Digital technologies and services are the next engines of growth for all sectors

Dr. Badri Narayanan Gopalakrishnan

Senior Economist: University of Washington Seattle



PROFILE

Dr. Badri Narayanan Gopalakrishnan is a Senior Economist with University of Washington Seattle, Senior Fellow with European Center for International Political Economy, Brussels and Center for Social and Economic Progress (formerly Brookings India), New Delhi. He is on the Board of Directors of British American Business Council. He is also a consultant with ICRIER, UN, World Bank, ILO, FAO, WHO and several other international organizations as well as government/private bodies across the world.

INTERVIEW

As an economist, what do you think of the Atmanirbhar Bharat initiative of the GOI? Do you think it is akin to returning to the closed economy autarkic model which failed miserably before?

Although there are some signs and flavors of protectionism, in terms of tariffs and other barriers to import, I think there are several positives in this initiative. For example, there is a renewed and proactive focus on luring investments from other advanced countries and developing indigenous capacity, to plug into global supply chains, as the Prime Minister mentioned in the Independence Day Speech. There is some economic literature that suggests that when exporting to a country is made difficult and when it has a good market size to tap, there is a possibility of huge investments entering the country, provided the investment climate is positive. These are called 'tariff-jumping investments.'

Much of India's auto industry was developed in the 1990s by this strategy of increased tariffs and reduced barriers to invest, while attracting the companies to the ever-growing great Indian middle class that was going to demand many more cars in future back then. The foreign auto companies that entered in this way enjoyed protection from their counterparts that chose not to enter, mainly to cater to the domestic market. However, over time, they started developing a strong domestic supply chain, so much so that many of their Indian manufacturing centers evolved into world leaders in specific segments like compact and small cars, for example.

At the same time, we have seen many explicit measures to attract foreign investments that may pay off, irrespective of this protectionist

stance. Therefore, I hope that this mode of directly attracting investments while keeping the trade open as much as possible, may help India in the long term.

How can India gain from the Covid induced changes in the world economy?

Like I mentioned earlier, India needs to focus on attracting investments both domestically and internationally, and capitalize on capital flight away from China to other countries. Particularly, the manufacturing sector in India requires a complete rethink and upgradation of supply chains and labor force, with an emphasis on Industry 4.0. The recent agricultural reforms, when coupled with explicit measures to ensure the income security to the farmers, can go a long way to liberate the agricultural sector, particularly in terms of expansions and investments that can happen in the food processing sector. My research on the gaps between India and other major developing countries like China, in terms of productivity and investment in post-harvest activities in agricultural and food sectors, suggests that India can gain immensely by opening up this sector to investments from the private sector. Agricultural services sector also may benefit from liberalization.

Digital technologies and services are the next engines of growth for all sectors in Indian and world economy. They can increase productivity manifold in all sectors, while also completely transforming how things are done in most of them. At the same time, we may not be able to avoid large-scale job losses, mainly involving blue collar and other unskilled workers. As I mentioned for farmers, it is equally important to ensure basic needs are satisfied for people from all walks of life, including such retrenched workers, to ensure sustainable development,

peace and stability that would enhance economic growth as well. Therefore, measures such as universal basic income may supplement opening up of Indian economy further to global competition. Liberalizing extensively with a humane face is what I would suggest as the way to go for India to gain globally during and after Covid recovery.

Present global economy is based on leveraging comparative advantages of each country. Since India cannot master all sectors, which are the most optimal and critical for India to target?

India needs to leverage on its rich human resources, but not in the traditional way of focusing on cheap labor. It should focus on high-tech sectors as well as conventional sectors with new age technologies. Examples include digital technologies like Artificial Intelligence, blockchain, internet of things, big data analytics, etc., and a manufacturing sector revamp using these technologies as well as others like 3D printing etc. These are technologies applicable to several sectors.

In terms of priority sectors, I would think of sectors in which India is already doing well, such as Information Technology that covers many of these technologies, pharmaceuticals with greater self-reliance by linking agricultural supply chains with the domestic production of Active Pharmaceutical Ingredients (API) on which we currently rely much on countries like China, automotive sector which has faced a long domestic demand slump but can make a come back with fresh focus on new segments like electric vehicles, textile and apparel sectors in which greater emphasis needs to be placed on less conventional segments like technical and industrial textiles, masks, PPEs, etc.

Furthermore, in terms of sectors that need fresh focus as they have immense untapped potential, let us think about agricultural and

food processing sectors, in which we have huge scope of improving efficiencies and investments, with modernization, opening up to competition locally and globally. The new reforms can go a way in ushering in a new era in this area, but much more needs to be done as well in the future with private sector participation.

India is a factor abundant in cheap but poorly trained labor and suffers from other infrastructure problems? How can we address these two to become leader in desired areas?

There has been a dichotomy in the Indian labor market. On one hand, there is shortage of labor in the recent years even for blue collar jobs, because of the income security guaranteed by MNREGA and general increase in prosperity among the people at large. On the other hand, there is rampant unemployment that has also been increasing in the recent years. One explanation for this is the lack of demand and the lack of supply are respectively in different types of occupations and skill categories. However, another reason is the rise of voluntary unemployment implied by the improved income security and prosperity.

This implies the need for investments in disruptive technologies and the supporting infrastructural framework and eco-system to support the same, to eliminate the acute shortages and deficits in terms of infrastructure – both public (transportation, logistics, etc.) and private (machineries, technological infrastructure, etc.). In this regard, infrastructure and new technologies that constitute Industry 4.0 are of paramount importance, to make up for the lack of labor available to work in various kinds of jobs.

Increased demand for specific types of skilled labor and reduced demand for unskilled labor is going to be the forthcoming trend in labor

market globally, and India can be no exception, given these technological changes. Gone are the days when cheap labor can be considered an advantage for exports. Therefore, deep focus should be placed on skill development, with substantial investments in education, technology and infrastructure upgradation in that direction.

Do you think India needs to alter its trade policies to achieve its Atmanirbhar Bharat objectives? If yes, what would be those changes?

India has been less proactive in terms of engaging in the dialogue of trade negotiations with partners across the world. In a way, we have missed the bus in many of the major plurilateral and regional trade agreements like RCEP TPP, etc. While the geopolitical and strategic challenges dictate some of the decisions such as India's exit from RCEP, the extra-cautious stance in trade policy may hurt India in the longer term. We need trade both

for sourcing inputs that are not abundantly available in India, and for expanding demand for our output in different export destinations. So, the stated objective of PM Modi, of Atmanirbhar Bharat, which involves plugging India into global value chains, requires much more transformed trade policy.

Trade policies need to be altered along the lines of how we began the 1991 reforms. They should be more open to imports from other countries, while strongly negotiating substantial improvements in market access for exports. Revival of multilateral trade negotiations through the WTO should be taken up as highest priority, to ensure rule-based, transparent and inclusive negotiations. This may help counter the impact of several trade agreements that India is not part of. In the meantime, we may take steps also to expand our trading relationships with several other countries like RCEP members other than China, USA, UK, etc.

India needs to make concerted efforts to improve its efficiencies at all levels

Dr. Rakesh Mohan Joshi

Professor & Chairperson, Indian Institute of Foreign Trade



PROFILE

Dr. Rakesh Mohan Joshi, a distinguished academician, researcher, an eminent Author, Columnist and a renowned management expert, spearheads institute's research activities. His books "International Business" and "International Marketing" both published by Oxford University Press which are highly popular and sold worldwide. Business case studies developed by him have been published by European Case Clearing House (ECCH), London Business School and Oxford. Prof. Joshi has extensive trans-national exposure and conducted research, training programmes, teaching, and consultancy in several countries and associated with several multilateral organizations, such as World Bank, Asian Development Bank (ADB), UNCTAD, Asian Productivity Organisation (APO), International Dairy Federation (IDF), etc. Prof. Joshi is one of the few highly sought-after management professors in the country as an expert, author and speaker in conferences, workshops, TV channels and several other national and international forums.

INTERVIEW

What is your impression of the recently announced Atmanirbhar Bharat initiative of GOI? Do you think it is beneficial to the country?

Prime-minister Modi's recent slogan of Atmanirbhar Bharat, reminds us of the Mahatma Gandhi's doctrine of 'swavalmbi' or self-reliance, who in his formative years, highly influenced by Leo Tolstoy, named his farm, 22 miles away from Johannesburg in South Africa as 'Tolstoy Farm' and practiced the principles of simplicity and self-reliance.

There is no denying the fact that 'Atmanirbhar Bharat' would contribute to realise India's underexplored potential, promote domestic innovation in product development and marketing, encourage indigenous value addition, create jobs and help reduce India's trade deficit to a great extent.

However, isolation under no circumstance may be prescription to economic resilience, instead countries including India need to make concerted efforts to improve its efficiencies at all levels, sourcing, logistics, manufacturing, policy provisions and implementation thereof and there are no shortcuts to becoming globally competitive.

Present global economy is based on leveraging comparative advantages of each country. Is it possible to achieve self-dependency theoretically and practically, and if yes, at what cost?

Countries' inward orientation or the practice of self-reliance has a direct contradiction to fundamental economic trade theories of absolute advantage, comparative advantage or factor endowment that relies on improving overall efficiency. Trade Theorists have historically promulgated that free trade is beneficial for the 'welfare' of the economies,

the 'world' or the 'nation' economy as well. Ever since British economist David Ricardo spelled out the theory of comparative advantage in the early 1800s, most economists believed that countries gain more than they lose when they trade with each other and specialize in which they are most efficient or comparatively more efficient. Therefore, all countries must promote free trade and barriers of all sorts to the trade must be eliminated at all costs.

A deeper investigation into the motives of widely popular trade theories reveal that the motive behind such research was far from being innocuous, which most economists would love to refute. Initially trade theories were employed to justify the production and marketing of the output of mass-factory production following industrial revolution in Britain, other part of Europe and the US that deliberately kept the rest of third world countries as agrarian economies based on labour intensive, low skilled production bases that largely benefitted industrializing nations so that their production may be sold at relatively much higher prices in foreign markets.

The whole phenomenon of high-tech production in developed countries and labour-intensive low-end mass production in developing and third world countries was further justified by robust theoretical concepts of the 'life-cycles', 'product life cycles' and 'technology life cycle' as well. This ensured mighty economic powers such as the US, UK, Japan, France, Germany etc. could reap hefty margins based on their skills, innovation and brand values of their products in the international markets.

Post-COVID 19, Most countries found it difficult and many a times helpless to deal with such massive economic calamity coupled with health emergencies. 'Self-reliance' and protectionism seems to be a fast growing global with

nationalistic protectionist trade policies. Even the US president, Donald Trump is determined to make 'America Great Again'. The political leadership of Europe is not far behind in competing against each other to protect their national interests and curb the imports. China has long been a closed, non-market economy, far from transparency. Lack of transparency on the part of China raised the levels of distrust among a large number of its trade partners and led to realization of 'self-sufficiency' doctrine, that was long forgotten.

In your recent article you have mentioned that Swadeshi would remain rhetoric unless India strives for competitiveness. Please elaborate.

- a. Inefficiencies of India's infrastructure, logistics and supply chains and corrupt practices put considerable burden on achieving cost efficiencies for businesses operating in India leading to low productivity and increased cost of production. In 2019, India ranked at 68th position on the widely accepted worldwide comprehensive measure, Global Competitiveness Index (GCI) comprising of a country's institutions, infrastructure, adoption of information and communication technology, macroeconomic stability, product market, labour market, financial system, market size, health, skills, business dynamism and innovation capability by World Economic Forum, compared to China's 34th rank. India also needs to introspect as to the reasons why it has lost its competitiveness by 10 ranks during the previous year whereas small economies such as Azerbaijan and Vietnam improved their competitiveness by 11 and 10 ranks.
- b. In terms of ease of doing business, in 2019, India ranks 77 compared to 46th rank by China indicating that complexities of carrying out business operations in India not only prevail but poses a considerable obstacle to investments, both foreign and

domestic. Bottlenecks in Logistics, as evident by India's 44th rank place compared to 26th of China in Logistics Performance Index measured empirically by the world bank, remains a major challenge for conduct of business on Indian soil as it ultimately impacts competitiveness in the marketplace.

- c. India should accept the realities on the ground and make a resolve to achieve efficiency and competitiveness at all levels to make India and Indian products internationally competitive.

Do you think the new education policy is equipped to make Indian manpower strong?

India's ambitious New Education Policy 2020 unfolds unexplored potential of India's highly constrained education system with a number of unprecedented steps in the higher education system such as flexibility of choice of subjects, multi-disciplinary and integrated approach of learning, flexibility of exit at any stage of graduation with some certificate, diploma, degree or advance degree and accumulation of credits that could be used later. It also paves way for attracting top foreign universities into India and promote Indian universities and institutes to venture into foreign terrain.

India's education system needs to be geared up to take advantage of the recent happenings. India could capitalize upon the international scenario and become a major player in cross-border education. Focus on quality, international benchmarking and outward orientation holds the key to success in realising India's unexplored potential in Higher Education. It requires strong commitment on the part of the governments both central as well as states, its agencies, emerging academic entrepreneurs, academic administrators and professors alike to uphold highest standards of academics and integrity so as to make India a global hub in education and regain its ancient glory of centre of knowledge creation and dissemination.

What would be your 4-5 recommendations on making Atmanirbhar Bharat initiative a success?

- a. India must strive to be competitive in terms of quality and prices for physical goods as well as services so that our products and services offer value for money to the customers, both domestic and overseas and become globally competitive.
- b. Grass-root hassles and inefficiencies in implementation of mega-policies and objectives need to be identified, accepted and resolved by way of institutional mechanisms.
- c. India should strive to develop world-class physical Infrastructure at a rapid pace so as to facilitate corporates to operate competitively and attract FDI.
- d. Complexity of processes and procedures at the ground level need to be recognized and resolved rapidly so as to make India competitive in terms of cost of doing business and enhance operational efficiencies.
- e. Institutional infrastructure must be made robust and transparent with little scope of discrimination or discretion at any level so as to build confidence in businesses at all levels, both domestic and foreign, so as to Invest in India and carry out hassle free operations with risks greatly reduced.

SEGMENT

4

INTERNATIONAL PERSPECTIVE

It is most obvious and common observation that the Atmanirbhar Bharat initiative is an internal exercise directed inward to make Indian economy stronger. But two related issues get ignored in this line of reasoning. First, there is a huge Indian diaspora which has established itself at the top of their respective professions globally. This group is a great source of ideas, knowledge and expertise in all aspects of nation building, from technical to policy oriented. As Indian government rushes to court this global talent pool, it is worthwhile to know what they feel. Second, India has very good relations with many industrial and technological advanced countries from which it can not only learn best ways of doing science, but also get advanced technologies which are often strategic in nature.

Most of these global experts and policy makers feel that Atmanirbhar Bharat is a great initiative to strengthen Indian economy, even if there is some doubt about what the initiative means in actual terms. Another point that clearly emerges is the willingness of foreign countries and Indian diaspora to engage and associate with this initiative of the Indian government.

The world wants a dependable 'factory of the world,' which India can easily be

Sandeep Chakravorty

Joint Secretary (Europe West), Ministry of External Affairs



PROFILE

Mr. Sandeep Chakravorty is the Joint Secretary (Europe West) in the Ministry of External Affairs, New Delhi since July 2020. A member of the Indian Foreign Service (IFS) since 1996, he has served in India's in Spain, Colombia, Bangladesh, Peru and United States. He has held several positions including Press Relations Officer, Staff Officer to Minister of State and worked on desks dealing with Central Asia, East Asia and China. Mr. Chakravorty holds a Master's degree in Advanced Studies in International Security from Geneva University.

INTERVIEW

How do you see the Atmanirbhar Bharat initiative launched by India impacting India's economy and its image globally?

Atmanirbhar Bharat has two dimensions. One is political messaging for galvanizing public opinion and enthusing the people. The other is to reach out to international partners, investors and those who are seeking to relocate supply chains to India. The pandemic has brought to us a cruel and bitter truth that although we may claim to be an industrial power house, we have many critical dependencies and if others, for whatever reason, chose to turn off the tap, we can be left high and dry. A classic case is pharmaceuticals where we are the 'pharmacy of the world' but depend beyond comfort levels on China for critical APIs and intermediates. Similar is the case for many products which normally we think are made in India or we have the capacities to make. I saw a similar situation obtaining in the US where I served till recently. The US is the world's technological leader, but when Covid hit, there were no manufacturers of PPEs or ventilators in the US. It was a scary situation and even health professionals couldn't get critical PPE and many died due to exposure. Is this situation acceptable for any country in the world particularly when a country has the capabilities? It can be politically unsustainable for any leader. Pre-covid, I do not know for what reason, we in India did not manufacture PPE. We were also in a similar situation as the US. Same was the case with ventilators. The entire manufacturing of such items had been outsourced to China and China itself was reeling from Covid and its own domestic supply chains had been disrupted. So everyone suffered. My understanding is that the idea behind Atmanirbhar Bharat is to develop our

own competencies and make India dependable. I believe that as we are explaining this to our interlocutors there is greater understanding globally. The world wants a dependable 'factory of the world', which India can easily be. And we have the credentials. During Covid, India went out of its way to supply pharmaceuticals to more than 150 countries although there was great demand itself in India. Prime Minister Modi himself spoke to various world leaders assuring them that India will stand by them and today we can witness an outpouring of gratitude from many world leaders.

As an Indian diplomat who interacts with global investors and businesses routinely, what is your impression of foreign business towards this move?

As our leadership and our diplomatic establishment has been intensifying the messaging, global investors are understanding. Atmanirbhar Bharat is an extension of "Make in India for the World" where the emphasis is for India becoming part of global supply chains. It is not about self-sufficiency in the classic sense where it meant import substitution, as that has negative economic and technological connotations. What we desire is that global investors and technological giants invest in India and set up manufacturing in India so that we also start making in India parts and components which we never made before but we possess the competencies and the competitiveness for making them. Of course, this is not possible across the entire spectrum of goods and services, but wherever possible, we should try. The post Covid scenario sets up an opportunity for India. There is coincidence of geopolitical and geoeconomic compulsions.

We do not want to miss the bus again. We want to be inside the bus. Not that we want to build our own bus.

Indian diaspora has made it to the top of many sectors in the US and Europe. How can they contribute to this initiative?

I don't think any other country in the world has diaspora strength like India. Our diaspora is unparalleled in terms of size, geographical spread, accomplishments, political and economic power and most importantly their India connect and a deep-seated desire to be part of India's transformation. All these characteristics of our diaspora make them willing and happy contributors to this call for Atmanirbhar Bharat. They can be part of the process where global corporates are looking at relocating their manufacturing and supply chains to India. They lead many global organizations. They can influence this decision. Furthermore, India has announced many productivity linked incentives, particularly in pharmaceuticals and electronic manufacturing. This again is an opportunity for our diaspora. Lastly, they can play an important part in conveying the correct message which is that India is as open or more open for global business. We just want to become more dependable for the world so that when future shocks hit, we do not come back and say sorry we cannot deliver.

How do you think that India can collaborate with countries like France, Germany & UK in the Atmanirbhar Program?

All the three countries are strong economic partners of India. They have substantial trade and investment relations with India and these are going to intensify in the coming years. Our messaging on relocation and creation of dependable supply chains is directed at these

countries which themselves have been affected by the disruption in supply chains and are looking at dependable alternatives. India fits the bill. In the case of UK, Brexit throws up many opportunities. Our ties with UK are deep and thrive on the living bridge of our diaspora. As the British economy will face disruption due to Brexit, India can be an attractive partner. Discussions with the UK are continuing on these lines and hold promise. Similarly all three countries are important defence equipment manufacturers. Department of Defence Production has announced a programme for manufacturing several defence goods in India along with two defence corridors. France, UK and Germany can be eminently involved in these initiatives.

India has internationalized yoga as a global wellness tool. How has it improved India's image globally? Could you also explain the concept of Green Yoga?

International Day of Yoga is a diplomatic masterstroke. It realized and established in one go India's intellectual ownership or rather IPR of Yoga. Across the world people now associate Yoga and it's benefits with India. They marvel at the civilizational genius of India that it could give to the world Yoga, a complete wellness compendium, thousands of years before wellness became fashionable. What remains to be realized is the economic benefits from the global spread and acceptance of Yoga. The world Yoga business is worth billions but I do not think Indian companies make even a fraction of this. Even the Yoga mats one uses are made somewhere else.

International Day of Yoga is celebrated now with passion all over the world. I do not think there is any other international day under UN aegis which has such enthusiastic celebration and participation. For me personally, the

celebration of International Day of Yoga at Machu Picchu in 2017 was very satisfying. It was heartwarming to note that Prime Minister Modi mentioned this in his 'Maan Ki Baat' address to the nation.

Green Yoga is my own attempt at interpretation of Yoga, myself troubled by environmental degradation. I believe any Yoga or self-improvement is futile if it doesn't establish

harmony of ourselves with Mother Nature. In simple and lay terms Green Yoga informs us to be sensitive to our environment, be in communion with nature which is the superior force around us. Conserve, recycle, be frugal, respect the environment, avoid maddening consumerism of use and throw, be alive to the trees, birds and animals around us. Yoga can change us and Green Yoga can change the world.



Beneficiaries of post COVID-19 supply chain diversification are by no means certain

Nisha Desai Biswal

President, U.S.-India Business Council (USIBC) and Senior VP for South Asia, U.S. Chamber of Commerce



PROFILE

Ms. Nisha Deasi Biswal is President of the U.S.-India Business Council and Senior Vice President for South Asia at the U.S. Chamber of Commerce. Prior to joining USIBC, Ms. Biswal served as Assistant Secretary for South and Central Asian Affairs in the U.S. Department of State from 2013 to 2017. She previously served as Assistant Administrator for Asia at the U.S. Agency for International Development (USAID). She also spent over ten years on Capitol Hill, serving as staff director on the State, Foreign Operations Appropriations Subcommittee and the Foreign Affairs Committee in the House of Representatives. Ms. Biswal has served on the board of the U.S. Global Leadership Coalition, and is a current member of the U.S. Institute of Peace International Advisory Council and the Institute for Sustainable Communities Board of Directors. She was awarded the prestigious Pravasi Bharatiya Samman Award by the President of India in January 2017.

INTERVIEW

What is your assessment of the Atmanirbhar Bharat initiative of the GOI? How do you think it will impact Indian economy?

Two of the top priorities for US investors and American companies looking to enter and expand in India are policy transparency and stability. Unfortunately, there remains substantial uncertainty about what Atmanirbhar Bharat means and how it will be implemented. This lack of clarity gives US investors and American companies pause. Remedying this is critical since these job creators have much to contribute to India's development, be it in the form of employment, knowledge transfer, skill development or capital. Based on its fundamentals, the Indian economy is poised for growth, but if Atmanirbhar Bharat deters US investors and American companies from coming to India, that growth will be slower and less effective at reducing poverty and growing the middle class. Two key areas where the GOI can provide reassurance are through an inclusive approach to public procurement—especially for American companies that have set up shop in India—and policies that enhance India's ecosystem for export manufacturing.

How can India collaborate with the US to achieve self-reliance?

The US and India are strategic partners. Given this level of trust, our focus should be on ways to strengthen that cooperation to generate benefits for both countries. To the extent that self-reliance is focused on creating a stronger Indian economy and industrial base, it is in both countries' interests. But where self-reliance is

focused on disconnecting from global supply chains or excluding American companies from Indian markets or government procurements, it will detract from the goals of a strategic partnership, erode the trust between our governments, and make industry collaboration more challenging. There are major opportunities for us to work together in creating trusted supply chains for pharmaceuticals, electronics and aerospace and defense inputs. We can also expand on already robust cooperation in areas like the digital economy, financial services and energy through 5G technology, insurance sector investment, and natural gas supply and best practices, as well as sustainability.

In a disrupted global supply chain brought on by Covid 19, how can Indian businesses reorganize their operations?

Supply chain diversification is a fact after COVID-19, but the beneficiaries of this trend are by no means certain. India is just one of several possible options for companies, along with Vietnam, Bangladesh and Mexico, as well as developed markets, especially when it comes to high-value manufacturing. To win this competition, Indian businesses can improve the quality and reduce the cost of their outputs, including by advocating for domestic policy reforms that support innovation and access to foreign markets. They can also invest and create jobs overseas, including in the US, to strengthen the commercial ties that bind India to buyers of its products, thereby enhancing trust with these countries.

In which respects can Indian diaspora help India achieve this goal?

Members of the Indian diaspora in the United States who are looking to support India's economic rise are motivated by both a love of India and an entrepreneurial and investor mindset. In that respect, they are looking for the same things that corporate investors are looking for – open markets, transparent and stable policies, intellectual property safeguards, and a return on investment in line with the risk they take. They are looking for not only economic returns for their business, but political, social and economic impact that benefits India and fuels its rise.

What are the key sectors in which India can emerge as a world leader, and what suggestions do you have for Indian government in this regard?

India's fastest route to social and economic development is through a policy environment that makes it a globally competitive manufacturer of high value exports. This formula creates high-paying jobs with good benefits and promotes knowledge transfer and skill development. The government's product-linked incentive schemes are strong steps in this direction and, as a result, you see world class companies like Apple and Samsung setting up supply chains or growing operations in the country. Reducing energy and logistics costs is also critical, which makes center-state cooperation on policy reform in the power sector and investment in high quality infrastructure essential. Equally important is what not to do. For instance, the government should refrain from steps that cast doubt on its export-focused approach, such as increasing

tariffs, cesses or excise taxes on imports. These actions reduce pressure on Indian manufacturers to innovate, raise product quality and reduce costs, while also undermining these producers' access to global markets.

You had in a recent interview said that India needs more 'regulatory stability' to compete with China. Please elaborate on this statement.

American companies see India as a strategic market, which means they make decisions based on projections of five years or more. So, when they make an investment, they want confidence that policies and regulations affecting their business will endure and the contracts they make will be enforced; otherwise, it's just too risky. Unfortunately, there have been incidents in India where changes in central or state governments have resulted in reforms or legal decisions that substantially remake the commercial environment, raising costs. Some even had retroactive application, which was deeply unfair. These outcomes make doing business very challenging and deter investment. Of course, prospective policy and regulatory updates are critical to keeping pace with social change and technological innovation and making India globally competitive. However, when these become necessary, the development and rulemaking processes should be transparent and incorporate inputs from key stakeholders, including American companies who have made significant investments in India, helping to grow its economy, create jobs, share knowledge, and enhance its infrastructure.

Indian Opportunity 2021- The current Investment Climate

Vinai Thummalapally

Former Ambassador of the US to Belize



PROFILE

As the first Indian American ambassador in United States history, Mr. Vinai C. Thummalapally began his public sector career at the start of the Obama administration after a distinguished 31-year career in the private sector. He served as Ambassador to Belize, helping to strengthen the bilateral relationship between the U.S. and Belize in the areas of citizen security, economic development, education, agriculture, and health care. Mr. Thummalapally went on to manage the strategy and implementation of SelectUSA, a presidential initiative in the U.S. Department of Commerce to help create jobs, spur economic growth, and promote American competitiveness. He is also a Board Member of Indian American Impact Project, a non-profit promoting Indian Americans to run for public office, and an advisor of the Asian American and Pacific Islanders (AAPI) Victory Fund.

Article

In 2013 while addressing the Bombay Stock Exchange, the then Vice President Joe Biden said he believed that the bilateral trade between India and the United States could be increased by five folds if both sides continued to cooperate. At the time the figure was ~US\$100 billion per annum. Today India is the 9th largest recipient of FDI inflows globally, it is one of the only two developing countries in the top 10 host economies of 2019. While the pandemic is expected to have a strong impact on global investment flows, Indian economy could prove to be resilient owing to the positive economic growth, large consumer market and robust government measures to boost domestic consumption and industrial activity.

In light of the dreadful Covid-19 pandemic the demand for vaccinations is mammoth. PM Modi has shown remarkable leadership in prioritizing development, manufacture and distribution of vaccines. India will undoubtedly gain tremendous global soft power by delivering much needed vaccines. Its pharma sector will continue to shine on the world stage.

To kick start a post pandemic era India launched the Atmanirbhar Bharat Program – INR 20 lakh crore / USD 265 Bn economic package to aid manufacturing activity, investments and employment. The recently published Production-Linked Incentives scheme (PLI scheme) extends fiscal incentives on incremental sales from products manufactured domestically across 10 sectors such as Advanced chemistry cell battery, electronic technology products, automobiles, pharmaceuticals and medical devices, telecom and networking products, textiles and technical textiles, food processing, solar PV modules, white goods like ACs and LED and, specialty steel.

In addition to the PLI Scheme, the department for promotion of industry and trade (DPIIT) has enlisted 24 key sectors including toys, furniture, agro-chemicals, food processing, textiles, organic farming, electronics, machinery, leather, shoes, automobile components and more. The government has also laid out an ambitious plan to achieve \$5 billion exports of defence equipment by 2025.

India's share in global exports of manufacturing products is negligible at only 1.9% . This initiative is expected to drive export-led growth, creating a conducive manufacturing ecosystem that will enable Indian manufacturers to participate in global supply chain and strengthen backward linkages, by building capacities of local suppliers and eventually climb up the value chain.

Self-reliance comes with the positive spillover effect of being a competitive player and become a global exporter of goods. Our suppliers need to exhibit global standards of quality and deliver products and services at competitive prices. Technology transfer plays a crucial role in developing the technical know-how, thus this is a ripe moment to strengthen our international bilateral relations and invite investors to leverage the plethora of incentives. With quality and scale India can surely rise to cater to not just the increasing domestic demand but also global demand.

The incoming Biden-Harris administration has a keen understanding of the vast opportunities that lie between the United States and India. I have little doubt that both sides will continue their efforts to raise our bilateral trade relationship by five folds.

We are ready to engage with the Indian side to share our experiences

*Freddy Svane
Ambassador of the Kingdom of
Denmark to India*



PROFILE

Mr. Freddy Svane is the Ambassador of the Kingdom of Denmark to India since 2019, with additional responsibilities of Bhutan, Sri Lanka, Maldives and Nepal. He held this position between 2010 and 2015 as well. During 2015-19, he served as the Ambassador of the Kingdom of Denmark to Japan. In his nearly four decades of diplomatic career, he has served at multiple locations including Brussels and Paris, and held important positions such as Under-Secretary of the Trade Council, Ambassador, Ministry of Foreign Affairs (Trade Policy and Globalization) and CEO of the Danish Agricultural Council. He holds a history degree from the University of Copenhagen.

INTERVIEW

How do you see the Atmanirbhar Bharat move of the government of India?

India needs to be strong economically and politically to pursue its own national interests. India is transforming at an unprecedented speed bridging the past towards the future. The world needs a strong India to cope with global challenges like climate changes, pandemics and slow growth. India has an unleashed potential that is being released amidst the Covid-19-crisis. No other country has initiated so many structural reforms as India and the Modi-government has done under the Covid-19-crisis. India will – in the Indian way – develop her own strengths, securing that India can take up the wanted position as the driver for inclusive growth, innovation and development. What normally takes generations is now happening in front of us. Given the scale of India, the impact of digitization will transform India and its economy with speed and scope. No other country combines scale, skills, scope and speed as India does. Self-reliant India is a step on this path. However, it calls for close cooperation with relevant stakeholders from outside being it other countries or the private sector. A weak or inward-looking India will not serve anybody's interest. India's interactions with the outside world has increased over the years, and India is now fully integrated in the global economy. May India become the new strong accelerator of growth, innovation and new emerging and strategic technologies. Hopefully this trajectory will be based on sustainability, so India will be the leading driver for a green transformation.

How can Denmark and India collaborate through the Atma Nirbhar Program?

Our two Prime ministers have just recently agreed to a Green Strategic Partnership – a partnership of the New Age. Denmark and Danish companies are cutting edge drivers of cleantech and of a true green transition. India has the scale whereas Denmark has the skills. The Prime Ministers also added speed, due to the urgency, and scope, due to the overall complexity of this gigantic task. Danish companies have been investing in India, and are ready to accelerate their investment programs. We are also eager to tap into the huge growth potential that India's vast eco-system of start-ups and innovators is representing.

Which sectors are most prominent in which India can benefit most from Danish experience?

Denmark has over years become a World leader in clean-tech and the green transformation of our economy and of our society. We have skills within water – upstream and downstream. We have reduced Non-Revenue Water (NRW) to 7-8% and in our main city to 3-4%. Likewise, we have almost reduced our water consumption since 1980 by almost 50%, despite doubling our economy. We are ready to engage with stakeholders on the Indian side to share our experiences. Energy, in particular wind-energy onshore and in the future also off-shore, is another important field where we see a huge potential. The global leader Vestas has already invested substantially in India, and more is under execution. We are also a global player in food-processing and organic farming. Being a farming country – and a land of dairy – we can be a skill-partner for India. All these areas will fit nicely into the missions of Prime Minister Modi, and especially

the most important mission of the “New India. Our partnership will reform-perform-transform!

What role can Scandinavian & Nordic countries make to make the Atmanirbhar Bharat initiative more successful?

The Nordic Baltic countries are among the most innovative and green players on the global scene. Together we are just outside the World’s top 10 economies. We are competing in many areas, but we are also complementing each other. In many niches we are highly skilled and high Tec leaders within digitization, AI, robotics, smart manufacturing, renewable energy, logistics, including block chain technology and blue economy. Partnership is the way forward and that will foster more investments, innovation and creation of jobs.

How can EU & India collaborate through the Atmanirbhar Program?

We need to move fast on a comprehensive free trade and investment protection agreement. Urgency is there, and we need take all the nice statements into real actions. Future does not rest or wait; we must shape it. India and EU are sharing all the same values and we should be strategic partners not only in summits and in declarations, but also in real time actions.

Denmark joins International Solar Alliance (ISA) with India during the Virtual Bilateral Summit between PM Modi and Prime Minister Mette Frederiksen. How do you feel this move would help in strengthening relations between two counties?

Indian Prime Minister Modi is a visionary leader, and through his many missions, he is shaping our global future. Being a global player within renewables, Denmark must be part of ISA. We are ready to join and to become partner to one of the most important alliances greening our societies.

India is on a path to becoming the “brains” and “tech-hub” of the world

Himanshu Gulati

Member of Parliament: Norway



PROFILE

Mr. Himanshu Gulati is a Member of Parliament from Norway, who served as a Deputy Minister of Justice of Norway at the age of 25 and for three years was a Deputy Minister/State Secretary in the Prime Minister's Office. Gulati has travelled to more than 160 countries. In 2019 Gulati was awarded the Indian diaspora award. Gulati has directed an International arthouse feature film, starred in several cinema and television documentaries, and both participated and hosted shows on the Norwegian television.

INTERVIEW

Could you share your understanding and expectations from the recently announced Atmanirbhar Bharat initiative of the GOI?

I find this vision very exciting. A strong Indian economy is good for a strong global economy. The way China started out as the “factory of the world”, I believe India has the expertise and is on a path to becoming the “brains” and “tech-hub” of the world. As a Member of Parliament of a European country, what I find most exciting about the initiative, is the focus of placing India as a wheel in the larger teamwork of global trade and economic growth. I find this policy as something that forwards global trade and partnership in a world where we acknowledge that we are dependent on working and functioning together, but where strong and vibrant individual economies are necessary to create a stronger global economy. This is therefore not an inward-looking or self-isolation based policy, but the opposite.

Since the new economy is all about innovation and leveraging technology, how in your opinion can India foster and encourage the culture of innovation and research?

India has the necessary components to become the innovation, research and tech-hub of the world. There is an enormous pool of young and eager talent. It is the world’s biggest democracy, a necessary condition for innovation to thrive. In addition, India is a vibrant and growing economy with strong domestic companies and access to international capital. The combination of these pillars lay the groundwork for innovation and entrepreneurship to thrive.

Indian diaspora is among the Most technologically advanced groups. How can India tap its vast potential to help India achieve self reliance on key sectors/ technologies?

The Indian diaspora has made a mark in the global tech-field, illustrated by the fact that the CEOs of Google and Microsoft are both born in India and migrated to the United States. Like in the Norwegian corporate field, many countries are looking towards India for business and partnerships. The Indian diaspora can therefore play an important role in various industries in reducing hindrances that often arise in cross-continent commerce because of differences of culture and corporate practices.

How can India & Norway collaborate in making India self-reliant.

I believe that the vast number of Norwegian companies within the green-tech and circular-economy field can play an important role in waste-management and energy management in the highly populous areas of India. Norway also has a long historic expertise in oil & gas and when it comes to building an efficient and sustainable fishing industry, and these two fields should be of interest to solving India’s need for sufficient and sustainable access to energy and food.

Norway is very high on Gender. What can India learn from Norway in this regard?

No society can achieve success without focusing on gender equality. Women’s contribution in the Norwegian economy is greater than any natural resource or other advantage we have been given by our geographical placement. This is however not something that comes by itself, but is a result of a focus on attitudes in society, policies that highlight that we are equal contributors, and practical solutions and rights when it comes to combining professional life and motherhood.

There is no better time to embark, enhance, and expand the Atmanirbhar Bharat initiative

Dr. Satyam Priyadarshy

**Board Member & past President -
DC Chapter of TiE**



PROFILE

Dr. Satyam Priyadarshy is a highly sought after transformational leader for his expertise in leveraging disruptive technologies, solutions, strategies and talent transformation, business growth, enterprise, and organization. He is a member of the Mauritius Artificial Intelligence Council, Government of Mauritius. He is also a board member and past President of the DC chapter of TiE. He is one of the top 150 Global Influential Leaders recognized for leading digital business transformation – BT150 Constellation Research (2019 - present) and has been named one of the top 50 movers & shakers in Data & Analytics in US and Canada. Dr. Priyadarshy is a pioneer in the fields of data science, Big Data, analytics, and emerging technologies. Often referred to as a venture idealist, he was termed a key innovator on the leading edge of digital transformation by Smart Industry. Dr. Priyadarshy earned his Ph.D. in Theoretical (Quantum) Chemistry from IIT Bombay and MBA (Honors) from The Pamplin School of Business, Virginia Tech.

INTERVIEW

What are your impressions of Atmanirbhar Bharat initiative of the govt of India? Is it a logical endeavor in present times?

Self-reliance or Atmanirbharta is the first step towards becoming successful with a great foundation. Thus, the Atmanirbhar Bharat initiative of the Government of India, is one of the best initiatives launched by India, since its independence from the British in 1947. Any progressive government that is even 1% serious about uplifting its citizens, should be focusing on self-reliance or 'Atmanirbharta. In my opinion, Atmanirbhar Bharat is the perfect endeavor for the following reasons:

- i. We live in the era of compounded disruption and pace of disruption needs to be tamed to remain viable, and growing
- ii. India is the only nation with vibrant demography and human resources, that many nations would love to have
- b. India is also the single largest market for 'consumerism' and 'capitalism' and 'entrepreneurship'
- c. India lacked the infrastructure development for last 60 years or so and has seen the largest brain-drain to the west, however, the success of those 'Indians' can be now tapped by the initiative of the government of India.
- d. Industry 4.0 era is in full swing and Industry 5.0 is taking shape around the world, and India needs to be key player in it.

There is no better time, than the present to embark, enhance, and expand the Atmanirbhar Bharat initiative to areas that will lead to progress (Vikas) for India to regain its Vishwa Guru stature in the world, through next generation of ARJUN – Agile workforce,

Resilient economy, Joyous citizens, United country, and No compromise with unwanted global forces.

What impact do you see Covid having on the global tech market and its cross dependence for production and services?

Covid-19 or the current pandemic, is one of the disasters for bringing down the economy, increasing the risk to human health and safety, and disturbing the global peace. The global technology market is going through multi-dimensional adjustments, as Covid-19 is one of the disruptors in the list of compounded disruptions. Many nations are considering enhancing the value of their local talent, so the product and services are available within their geographical boundaries, thus reducing the cross-national dependence. Many technology companies are also distributing their products and services through platforms closer to the last mile, instead of 'central' locations in one or two places on the globe. For example, before Covid-19, the deployment for enterprise cloud was a topic of discussion and distraction, now it is a topic of adoption and acceleration. The adoption of hybrid-cloud solutions has seen an exponential rise since the beginning of this year and the pace does not seem to slow down. The awareness and use of environmentally friendly products and services have also seen an exponential growth due to Covid-19. We see more agility and speed of building and deploying contextualized and efficient solutions to address upcoming diverse challenges in multiple sectors, by the global technology providers.

What policy incentives would be required to achieve self reliance in the technology related sector in India?

India has the largest technology savvy young population, which enables and empowers world's largest companies, however, self-reliance in the technology related sector has been a challenging feat, until now. I believe the Atmanirbhar Bharat policy could incentivize the following:

1. Research and Development for 'products and services' for internal and global needs
2. Larger enterprises mentoring of independent small entrepreneurial units
3. Public organizations for leveraging solutions developed through Step 1 and Step 2.
4. Enabling highly-focused short duration courses for exposure to emerging technologies
5. Differentially for high-value high risk solutions versus run-of-the mill product and services.
6. Institutes and educational programs, vocational programs that encourage creating solutions development as core of their teaching and learning.
7. Multi-disciplinary collaboration success within in the institute, university, training facility, governmental organization

What steps would be required to enhance high tech R&D in India?

The Government of India, should release the list of top needs and their value impact in areas of Defense, Education, Infrastructure, Consumerism, Health, Environment and Global reach, at a regular short period (3 months to yearly, depending upon the complexity of needs). This will bring focus in developing R&D solutions, whose impact can be measured

periodically as well. It will also provide insights into the visionary leaders of the nation how they are tacking the growth of the nation, and provide quick course correction to achieve greater heights.

Second steps should be tame the Intellectual Property tiger. A meritocracy, micro-managed, mentoring program is needed to kill the dominance of China in this space and create local, nation first intellectual property portfolio. The academic, research institutes and governmental leaders should be incentivized on the basis of how many diverse candidates they have mentored and enabled to create intellectual property.

Third steps would be scale the deployment of products and services based on local intellectual property in public and private sector, thus reducing the costly dependence on Chinese or other nations products and solutions.

How do you think India can leverage its tech collaboration with the US and its diaspora to achieve self-reliance in tech areas?

The timing is now, to leverage the collaboration with US and its diaspora, since the diaspora leaders are leading the technology revolution in US in all areas including FinTech, Health, Artificial Intelligence, Energy, Oil and Gas, Digital Transformation, and many more. Building and leveraging the collaboration ecosystem requires a simple, efficient and adaptable bureaucratic and industry partnership. High frequency, periodic engagement on focused areas of collaboration is needed to keep up with the Industry 4.0 era and beyond. Value focused and measurement is more important than collaboration for the sake of collaboration. Time to value from R&D activities should be the focus for short-term and long-term R&D products and solutions.

High-risk and high-rewards strategic R&D activities should be measured differently for long-term vision of being a Vishwa guru.

What are your top 4-5 recommendations to make this initiative a success?

I summarize my 5 recommendations as ARISE

- a. Accelerating the pace of technology adoption and adaption across the ecosystem, enabling development of efficient technology solutions is critical.
- b. Recognition of short-term, long-term, and strategic focus area and their value in a timely fashion is essential, and monitoring and course correcting sooner than later will play a significant role.

- c. Innovative mindset and culture needs to be encouraged, expanded, and exercised through a transparent, open and agile ecosystem.
- d. Success of R&D products and services need to be celebrated at smaller scale, sooner than later and scaled to larger scale as soon as possible.
- e. Empowering the grassroot innovators with or without formal education who are creators of micro to macro R&D products and solutions for a small to big challenges or problem, will be key to success.



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