PHD CHAMBER
OF COMMERCE AND INDUSTRY

PHD CHAMBER JOURNAL OF IDEAS AND INNOVATIONS

A Peer-Reviewed Multi-Disciplinary International Research Journal

January 2022 Edition

PHD CHAMBER OF COMMERCE AND INDUSTRY
PHD House 4/2 Siri Institutional Area, August Kranti Marg, New Delhi - 110016
Phone: 91-11-49545454 | Fax: 91-11-26855450, 26863135
Email: research@phdcci.in | Website: www.phdcci.in

Leadership Viewpoint

Shri Pradeep Multani
President

India is land of boundless opportunities endowed with huge demographic dividend. The dynamic and vibrant economic reforms undertaken by the Government are instrumental in achieving conducive environment for trade, Industry and economy. The vision of Hon'ble Prime Minister to be vocal for local and make India self-reliant is crucial at this juncture to attain USD 5 trillion economies in coming years. Going ahead, with a strong focus on promoting indigenization of industry, the importance of new ideas, culture of fostering innovation and developing skills increases manifolds. At this backdrop, PHD Chamber Journal of Ideas and Innovations is initiated to provide a platform to innovative minds to express their ideas for the growth and development of AatmaNirbhar Bharat. I am sanguine that the Journal will contribute significantly through new ideas and innovative insights from various segments of economy.

Shri Saket Dalmia
Senior Vice President

Entrepreneurship and innovation have been supported by several flagship initiatives of the Government for nurturing research and development and generate employment opportunities for the growing young workforce. A robust ecosystem to promote innovation and translate innovative ideas into larger economic and social benefits amid the dynamic global environment is critical at this juncture. Hence, harnessing and facilitating innovative minds through a platform of PHD Chamber Journal of Ideas and Innovations will play a crucial role to promote innovative minds to come up with thought provoking ideas for the growth and development of AatmaNirbhar Bharat. I wish the Journal will accomplish its objective with a great success.

Shri Sanjeev Agrawal
Vice President

New ideas and innovations lead to higher productivity and boost economic growth of an economy. In the present dynamic environment, our country needs new entrepreneurs who can innovate, lead, inspire and reach out beyond the limits to create systems that hold immense potential for holistic development. Further, the ability of an economy and its businesses to generate and imbibe innovative changes has now become a key component of its prosperity and growth. With this backdrop, PHD Chamber Journal of Ideas and Innovations provide right platform to encourage young minds to contribution to growth of the country. I am confident that the Journal will come up with flourishing ideas for achieving AatmaNirbhar Bharat.

Shri Saurabh Sanyal
Secretary General

Building AatmaNirbhar Bharat with a mission to stimulate growth across the sectors of economy is highly encouraging. Attracting investments, infrastructure development and encouraging innovation are of paramount importance at this juncture. Therefore, PHD Chamber Journal of Ideas and Innovations has been initiated with the objective to encourage thoughtful ideas and innovations to contribute to the growth story of our country. I would like to acknowledge and compliment the large number of submissions received in response to the call for research notes/innovative ideas/ articles for the Journal.

From the Editor’s Desk

Dr. S P Sharma
Chief Economist|DSG
PHDCCI

Dr. Niti Bhasin
Professor,
Delhi School of Economics
University of Delhi

Dr. Seema Joshi
Professor,
Department of Commerce,
University of Delhi

Prativa Shaw
Economist,
PHDCCI

Research and Development plays a pivotal role in development of an organization. The foremost concern of economy, trade and industry is to produce goods efficiencies, saving in the costs, time and energy. Thus, innovative ideas are indispensable to the growth and development of Indian economy and to become Aatma Nirbhar with a sustainable economic growth trajectory.

The essence of the journal is to reach out to a wide range of readers, including businesses, industries, research organisations, consultancies, ministries, and so on. The journal encompasses crisp and practical original manuscripts written by academicians, researchers, students among others for the use of various industries, firms, policy makers etc.

The Journal is highly diversified and unique in the sense that it promotes the ideas and innovations insights from academicians, analysts, researchers, industrialists, policy makers, scientists, small, medium and large businesses, young entrepreneurs, startups, women entrepreneurs, rural and urban entrepreneurs, traders, merchants, engineers, scientists, service providers among others.

India is at a crucial juncture to attain a higher growth trajectory. India’s economy is on track to rebound sharply after two waves of the Covid-19 and also poised to grow at the world's fastest rate. On the back of various reforms announced by the government in last many quarters, economy is expected to attain a higher growth trajectory at around 9.3 percent in FY22, as also envisioned by various national and international forecasting agencies.

The current issue of the Journal of ideas and innovations contains suggestions for India's higher growth trajectory, based on the Union Budget 2022-23. The articles in this journal emphasized that the announcements made in the Union Budget, together with the government's calibrated

M.H. Khan
Associate Economist,
PHDCCI

Kritika Bhasin
Sr. Research Officer,
PHDCCI

Ms. Shivani Mehrotra
Research Officer,
PHDCCI

actions and the industry's unwavering efforts, will move India's economic growth trajectory to a new level.

The Government policies and reform measures aimed at promoting infrastructure development will result in a significant shift in employment and rural demand. The defence sector in India has also been designated as one of the most promising sector to achieve an economic size of USD 5 trillion. The sector also contributes to both external and internal peace and security, resulting in the country's strong socio-economic development.

Sectors such as Pharmaceutical, Gems and Jewellery, Iron and Steel, Automobiles and Machinery and Electrical equipment are the promising sectors for creating employment. The several suggestions in the articles have also been made to tackle the post Covid situation in the country.

Contents

Budget Looks Into the Future While Keeping A Close Eye on the Ground

- **Mr. Pradeep Multani**
President
PHD Chamber of Commerce and Industry

The Union Budget 2022-23, presented by the Hon'ble Finance Minister, Smt. Nirmala Sitharaman, is a step forward towards the vision of creating an Atmanirbhar Bharat and reflects a consistency in government's approach in making India a Modern, Developed and Inclusive nation. The government remains steady on the course of laying a solid economic and social foundation for robust and sustainable growth as we celebrate the Amrit Mahotsav this year and move ahead towards a US$ 5 trillion economy. The Budget 2022-23 is progressive and promising Budget which will forever impact the direction of the Indian economy.

The budget 22-23 is highly promising, pragmatic, transforming and progressive, which looks into the future while keeping a close eye on the ground. It shows a clear intent of the government by matching allocations in many areas that would contribute in building up an Aatmnirbhar Bharat. The economy has been very-well managed by the Government during the worst Pandemic in our living memory; the reduction of Corporate Tax rates (which have shown a 25-30% increase in collections) and the historical collections under GST are highly commendable and with the forward-looking Union Budget, the economy is well poised to rise to newer heights over 'Amrit Kaal' of next 25 years - from India @75 to India @100. The Budget 2022-23 will scale up the growth of infrastructure, digitisation, agriculture, manufacturing, MSMEs, renewable energy, among others.

The focus of the budget on the four pillars is highly encouraging-

1. PM GatiShakti; Inclusive Development; Productivity Enhancement & Investment,
2. Sunrise Opportunities,
3. Energy Transition, and Climate Action, and
4. Financing of Investments

The strategy of Investment-led growth and stability of Tax Rates for this year has been supported by all economic Pundits. The "allocations in Infrastructure and Affordable Housing" along with vast initiatives in PLI & PM's GATI SHAKTI programs are indeed goal-setting and unprecedented. Accelerated investments into core sectors that have a big multiplier effect on GDP, coupled with a focus on job creation, skill development and facilitating digitally enabled financial inclusion. Furthermore, the Government announcement of inter-linking of Udyam, e-SHRAM, NCS & ASEEM portals and providing services such as credit facilitation and entrepreneurial opportunities will serve as an enabler for business enterprises and will certainly aid in the MSME sector's formalization and growth.

The expansion of the National Highways network by 25,000 km in 2022-23 and mobalisation of Rs 20,000 crore through innovative ways of financing to complement the public resources are extremely commendable. The expansion of road infrastructure would address the impact of logistics cost on trade and industry.

The focus on sunrise sectors including Artificial Intelligence, geospatial systems and drones, semiconductors and their ecosystems, space economy, genomics and pharmaceuticals, green energy, and clean mobility systems will be a gateway to enormous opportunities to help the country achieve sustainable development and modernization.

It is highly encouraging to see the much needed Emergency Credit Line Guaranteed Scheme (ECLGS) has been extended upto March 23 that will continue to help 130 lakh MSMEs in mitigating the impact of covid. The guarantee cover of ECLGS will be expanded by Rs. 50,000 crore to total cover of 5 lakh crore, with the additional amount being earmarked exclusively for the hospitality and related enterprises. Going ahead, the revamping proposal of Credit Guarantee Trust for Micro and Small Enterprises (CGTMSE) scheme will facilitate additional credit of Rs 2 lakh crore for Micro and Small Enterprises and expand employment opportunities. The progressive idea of issuing sovereign Green Bonds as a part of the government's overall market borrowings in 2022-23 for mobilizing resources for green infrastructure is laudable. The deployment of proceeds in public sector projects will help in reducing the carbon footprints in the economy.

The Union Budget's capital expenditure budget is being increased by 35.4 percent, from Rs 5.54 lakh crore in the current fiscal year to Rs 7.50 lakh crore in 2022-23. With this investment and the provision for the production of capital assets through Grants-in-Aid to States, the Central Government's 'Effective Capital Expenditure' in 2022-23 is estimated to be Rs. 10.68 lakh crore, which will be about 4.1 percent of GDP. The provision to tax gains on transfer of digital assets is a very pragmatic move and acknowledgment that digital assets are not going away – might as well embraces them. The intention to have a digital rupee is a far-sighted move whose positive impact will be felt over time. The thrust on new generation tools and technologies to take the country forward was pretty evident with various provisions to leverage digital technologies and drones, among others to digitize land records.

It is highly inspiring to note that, more than 25,000 compliances have been reduced and 1486 Union laws have been repealed in the recent years. This shows the commitment of the government for 'minimum government & maximum governance'. In furtherance of this direction, the launch of Ease of Doing Business 2.0 & Ease of Living with the idea of trust based governance will boost the confidence of industry and investors.

The approach of government on sustainable production, consumption, investment and growth is evident through enhanced focus on transition to circular economy. This will help in raising the productivity, creating large scale employment opportunities and strengthening the resilience of Indian economy. Overall, the Budget is a great direction towards the stability of taxes, strength of the economic fundamentals, long term economic growth and strong building of the Aatmnirbhar Bharat with a great promise of progress.

About the Author

Mr. Pradeep Multani

Mr. Pradeep Multani, Chairman, Multani Pharmaceuticals Limited is President of the PHD Chamber of Commerce and Industry. Mr. Pradeep Multani, is an Economics & Law Graduate from Delhi University and has more than 40 years of experience in the field of Ayurvedic & Unani Medicines sector and has been Chairman of Eighty One year's young, multi-crore Ayurveda & Unani Company for more than 30 years. Mr. Multani, a stalwart of the AYUSH industry is trying his best to promote Traditional systems of medicines across the world by addressing different seminars and sensitizing various embassies and other international delegates and doing advocacy on different issues on behalf of the Industry. Mr Multani strongly believes that steps taken towards doubling farmer's income would be a significant contributor towards the PM's vision of building an AatmaNirbhar Bharat.

The Budget Has Given New Wings to India's Growth Story

- Mr. Saurabh Sanyal, Secretary General
PHD Chamber of Commerce and Industry

Laying a blueprint for India@100, Hon'ble Finance Minister Smt. Nirmala Sitharaman, in her fourth Union Budget has paved the way for not only post-COVID economic recovery, but also provided an impetus for further economic growth.

The Union Budget 2022-23 has ticked many boxes as far as expectations from the budget go. With a focus on inclusive development, productivity enhancement, energy transition, and climate action, the four pillars of development, the country is set on the path of double-digit growth in the coming years.

The Effective Capital Expenditure at Rs 10.68 lakh crore by the Government for this financial year, which makes up about 4.1 percent of the Gross Domestic Product (GDP) has bridged the gap significantly and is a big push for the country's growth engine. Higher capex will lead to creation of productive assets and state-of-the-art infrastructure development, which will scale up the economic growth and socioeconomic development in the country.

The Budget has laid emphasis on the key sectors instrumental in overall growth along with announcement of some new initiatives that the Government thought are imperative to sustainable growth. The thrust given in the budget to fill the much-needed credit gap to the stressed sector – the extension of the Emergency Credit Line Guarantee Scheme (ECLGS) scheme will breathe some life for MSMEs and help them mitigate the impact of COVID-19. The credit and fiscal support announced in the budget will give a huge fillip to this sector encouraging new businesses to come to the fore. The move is likely to generate more than 1 million employment opportunities in the sector.

For those who could not avail for ECLGS because of not having existing credit outstanding, a must for availing the scheme can benefit from the proposed CGTMSE revamp, which will help the micro sector. Also, the PLI extension to more sectors and increased fund allocation shall further boost the MSME being backward linked.

Further, for start-ups, the tax concessions period has been extended by one more year, which is a good move; also a 15 percent tax has been decided for the newly incorporated manufacturing unit, with an increased period of a year to 31st March 2024, which is likely to ramp up the manufacturing activities.

Moving on, on the taxation front, the Hon'ble Finance Minister said that the gross GST collection for the month of January 2022 is the highest since inception in 2017.The tax deduction limit which is now hiked to 14% on the employer's contribution to the NPS account of the state government employees is a welcome move. And the updated return filing provision is much better than the previous with the time bracket of 2 years at maximum to the end of the assessment year.

Emphasis given to education, infrastructure, and telecommunication is on the expected line. The one unexpected but needed announcement was a digital rupee to be issued, using blockchain and other technologies, by the Apex Bank this year. This will indeed help in boosting the economy. Continued emphasis on the economic development of rural India for which upgrading the mobile connectivity and broadband have been announced, will see an upturn for the telecommunication and associated sectors.

PM Gati Shakti Master Plan for Expressways to be formulated in 2022-23 to facilitate faster movement of people and goods and expansion of National Highway network by 25,000 km in 2022-23 are some of the measures announced Hon'ble Finance Minitser that will have multiplier effect on the economic growth. Also, mobilization of Rs. 20,000 crores to complement public resources will boost the sectors and create jobs. The government announced that a high-level committee will be formed to make recommendations on urban sector policies as well and the Hon'ble Finance Minister also noted that 80 lakh affordable houses will be completed at Rs 44,000 crore under PM Awas Yojna in 2022-23. This will add to the nation's growth engine.

An open platform for the National Digital Health Ecosystem will be rolled out. It will consist of digital registries of health providers and health facilities, unique health identity and universal access to health facilities, which are needs of the hour. It will support the health ecosystem and open up new economic opportunities.

Overall, the budget 2022-23 can be called a much-needed booster dose given to the economy.

About the Author

Mr Saurabh Sanyal
Secretary General,
PHD Chamber of Commerce and Industry

Mr. Saurabh Sanyal

Col Saurabh Sanyal (retd) is a professional with over 39 years of diverse experience in Armed forces (Corps of Engineers) and corporate sector. Shri Sanyal ji is a Mechanical Engineer and a post graduate from IIT Madras along with an MSc in Disaster Mitigation and MBA from IMT Ghaziabad.

Economy Poised to Enter New Growth Orbit

- Dr S P Sharma, Chief Economist| DSG
PHD Chamber of Commerce and Industry

The performance of key economic and business indicators reflects that the Indian economy has resumed its normal growth trajectory and now the economy is poised to enter a new growth orbit invigorated by unrelenting support by the Government. India's GDP growth is estimated to be highest in the world for current financial year as well as for the next financial year by various national and international forecasting organisations.

The PHDCCI Economy GPS Index for January 2022 went to all time high of 132.4 supported by a sustained recovery in the key economic indicators. PHDCCI Economy GPS Index captures the momentum in supply side business activity through growth in GST collections, demand side consumer behaviour through volume growth in passenger vehicle sales and sensitivity of policy reforms and impact of domestic and international economic and business environment through the movement of SENSEX at the base year of 2018-19=100.

The PHDCCI Economy GPS Index for January 2022 has increased to 132.4 as compared to 123.5 for December 2021, though Economy GPS Index was lower in December 2021 as compared to November 2021 because of various uncertainties caused by the third wave of Coronavirus, which impacted the consumers' as well as investors' sentiments.

Passenger vehicles recorded sequential growth of 16.2%, increasing from 2,19,421 units in December 2021 to 2,55,057 units in January 2022. The sequential growth of GST collections has increased by 6.6% from Rs. 129,780 crore in December 2021 to Rs. 138,394 crore in January 2022. The sequential growth of SENSEX (average of daily close) has increased by 3.3% in January 2022 from 57663 in December 2021 to 59586 in January 2022.

Economic recovery so far (Sequential)

PHDCCI Economy GPS Index	Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	Jun 2021	Jul 2021	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021	Jan 2022
2018-19=100	121.7	122.0	122.9	124.3	91.5	107.5	119.7	116.7	113.1	127.0	125.2	123.5	132.4

Source: PHD Research Bureau, PHDCCI Economy GPS Index.

The PHDCCI Economy GPS Index during the period April–January of FY 2021-22 stands at 118.1, which is 28.7 points higher than April–January FY 2020-2021 period index of 89.4. The PHDCCI Economy GPS Index at 132.4 for January 2022 is higher by 10.7 points from the Economy GPS Index for January 2021 at 121.7.

Economic recovery so far (Y-o-Y)

PHDCCI Economy GPS Index 2018-19=100	January 2018	January 2019	January 2020	January 2021	January 2022
	96.7	101.4	107.1	121.7	132.4

Source: PHD Research Bureau, PHDCCI Economy GPS Index.

PHDCCI Economy GPS Index has shown sharp recovery from the lows of 39.6 for April 2020 to 124.3 for April 2021, 91.5 for May 2021 as compared with 50.1 for May 2020, 107.5 for June 2021 as compared with 75.1 for June 2020, 119.7 for July 2021 as compared with 85.6 for July 2020, 116.7 for August 2021 as compared with 90.5 for August 2020, 113.1 for September 2021 as compared with 100.2 for September 2020, 127.0 for October 2021 as compared with 109.6 for October 2020, 125.2 for November 2021 as compared with 106.9 for November 2020, 123.5 for December 2021 as compared with 114.8 for December 2020 and 132.4 for January 2022 as compared with 121.7 for January 2021.

Chart 1: GPS Index: Monthly Trend

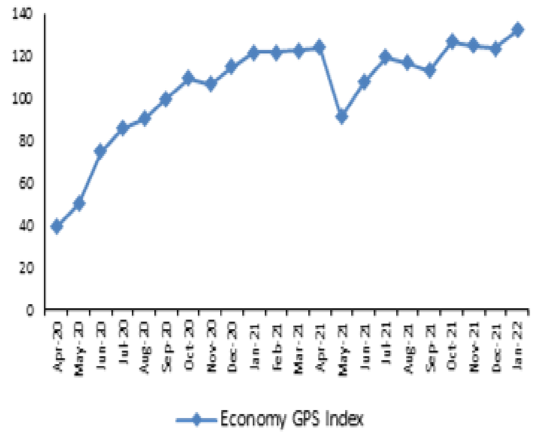
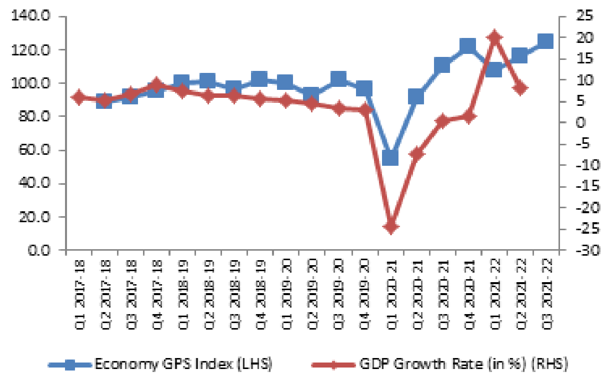


Chart 2: Movement of GDP and GPS over the quarters



Source: PHD Research Bureau, PHDCCI Economy GPS Index.

Going ahead, the pace of economic activity is expected to remain strong on the back of plethora of reforms undertaken by the Government during the last 2 years, which has helped to fight against economic distress, revive and boost the morale of agriculture, industry and most importantly each citizen of the nation, bringing the economic development curve back on its growth path.

Reforms such as emergency credit line for MSMEs, liquidity scheme and partial credit guarantee schemes for NBFCs, Production Linked Incentive Scheme for 14 champion sectors, structural reforms in growth promising sectors including coal, minerals, defence, airports and aerospace management, power, space sector, atomic energy sector and civil aviation, among others, have made recovery sooner than expected. And fortunately, all these reforms have been given a great push by the focus on 'Amrit Kaal' of next 25 years - from India at 75 to India at 100, as depicted in the Union Budget 2022-23. This has provided a great zeal and enthusiasm to move forward from present state of affairs with a lot of structural reforms and support from inherent strong fundamentals of Indian economy.

Going ahead, the drivers of household consumption need to be further strengthened to enhance the aggregate demand as it will have an accelerated effect on expansion of capital investments. Further, the high rate of inflation has become a major challenge, escalated by the global geo-political tensions. At this juncture, there is a need to address the high commodity prices to support the consumption and private investments in the country. A strong pace of economic activity and a sustainable growth trajectory of Indian economy is looked forward to with continues reform momentum by the Government.

About the Author

Dr. S P Sharma
Chief Economist|DSG
PHD Chamber of Commerce and Industry

Dr. S P Sharma

Dr S P Sharma has around 25 years of diverse experience in the various areas of the economy, trade and industry. He started his career with Government of Punjab and subsequently moved to Government of India, ASSOCHAM, PwC, TATAs. Currently, he is working with the prestigious industry body, PHD Chamber of Commerce & Industry as Chief Economist. He has conducted more than 100 research studies/ papers/ projects etc. with prestigious organizations such as Government of India, State Governments, UNCTAD, European Commission, Industry Chambers/ Associations and corporates. He is member of Editorial Board of Journal Press of India, Advisory Group of Birla Institute of Management and Technology, Indian Institute of Finance, Surya Foundation, Geeta Rattan Institute of Management, Jaipuria Institute of Management, Presidency University Bangalore, among others.

Mitigation of Global Warming by Capturing and Harnessing the Energy of Methane in Rural India

- Mr. Kamal Meattle

Chairman (Emeritus)
Paharpur Business Centre

India has about 641,000 villages where over 830 million people live, as per the 2011 National Census. Out of these villages, about 236,000 villages have a population of ~500 persons and there are about 4,000 villages with a population of ~10,000 persons.

The total number of cattle in India is about 192 million as per the 2019 census. Out of these 145 million are female cows. The highest population of cattle is in 11 states, with about 233,000 villages or about 36% of the villages in India, led by UP, West Bengal, Madhya Pradesh, and Rajasthan. All villages have cattle.

Cattle produce methane, through cow burping and from Cow Dung. Methane is a more potent greenhouse gas than carbon dioxide but disappears after 10 years. Cattle produce this, through cow burping and from Cow Dung.

Given their enormous number, and to take care of cow dung methane, the big idea is to set up an integrated facility of a Biodigester in every village. This will consist of a cowshed with a roof of transparent polycarbonate sheets mounted with PV panels, with a self-washing and water recycling system, to increase electricity production by > 25%.

The adoption of this, on a large scale, will help India in creating new innovative jobs and reduce migration to cities. It will increase income for farmers, reduce deaths in rural homes due to pollution and make India the preferred source for certified organic fruits and vegetables - the World's Basket for Organic Fruits and Vegetables. It will allow food waste to be recycled, and it will help us to achieve our PV targets. In the future help fulfil the national goals of producing green Hydrogen. It will help in converting agricultural waste to Hydrogen.

For reducing methane through cow burping: This has been tried by changes to cow diets* - like adding red seaweed or garlic to their diet, but it reduces milk yields or adds garlic taste to the milk and is suitable only for non-milk producing cows. International research is being done in this regard. For reducing cow dung methane:

By developing state of art cowsheds with transparent and self-washing PV panels to produce electricity.

- Needed quantities of fresh green fodder /day can be produced, by the Hydroponic process, using energy from PV Panels or wind.
- Scientific feeding, milking, and caring for their health, experimenting with light and sounds that they like, at the milking station, which helps them relax and increase milk yields.
- Ayurveda, instead of antibiotics, can be extensively used for the wellness of cattle and increasing milk quantity and quality.
- Cow dung and accompanying urine will be directly collected in the cow shed and household waste from the village will be fed into a Biodigester.
- This facility will have pipes to supply the methane produced, to village homes, to replace LNG / Wood /Coal for cooking, and for producing heat for steam methane reforming (SMR), and for village industry use.

<u>**Stages of Processing**</u>

As the process may yield excess methane, it will be stored in special plastic balloons, which are non-corrosive, as an inexpensive storage device. This can be converted to electricity using generators, at night. Over 95% of the world's hydrogen is produced using the steam methane reforming process (SMR).

In the second stage, we intend to obtain green Hydrogen, using a process known as a steam methane reformer. It is a mature production process in which high-temperature steam at 700-1,000 degrees centigrade) at 3 - 25 bar pressure, in presence of a catalyst like Nickel, is used to produce hydrogen, carbon monoxide and some carbon dioxide. Subsequently, the carbon monoxide and steam are reacted using a catalyst to produce carbon dioxide and more Hydrogen.

In the final process, carbon dioxide and other impurities are removed from the gas stream, leaving pure Hydrogen.

$$CH_4 + H_2O \text{ (+heat)} = CO + 3H_2$$

$$CO + H_2O = CO_2 + H_2 \text{ (+ small amount of heat)}$$

Steam needed for the process can be produced using solar heaters and renewable- energy produced on-site, by PV /Wind. The stored Hydrogen can be used to convert to electricity using silent Fuel Cells / Generators or directly used for transportation. Later, rice and wheat straw, sugar cane tops, and sugar industry waste etc can be also used in the Biodigester.

India, annually, generates about two hundred million tonnes of such agricultural residues. This will also reduce pollution, especially in North India, due to Rice stubble burning, and increase the longevity of life, especially of women cooking in village homes. Cow Dung slurry, from which methane has been extracted will be a rich source of organic fertiliser. It will help in producing much demanded and added value organic fruits and vegetables, with high export potential. Cow urine contains about 5% urea. This will help create the future we want, enabling a Lower - Carbon economy.

India, home to the largest cattle population in the world, can convert this into a mega opportunity to reduce greenhouse gases and increase the prosperity of our farmers, who comprise 60% of our population. It will reduce deaths due to indoor smoke pollution and do convert village food waste into a value-added Product viz. Manure and Methane.

Note: An unresolved problem In India is that more than five million stray cows roam sidewalks in major cities, block traffic in small villages and destroy fields.

Case studies and Quotes from Published Articles in support of Argument

Case Study 1

Raising climate-friendly cows

Agriculture is the single biggest source of methane - a greenhouse gas more potent than carbon dioxide. The guilty party is livestock, and farmers are trying everything from pellets to face masks to cut emissions. They have begun using supplements, above, produced in the Mootral lab, below right, as part of efforts to cut methane emissions from their livestock. Holding a fistful of pungent beige pellets, Ed Towers warns that anyone averse to garlic should stand back. The scent hits anyone within a few feet of him but rather than seasoning for the dinner table, these small garlic-infused cylinders are being fed to dairy cows at the Brades family farm in the verdant hills of the northern English county of Lancashire.

“We had been worried the milk would taste of garlic,” says the 29-year-old farmer. But, fortunately, “we’ve had no complaints”, adding that the cows seem unfazed by the powerful odour. “With climate change and the substantial greenhouse gas emissions from livestock coming under increasing scrutiny, many farmers and scientists are looking for affordable solutions that might make meat and dairy greener.

The garlic and citrus pellets used at Brades Farm are one such innovation: the supplements are mixed into the feed given to the herd of 600 cows and have helped reduce the volume of methane - a greenhouse gas and significant driver of global warming - produced by the animals. The pellets work by disrupting methane-producing enzymes in the gut. Towers says the idea of tackling methane emissions coincided with the farm's launch in 2016 of its "barista" milk for cafés and coffee chains when plant-based milk- which now accounts for 10 per cent of the overall UK milk and alternatives market- were beginning to persuade buyers to go dairy-free. While previous anti-milk campaigns have centred on health and animal welfare concerns, the focus has shifted to global warming.

The climate impact of agricultural sector emissions has been known for decades, but the role of livestock has come under increasing scrutiny only in the past few years. *"We were very aware of [the emissions issue] and we wanted to try and solve this,"* says Towers, who runs the 380-acre farm with his father John. Even if they switched to electric tractors and used solar panels for energy, only half of the farm's emissions would be eliminated. Then the family came across Anglo-Swiss biotech start-up Mootral, which invented the pellets. As the impact of methane emissions has become clearer, the dairy and meat industries are in the direct line of fire. Domesticated animals emit about 5 per cent of total human-caused greenhouse gas emissions, although that rises to 14.5 per cent when feed production, transport and other factors are considered, according to the UN Food and Agricultural Organization. About 1.5bn cattle produce 7 gigatons per year, or 60 per cent of livestock emissions, with almost 40 per cent coming in the form of methane. Although it lasts for less time in the atmosphere, the greenhouse gas is about twenty-eight times more potent than carbon dioxide as a factor in global warming. Cows, and other "ruminant" animals whose stomachs are divided into compartments, produce methane during "enteric fermentation," the digestive process as enzymes in their gut break down grass, hay, and other feed. The gas is emitted through their burps.

Case Study 2

Tackling the methane problem is both urgent and difficult. While carbon dioxide is "the most important" contributor to human-induced warming, methane is the next most significant, a report from another UN body, the Intergovernmental Panel on Climate Change, concluded in August. Agriculture is the leading source of global methane, accounting for about 40 per cent, the bulk of which comes from livestock.

Brades Farm is part of a growing movement in the industry, with farmers and food companies competing to be viewed as green and responsible, by planting trees or switching to regenerative farming, largely focusing on natural methods to boost biodiversity." "There are big climate risks for all of us if we don't get on top of food system emissions," says John Lynch, a researcher on the climate effects of meat and dairy production at Oxford University.

Consumers in the west are moving away from products with a significant climate footprint. “If the sector is not making serious attempts to reduce its impacts then it will start to lose its social licence,” he added.

Biotech companies, scientists and farmers around the world are working to tackle the problem - to reduce emissions while retaining the level of agriculture needed to feed a global population predicted to increase more than 2bn by 2050 according to the World Bank. “Over the last couple of years [climate change] has just skyrocketed up farming’s agenda,” says Stuart Roberts, a crop and livestock farmer in Hertfordshire, north of London, and an official at the National Farmers’ Union. “While we’ve got an important role to play in addressing climate change, we’re also probably the first industry to feel the effects of it,” with changing weather patterns already threatening crops.

From lab to the field - Although plant-based alternatives are already gaining popularity, and start-ups are developing products made from animal cells and other microorganisms, scientists, entrepreneurs and food companies see an opportunity in producing methane-reduced meat and dairy.

Potential solutions range from new feed supplements, to face masks worn by cows. Another idea is simply to breed livestock that reaches slaughter size faster- meaning they are around, emitting methane, for less time. The ‘Mootral’ pellets being used on the Brades Farm can reduce up to 30 per cent of the methane emitted by a cow, according to peer-reviewed studies.

Thomas Hafner, a Swiss biotech investor who founded Mootral, says his vision was to reduce the emissions from livestock while offering a financial incentive for farmers, who often work to tight margins, to do so. “It’s about how farms can be part of the solution,”.

In Mootral’s laboratories north of the Welsh capital Cardiff, head of biology Daniel Neef is looking for alternative ingredients to improve the pellets’ effectiveness. “Climate change isn’t waiting for us to find a solution,”. “Cows and sheep have historically played an important part in our lives,”. Nutritionally, these animals have the ability to do something amazing, he adds metabolise hay and grass, which have low-quality protein and are generally difficult to digest for humans, into high-quality nutrients.

The Anglo-Swiss start-up, which expects to have about 20,000 cows in the UK and US taking ‘Mootral’ by the end of the year, is not alone in seeking to improve the environmental credentials of cows. At the University of California, Davis, researchers have found that a certain type of seaweed in the cows’ diet can cut methane emissions by as much as 82 per cent, although seaweed production is difficult to scale up.

Royal DSM, Dutch health, and nutrients group have recently received regulatory approval from Brazilian and Chilean agricultural authorities for its supplement 'Bovaer'. It breaks down the methane into compounds already naturally present in the cow's stomach, and trials have shown Bovaer to cut methane emissions by about 30 per cent for dairy cows and up to 90 per cent for those reared to provide beef.

Latin America, especially Brazil, accounts for a fifth of total agricultural methane emissions. The hope is that a low-cost additive, or another solution, will be found that can be used in developing countries, where the problem is particularly acute. Low- and middle-income nations contribute 70 per cent of emissions from ruminant animals, says the IPCC. Many of these states are expected to see a rise in population and demand for food in the coming decades.

Researchers have had to balance any additive's impact on animal health against the taste of milk and meat. One enduring practical issue is how to feed additives to cows when they are grazing in fields, which is when they produce the most methane. Dairy cows can be fed supplements in farm buildings around the time of milking, but the supplements cannot be sprinkled over the grass. Beef cows spend their time grazing at the start of their lifetime and can only be fed the additives when they are in the feedlots to be fattened up.

This stage only accounts for about 10 per cent of their lifetime methane emissions. "Reaching the cow at the different times of their life is a challenge," says Ivo Lansbergen, DSM's president of animal nutrition and health. Hafner says Mootral is looking at giving the supplement in treats, which the cows can go and pick up, or a time-release capsule that could last several weeks.

Some attempts have been criticised. In the US, Burger King last year faced criticism for trivialising the issue when ads for its "reduced methane" burgers made from cows given lemongrass in their daily feed called consumers to "Breathe the farts of change." Other innovations include a methane-reducing mask for cows, trialled by Cargill, the leading agricultural and food group.

Up to 95 per cent of cattle methane emissions come from the mouth and nostrils, and prototypes of the "wearables" developed by UK start-up Zelp, oxidises the methane, halving emissions, says Cargill. Anti-methane vaccines are also being researched, while scientists and genetics companies see breeding bigger cows more quickly as one solution. Increasing productivity also makes commercial sense for the livestock sector, according to the NFU's Roberts. Cows that live for less time will emit less methane, he says. "It is quite feasible to shave [three to six] months off the finishing age of an animal."

Yet, the industry has been slow to act on climate change and there is a long way to go before methane-free cows graze in the fields. "There is a fair amount of distance to go before there is a large-scale effort to make some definitive statements around what you should do [with] feed," says Berkeley's Alex. These things that look very promising are [sometimes] not as effective for whatever reason.

These limitations have generated criticism from those who see supplements as an incremental solution to, or a distraction from, a big problem. "This smacks of the industry just trying to greenwash," says Pete Smith, professor of soils and global change at the Scotland's University of Aberdeen, who believes that eating less meat is a more effective solution.

A partial reduction in emissions from a small part of a cow's life was "better than nothing," he adds, but "it's not going to solve the problem." "It's not realistic to stop producing beef or dairy products when the population is growing. People in emerging markets are also moving from cereal-based diets to protein-based diets," counters Hafner. "If it enables us to make an impact, then we don't care."

'The biggest responsibility'

Incentivising farmers to start using methane-reducing solutions will be difficult. Companies including 'Mootral' hope carbon offsets might help farmers by generating credits, which represent emissions avoided or removed from the atmosphere and selling them for cash.

Offsets are generated by activities including tree planting, carbon capture and even 'Mootral's' supplement, and are sought after by organisations aiming to compensate for their emissions. DSM says it is exploring the launch of a carbon credit scheme to coincide with when its supplement hits the market. Back in Lancashire, the Towers family says its quest for lower emissions has sparked interest from customers and fellow farmers. "There are a lot of people under a lot of pressure" to reduce their emissions, says Towers' father, John. "Our industry is waking up to the fact that it has to change."

The younger Towers says the switch to lower methane milk has been easier for Brades than it would be for many dairy farmers since they sell premium milk to upmarket suppliers and cafés in London. "We're lucky because our customers are discerning and they generally can afford to choose to use us." Even with the additional revenue from the sale of offsets, farmers are likely to need government support to start investing in emissions reduction solutions. More consumers need to start purchasing low-methane products, but the products cost more. A 2-litre bottle of Brades milk retails for about £2.70, more than double what supermarkets charge for own-label milk. "Some people need to buy the cheapest [milk] they can find," says Towers. Supermarkets, he adds, have "a disproportionate amount of power." They could choose to buy climate-friendly products, rather than engaging in a "race to be the cheapest."

References

https://mootral.com/flagship-farms/brades-farm/
https://bradesfarm.co.uk/environment
https://x.facebook.com/Bradesfarm/photos/a.901791743236428/4482532838495616/?type=3&source=48
https://agfundernews.com/dsm-secures-approval-for-methane-busting-cattle-feed-additive-in-brazil-chile.html#:~:text=According%20to%20Beef%20Central%2C%20Bovaer's,the%20animal%20eats%20the%20supplement
https://agfundernews.com/dsm-secures-approval-for-methane-busting-cattle-feed-additive-in-brazil-chile.html
https://legal-planet.org/2021/08/17/methane-emission-reduction/
https://www.abdn.ac.uk/sbs/people/profiles/pete.smith
https://techilive.in/how-methane-producing-cows-leapt-to-the-frontline-of-climate-change/

About the Author

Mr. Kamal Meattle
Kamal Meattle, Chairman Emeritus, of Paharpur Business Centre (PBC) is an environmentalist and serial entrepreneur. He has a Master of Science degree from The Sloan School of Management, MIT, USA. He is a Past National President of the Indo American Chamber of Commerce, The Indo German Chamber of Commerce and a Former Board Member of IIT, Delhi, Chairman, Northern Region, All India Council of Technical Education (AICTE) and Governing Council of Navodaya Vidyalaya. Kamal is currently an Executive Committee member of the CII-IGBC, Member, Delhi Committee of CII; Member, National CII Environment Committee & Chairman, Northern Region, Indo German Chamber of Commerce. He is a Trustee of The Climate Reality Project- India, set up by Nobel Laureate Al Gore. He has co-authored a book, published by Juggernaut, on 'How to Grow Fresh Air.'

Email: meattle@pbcnet.com
Contact Number; +91-98110 64705
LinkedIn Profile Link: https://www.linkedin.com/in/kamal-meattle/

Rural Entrepreneurship: Emerging Sector in Rural Development

- Ms. Iram Sabha
Research Scholar
Indira Gandhi National Open University

Abstract

Entrepreneurship is becoming more widely recognised as a promising alternative to traditional economic development because it allows local residents to unleash their potential to create jobs and cater to local interests and markets. While most of the literature on entrepreneurship focuses on high-growth, high-tech development and its ability to generate employment, is this really the best path for rural communities looking to create jobs? Is rural entrepreneurship a separate discipline from entrepreneurship as a whole, with its own set of possibilities and challenges? This essay reviews the literature on rural entrepreneurship and argues that it is a unique field of entrepreneurship study and practice, with various chances for local development that are not always consistent with the existing literature.

Keywords: rural community development; rural economic development; entrepreneurship; regional development; agriculture and community.

Introduction

Rural entrepreneurship is separate from entrepreneurship as an academic subject of study and practice. The specific conditions faced by rural entrepreneurs may not be properly addressed by more mainstream and traditional microeconomic methodologies of firm-based growth and quick innovation, which is relevant in both an academic and applied sense.

This is critical for the modern community developer since there is a growing realisation that urban policy and practice methods may not be well adapted to the unique social and economic circumstances of many rural places (see Feld, 2012 for a critique of the Silicon Valley model of high-growth, high-tech entrepreneurship becoming a universal role model for development). The idea that rural and urban entrepreneurship are distinct has crucial consequences for entrepreneurship research and theory development, as it better reflects the influence of a rural setting and maybe a different set of driving factors for starting a firm.

Despite our country's independence and industrialization, a major portion of the population still lives in rural regions. Rural areas have significant challenges in compared to other regions (Brown & Schafft, 2011), which are exacerbated in the periphery. According to a 2005 OECD assessment, rural regions face severe issues such as unemployment or underemployment in primary sectors, a lack of infrastructure, market access, financial access, and young people migrating to metropolitan areas in search of work. The development of rural regions through entrepreneurial growth is the solution to these difficulties. Entrepreneurial activities contribute to economic growth by rising rural income and creating a multiplier effect by increasing demand for goods and services, resulting in job possibilities.

Definition of Rural Entrepreneurship

In simple terms, rural entrepreneurship refers to any attempt to organise any type of commercial activity in a rural setting. It is characterised as a type of entrepreneurship that is gaining traction in rural regions and has the potential to drive numerous initiatives in the primary, secondary, and tertiary sectors, as well as operate as a powerful economic development force. Rural entrepreneurship is described as business started in rural regions that adds value to rural resources largely via the employment of local human resources. As a result, it is concluded that rural entrepreneurship must emerge in rural areas, by anyone, whether from a rural or urban area, employing the majority of the materials and people from that area, providing benefits and development to that area, and eventually leading to the economic development of that area.

For a better understanding of rural entrepreneurship, it's important to comprehend the ideas of space and location. Rural entrepreneurship is distinct from other types of entrepreneurship due to its unique geographic qualities. While space and location have received little attention in the subject of entrepreneurship, they are well-established in the field of human geography, where they are used to investigate the nature of the socio-spatial and how it influences social processes (Cresswell, 2006). As a result, they may be used to explore the function of geographical context, in general, and rural setting, in entrepreneurial activity in particular.

The functional approach of entrepreneurship is suited for understanding rural entrepreneurship as a process influenced by its immediate geographical setting and crucial to rural development (Klein, 2008; Kalantaridis and Bika, 2006a, b). Entrepreneurship is viewed as an activity or process from a functional standpoint. The role of the entrepreneur is not often associated with specific persons or businesses, but is considered as a commonplace activity in which all market participants can participate (Foss and Klein, 2012). Using this heritage as a foundation, entrepreneurship may be defined as the recombination of resources to generate value, with an emphasis on the variety of value that entrepreneurs can produce (Müller, 2014; Korsgaard and Anderson, 2011). Because rural entrepreneurship is physically constrained, it necessitates the formation of new businesses.

Entrepreneurship is a role that may be performed by a variety of rural actors, including, but not limited to, farming and farmers, who have long been the focus of most of the rural development literature. Furthermore, the function of entrepreneurship is not incompatible with holistic and qualitative conceptions of regional and rural development, which emphasise the construction of localised, endogenous, sustainable, and resilient communities in rural regions (Kitchen and Marsden, 2009; Bristow, 2010). Indeed, whether or not opportunistic industrialization of farming is involved, entrepreneurial activities are at the heart of any growth in rural regions (cf. Van Der Ploeg et al., 2000).

Literature Review

There is a spatial dimension to all types of entrepreneurship, as well as manufacturing in general (Hudson, 2001, 2010). As a result, any entrepreneurial activity takes place in one or more spatial places. Production and entrepreneurship, ceteris paribus, will tend to migrate to those regions that give the strongest economic incentives, whether they land prices, labour costs, specialised labour skills, or infrastructure-based transaction costs, according to traditional economic theory (Pallares-Barbera et al., 2004; Keeble and Tyler, 1995). Such incentives or features are measurable, and they may be used to attract capital and output that prioritizes economic incentives. As a result, the competitiveness literature has emphasized the importance of regions and localities attracting outside investments and global capital, labour, and products flows (Kitson., et al). Entrepreneurship in the rural region, as described above, is defined as activities that profit from their geographical location. The advantages for the business or the entrepreneur, as well as the intended consequences of the project, drive location in a certain rural region.

Ventures are unconnected to the rural area's general well-being and progress. As a result, rural entrepreneurship has a limited connection with the locality as a significant site, and is thus poorly rooted in place. As a result, in terms of sourcing and selling, rural entrepreneurship would mostly operate on global marketplaces. Other than for merely economic or practical reasons, such as employing inexpensive local land or labour, there is no specific focus or priority placed on exploiting place-based or localised resources. Finally, rural entrepreneurship focuses on the markets that are the most profitable commercially, regardless of how local they are. This is not to say that entrepreneurial activities have no good influence on rural areas, but it does. Rural areas, in general, provide a variety of opportunities and incentives for aspiring entrepreneurs and particular sorts of industry. For apparent geographical and topographical reasons, farming as a method of production is common in the countryside, and land cultivation has played a significant part in defining many rural landscapes (Harvey, 1990; Mitchell, 1998).

The notion of entrepreneurship has been utilized in the rural development literature to highlight a certain viewpoint on farming, which stresses industrialization of agricultural produce through methods such as large-scale production, profit maximizing, and risk taking (Niska et al., 2012). Farm goods are treated as generally uniform and generic in this approach to farming, with little link between site of production and product qualities (Goodman, 2003; Parrott et al., 2002). As a result, entrepreneurial farming, as defined by rural development research, emphasises rural regions as productive places. The link between farming and entrepreneurship is complicated, as McElwee and others have argued (Vik and McElwee, 2011; McElwee, 2006, 2008). While farmers are not by definition entrepreneurs, many aspects of farm management and development may be very entrepreneurial. Farmers who add new business areas to their farming activities (cf. Van Der Ploeg et al., 2000; Kitchen and Marsden, 2009; Niska et al., 2012) are certainly entrepreneurial; the same goes for farmers who innovate ways to optimise farming production (cf. Van Der Ploeg et al., 2000; Kitchen and Marsden, 2009; Niska et al., 2012). What's important here is the many ways in which farming-related entrepreneurial activities connect (or don't) with the spatial setting in which they occur. Other considerations, such as higher land availability and cheaper land costs, as well as government incentives, may encourage businesses to settle in rural regions for non-agricultural kinds of industry (Kalantaridis and Bika, 2006a). Rural workers may be less trained and educated (Audretsch et al., 2010), but they are likely to be more loyal, submissive, adaptable, and have a strong work ethic (Kalantaridis and Bika,2006a; Jensen-Butler, 1992).

Finally, the rural idyll and its visual attractiveness provide individuals with specific sorts of lives. Rural living, in general, is connected with longing for a simpler time (Bunce, 1994). The decision to open a business in a rural region may be influenced by the entrepreneur's personal preferences, but it is unconnected to the firm's operations. This may have an impact on how rural entrepreneurs view location as "place." Entrepreneurs have been able to settle down in rural regions and enjoy the delights of rural living while running their enterprises because to advances in information technology and generally improved infrastructure. While this indicates that the entrepreneur is practicing Rurality in his or her personal life, it does not imply that this is the case.

Methodology

A comprehensive review of pertinent literature on "Rural Entrepreneurship: Emerging Sector in Rural Development" was used to produce the paper. The study's methodology is based on content analysis, and secondary data was gathered from a variety of books, journals, articles, reports, and other online sites. Rural entrepreneurship is discussed and understood as an important component of rural development in this research.

Objective

To recognize rural entrepreneurship as a critical component in the rural development process

Discussion

Depopulation, peripherality, and a lack of human, cultural, or financial resources are all circumstances supplied by rural places, regardless of their variability. When it comes to entrepreneurship, rural locations often have lower levels of activity than metropolitan ones. Rural entrepreneurship has a number of challenges. These include, for example, relatively weak communication and knowledge infrastructure (Pallares-Barbera et al., 2004; Keeble and Vaessen, 1994) that results in slow and expensive external communication (Kalantaridis and Bika, 2006a), limited access to government support (McElwee and Annibal, 2010), limited financial and human capital (Wortman, 1990), and relatively small markets resulting in limited economies of scale and critical mass (Wortman, 1990). (Meccheri and Pelloni, 2006; Kalantaridis and Bika, 2011).

Despite the drawbacks, previous research has identified specific benefits for rural entrepreneurs, such as greater employee stability and loyalty, lower labour costs, greater availability and lower land costs, gaining competitive advantages through high-amenity living conditions, and the availability of emerging or niche markets, for example. Farming from a multifunctionalist perspective emphasizes the long-term development of rural regions.

Indeed, the development of new dynamic co-productions between farmers and nature, with a strong focus on the land or the material component of what we call place here, is just as entrepreneurial as the opportunistic optimization of farming outlined. The concern and emotional attachment some entrepreneurs feel for their rural place can serve as a catalyst for new venture development, as evidenced by the fact that they are often driven (partly) by strong feelings of engagement and responsibility for their communities and the place, and that these feelings can be triggered in the development of new business activities. Certainly, there is a concern for the local community's well-being, as well as the historical legacy and scenery. Because rural entrepreneurship is constrained by geography, it may not provide the same promise of rapid and high development as other types of rural entrepreneurship. Nonetheless, it has two significant advantages: first, it has the ability to optimise the utilisation of the rural area's intrinsic resources. Rural entrepreneurship emphasizes the utilisation of locally accessible resources, even if they are more expensive to obtain and utilise than those purchased on the global market. While this may not always result in the best resource allocation on the global market, it does generate a local equilibrium in which localised resources are distributed in a way that extracts more (economic and social) value from them.

Conclusion and Suggestion

Rural entrepreneurship is essential for a country's economic growth and development, particularly in a country like India, where the bulk of the population lives in villages. Rural entrepreneurship helps to improve backward regions by creating jobs, reducing rural youth migration, manufacturing production, expanding infrastructure, and enhancing the standard of living, all of which help to alleviate poverty. Rural regions have seen an increase in entrepreneurial activity throughout time, although it still pales in comparison to metropolitan places. Genuine rural business has the ability to strengthen communities (Bristow, 2010; Christopherson et al., 2010; Hudson, 2010). Even if economic logic dictates it, entrepreneurial companies relying on local resources are less likely to migrate.

Understanding and resolving the variability of entrepreneurship in rural regions is a difficult topic for practitioners and policymakers working in rural development. While entrepreneurship may help rural communities grow economically, legislators, local governments, and business support organisations must be aware of the potential and benefits of true, place-based rural entrepreneurship. According to contemporary territorial policies (OECD, 2006), even though it is not the quickest path to fast growth, the importance of experimenting and inventing with locally resources is important. Understanding the environment of the entrepreneurial process may help to "improve the design, execution, and implementation of competent entrepreneurial policies in rural and underserved communities" (Stathopoulou et al., 2004, p. 414). Local authorities and business support organizations are also urged to recognize diversity. Entrepreneurial activities require additional backing from the government, society, and especially private organisations. Entrepreneurs require suitable entrepreneurship training in order to achieve higher success and, as a result, avoid the common blunders made by other entrepreneurs. Consumers in the area should be encouraged to support local businesses by doing business with them. Local entrepreneurs should take part in social activities that aim to improve communities.

References:

1. Alsos, G.A. and Carter, S. (2006), "Multiple business ownership in the Norwegian farm sector: resource transfer and performance consequences", *Journal of Rural Studies, Vol. 22 No. 3,pp. 313-322.*
2. Anderson, A.R. (1998), "Cultivating the garden of Eden: environmental entrepreneuring", *Journal of Organizational Change Management, Vol. 11 No. 2, pp. 135-144.*

3. Anderson, A.R. (2000), "Paradox in the periphery: an entrepreneurial reconstruction?", *Entrepreneurship and Regional Development, Vol. 12 No. 2, pp. 91-109.*
4. Audretsch, D.B., Dohse, D. and Niebuhr, A. (2010), "Cultural diversity and entrepreneurship: a regional analysis for Germany*", Annals of Regional Science, Vol. 45 No. 1, pp. 55-85.*
5. Bristow, G. (2010), "Resilient regions: re-'place'ing regional competitiveness", *Cambridge Journal of Regions, Economy and Society, Vol. 3 No. 1, pp. 153-167*.
6. Bunce, M. (1994), The Countryside Ideal: Anglo-American Images of Landscape, *Routledge, London*.
7. Carter, S. (2001), "Multiple business ownership in the farm sector – differentiating monoactive, diversified and portfolio enterprises", *International Journal of Entrepreneurial Behaviour & Research, Vol. 7 No. 2, pp. 43-59.*
8. Cresswell, T. (2006), Place : A Short Introduction, *Blackwell Pub, Malden, MA.*
9. Foss, N.J. and Klein, P. (2012), Organizing Entrepreneurial Judgment: A New Approach to the Firm, *Cambridge University Press, Cambridge.*
10. Harvey, D. (1990), "Between space and time: reflections on the geographical imagination", *Annals of the Association of American Geographers, Vol. 80 No. 3, pp. 418-434.*
11. Hudson, R. (2001), Producing Places, *The Guilford Press, New York, NY.*
12. Hudson, R. (2005), Economic Geographies: Circuits, Flows and Spaces, *Sage Publications Ltd, London*.
13. Hudson, R. (2010), "Resilient regions in an uncertain world: wishful thinking or a practical reality*?", Cambridge Journal of Regions, Economy and Society, Vol. 3 No. 1, pp. 11-25.*
14. Kalantaridis, C. and Bika, Z. (2006a), "In-migrant entrepreneurship in rural England: beyond local embeddedness", *Entrepreneurship and Regional Development, Vol. 18 No. 2, pp. 109-131.*
15. Kalantaridis, C. and Bika, Z. (2006b), "Local embeddedness and rural entrepreneurship: case-study evidence from Cumbria, England", *Environment and Planning A, Vol. 38 No. 8, pp. 1561-1579*.
16. Kalantaridis, C. and Bika, Z. (2011), "Entrepreneurial origin and the configuration of innovation in rural areas: the case of Cumbria, North West England", *Environment and Planning A,Vol. 43 No. 4, pp. 866-884.*
17. Keeble, D. and Vaessen, P. (1994), "Growth-oriented SMEs in unfavourable regional environments", *Regional Studies, Vol. 29 No. 6, pp. 489-505.*
18. Kitchen, L. and Marsden, T. (2009), "Creating sustainable rural development through stimulating the eco-economy: beyond the eco-economic paradox*?", Sociologia Ruralis, Vol. 49 No. 3, pp. 273-294.*
19. Kitson, M., Martin, R. and Tyler, P. (2004), "Regional competitiveness: an elusive yet key concept?", *Regional Studies, Vol. 38 No. 9, pp. 991-999.*

20. Klein, P.G. (2008), "Opportunity discovery, entrepreneurial action, and economic organization", *Strategic Entrepreneurship Journal, Vol. 2 No. 3, pp. 175-190.*
21. Korsgaard, S. and Anderson, A.R. (2011), "Enacting entrepreneurship as social value creation", *International Small Business Journal, Vol. 29 No. 2, pp. 135-151.*
22. McElwee, G. and Annibal, I. (2010), "Business support for farmers: an evaluation of the farm cornwall project", *Journal of Small Business and Enterprise Development, Vol. 17 No. 3, pp. 475-491.*
23. Meccheri, N. and Pelloni, G. (2006), "Rural entrepreneurs and institutional assistance: an empirical study from mountainous Italy", *Entrepreneurship and Regional Development, Vol. 18 No. 5, pp. 371-392.*
24. Mitchell, C.J. (1998), "Entrepreneurialism, commodification and creative destruction: a model of post-modern community development", *Journal of Rural Studies, Vol. 14 No. 3, pp. 273-286.*
25. Müller, S. (2013), "Entrepreneurship and regional development – on the interplay between agency and context", PhD thesis, *Department of Business Administration, Aarhus University, Aarhus .*
26. Müller, S. and Korsgaard, S. (2014), "(Re)sources of opportunities: the role of spatial context for rural entrepreneurship", *Academy of Management Annual Meeting, 1-5 August, Philadelphia, PA.*
27. Niska, M., Vesala, H.T. and Vesala, K.M. (2012), "Peasantry and entrepreneurship as frames for farming: reflections on farmers' values and agricultural policy discourses", *Sociologia ruralis, Vol. 52 No. 4, pp. 453-469.*
28. Pallares-Barbera, M., Tulla, A.F. and Vera, A. (2004), "Spatial loyalty and territorial embeddedness in the multi-sector clustering of the Berguedà region in Catalonia (Spain)", *Geoforum, Vol. 35 No. 5, pp. 635-649*.

About the Author

Ms. Iram Sabha
She is presently working as a teacher in higher secondary school in Jammu and Kashmir. She holds master degree in public administration. She has studied at Jamia Millia Islamia and Indira Gandhi National Open University and presented various research papers in national and international conferences and published research articles in national and international journals.

E-mail: iram.saba85@gmail.com & s.k.palit@gmail.com

“Atmanirbhar Kisan”: A Conceivable Approach

- Mr. Vikas Singh Dagar
Working at Jindal Saw Limited

Introduction

Since Indus Valley Civilization, agriculture industry remains to be among the largest self-made businesses in India. Presently, it is contributing to employ over 50% of the population of India. In India, agriculture is the most effective inclusive sector & most profitable growth contributor in Indian economy. At the same time, agriculture provides us the basic needs of human life and helping to reduce poverty in the Nation.

Behind the success of this enormous industry and their stakeholders lies the hard work of individual farmers who put in their efforts in their fields across the nation. However, there has been an exclusion problem among the farmers population. The growth among all sections of farmer’s population has not taken place in terms of full-fledged prosperity. One who holds a large acre of land and capable of engaging latest agriculture equipment / technologies and advancing in their life, but small-scale agriculturist could not grow consistently due to lack of knowledge and limited accessibility to latest technologies & availability of resources.

The need of a common agriculturist

The basic need to shift from the conventional techniques of agriculture forming to more advanced agriculture technology & access to the latest agricultural machinery being used Globally. Nevertheless, the real problem with small/poor farmers is that they lack in access to the agricultural equipment for better & faster productivity. This inaccessibility leads to the higher loss of production for them and hampering the upcoming harvest. For e.g. a farmer having his own harvester machine can harvest their crops faster well before time, at minimal cost and prepare their fields quickly for the next harvest. Whereas on the other hand, a farmer with small amount of land with no such latest machinery available either to harvest their crops by hands or needs to rent the harvester paying with higher cost and longer waiting times as the scarcity of such machinery due to remote location.

A sudden rise in demand of these equipments during the time of sowing/harvesting leads to the very high rentals of such effective agriculture equipment. Such price hikes are even prevalent in states like Madhya Pradesh, Chhattisgarh, Uttar Pradesh etc. Easy access to low-cost timely availability of these modern agricultural machinery is the need of small-scale farmers.

Solution

To overcome such problems, elimination of direct dependency of small farmers over opportunist (agriculture equipment) owners and organizing easy availability of latest technology and agri-equipments making it approachable to small and marginal farmers.

The conceivable approach

To streamline the Agri-machinery rental business, a single point of contact/control is required. Small kiosks helping farmers with information on availability of the latest technology / machinery can be set-up at village/panchayat levels & provide training to use the latest equipment.

These kiosks will have dual role:

1. **Act as a sales platform for the owners**. Agricultural equipment owners can register their machines along with the details like the duration of availability, type and basic information of their machines at the kiosks. The listing would be of the equipments which are available from nearby location in a short time.

2. **Act as a service shop for farmers:** Small scale farmers can book available equipments as and when needed by them.

The kiosks can be operated by organizations like banks, post-offices, and or any organization utilizing their existing infrastructure to reach remotely located villages. A fixed or dynamic price mechanism with a minimum/maximum price ceiling can be developed by the operators to achieve the social-economic goals. Operators/Panchayat level authorities can also act as an authority to ensure that no-one bypasses the entire process of renting out equipments in the region.

Impact

Kiosks would ensure an increased income by reducing the overall cost of impact to the small scale farmers. Kiosks also would control the unorganized sector of agricultural machinery rental business during the high demand surge. This will also help for the better utilization of latest machineries while generating employment to the local villagers as 'Kiosk Operator'.

Eventually, this model gives an opportunity for these common farmers helping to fight in overcoming financial over burden and debts. This will certainly provide all farmers the level of self-sufficient and satisfaction of being *"Atmanirbhar Kisan"*.

About the Author

Mr. Vikas Singh Dagar
Presently working Jindal Saw Limited. As an avid thinker, always try to conjure various ideas and concepts of practical and profitable innovations. Professional with over 12 years of work experience in sale & marketing domain. Academically a master's degree holder in Business & Management studies from University Of Strathclyde, Glasgow, U.K. with a first degree in Mechanical Engineering.

E-mail: linktovikas@gmx.com
Contact Number: +91-8595 433 005

Electric Vehicles Infrastructure Development in States

- **Ms. Prativa Shaw**
Economist
PHD Chamber of Commerce and Industry

Background

In the globalized world, a litany of challenges has created an opportunity to introduce Electric Vehicles (EVs) as a means of transportation. The current changing pattern of rainfall and drought with rapid melting of glaciers in Himalayan range is alarming and indicates that the implication of climate change in India could be far more devastating than expected. India being the largest continental sized economy faces a huge gap in the development of urban-rural region in India. As a result, there is rapid wave of urbanization, which causes immense pressure on energy and infrastructure sector to grow more innovatively and sustainably for inclusive and equitable future.

The impact of traditional means of transportation leading to congestion and pollution, as per the latest World Air Quality Report, 21 out of the World's 30 most polluted cities are in India. However, India has pledged to reduce the emission intensity of the economy by 45 percent (including CO2 and other greenhouse gases) from the previous target of 33-35 percent below 2005 levels by 2030 and meet the target of the Paris Agreement and UN Agenda 2030.

It is promising strategy to adopt electric mobility for decarbonizing the transport sector. To do so, it is essentially pre-requisite to have an accessible and robust network of EVs charging infrastructure to achieve the ambitious targets of decarbonization. India is rapidly aligning its policy measures towards alternative fuels and set a range of initiatives under 'National Electric Mobility Mission Plan' (NEMMP) 2020 to enhance national energy security with an aims to provide equal accessibility, affordability and environment-friendly transportation system in the country. In May 2017, NITI Aayog had outlined the vision of transformation of mobility in India to accelerate India's leadership in advanced mobility with an aim to make economically affordable and feasible EVs. The idea of shifting towards EVs would be beneficial for India given its abundance of renewable energy resources and availability of skilled manpower in technology-intensive industries.

The central government is promoting the adoption of EVs for better air quality, reducing noise pollution, enhancing energy security, low-carbon power generation and reduced greenhouse gases. The EVs market in India is picking up the pace with 100 percent FDI policy, increased push to improve charging facilities as well as Central and States incentivizing policy to deepen discounts for Made in India EV vehicles. Furthermore, a production-linked incentive schemes for automotive sector to boost manufacturing of EVs and hydrogen fuel cell vehicles is expediting the transition to e-mobility.

EVs and EV Charging Infrastructure in States

With the expectation of substantial growth in the numbers of EVs and EV charging infrastructure in States, the Department of Heavy Industry launched ‘Faster Adoption and Manufacturing of Electric and Hybrid Vehicle in India’ (FAME) scheme under NEMMP 2020 in 2 phases to promote faster transformation from Internal Combustion Engines (ICEs) to EVs. The first phase of FAME launched in 2015 and extended upto 31st March, 2019. It is extended in Phase-II with a budget outlay of Rs. 10, 000 crore for a period of 3 years starting from 1st April 2019. The objective of the FAME Phase-II is to support 7000 e-Buses, 5 lakh e-3 wheelers, 55000 e-4 wheeler passenger cars including hybrid and 10 lakh e-2 wheelers. The Phase-II has been extended for a period of 2 more years as the scheme has utilized only 5 percent or Rs. 492 crore[1] of the total allocated budgets.

Also, in order to promote localization of EV component in manufacturing, India has launched National Mission on Transformative Mobility and Battery Storage that would facilitate participation of all stakeholders and synergize end-to-end policy framework for mobility. The scope of the programme expanded to other types of vehicles e.g. public electric buses with planned duration of three years. In an effort to complement the national initiatives on mobility, several States governments have announced its specific needs and EV policy. The 14 States having their own EV policies are Andhra Pradesh, Karnataka, Kerala, Delhi, Maharashtra, Uttarakhand, Madhya Pradesh, Tamil Nadu, Uttar Pradesh, Telangana, Bihar, Gujarat, Punjab, and Chandigarh. Karnataka being the 1st state to introduce a policy dedicated to EVs. Karnataka and Tamil Nadu are rolling out innovative and timely investor-friendly policies. To give the glimpse of the EV Policy of the States, some of the key highlights of the Karnataka EV Policy are presented in table 1.

Table 1: Key highlights of Karnataka EV Policy

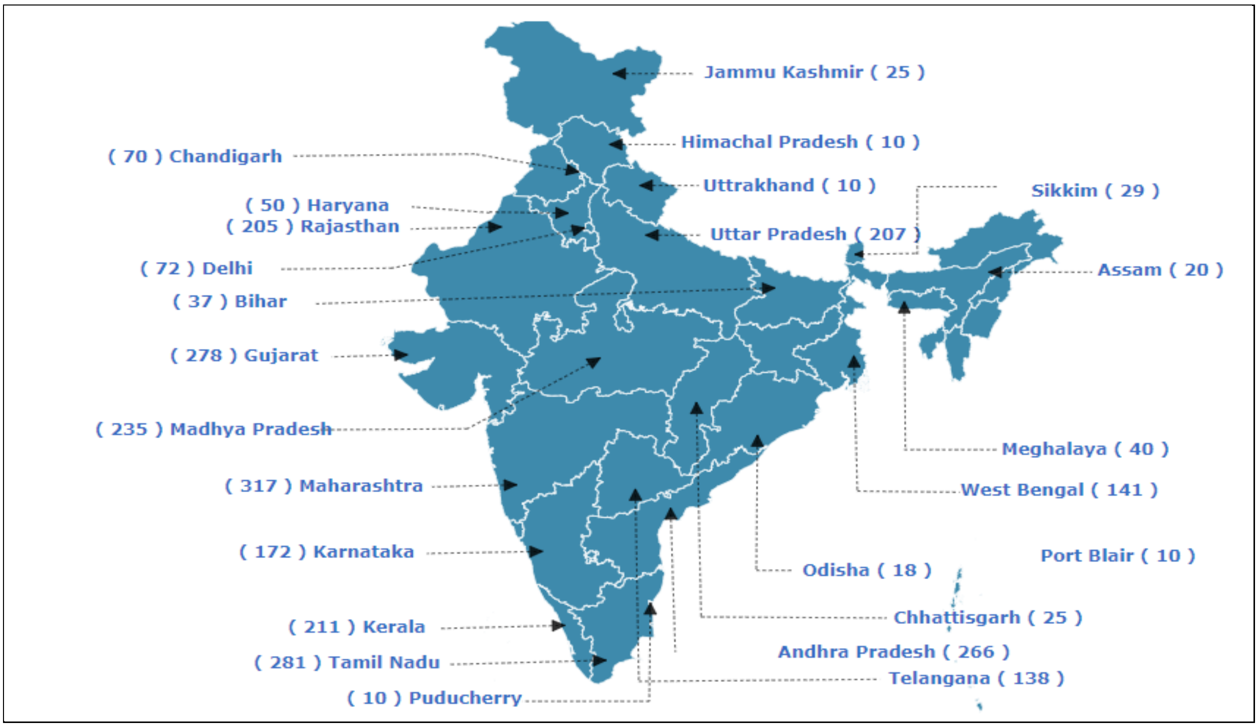
States	Approach	Economy & Finance
Karnataka	- Focus on R&D and building a conducive environment for transition to EVs from ICE - Special Initiatives to promote manufacturing of EVs - Support for charging infrastructure, and research development and skill development	- Attract investment of Rs. 31000 crore and created 55000 jobs - Chief Ministers allocated Rs. 100 Million for establishment of electric vehicle and energy storage - A grant of Rs. 1 billion was announced for

[1] MINT (June, 2021), “Govt extends Fame Scheme till 2024”, Livemint.com

	incentives and concessions - Building up start-up incubation centre for EVs and encourage business models focused on EVs - Policy to provide incentive to shift auto rickshaws, cab aggregators, corporate fleets and public transport systems to EVs	adding 500 ordinary electric busses to the fleet of Bengaluru Metropolitan Transport Corporation - A venture capital fund for research in EV mobility - Tax incentives to all EVs including e-rickshaws and e-carts

With the support of Central Government, penetrations of EVs have been expanding in the Indian Market. Till dated, India has reported sale of over 5.38 lakh EV units under FAME Scheme. Also, Ministry of Heavy Industries has sanctioned 4973 charging station as on February, 2022. The use of commercial and private vehicles in India has increase exponentially. As per the recent Council on Energy, Environment and Water (CEEW)-Centre for Energy Finance estimation, market size of the EVs in India will be USD 206 billion by 2030, given the steady progress to meet its ambitious targets of Sustainable Development Goals (SDGs). Also, it requires cumulative investment of over USD180 billion for developing vehicle production and charging infrastructure.

Figure 1: State-wise EV Charging stations Sanctioned/ Installed under FAME India

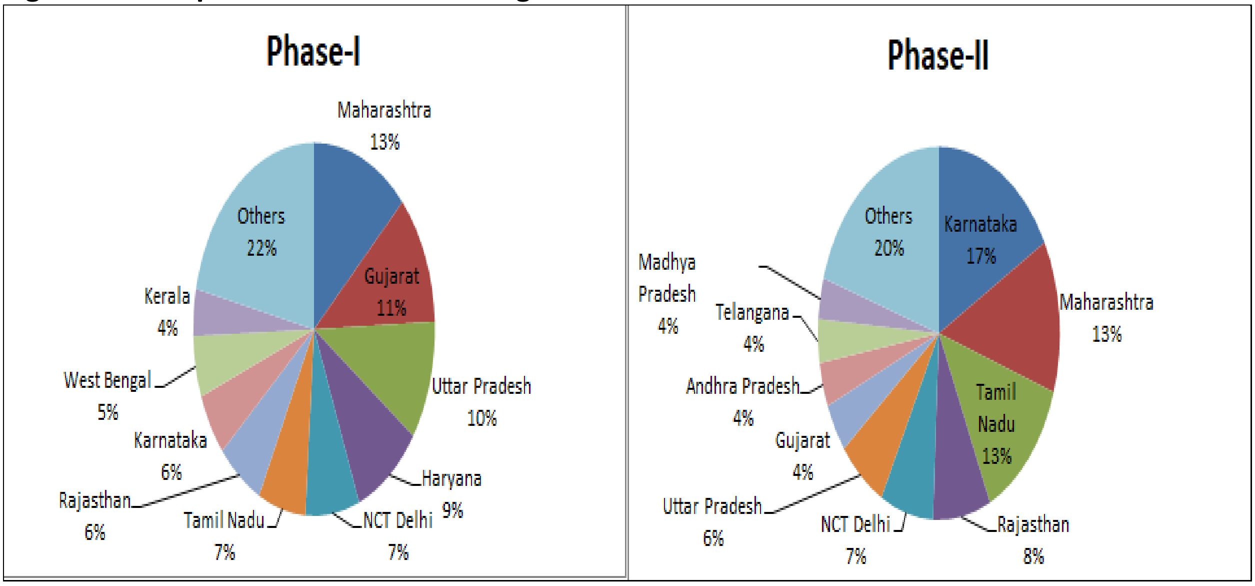


Source: Dashboard of Ministry of Heavy Industries, data accessed on 22 February 2022

The total EV charging stations in India under FAME Phase II is 2877 (refer to figure 1). The growth prospects of the Indian EV and EV battery market is huge as India Energy Storage

Alliance projected a growth of 36 percent and 30 percent till 2026, respectively. Maharashtra (317), Tamil Nadu (281), Gujarat (278), Andhra Pradesh (266), and Madhya Pradesh (235) are the top 5 States in India with highest number of EVs Charging stations under FAME Phase II.

Figure 2: Top 10 States with highest EVs Sales under FAME Phase-I and II



Source: PHD Research Bureau compiled from Dashboard of Ministry of Heavy Industries, data accessed on 22 February 2022

The total sales of the EVs in India under Phase-I of the FAME is 2,80,141 while for the second phase of FAME total sales is 2,58,157 till dated. Maharashtra, Gujarat, Uttar Pradesh are the top 3 states with the highest EVs sales under FAME phase 1. Under phase-II, Karnataka, Maharashtra and Tamil Nadu are the top 3 states with the highest EVs sales.

Conclusion

In order to improve the mobility many states have taken innovative initiatives to enhance travel experience for the citizens. For instance, new innovative financing model such as procurement of electric buses on Gross Cost Contract model is adopted by states. In the coming times, sustainable choices for the public transport coupled with greener fuels will enhance the quality of life and push economic activities in the long run. Although, there is a continuous support from the Central and State Government but pure electric vehicle penetration in India is quite low, and is likely to remain low at 3.5 percent till 2025. There are many obstacles in the pathway of 100 percent electrification by 2030. Some of the major challenges are higher market prices of EVs compared to its Internal Combustion

Engine; negligible number of public charging infrastructure; lack of product comparability to ICE in 2 wheelers category; and Limited and low levels of investments in EVs by manufacturing units. Thus, there is need for cooperation and coordination for strong policies, regulations, public and private sector investments and awareness among all to bring the desired change in smart and green transportation in India.

About the Author

Ms. Prativa Shaw

Ms. Prativa Shaw is an economist at the PHD Chamber of Commerce and Industry, New Delhi. Previously, she was a member of the research faculty at the Research and Information System for Developing Countries (RIS), New Delhi. She has over 9 years of research experience and has previously been associated with the Ministry of Finance, Government of India, as a Research Consultant under the Tax Administration Reform Commission. Her areas of research interest include trade and investment and sustainable development. She has published and contributed to numerous research reports, academic papers and working papers on the aforementioned themes.

E-mail: prativa.shaw@phdcci.in

National Tourism Policy 2021 (draft) would foster Employment Generation, Influx of Digitization & Development of Northeast Region

-Ms. Shivani Mehrotra
Research Officer,
PHD Chamber of Commerce and Industry

The contribution of services sector in India's GDP is around 61%. India had ranked 10th amongst 185 countries in terms of travel and tourism industry's[2] contribution to GDP of around 6.8% in 2019. The tourism industry as a whole has been a major growth driver among the services sector of Indian economy. In the wake of COVID-19, the tourism industry has been severely hit, despite this; the government has been handholding the industry with several reforms and policy initiatives. In June 2021, Hon'ble Finance Minister, Smt. Nirmala Sitharaman extended the Rs 60,000 crore for other sectors, including tourism, under the loan Guarantee Scheme for COVID Affected sector.

The tourism policy 2021 is under the draft stage and with the onset of COVID-19, the draft has taken into consideration the COVID-19 guidelines for the tourists to ensure safe travel. The draft tourism policy 2021 attempts to focus on the Northeast region of India as an emerging tourist spot. The draft tourism policy 2021 has given a deserving focus on specific norms and provisions to suit the post COVID-19 travelling scenario. Digitalization of travel experience by reducing the physical touch, skilling, employment generation, community participation and development of sustainable tourism, are some of the other significant aspects of the policy. Developing quality human resources, creating an enabling environment for investment in tourism and related infrastructure such as staycations and homestays are some of the cornerstones of the draft policy.

An increased emphasis has been laid on the protocols that include social distancing and hygiene, touch-less service delivery and investments in digital technology that are expected to bridge the gap to recovery. Indian economy had been promoting wellness tourism in pre-covid times. However, with the pandemic, safe and healthy destinations are been streamlined for the international travellers. Besides, the draft national tourism policy has brought forward certain vitalities such as sustainable & green tourism at the same time an increased penetration of digitalization for the operators and for the tourists.

India is the most digitally advanced traveller nation in terms of digital tools being used for planning, booking, and experiencing a journey. With the emergence of data analytics and artificial intelligence, an emphasis is being laid on synergy of skill upgradation by online training programme for guides. This is expected to supply skilled and trained personnel for the tourism industry. Tourism sector employs about 80 million people and this is projected

[2] IBEF

to double[3] to 190 million in the next 20-25 years. The sector has a huge employment potential. The draft tourism policy offers a host of incentives and environment that is required to create more investment opportunities in the sector for both domestic and international.

With the COVID-19 underplay, tourist behaviour has changed. Due to this the tourists are increasing opting for open spaces travel and travelling in smaller groups. By 2028, Indian tourism and hospitality[4] is expected to earn US$ 50.9 billion as visitor exports compared with US$ 28.9 billion in 2018. The travel market in India is projected to reach US$ 125 billion by FY27 from an estimated US$ 75 billion in FY20.

India’s travel and tourism industry has significant growth potential. With the introduction of e-visa and e-passports, the tourist inflow in India is expected to double in the coming times. In a nutshell, covid-19 pandemic has changed the global economic order. It has disrupted the global supply chains at the same time changed the social behaviour. This calls for a revival of tourism industry, for which an immediate step in the short run could be to promote local tourism and domestic tourism, medical tourism and sustainable tourism. In the medium to long-term, the noble idea of gig economy or remote working could help run the tourism sector with a major focus on leisure and adventure tourism. Staycation is seen as an emerging trend and to cater to such needs, major hotel chains are introducing staycation offers. It is important to exploit the local endowments for the tourism promotion. The government could promote the incentives of ‘working from anywhere’ through new policies initiatives.

About the Author

Ms. Shivani Mehrotra

Ms Shivani Mehrotra is currently working as a Research Officer at PHD Chamber of Commerce and Industry. She has 5.8 years of work experience in economy & policy advocacy and market research. Her key domain areas include State affairs of Indian economy, Rural and Macroeconomic developments. She has contributed on several thematic reports, representations, newsletters and research notes relating to Indian economy and Indian States. She has also attended brainstorming sessions on Brexit and its impact on India with renowned Economists. She is a postgraduate in Economics.

Email: shivani.mehrotra@phdcci.in

[3] ibid
[4] ibid

The Evolution of Globalization & Ethical Business Practices: Comparing the British East India Company & Tata Sons

- **Ms Mahika Dalmia**

Abstract

The British East India Company and Tata Sons are two of the largest and most influential companies in India's history. Each of them has had a significant impact on the lives of hundreds of millions of individuals, the impact of each, however, has been starkly different. While the British East India Company is widely hated by the Indian population for the pain and suffering it caused during its era, Tata Sons is considered to be one of the most trusted and charitable organizations in the country.

This paper aims to analyse and contrast the impact each multi-national corporation made onthe populations of the countries it operated in. It also aims to show why a company's philosophy can make such a significant impact on all stakeholders it is involved with.

Methodology

The paper uses secondary research to build a hypothesis. Secondary sources include a mix of trade press articles, research articles, white papers and others. Expert interviews are then usedto validate the hypothesis.
Expert interviewed has the below qualifications –

- Senior executive at an Indian multi-national corporation
- Experience in domestic and cross border work
- Has an understanding of corporate ethics and social impact

Summary

Companies are an integral part of the modern day world and wield enormous power. Corporate actions can have substantial effects on society and the public as a whole. A global MNC can positively or negatively impact the lives of millions of individuals, hence it is very important that good corporate ethics are instilled in every large scale business institution.

The British East India Company was one of the largest companies to exist in the history of humanity, however instead of using it's influence for good, it indulged in undertaking horrificacts in the name of profit. The company is responsible for causing manmade famines

that killed millions, indulging in slave trade, causing an opioid crisis, actively promoting economic discrimination and more. These atrocious acts can be attributed to the lack of establishment of proper corporate ethics in the company.

Tata Sons group can be seen as a polar contrast to the BEIC. The company is one of the largest group of companies in the history of India. Unlike the BEIC, humanitarian and ethical beliefs were instilled in the management of the company from the early years. Over generations, these management beliefs have continued and due to the same, the company has positively impacted the lives of millions of Indians. Tata Sons is majority owned by Tata Trust that is responsible for funding and undertaking various charitable acts such as educatingmillions of children, assisting villages with proper sanitisation, providing assistance during natural disasters and funding dozens of initiatives in healthcare. Over the years, Tata has gained wide-spread trust and love of the Indian population. It did this by instilling proper corporate ethics in the beliefs of its owners and management across generations.

Evolution of Economic Beliefs and Corporate Ethics

During the era of the British East India Company, the then prevailing economic concept that the scholars believed in was 'mercantilism'. The definition of mercantilism as per Investopedia is as follows "Mercantilism was an economic system of trade that spanned from the 16th century to the 18th century. Mercantilism is based on the principle that the world's wealth was static, and consequently, many European nations attempted to accumulate the largest possible share of that wealth by maximizing their exports and by limiting their imports via tariffs". (KENTON, 2020) The economic belief states that international trade is a zero sum game, in which one nation would always be worse off. Modern day economists strongly disagree with this assertion and point to the numerous factors that prove that international trade can be beneficial for both countries.

This economic belief in the 17th and 18th century led Britain and the British East India Company to focus on maximising raw material imports to Britain at the lowest possible cost from British colonies. This raw material would then be used in British factories to produce goods (e.g. Indigo from India used in clothing factories), which would then be exported at substantially higher prices to British colonies. This process over-time drained British coloniesof wealth, especially India, which went from being the wealthiest nation on earth to a poor economy.

There was also a belief among company owners that they should maximize profits, no matter the human costs involved. The British East India Company committed numerous atrocities (as stated in the following pages) only to increase their profit.

Modern day company management have different beliefs. There is a conscious focus on corporate ethics and its impact on society. Ethics is taught to students in business and management school and multi-national corporations have extensive guidelines that relate tothe code of conduct of its management and employees.

In 1971, the Committee for Economic Development in the US brought forward a concept which stated that companies function and exist because of public consent, and therefore, thereis an obligation to contribute to the needs of society. A company that embodies this belief well is the Tata Sons Group. The company has significantly contributed to social causes in India, so much so that it is widely trusted by the Indian population (detailed points presented in the following pages). The research presented in the following pages summarizes the different ethical actions that the BEIC and Tata Sons took due to their differing beliefs.

Impact of the British East India Company on India

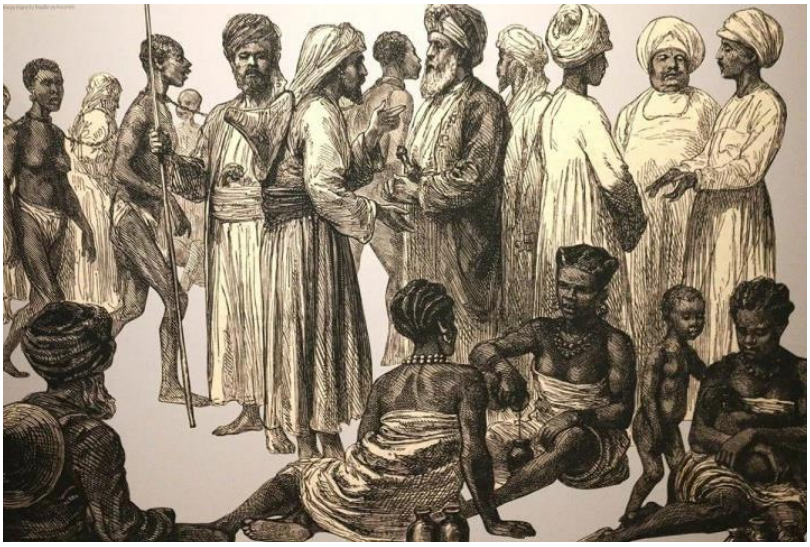
History of the Company – The company was founded in 1600 by British owners with the purpose of establishing trade with the Indian sub-continent. Back in the 1600s companies not only conducted business operations, but also raised armies and fought wars to gain territory under their own country's national government. Post multiple treaties and wars, the companyeffectively started to rule India in 1757, under the governance of the British crown. The company's rule in India lasted till 1858 until the British crown took direct control and formeda new "British Raj".

During its 100 year rule of India, the company caused systematic wide-spread pain and suffering on the Indian population. Below are some of the large scale major atrocities it committed –

1. Use of slave labour
2. Establishment of monopolies
3. Opium trade
4. Man-made mass famines

Below is a deep-dive into each of these atrocities –

Use of slave labour – In the 17th and 18th century, the BEIC frequently used slave labour and slave trade as a means to sustain its business. It transported slaves from West and East Africa to India and Indonesia to accomplish specific tasks. The company relied on specialized skills of slaves to manage specific tasks in the territories it controlled (Duignan, n.d.). These human beings were abducted from their homes, separated from their families, forced against their will to work for no income and were officially "owned" by another person. If these individuals resisted, they were usually killed or tortured.



Credits – (News, 2020) The WireUse of slave trade in Bombay

Establishment of Monopolies – The British East India Company obtained a monopoly charter for trade with India from the British crown in the 1600. It used this charter to create a monopoly for trade in India. Since Indian farmers and business men had a single entity to deal with for international trade, they had no bargaining power. The company had trade businesses across products such as spices, silk, tea and other items (BLAKEMORE, 2019). With only one company to trade with, Indian stakeholders had to sell for prices far lower than they would've received otherwise, leading to significant financial hardships.

Credits – (Collection, 2020) History.com

Officers of the British East India Company gathered in Founder's Hall

Opium trade – The British East India Company established a state-run monopoly for opium production in Bengal. Profit from opium trade substantially contributed to cost of imperialism, from 1842-1859, opium made up 31.5% of all Indian exports (Deming, 2011).

Opium from India was primarily supplied to China (when China banned opium imports, Britain invaded China, killed thousands of soldiers and forced China to continue with the opium import, to ensure that BEIC made a profit from the sale of this deadly drug). The company's actions in Bengal made the state the single most efficient region to produce opium in the world. The BEIC did limit consumption of opium in India by fixing prices, however it channelled exports to China and forced China to accept these goods. This practice caused a mass opium based crisis in China (Deming, 2011)

Source – BBC Opium production in India

Man-made mass famines – Probably the worst of all the atrocities committed by the BEIC. Millions of people died due to the man-made famines created by the company. One of the worst famines was in 1770. In 1765, the BEIC signed the Allahabad pact which gave it the rights to collect taxes on behalf of the Mughals. Tax on farm produce was raised from 15% to 50% by the British. This tax hike removed the safety net the farmers had and reduced any capacity for creating surplus stock. After 2 bad harvest years in 1768 and 1769, the surplus stock of crops had reduced drastically. When another bad harvest came in 1770, a famine ensued and continued till 1773. It is estimated that over 10 million people (largely from the peasant community) died during the famine.

Typically Indian emperors waived taxes during famines to reduce the pain faced by farmers, however in 1771, due to the loss of revenue because of the death of farmers, the BEIC raised the tax rate to 60%, further worsening the situation. The company also mandated that farmers allocate a certain portion of their land to commercial crops such as Indigo, hence there was even less food that was being grown for a starving population. This wasn't a one time occurrence, multiple other famines took place during the 100 year rule of the British East India Company. All these atrocities were committed to make a monetary profit (Chakraborty, 2014)

Source – (ALAMY, 2016) BBC

Visual representation of the affected population during the famine

Impact of the Tata Sons Group on India

History and Context – Tata Sons is a group of almost 100 companies that are present in a wide array of industries such as chemicals, financial services, hospitality, steel, automotive, information technology, consumer products, energy and more. It is one of the oldest and most prominent businesses present in India. The group was founded in 1868 by Jamshedji Nusserwanji Tata (TataSons). Since 1868, it has been run and expanded by various generations of the Tata family. The founder, Jamshedji Nusserwanji Tata stated that "In a free enterprise, the community is not just another stakeholder in the business, but is in fact the very purpose of its existence". A report prepared by Hurun Report and EdelGive Foundation (Banerjea, 2021) ranked the top 100 philanthropists by donation value over the past hundred years, Jamshedji Nusserwanji Tata ranked number 1 on that list, ahead of Bill Gates and Warren Buffet, with a total donation of USD 102 billion dollars.

Tata Sons group is one of the most trusted companies in Indian history. A poll conducted by Equitymaster, an independent equity research firm, shows that Tata Sons is the most trusted company in India with 66% of the vote share. The second and third most trusted companies, Birla Group and Mukesh Ambani Group only received a vote share of 5% and 4.7% (BusinessLineBureau, 2021). This significant gap between Tata and everyone else visualizes the extent to which Indians trust Tata companies.
The trust that Tata companies carry has been built by the management for over a century. The company has performed numerous acts of charity and generosity towards the Indian population.

Below are some of the most notable acts the Tata Sons group and its management have performed –

1. Ownership Structure of the Company
2. Contributions to various sectors of society, especially in the areas of -
   I. Contributions in Education
   II. Contributions in Healthcare
   III. Contributions in Water, Sanitization and Hygiene
   IV. Others

Ownership Structure of the Company – Tata Trust has large scale projects to tackle issues relating to education, healthcare, hygiene, resource management and others. These projects typically are very costly and take years to complete. Tata Trust is able to fund these activities as the charitable organization owns 66% of Tata Sons holdings (Patwardhan), meaning that it received significant dividends from all the Tata Sons subsidiary companies. The Tata family has generously donated these shares to the trust and in the process has ensured that these shares are de-facto owned by the Indian public. The funds from these shares are meant to benefit the public, especially poorer communities. Furthermore, Tata Sons has holdings in a diversified set of industries, meaning that even if a few sectors are facing head-winds, other companies will still pay dividends. Below is the Tata Sons ownership of its group companies–

Company	Tata Group Shareholding*
Indian Hotels Company	39.1%
Tata Chemicals	30.8%
Tata Communications	48.9%
Tata Consultancy Services	71.9%
Tata Elxsi	44.6%
Tata Global Beverages	34.5%
Tata Investment Corporation	73.0%
Tata Motors**	35.8%
Tata Power	33.0%
Tata Steel***	33.2%
Titan Company	25.0%
Trent	32.6%
Voltas	30.3%

Source – Tata Sons (TataSons)

Contributions in Education –

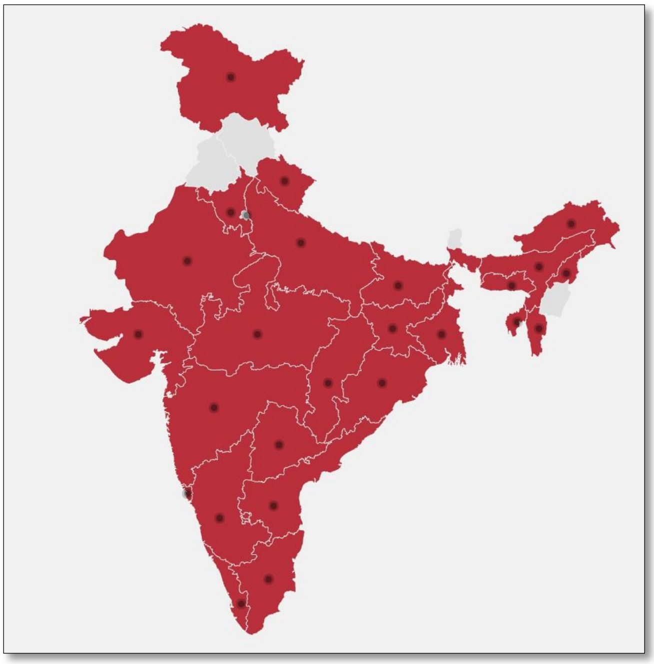
- Tata Trust has multiple ways in which it impacts education, however the most used ways are funding of various education related institutions / initiatives and building its own schools.

- The trust funds education initiatives in the following areas –

  I. Tribal Education – Aims to increase safe and child friendly learning programme in Ashram Schools
  II. Parag Initiative – Promote reading among children and facilitating language learning in children
  III. Karta Initiative – Focuses on increasing access to education and employment opportunities for young individuals

  IV. Madrasa Programme – Improve quality of education in Madrasa's
  V. Women's Literacy Programme – Assisting women in achieving literacy, financial education and health education

- So far the trust operates in 26 states, 141 districts and has impacted the lives of over 3.6 million individuals. Below is a graph of the states it has operations in –



Source – Tata Trust (Patwardhan)

Contributions in Healthcare –

- The trust funds various initiatives to focus in the areas of –

    I. Cancer Care – Impact all spectrums in the life-cycle of cancer care to improvethe lives of the individuals that may be impacted by the illness
    II. Non-Communicable Diseases – Focus on early screening, diagnosis and management of diabetes, hypertension, oral cancer, breast cancer and cervical cancer
    III. Communicable Diseases – Treatment of diseases such as TB, Malaria and acute Encephalitis syndrome
    IV. Elder Care – Assisting the elderly with their health issues
    V. Mental Health – Assist individuals impacted by mental health issues andincrease awareness of mental health conditions
    VI. Reproductive and Child Healthcare – Focus on healthcare initiatives related to pregnancy and child care
    VII. Strengthening of Systems – Focus on strengthening existing healthcaresystems

- The trust operates in 25 states and has impacted the lives of 15.9 million individuals
- The trust operates in the below states –

Source – Tata Trust (Patwardhan)

Contributions in Water, Sanitization and Hygiene -

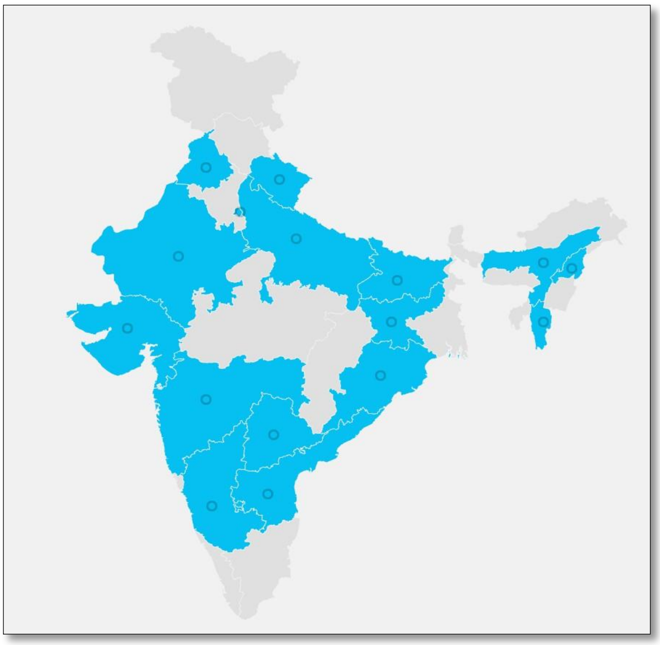
- There are 3 key focus areas in this segment –

I. Sanitization and Hygiene – Increase hygiene and washing education, infrastructure and practices across targeted states

II. Integrated Drinking Water Programme – Management of issues such as water scarcity, contamination and improper sanitisation

III. Water Resource Management – Revive springs, improve rain water discharge, construct recharge ponds and pits via community participation

The programme covers 14 states in India and has impacted the lives of over 2 millionindividuals. Below are the states the trust focuses on for these activities.



Source – Tata Trust (Patwardhan)

Other Areas of Focus -

Besides these 3 areas, the trust also focuses on areas such as –

Nutrition	Digital Transformation	Environment and Energy	Institution Development
Disaster Management	Migration	Skill Development	Grants Programme
General Livelihood	Social Justice	Arts and Culture	Sports

Due to its vast funding via its ownership structure, the trust is able to operate in numerous areas to impact the lives of people affected by these issues.

While the British East India Company's actions led to the death and suffering of dozens of millions of individuals, Tata Son's actions have positively impacted the lives of dozens of millions of Indians. Different corporate ethical beliefs determined the vastly different actionsof each of these companies undertook and impacted millions of individuals in starkly different ways.

Expert Interview

Q. How has business ethics evolved over the past few centuries? Compare business practicesin the 1600-1800s vs today.

Ans. "Some of the major themes of modern-day corporate ethics are - creating a safe and equitable space for workers, environmentally conscious business practices, respecting consumer rights and giving back to the community.

Modern day corporate ethical beliefs did not exist a few centuries ago. Companies were actively willing to conduct ruthless actions to expand their businesses. The public, today, would be horrified if companies undertook similar actions. There actions range from slavery, physical punishments, violation of labour rights and more. We have come a long way since then and I hope progress continues in this direction."

Q. What is your opinion on the business and ethical practices of the British East India Company?

Ans. "The company has an infamous name in Indian history. It is stunning how one company was able to commit so many horrifying acts. They conquered and ruled India for over a century and in that century, the only purpose India had to them was to increase their bottom line. For higher profit, they squeezed the wealth and the life out of the Indian people and caused major famines that lead to the death of millions. The ironic part is that not only was the company ethically malicious, it was a horribly mismanaged business. The company almost went insolvent and the British crown had to bail the company out. It somewhat acts asa case study of how financial prosperity of a company goes hand in hand with its ethical and business management practices."

Q. What is your opinion on the Tata Sons and it's group companies?

Ans. "Tata holds a special part in every Indian's heart. We've all seen what the company and the family has done for the country over the past few centuries. Jamsetji Nusserwanji Tata's philosophy is still ingrained in the company till date. He believed that businesses existed for the well-being of society, something hardly any company's management believed during that era. Today, his beliefs are held as a hallmark for business practices. The group, even today, acts as a force for positive change. Tata Sons is majority held by the Tata Trust, an organisation which funds many charitable acts across India. They are funding charitable acts and organizations in healthcare, education, disaster management, resource planning and more."

Q. How do you see corporate ethics evolving in the future?

Ans. "I am an optimist, so I like to believe that businesses will become more conscious of their actions over the years. I'm glad to say that most MNCs are moving in that direction. We'll have to wait and see, but we've come so far in just a few hundred years that I can only be optimistic about the future."

Conclusion

Two companies with very different ethical philosophies impacted the lives of millions of people. One company did anything it could for profit, whether it was slavery, manmade famines, economic discrimination via monopolies or causing a national opium crisis. The other spent centuries performing charitable acts, enhanced the lives of millions of individuals and is beloved by the public. The first company, the BEIC, was eventually dissolved while the second company, the Tata Sons group is still prospering today. Both act as interesting case studies and show us how far corporate ethics has come over the past few centuries.

Bibliography

- Duignan, B. (n.d.). *5 Fast Facts About the East India Company*. Retrieved from britannica.com: https://www.britannica.com/story/5-fast-facts-about-the-east-india-company#:~:text=1.,Helena%20in%20the%20Atlantic%20Ocean.
- News, T. I. (2020, july 31). *In Colonial Bombay, Slavery Practiced by Both Indians and the British Administration*. Retrieved from thewire.in: https://thewire.in/history/bombay-slavery-africa
- BLAKEMORE, E. (2019, september 6). *How the East India Company became the world's most powerful business*. Retrieved from nationalgeographic.com: https://www.nationalgeographic.com/culture/article/british-east-india-trading-company-most-powerful-business

- Collection, M. L. (2020, october 23). *How the East India Company Became the World's Most Powerful Monopoly*. Retrieved from history.com: https://www.history.com/news/east-india-company-england-trade
- Deming, S. (2011). Retrieved from whitman.edu: https://www.whitman.edu/economics/Workingpapers/content/WP_25.pdf
- Chakraborty, R. (2014, august 15). *The Bengal Famine: How the British engineered the worst genocide in human history for profit.* Retrieved from yourstory.com: https://yourstory.com/2014/08/bengal-famine-genocide/amp
- ALAMY. (2016, june 11). *Viewpoint: How British let one million Indians die in famine By Dinyar Patel.* Retrieved from bbc.com: https://www.bbc.com/news/world-asia-india-36339524
- KENTON, W. (2020, april 28). *Mercantilism.* Retrieved from investopedia.com: https://www.investopedia.com/terms/m/mercantilism.asp
- Banerjea, A. (2021, june 23). *tata group founder ranked worlds top philanthropist in 100 years. Another Indian in top 50.* Retrieved from livemint.com: https://www.livemint.com/companies/news/tata-group-founder-ranked-world-s-top-philanthropist-another-indian-in-top-50-11624443326260.html
- BusinessLineBureau. (2021, september 22). *Tatas emerge most trusted Group, others lag far behind.* Retrieved from thehindubusinessline.com: https://www.thehindubusinessline.com/companies/tatas-emerge-most-trusted-group-others-lag-far-behind/article36608422.ece
- Patwardhan, A. (n.d.). *Education Striving to provide authentic learning for all.* Retrieved from tatatrusts.org: https://www.tatatrusts.org/our-work/education.

About the Author

Ms. Mahika Dalmia

Mahika Dalmia is a senior at the Vasant Valley School in New Delhi, India. Receiving the highest grades in her class 10 CBSE Board Examinations, and highest in her economics and history final examinations for class 11, Mahika is an exceptional student gifted with an entrepreneurial mind. Her internship with the Secretary General at the PHDCCI fueled her appetite to research unicorn companies. After extensive research, she published The Rise of Indian Unicorns: Billion Dollar Startups in 2021. This insightful work outlines growth factors by following three companies and analyzes the keys to success on online platforms.

Disclaimer

"**Fourth Edition of PHD Chamber Journal of Ideas & Innovations"** is prepared by PHD Chamber of Commerce and Industry and Department of Commerce. The articles this journal may not be reproduced, wholly or partly in any material form, or modified, without prior approval from PHD Chamber of Commerce and Industry. It may please be noted that the research articles are for guidance and information purposes only. Though due care has been taken to ensure accuracy of the information to the best of the PHD Chamber's knowledge and belief, it is strongly recommended that readers should seek specific professional advice before making any decisions. Please note that the PHD Chamber of Commerce and Industry do not take any responsibility for outcome of decisions taken as a result of relying on the content of this research report. PHD Chamber of Commerce and Industry shall in no way, be liable for any direct or indirect damages that may arise due to any act or omission on the part of the reader or user due to any reliance placed or guidance taken from any portion of this publication.

Notes

PHD CHAMBER
OF COMMERCE AND INDUSTRY

PHD CHAMBER OF COMMERCE AND INDUSTRY
PHD House 4/2 Siri Institutional Area, August Kranti Marg, New Delhi 110016
Phone: 91-11-49545454 | Fax: 91-11-26855450, 26863135
Email: research@phdcci.in | Website: www.phdcci.in