

# Opinion

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## The Great Letdown

It could get far worse before it gets better. And, even then, whether India will be able to create the number of jobs needed is in doubt

**T**HE SENSE OF anticipation so palpable in India Inc ahead of the 2014 elections has altogether dissipated; businessmen today are stressed and distressed. They may not betray their feelings, but they are feeling betrayed. When an industrialist of the stature of Kumar Mangalam Birla says Vodafone-Idea will shut shop because there is no point throwing good money after bad, we are in trouble. Narendra Modi's NDA government had promised them and their fellow countrymen *achhe din*; instead, after six quarters of a decelerating economy, partly due to a debilitating blow from demonetisation, there is no sign of relief. The data and trends are chilling: consumer spending is stagnating, little freight is being ferried, factories are running at sub-optimal capacities, road construction is stalling, credit growth is crawling. And, consumer sentiment is the weakest in a decade. Retail sales of commercial vehicles—a proxy for the economy—fell 8.6% year-on-year (y-o-y) in November on the back of a 2.3% y-o-y plunge in October. And, that is in addition to a year of flagging sales.

Given nearly 64% of the slowdown has been driven by industry—mainly manufacturing—India's aspirational electorate should brace for more job losses. If top class companies like Vodafone-Idea are forced to think of shutting down, corporate India must be in dire straits. Profits before tax plummeted 74% y-o-y in Q2FY20 for a sample of close to 2,600 companies as revenues fell 3% y-o-y.

The government's finances are not doing any better, though, with tax collections for 2019-20 slowing drastically. Rather than taking it on the chin, however, the Centre is delaying states their rightful dues. Meanwhile, the government continues to tweet one new target a day. From doubling farm incomes to raising the share of manufacturing in GDP to getting to a \$5-trillion economy, there is no shortage of targets.

To be sure, the NDA inherited an economy that was in a shambles, a near-empty exchequer, a twin-balance-sheet problem, and a high CAD. Also, no economy recovers quickly from a twin balance sheet crisis, especially with a third crisis—NBFC—joining in. But, it could have been handled a lot better. Demonetisation was a bad move; the smarter way to get to tax-evaders is through better surveillance and digitisation. Reform has been neglected in a key area like agriculture, as seen in the complete collapse of food prices and a ruined rural economy. That the government was compelled to roll out a dole-like scheme for farmers before the elections is evidence of this. Worryingly,

wage growth for agricultural labourers slipped to a four-quarter low in Q2FY20, falling sharply from 5% in July to apparently negative territory in September. The growth in rural agri wages, a good proxy for consumption demand, slipped from 6.1% in Q4FY19 to 5.4% in Q1FY20, and further to 4% in Q2FY20. Third, the government failed to reform personal income taxes. Had the slabs and rates been altered to make it more equitable, with all exemptions withdrawn, it would have made for a cleaner structure. Also, the government needed to track professionals—doctors and lawyers—who accept fees in cash and conveniently fail to disclose their real earnings. Net direct tax collections between April and November are up an anaemic 1.6% y-o-y, and the impact of the cut in the corporation tax rates is yet to be seen. That was probably the worst measure of all because all it did was to further enrich the richest companies, most of whom will not invest in new plants, for a revenue loss of close to ₹1.5 lakh crore. Foreign investment will take its time because it is not enough to have a low tax rate. In the absence of better labour laws and ease of doing business, global corporations will be wary of stepping into India. So far, the Make in India scheme has yielded little.

The economy is slipping fast. The 16-year low in nominal growth seen in Q2FY20 could see bankers reassess credit and turn even more cautious. Today, the government is asking banks to lend. The point is, if there was demand for credit from sound borrowers, why wouldn't banks lend? The SBI chairman rightly pointed out there is no demand for corporate credit. With revenues weak, the government will be forced to cut back on expenditure, and if GST rates are hiked, consumers will spend less. Reflating meaningfully, in the near term, is difficult without fiscal slippage; also reforms will require political will—for instance, tighter labour laws, and some U-turns on FDI in multi-brand retail. Above all, the government must convince business it will ensure a level-playing field in all industries, and that there will be no biased regulation. None of this is difficult because this government has a strong mandate; as we saw, the abysmal state of the economy made no difference to voters in the elections. But, by 2026, 88% of the population will be below the age of 60, 78% will be below the age of 50, and a good 65% will be below 40 years. Rather than debate about whether the slowdown is cyclical or structural, the government's advisors need to come up with ideas to find jobs for the 12 million youngsters entering the workforce each year. An aspirational society is an impatient society. Even more so, when it is so young, and getting younger.

## Charting DEVELOPMENT

India improves, moves up one spot in HDI. However, it must plan for new challenges to human development

**INDIA RANKS 129** among 189 countries on the 2019 human development index (HDI). As per the UN's HDI 2019 report, India's score improved from 0.431 to 0.647, moving it up a rank from 2017's 130th. In the last three decades, India's life expectancy at birth increased by 11.6 years, average schooling years by 3.5 years, and per capita income by 250 times. India did poorly in comparison to Sri Lanka (71) and China (85), but did better than countries like Pakistan (152), Bangladesh (135), Bhutan (134), Myanmar (145), and Afghanistan (170). South Asia was the fastest growing region in terms of human development—46% growth over the period 1990-2018.

The report highlights that, in terms of inequality-adjusted HDI or IHDI, India's rank drops to 130. IHDI highlights the percentage loss in HDI due to inequalities. This drop cost India, for the purpose of calculating the score, half the progress made in the past 30 years. The report also brings to the fore gender-based inequality—India ranks 122 out of 162 in the gender inequality index. HDI also captures multidimensional poverty. India should take heed of what the report highlights in terms of areas needing improvement—inequality due to technology and climate change, and gender inequality. Meanwhile, India has set ambitious goals for universal healthcare and child nutrition. India has 28% of the world's poor even after lifting 271 million people out of poverty between 2005-15. Surely, it has a long way to go before it matches the HDI standards in developed world, but past efforts have yielded gradual progress. Policy makers must focus on proper implementation, if they are to deliver the kind of progress expected from a country targeting to become a \$5-trillion economy in the next half-decade. The report warns that in the coming decades, technological changes, climate change, and skill gaps will contribute to increase in poverty. Therefore, as India aspires to improve on conventional parameters, it needs to brace for the new-age variables that will hinder human development.

● **ECONOMIC SLOWDOWN**  
ATYPICAL DYNAMICS OF HIGH INFLATION AND WEAKENING DEMAND, WITH OTHER GROWTH DRIVERS FIZZLING OUT, COULD CLOSE THE MONETARY SPACE AVAILABLE TO THE MPC

## The return of inflation fears

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Views are personal



surplus liquidity in the system, a recipe for triggering inflation. The sharp rise in bond yields following the post-policy announcement sent out the unambiguous signal.

**Inflationary expectations overlooked**

Curiously, the central bank did not sufficiently press upon the crucial link of households' inflation expectations, which adapt to food prices in India and are the bridge of transmission to core inflation. In turn, core inflation can potentially spillover into generalised inflation if second-round effects take hold. The written MPC statement detailed that households' inflation expectation rose 120 basis points over the three-month ahead horizon while the increase was a hefty 180 basis points over the one-year ahead horizon in November. This rise occurred on top of a pick-up two months earlier, in September, when inflation expectations had increased 40 and 20 basis points respectively, over the July round. In the four months to November, three-month ahead inflation expectations of households zoomed from 7.6% to 9.2%, and those over the one-year ahead horizon jumped from 7.9% to 9.9%!

This, perhaps, is the key reason for the MPC's unanimous decision to pause, its preference to watch how core inflation unfolds ahead, and to be sure of the inflation forecasts. However, an open apprehension of the possibility of such a scenario in an environment of sliding demand would be an unexplainable oddity, which could trigger a further slide in negative sentiments.

**Hunt for revenues could be the trigger**

While the central bank and the market are worried about large fiscal slippages given anaemic revenue collections until now, the trigger could come from raising tax rates. Press reports suggest the GST Council contemplates significant rate hikes across slabs. The telecom tariff decision is but one example RBI spoke of. There could be others. Most arise from a frantic revenue hunt by the government, which faces a mounting deficit as collected taxes fall. Telecom firms revised tax liabilities, after a court ruling prompted their tariff hike, and other affected firms could respond similarly, e.g., GAIL may have no choice but to raise gas prices. Sliding GST collections have pressed the government to review tax and compensation cess rates, inclusion of exempt items, etc, to augment revenues. One needs to watch out if the states follow suit and revisit VAT rates, e.g., on fuels, as they, too, face revenue pressures and have been compressing capital expenditures. Some signs of revenue triggers to prices are visible amongst private firms as well; for example, auto manufacturers have announced hikes in January 2020 even though pricing power is absent amidst weakening demand, and production cuts continue in some pockets.

Typically, tax increases are one-off, and not considered inflationary because

of a one-time increase in costs. Central banks look through these and RBI has done the same in the past. But, in an environment of rising inflation expectations, the fear of a price spiral build-up is perhaps what RBI would carefully watch for. Then, although food inflation may come off as expected, supply management could fail to contain anticipated and/or unanticipated shocks as happened recently. There is also the enormous liquidity overhang on the monetary side, a potential ignition to the cocktail of latent cost-tax pressures in a revenue-constrained economy. Further monetary easing in such uncertain macroeconomic settings could also create another round of credibility issues for RBI, which

grappled with overpredictions of inflation one year ago, and, in the current year, has been caught out with overpredicted growth. The Governor's emphasis on gaining clarity on the inflation outlook could be driven by these apprehensions and the reason for a pause.

The return of inflation fears couldn't have come at a worse time. Growth has steeply declined for six successive quarters as the economy has been passing through a phase of sharp

demand contraction. Raising taxes at such a juncture could further compress demand and hurt consumer sentiment. Ironically, these taxes, if raised beyond a critical level, could push up core inflation, resulting in stagflation. An atypical dynamics of high inflation and progressive weakening of demand is a macroeconomic challenge, especially when other growth drivers, viz. government spending, private investment, and net exports have all fizzled out, leaving alone monetary policy. If such a dynamics does come about, it could close the remaining monetary space that the MPC assured of in the policy review.

**While the central bank and the market are worried about large fiscal slippages given anaemic revenue collections until now, the trigger could come from raising tax rates**

## On a collection course

The solution to shore up revenues does not lie in amending liberal provisions and depriving GST of its progressive character

**THE GST COUNCIL** is scheduled to meet on December 18 with the agenda to arrest falling collections. The short-fall in revenues is impacting compensation to the states, and the unrest is palpable. The debate has changed from inflated and bogus input tax credit claims and non-filing of returns to addressing inefficiencies in the rate structure. Suggestions in public domain include increase in the lowest slab of 5% to 6%, and levy of compensation cess on some of the goods attracting 18% rate. Cess is presently confined to items that fall in the 28% category. To avoid a major disruption, converging 12% and 18% rate into 15% or 16% rate is not on the agenda. However, shifting some items from 12% slab to 18% rate is being discussed. An increase in the rate for sin goods is also doing the rounds.

Tax revenues cannot be divorced from the state of economy and dip in consumption. In the pre-GST regime, taxable event was manufacture for levy of excise duty, sale for applicability of VAT and provision of services for payment of service tax. But in GST, supply of goods or services is a taxable event. Therefore, mere production does not attract any levy and does not contribute to revenue for the exchequer unless the goods are supplied. In the intermediate stages, input tax credit neutralises tax revenue accruing to the government. Cause and effect of subdued consumption, thus, should be taken into account when the finance ministers meet for the GST council.

Lower collections from compensation cess is attributed to the slowdown in the auto sector—a major segment attracting cess. To reduce dependence on one or two sectors, the council should give serious thought to levy cess on certain non-essential items under 18% slab. Beauty and cosmetic preparations, marble and articles of plastics

can attract additional cess. The tax incidence on most of these goods in the pre-GST regime was around 27%. Pruning of items resulted in several goods coming under 18% rate without eminent rationale. Hence, revisiting the items covered under 18% slab is sine qua non at this juncture.

E-way bill system has been implemented successfully. This should have had restraining influence on supply of goods without invoice. Recently introduced restriction of limiting input tax credit to the extent of 20% where invoice details have not been reported by suppliers in their outward supply return is a welcome step. Proposed e-invoicing for large taxpayers from next year will give further impetus to such measures. Although these are intended to plug revenue leakage, they are not capable of significantly altering revenues.

Evasion is perceived as alarmingly high and is cited as a major cause for depressed collections. Revenue projections as contained in Budget documents take into account loss on account of tax incentives, but do not account for loss due to frauds. Non-implementation of invoice matching for input tax credit is a major lacuna. For decades, manufacturers were availing Cenvat credit without any matching of invoices. Pre-GST period also had a fair share of evasions, but were not the focus of discussions of tax shortfall.

The rate of growth in VAT collections during the period before implementation (2001-02 to 2004-05) was around 10%. This figure rose to 15% to 20% from 2008-09 onwards—three years after nation-wide roll-out of VAT. New tax law needs some time for all the stake-holders to reorient themselves. A grand reform of the magnitude of GST cannot be judged by tax collections during the initial years. Frequent

changes in rates and returns have been made more out of necessity. But, stability and certainty have suffered in this process. The council is required to do the fine balancing act of providing stability even while being responsive and adaptable.

Stagnant industry also means pile up of inventory of raw materials. Quantum of tax credit lying unutilised will be more, resulting in lesser or no cash payment for taxes on output supplies. This effectively dents the net tax revenues of the government. In the pre-GST regime, refund of accumulated input tax credit due to inverted tax structure was not available. GST law has specific provision for refund in such cases. Except goods or services used in construction of immovable property and a small negative list, GST law allows tax credit on everything used for business. Such factors put together do affect tax collections. The solution to shore up revenues does not lie in amending such liberal provisions depriving GST of its progressive character.

Increase in limits for threshold exemption and composition scheme may not have had substantial impact on revenues, but the base has shrunk to some extent. Lack of clarity on composite supplies, intra-company support services, post-sale discounts, liquidated damages, anti-profiteering provisions coupled with issues like restriction on input tax credit for sectors like real estate and hotels and attempt to cover BPOs and ITES sector under intermediary service compel taxpayers to adopt aggressive position. Issues affecting several sectors need to be addressed before the taxpayers are convinced of the interpretation adopted by the tax administration. Revenue gets blocked in such grey areas only to be further choked in long-winding litigation.

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## LETTERS TO THE EDITOR

Need for CAB & NRC

The home minister must be appreciated for having explained at length, the need for a Citizenship Amendment Bill (CAB), and also the differences between CAB and NRC. The honourable minister is correct to state that ever since the religion-based partition at the time of independence, there has been a continued influx of people within the India. An initiative, such as the NRC, is necessary to track the true count of citizens and preserve the solidarity and national security. While the identification and deportation of anti-nationals is important, it is equally essential for the sovereign to retain its international image and good will too. The CAB, only respects the constitutional values of the three neighbouring countries, and promises to safeguard the long-term interests of permitted refugees, already living in the sovereign. It also happens to be in line with the earlier agreements, wherein the sovereign accepts the responsibility of minor communities within the three adjoining countries. The step also sends a strong message to international forums and highlights the value, that nations are expected to keep their promises by being compassionate towards not only the residing majority but also the minority communities. Leaders must recognise the political intent, rationale and the potential of a bill to serve the larger national interest, before acting in a premature manner or resorting to an unduly critical and non-constructive approach. The regime has assured time and again, that existing residents are not impacted by the CAB, and therefore, needn't be anxious. Further, a nationwide exercise in the form of NRC, especially in a vast geography and varied demography, with a sole purpose to track and record the details of valid citizens residing in each state, and thus, segregate the illegal immigrants, sounds fair and logical.

— Girish Lalwani, Delhi

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PORTRAIT: SHYAM KUMAR PRASAD

● **RECORD CAFE:**  
**RS SODHI, MD, GCMMF (AMUL)**

# Dairy is livelihood in India, not merely trade

trade negotiations, it must first include free flow of manpower resources across countries. In India, around 50% of the population depends upon the agriculture sector for sustenance.

Any country's economy consists of three things: capital, natural resources and manpower. If you want to have a free trade agreement, allow free flow of labour. All RCEP countries want to have things that are their strength. We are strong in our manpower resources, so allow unrestricted flow of manpower. If you want to export agricultural products to us, please allow exports of agricultural labour. In India, trade comes after the government has provided livelihood opportunities to its people. Without taking care of livelihood of people, how can you get into trade?

In addition, let them (New Zealand and Australia, milk-surplus countries) come here and invest. We will even provide support and facilitate their presence.

Post-RCEP, how do you see the domestic dairy industry responding to the need for improving efficiency in the milk value chain?

Organised dairy sector has become efficient in the last decade. When we are talking of manufacturing industry, you have to deal with the level of automation; in India, providing employment is a critical aspect. Like in textiles, a manufacturing unit that is fully automated will be more efficient than, say, a power loom that provides employment opportunities. More than 100 million families are dependent on dairy sector in India. What are the alternatives you are providing to these families before opening up the dairy sector? Small dairy farms that are not fully automated can't compete with,

Let milk-surplus countries like New Zealand and Australia come and invest in the Indian dairy sector, rather than seeking reduction in import duties on dairy through RCEP



for example, Fonterra (New Zealand's multinational dairy cooperative). Fonterra has only around 10,000 farmers as members, and it's a business for them. The purposes of dairy cooperative in India and New Zealand are different. We are aiming at opening up the dairy sector, although India is not deficit (in terms of milk production) and countries that are importing right now and members of RCEP are not allowing India to export to them. RCEP was an unfair trade negotiation. Indian negotiators should have been brought these unfair trade practices during RCEP negotiations.

**How do you anticipate the growth and development of the Indian dairy sector in the next decade?**

The total value of the dairy products market is estimated at ₹7 lakh crore. Overall, the dairy sector is witnessing 5% growth annually. The organised sector is growing at 12-13% annually. Nowhere in the world the dairy industry is growing like in India. The reason is simple: As India moves from a carbohydrate-consuming country to more protein-consuming nation because of rising disposable incomes, the demand for dairy products is going to rise further. Milk is considered as the best form of protein. There has been wide diversification in varieties of products. There is a large number of private sector players who have entered the market. At present, the farm gate price of milk is 40% more than in the previous year. Cow milk price last at this point of time was ₹18-21 per litre, while today it is ₹30-33 per litre. Over the last few years we were able to export as global prices were low. However, we paid prices to farmers that were unviable. Now, viability is there. Now, the flush season has started.

**What are the expansion plans of the GCMMF?**

We are setting up processing plants in Kolkata, and have already entered Guwahati, Siliguri and other places like Varanasi. Annually, we invest ₹600-800 crore for expansion of our processing facilities. This year (2019-20), we will achieve ₹40,000 crore turnover. Another ₹12,000 crore turnover we will achieve through the Amul brand (which is not reflected in the GCMMF balance sheet). Gujarat district unions sell products directly in the state, in Banas, Surat, etc, and it does not reflect in the GCMMF balance sheet. We will be more than a ₹52,000 crore turnover enterprise by FY20. In fact, we will be the biggest Indian FMCG brand.

**What has been GCMMF's strategy for the Indian market? You also pay differential prices for milk procurement from farmers in Gujarat, Rajasthan, Punjab and Uttar Pradesh...**

We provide best quality at an affordable price, and are a trustworthy brand. People have blind faith in the brand. We pay more to farmers compared to other cooperatives in the country. We have to pay farmers the market price, wherever we procure milk. We are, at present, paying more to farmers from Rajasthan and Punjab compared to Gujarat farmers for milk procurement. It's all market-driven. Even in Gujarat, all the district unions do not provide uniform prices for milk procurement to farmers.

**How do you visualise the Indian dairy sector, say, after a decade?**

India's organised dairy sector, which is currently estimated at ₹1.8 lakh crore, is expected to reach a size of ₹6 lakh crore in 10 years. The organised sector (includes cooperatives and private players) is, at present, procuring 90 million litres of milk, which is expected to increase to 300 million litres in 10 years.

## ● ONION TEARS

# A symptom of larger malaise

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**We must try and replicate the Amul model of producers' cooperatives on the larger agricultural front, too**

**T**HAT THE PRICE of onions in many retail markets across India has soared to an unbelievable ₹150 per kg is, indeed, a matter for concern. However, it also comes across as a symptom of the larger malaise of neglecting agriculture and irrigation sector by successive governments over the decades. In fact, economically-developed nations have progressed from agricultural growth to manufacturing, before preening with pride as a services economy. But India bucked this trend to its own detriment in hindsight. In 2018-19, the services sector accounted for 54.4% of GDP. Industry contributed 29.73%, while agriculture and allied sector accounted for 15.87%. With some foresight, however, we could have consciously followed the time-tested template of the developed nations.

The lopsided nature of India's growth story—60% of the population contributing to 15.87% of GDP—should have sounded warning bells. But our policymakers believe in fire-fighting—reacting only when a crisis blows on our face. This explains the import of onions from Egypt to douse the flames of relentless price rise on the back of excessive rains playing havoc with the crop. We took a cue from the US and built oil reserves. Oil captured our policymakers' imagination because we are import-dependent, whereas onion was glossed over, because in normal times we have had enough of it to feed our population. In any case, our public distribution system, with the FCI as its linchpin, has always mistaken food for cereals—namely rice, wheat and sugar. Not much

attention has been paid to pulses and vegetables, which, by a rough reckoning, form half of the common man's plate.

**Less than 10% of the total food produced in India is processed into value-added products. The US and China process 65% and 23% of their produce, respectively**

For storing vegetables and fruits, an efficient and connected cold storage system is a prerequisite, which, alas, figures in the government calculus only at the time of annual Budget presentation by way of tax sops for setting up and operating this infrastructure. That 40% of Himachal apples are lost to elements is a well-known fact. According to the ministry of food processing industries, the annual post-harvest losses account for \$1.5 billion (₹92,000 crore). And yet we haven't addressed the issue on a war-footing. Along with cold storage to carry perishables like onions from season to season and from place to place, we also need food processing industries to take roots, near production centres or along the cold chain route. Less than 10% of the total food produced in India is processed into value-added products. In comparison, the US and China process 65% and 23% of their produce, respectively. No wonder, then, that in the US fruit juice is more affordable than fruits!

Both these industries can turn out to be a very large employment providers in the hinterland, and this would, at once, also arrest the mindless migration to urban areas by the rural folks. So, let us not view the current onion crisis in isolation. It might have erupted due to the problem of plenty (heavy rains), but no one can quarrel with the elements. Let us not blame the rains for our own monumental neglect of the agrarian and allied economy over the decades. We must apply all our efforts towards addressing agricultural and rural distress. Usher in corporate farming without compromising the interests of the landowners and farmers. Let the landowners be paid lease rental for, say, 99 years, and farmers be guaranteed employment as well as share of profits through stock offers. Only corporates can take a holistic view of agriculture, cold storage and food processing unless we are fortunate to replicate the AMUL model of producers' cooperatives on the larger agricultural front, too.

Agriculture, clearly, isn't getting the attention it deserves because, unlike IT, it is not glamorous. But a nation that condemns its agriculture to nature has no salvation.

**T**HE YEAR 2019 turned out to be a golden year for the 450-odd registered agriculture-technology start-ups, as they witnessed a growth rate of 25% (Nasscom, 2019). Also, these start-ups, in the Industry 4.0 era, are reported to have received \$248 million funding in a six-month period of 2019, which is 300% surge in total funding compared to 2018.

It is important to discuss why agri-tech start-ups have received considerable attention of technology developers, investors and agribusiness firms? And how to integrate them into the value chain?

We know that the Indian agricultural ecosystem is thickly populated by small-holders and driven by informality in the domestic markets, and lack of scalability, traceability, transparency in agri-value chains has made agribusiness less trusted, ill-governed and less remunerative to farmers and/or processors. Hence, an end-to-end technology-enabled architecture is necessary to integrate the value chains spanning production, processing and distribution. To this end, agri/dairy tech start-ups have gained salience because technology innovations brought out by these start-ups aim to capture or augment values in every possible "node" of the chain, and enhance chain traceability and efficiency through smart contract between multiple stakeholders.

Digital technology start-ups have unleashed their potential in improving crop production systems, optimising utilisation of critical resources, enhancing

# Scaling up Indian agri-tech start-ups

**How to build scalable and systemic solutions for agricultural value chains**

**KUSHANKUR DEY**

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traceability in food supply chains, and improving transparency in transactions. For example, the "food print" product promoted by Jivabhumii is a produce-based aggregation and food traceability solution working for integrated agriculture development in Karnataka.

In parallel, Samudra Network offers digitisation services for farmer producer organisations using mobile applications and dashboard. In addition, it provides agricultural market network to connecting farmer producer organisations with wholesale buyers, agri-finance companies, input suppliers, and logistics via market

linkages. Farmer Connect, a blockchain-based app, helps improve traceability for coffee value chain in Karnataka, Kerala and Tamil Nadu.

A number of start-ups are into the business-to-consumer (B2C) segment also. For example, AgroStar provides crop production solutions to farmers through a missed call or via its app-based service, apart from purchasing of critical inputs and farm implements. However, the fact is that most of these start-ups are yet to showcase scalable and time-tested solutions.

So, a key question arises, as after 2015, start-ups are yet to consolidate their busi-



ness. How to sustain their operations and integrate them into agri-value chains?

Here, we can draw insights from the Nasscom 2019 report that has important policy implications.

First, especially for agri/dairy-tech start-ups, business-to-business (B2B) is emerging as a revenue-generating segment relative to B2C and, thus, these start-ups need to partner with corporates and government agencies for value creation and appropriation. Some of these have already marked their footprints in employment rationalisation (EM3, Gold-farm), stakeholder empowerment (Samu-

dra Network, Farmsurge), supply chain integration (Yuktix, AgroStar), processing and exports (Jivabhumii), resource utilisation (KisanRaja), and digital infrastructure (FarMart, Gramcover).

Second, public-private partnership (PPP) in agricultural value chains is gaining ground for start-ups as they can benefit to private as well as public sector through formalising value chain finance, improving decision-making, streamlining direct benefit transfer or subsidies, accessing large markets and so on.

Third, fund-raising remains a challenge as start-ups require a few critical

years to withstand the test of time. Impact investors can, therefore, come forward to enable performing start-ups achieve their scalability and viability in value chain businesses. There is a silver-lining for fund-raising as agri-tech-focused Indian investor fund, Omnivore Partners, raised \$97 million in 2019 from companies based in the UK, Switzerland, the Netherlands, Belgium and Japan.

Fourth, agri-tech start-ups regulation calls for a robust policy framework—integrating financial inclusion, agribusiness incubation and acceleration, data privacy and sharing, and licensing policies into a single-window system. A few states have evinced interest in the promotion of agri-tech start-ups and made provision for catalytic or micro-fund (\$2-14 million) to nurture them. We can draw anecdotal evidences from Telangana, Tamil Nadu, Karnataka and Maharashtra.

Fifth, as agriculture and dairying is a state subject, agriculture and animal husbandry universities and anchored extension agencies need to identify potential start-ups for tie-up for technology solutions such as farming as a service and crop/livestock management. Agribusiness incubation centres should rope in agri-tech start-ups to sustain technology transfer from lab to land and attain scalability in agri-value chains.

Sixth, there is an utmost need for an appropriate institutional design, incentives and enabling market infrastructure to integrating digital technologies into agri-value chains.