

Opinion

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OPENING UP

Xi Jinping, China's president

In accordance with the need for further opening up, [we'll] improve laws and regulations, and clean up and abolish unreasonable regulations, subsidies and practices that impede fair competition and distort the market

FROM PLATE TO PLOUGH

FARMERS, WHO WERE PROMISED A MUCH BETTER DEAL IN THE 2014 BJP MANIFESTO, FEEL THEY HAVE BEEN TAKEN FOR A RIDE AS THEY ARE FINDING IT DIFFICULT TO RETAIN THEIR EXISTING INCOME LEVELS

Cow and cane: Will they become PM Modi's pain?

ONE WANTS to know about the quality of our evolving democracy, one must watch the ongoing election campaign in India. It is great fun too. And nothing is more interesting than tracking it in Uttar Pradesh (UP), where the real political battle is being fought. As they say, the road to Delhi's power goes through UP. It accounts for 80/543 Parliamentary seats. In the 2014 election, BJP and allies swept UP with 73 out of 80 seats. Although Narendra Modi came from Gujarat, he contested from Varanasi and scored a thumping victory in 2014. Most agree that it was the Modi wave in 2014!

But in the 2019 election, is the Modi wave still surging or waning? The grand road show of PM Modi in Varanasi seems to suggest that the mood of voters is still upbeat. Modi's campaign speeches pitch national security and tackling terrorism as the highest priority of his government. He categorically says that he will never hesitate to eliminate terrorists even if he has to bomb their safe havens in the neighbouring country. This brings lots of cheers and chants of "Modi, Modi" from the crowd. But how much of this will sustain till the voting day, and convert into votes for the BJP, will have to be seen. In the meantime, the electioneering pitch has certainly turned hot, even tipping over to remarks that range from 'Ali and Bajrang Bali' to as low as 'khaki underwear' by certain political leaders. Many others have whipped up emotions to divide people on religious and caste lines, forcing the Election Commission to ban them from campaigning for 48/72 hours.

The moot question, however, remains: will BJP perform in UP as good as it did in 2014? BJP supporters tend to believe that they will repeat the 2014 performance in UP, if not better. But the SP and BSP alliance poses a formidable challenge, and most political analysts believe that BJP will lose significant seats. The best bets for BJP are between 25-40 seats. Analysts also predict that BJP cannot equal its 2014 performance

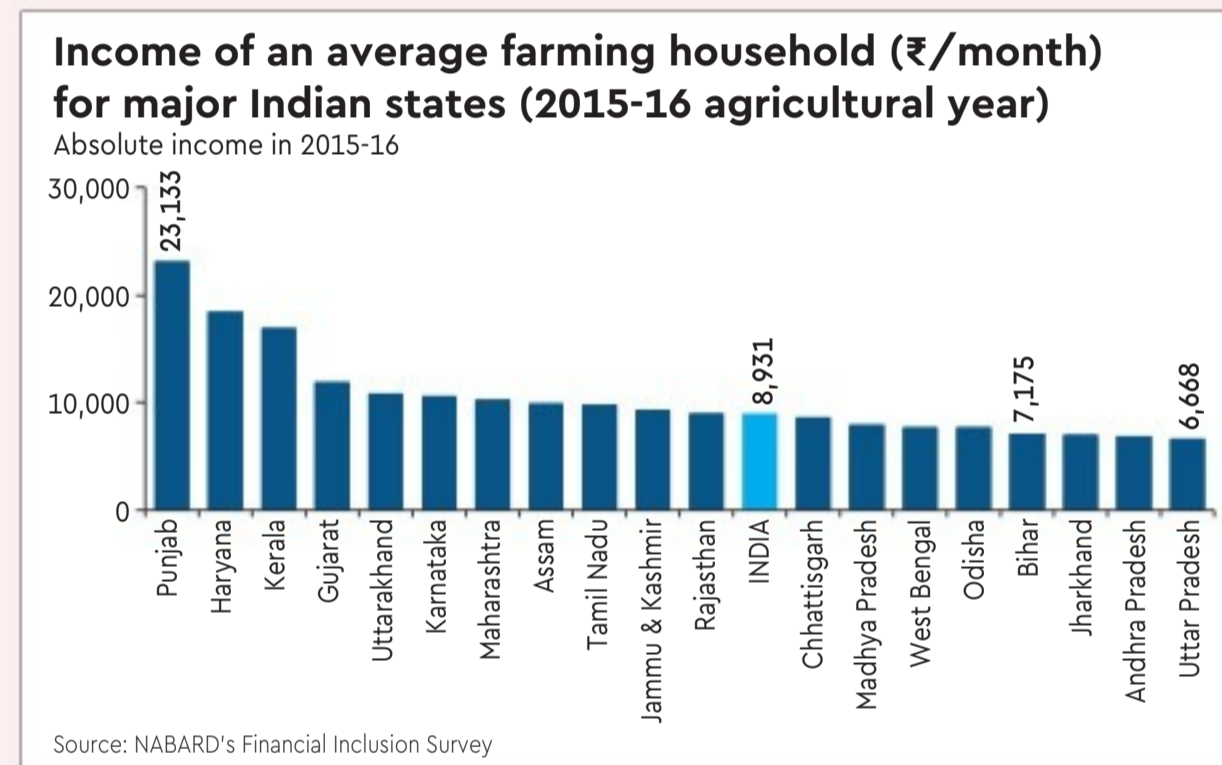


Gulati is Infosys chair professor for agriculture at ICRIER

even in Madhya Pradesh, Rajasthan and Chhattisgarh. One of the major factors behind this is the farm distress in this 'Hindi heartland', especially in UP. UP farmers are bracing the menace of wandering cattle to protect their fields since the UP government and the vigilante groups came down heavily on cattle traders/slaughter houses. This has adversely impacted the economics of livestock rearing in UP. UP is the largest producer of milk in the country as well as the largest exporter of buffalo meat. Traditionally, Yadavs have dominated the milk sector while Muslims and dalits have been engaged more in the meat sector. Their worsening economic condition and grievances will be fully tapped by SP and BSP for political votes.

Besides this challenge of cattle, there is a serious problem of sugarcane arrears,

which have crossed ₹10,000 crore. The last-minute effort to clear some part of this may help a bit, but farmers do not seem to be very happy in UP. Sugarcane is their most remunerative crop, and when cane arrears mount, their anger spills over to Delhi. Not long ago, many of these farmers from UP had marched and blocked highways to Delhi with their tractor-trolleys and some even had skirmishes with Delhi police at the border. The UP government has been threatening sugar mills with dire consequences if they do not clear cane arrears as soon as possible. But, given the mismatch between sugar prices and the state advised price of sugarcane, sugar mills can pay to farmers only at their own peril. The situation of mounting cane arrears is not new in UP. It is repeated almost every 4th or 5th year, but this time the



magnitude is high and it has been going on for more than a year. Farmers, who were promised a much better deal in the 2014 BJP manifesto, feel they have been taken for a ride. The slogan of doubling farmers' real incomes has not cut much ice with them as they are finding it difficult to retain their existing income levels, which are already pretty low.

Hence the big question: will cow and cane become PM Modi's pain? The time to carry out any reforms that are needed to bring livestock and sugar sectors back on track, and help augment incomes of farmers, has run out. The hurried, last-minute, announcement of the PM-Kisan scheme to give farm families ₹6,000 a year has not made much dent, even though UP is at the forefront to distribute that sum. But it is too little, too late. No wonder then, that instead of talking about raising the economic conditions of masses in rural UP, and talk about 'sabka saath, sabka vikas', which was the main slogan in 2014, the PM is now talking about successfully conducting 'Kumbh mela' in UP and giving befitting replies to those who harbour terrorists. Economics can wait.

Nevertheless, it is interesting to note that UP, with a population of 220 million people, is like the fifth largest 'nation' on this planet. More than three-fourths of its population lives in rural areas, with farming as their major occupation. More than 90% of holdings are small and marginal (less than 2 hectares in size). As per NABARD's Financial Inclusion Survey for the year 2015-16, the average income of a farming household in UP was just ₹6,668 per month as against ₹8,931 per month for the country. Ironically, UP's farm household income is even below those in Bihar at ₹7,175 and Odisha's ₹7,731 per month. Punjab and Haryana are way above. What all this indicates is that no matter which party comes to power at the Centre, UP's agriculture needs focused attention in order to augment farmers' incomes. Will that happen?

A dismal quarter, and not much hope of a reversal

With such poor results, there is little chance of firms either adding much capacity or hiring in a big way

GIVEN HOW THE economy has been slowing, India Inc was, in any case, not expected to turn in an exceptional performance for the three months to March. The first lot of results are modest, indicating that companies are struggling to grow their profits; for a sample of 80 companies (excluding banks and financials), net profits crashed by 30% year-on-year. That's despite revenues rising 16% y-o-y and also the fact that the universe includes a host of technology heavyweights. At Maruti Suzuki, revenues rose just 1.4% y-o-y with volumes dipping slightly and realisations up just 2.1%, while Hero Motocorp reported a fall in revenues of nearly 8% y-o-y.

The numbers make it clear that companies don't have enough pricing power to be able to pass on the elevated cost of commodities and, consequently, operating margins are contracting. At Tata Global Beverages, for instance, higher commodity costs and weak realisations resulted in a sharp 280 basis points fall in gross margins and fall in ebitda margins of 230 bps y-o-y. Again, at Hero Motocorp, operating margins came in at 13.6% in Q4FY19, smaller than in Q4FY18.

The bright spots so far have been very few. TCS turned in an impressive performance posting a strong growth in constant currency revenues, up nearly 13% y-o-y with a board-based increase across verticals. In contrast, Q4FY19 was a sedate quarter for Infosys whose revenues were driven by a single vertical and whose margins saw a contraction; ebit margins fell 320 basis points y-o-y. Again, Ultratech reported a strong set of numbers but ACC missed on virtually every metric.

The worry is that analysts don't see much of a revival in consumer demand in the near future; in the case of Maruti, for instance, they believe growing volumes in 2019-20 will not be easy because demand in urban India remains somewhat sluggish and will be further impacted by the significant increase in car prices due to regulatory changes. As is known, the carmaker has been offering attractive discounts to push sales. Indeed, companies could be under more pressure in 2019-20. Among the many macro headwinds they face are rising crude oil prices, slowing global growth and trade, limited liquidity and elevated interest rates. The weakness in consumption and exports will spill over into production and investment; factory output both in January and February was anaemic due to a sharp correction in capital and intermediate goods while infrastructure and consumption output growth also slowed. The Indian economy grew at a pitiable 6.6% y-o-y in the December 2018 quarter, the slowest in six quarters and the momentum is expected to slow further in Q4FY19 and through 2019-20. The services sector, the biggest contributor to the economy, showed a deceleration; incumbent telecom operators were hurt badly post the entry of RIL into the space in September 2016 and are just beginning to recover. The concern is that companies will not add either capacity or people; even now, it's just a handful of large companies in the banking and IT sectors that are hiring in meaningful numbers. Hopefully, the rains will not play truant else the farm distress could get exacerbated and rural demand will suffer.

Fertile ground for reforms

Revamping fertiliser-subsidy targeting will build on earlier reforms

THE GOVERNMENT HAS come a long way on fertiliser-subsidy reforms. Linking fertiliser sales to farmers' Aadhaar—fertiliser companies are to be paid the subsidy amount on the basis of quantity sold to an Aadhaar-authenticated farmer—and the neem-coated urea scheme have taken care of, respectively, ghost beneficiaries and diversion of subsidised urea for non-farm purposes. But, the last mile of reforms—de-linking the subsidy from industry and adopting a targeted, direct transfer to farmers—needs to be walked. To that end, the NITI Aayog, along with the finance ministry, are working on a way to do this is a significant step forward.

Though fertiliser subsidies fell from a peak of ₹76,600 crore (FY09) to ₹66,441 crore in FY18, it climbed back to ₹70,075 crore in FY19, and the government expects to incur a bill of ₹75,000 crore this fiscal. Meanwhile, it owes the fertiliser industry, as per *The Economic Times*, around ₹30,000 crore in arrears. The key reason why the fertiliser subsidy burden has increased over the years is that the subsidy is paid to the seller, who makes urea available to the farmer at a fraction of the market price. This has meant decades of indiscriminate use by farmers, at the cost of soil health and water pollution. Aadhaar-authentication is no cure, since that doesn't curb overuse by genuine beneficiaries. Besides, subsidised urea has spawned a grey market in which the fertiliser is smuggled into neighbouring countries, and genuine, Aadhaar-authenticated beneficiaries are likely a part of this. Agriculture economist at Icrier, Ashok Gulati, says in *Supporting Indian Farms the Smart Way*, a 2018 publication that he edited along with Marco Ferroni and Yuan Zhou of Syngenta Foundation, that every rupee spent by the government on fertiliser subsidies adds just 88 paise to the agri-GDP while roads add ₹1.10 and agri R&D adds a whopping ₹11.2. So, there is indeed a strong case for rationalising the subsidy, and making farmers the target of the subsidy is, indeed, a smart way to do this.

Implementing a direct transfer, though, will have its own set of challenges since the quantity of fertiliser required will depend on the soil quality and crop. Matched against Soil Health Card and agricultural land ownership data—while, as per the 2015-16 Agriculture Census, there are 14.6 crore operational holdings in the country, over 19 crore Soil Health Cards have been printed—regional fertiliser requirements can be estimated. The trick will be to arrive at a subsidy formula. The Shanta Kumar Committee on agricultural reforms, in 2015, had prescribed a uniform ₹7,000/hectare direct cash transfer in place of fertiliser subsidies. The government needs to carefully examine if such a standard remission will work or the amount needs to be tweaked for region-specific and crop-specific fertiliser requirement.

NoChill

Netflix and video-streaming may be lowering subscribers' sex drive

NETFLIX AND CHILL—when you or your "bae" wanted an amorous time at home—is dead. Because, now Netflix is "chill". In fact, a Wall Street Journal report says that many young Americans call it the new birth control. Because on-demand video streaming beats sex. A 2017 paper revealed that Americans were having lesser sex than they did three decades ago, and one possible reason is video-streaming. Of course, that is one of the many theories demographers are looking at to explain why the fertility rate in the US is at a record-low. It may be because American women are joining the workforce in larger numbers than ever before and are pushing maternity until it is too late or junking the option all together, or because lifestyle diseases are causing infertility among both men and women, or falling teenage pregnancy levels. But, the anecdotal evidence shows Netflix, Hulu are perhaps more charming than the man/woman/the person subscribing to non-binary gender identification by the average American's side.

While TV was a distraction before, scheduled programming was nowhere as powerful as video-streaming. There were ad-breaks, episodes and seasons that gave partners the chance to flirt, but now episodes can be watched back-to-back, without pesky ads—binge-watching. Every fourth person in a survey conducted in March had refused intimacy in favour of binge-watching in the preceding six months—younger people were more likely to do this, with 36% in the 18-38 age group choosing Netflix over Chill. Netflix, though, pleads innocent in the matter. Despite the company being quite clear about taking over each second of its subscribers' free time, it insists it can't really be blamed, even a bit, for falling fertility since the average subscribing household only streams up to two hours of content everyday, not too different from TV watching, or recreational sports.

Monetary revolutions

Fintech is redefining the financial services landscape in unprecedented ways

IT MAY NOT seem like it, but we are living through a single, if not more, revolution in the idea about and reality of money. During the 1970s, due to US abandonment of the gold-dollar link, oil-price spike and the resultant hyperinflation, monetary policy and central bank independence became much-debated topics. The quantity of money in circulation became the objective of monetary policy as the variable to control. Money proved slippery when it came to defining it. Was it cash or credit that needed regulating?

Whatever the conceptual problems, monetary policy won pride of place, and a Great Moderation prevailed between Keynesians and Monetarists. Confidence in market efficiency and rational expectations facilitated financial innovations, which led to excessive credit creation and the crash of 2008.

Now, ten years on, we are in another world. It is the world of cryptocurrency and fintech. Cryptocurrencies were news a while ago when Bitcoin holding became profitable. But the logic behind Bitcoin is the old anti-inflationary concern about retaining value of money against excessive creation of money supply by central banks. That no longer seems to be the problem. Indeed, except for oil and primary commodities, inflation seems to have disappeared from daily life. Central banks cannot seem to generate inflation to reach their target number of 2.5%. There is a whole host of cryptos, but they have lost their shine.

It is fintech which is now ushering a new revolution. Giving the CD Deshmukh Lecture at RBI on Thursday, April 25, Augusto Carstens, the former finance minister and Central Bank Governor of Mexico, who is now at the Bank of International Settlements in Basel, dealt with the twin topics of financial inclusion and fintech. The

rapid growth in fintech-mediated financial transactions over the last five years is breathtaking. Unlike with previous revolutions, emerging market economies are not left behind. Indeed, it was the very paucity of access to financial institutions which helped innovations like Kenya's Mpesa to facilitate financial transactions via mobile telephony. In India, the ubiquity of mobile subscribership has aided the creation of technologies for easing financial inclusion and successful governments have been committed to it. The Jan Dhan scheme has made bank accounts almost universal.

There are two sorts of issues raised by fintech. One is that the old-fashioned retail branch banking is under threat of extinction. In UK, High Street bank branches are closing down. ATMs plus online banking reduce, if not remove, the need for face-to-face banking. Indeed, I observe in London that having to go to your bank branch is necessary only for those who have issues of adequate balance. Live retail banking has become an inferior good! Thus, banks may become like high-class legal practices used by only high-value clients. The rest of us need hardly visit a bank. In India, the demonetisation experiment has accelerated the use of electronic payment technologies. India could soon see a steep decline in the amount of currency needed to meet transaction demand for money. This would probably rank as the biggest benefit of DeMo.

But Carstens pointed out dangers here as well. One is the prospect of increasing concentration in the banking sector. Fewer banks will survive the rapid redefinition of client needs. Market concentration brings with it risks of monopoly power and the need for the policymaker to enforce competitive norms. Readers will have noticed

that a recent move for the merger of two large banks in Germany raised a debate about its desirability. As of now, the Deutsche Bank and Commerzbank have given up the idea, but bank mergers or takeovers will become frequent. Competition policy may need to be internationally coordinated since fintech makes remote transactions easy.

Of course, the conventional issues of monetary policy such as rate setting and an anti-inflationary stance will not go away, but, obviously, the old-fashioned 'demand for money' equations will need to be rethought. Central banks may need to alter interest rates much more continuously rather than on set occasions. Markets have now the wherewithal and the analytical knowledge to be able to handle frequent small changes that the central bank may think necessary. There is no reason to insist on 25 basis points change at a time.

Carstens also raised the vexed question of data ownership and privacy. Our devices know more about us on a daily, if not minute-by-minute, basis than even we do. The principal providers are few and very large oligopolies. We sign some agreements with them, but we know we are on a losing wicket. The new technology has made data a resource from which these companies can make profit. If, in the old days, socialists thought profits come from exploitation of labour power that a worker sells to the capitalist, it is we ourselves who generate surplus value for the Amazons and Googles by providing our data. Profits come from your consumption of data over your smart phone! The concentration of power in the hands of these four or five large producers of smartphone services is enormous. It is a global problem and will need global solutions.

MEGHNA DESAI

Prominent economist and labour peer



LETTERS TO THE EDITOR

Flying away from nose-diving profits

While loss of market share for the leading private carrier would render an advantage to other players in the sector, it is important that firms focus on key takeaways from the recent course of events, and reflect upon the need to establish proactive due diligence in order to comply with the laid-down market benchmarks, especially in areas of finance and operations. A higher performance and a competitive market position call for risk hedging of capital. Optimal utilisation of financial resources and borrowed credit, and large-scale governance reforms are a prerequisite to boost workforce morale, achieve continuous improvement and preserve the existing consumer base. Nose-diving profits and impediments to business continuity for a large-scale operator, despite rising air fares and healthy projections for the sector, highlight the rising need for continuous improvement, robust governance to manage workforce efficiently — Girish Lalwani, Delhi

A Nelson's eye

While it is highly laudable that Gomathi Marimuthu, hailing from a very poor and economically backward family, has won gold in the Asian Athletics Championship at Doha, it is really appalling that neither the president nor the prime minister nor any of the Union ministers has congratulated her for her great feat. Even CM Palanisamy just congratulated Gomathi without announcing any cash awards to her. It is in record that he has announced huge cash awards to sports winners in the past, including those who belonged to other states. Maybe winning the Lok Sabha elections will garner more attention than honouring a girl who has brought glory to Tamil Nadu and her country — Tharcus S Fernando, Chennai

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● **CHLOROPHILE**

Are we growing enough pulses now?

We are moving towards self-sufficiency. The annual pulses production averaged 23.7 million tonnes in the past three years, an 80% increase over the average of the three-year period ending 2003-04. This was led by chickpea, whose share in pulses production is 43%

ARE WE SELF-SUFFICIENT in pulses? Peter Carberry, the director-general of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the Hyderabad-based institute, asked Narendra Pratap Singh, the director of Kanpur's Indian Institute of Pulses Research (IIPR), during his presentation earlier this month. Singh replied we are moving "towards" self-sufficiency. Although there has been a step up in the production of pulses to an average of 24 million tonnes in the past three years, Singh estimates the demand at about 32 million tonnes, which is why we import 5.5-6.5 million tonnes annually. Carberry's was a pertinent question because the shortage of pulses was acutely felt in 2015 and 2016. Production fell sharply due to bad weather. That and (suspected) cartelisation of traders boosted prices. Pigeon pea (*tur*) sold for ₹8,798 per quintal, wholesale, towards the end of 2015, nearly double the price

prevailing in last quarter of 2014. That of black gram (*urad*) rose 80% between the two periods. Chickpea or *chana* was less affected but its price at ₹8,553 per quintal at the end of 2016 was 87% higher than in the last quarter of 2015.

With consumers getting restive and prices becoming an issue in state assembly elections, the government stepped in with policy support. Seed hubs were established in the main 150 pulses-growing districts. Central agricultural research institutes and state agricultural universities stepped up production of breeder seeds. These were multiplied by seed corporations and extension agencies called KVKs for sale to farmers. Subsidy was given only for less-than-10-year-old seed varieties. These were not only high-yielding, but also pest- and disease-resistant. Seed availability persuaded farmers to replace old with new.

Support prices for pulses went up. They have risen by 46% for chickpea, 52% for *mung* bean and 30% for pigeon

pea over the past five years. The government started procuring pulses. That of pigeon pea rose from 45,000 tonnes in 2015-16 to 9 lakh tonnes the next year. It fell to 2.58 lakh tonnes in 2017-18 as prices moderated. Chickpea procurement by the Centre was a modest 60,000 tonnes in 2017-18 and an equal amount the previous year. Seven states procured 3.64 lakh tonnes of chickpea in 2014-15 under their price support schemes.

Because of these measures, annual pulses production has averaged 23.7 million tonnes in the past three years, an 80% increase over the average of the three-year period ending 2003-04. This was led by chickpea whose share in pulses production is 43%. Its output doubled from 5.14 million tonnes to 10.27 million tonnes during these two periods.

With 63% of global production, India leads in the cultivation of chickpea—a crop grown in 52 countries. Madhya Pradesh contributes the most to the country's chickpea production. It is the "chickpea bowl of the world," says Pooran Gaur, ICRISAT's Research Programme Director for Asia, and a chickpea breeder.

A report in this space on April 19 (<https://bit.ly/2UrzBeE>) detailed how chickpea, a winter season crop of north India, elbowed out of that region by the Green Revolution in rice and wheat, and adapted to Andhra Pradesh, despite its warm weather. While average productivity is the highest in that state, Madhya Pradesh is the largest producer. It has shown continuous increases in area, production and yield. The area under chickpea in the state has increased eight-fold from an annual average of 64,700 hectares between 1971 and 1980 to over 3 million hectares.

The support that the government gave for pulses production after their prices spiked four years ago wouldn't have been effective if seed technology wasn't available. Mohammad Yasin, principal scientist at the Rafi Ahmed Kidwai College of Agriculture in Sehore near Bhopal, attributes Madhya Pradesh's fascination for chickpea to the 54 improved varieties that were released since the 1960s, of which 21 are currently in the seed production system and 15 are popular. Most of the lines were developed at ICRISAT and adapted to local conditions at the agricultural research stations in Madhya Pradesh and Maharashtra before release. They are high-yielding and have maturities ranging from 85-120 days. The early maturing ones, which are harvested in March, can escape summer heat at the pod-filling stage. Most of them are resistant to wilt. The state's farmers can comfortably grow two crops a year of soybean and chickpea.

SK Rao, vice-chancellor of the state agricultural university in Gwalior, and a chickpea breeder, says good management practices are necessary to harness

yield gains from genetic improvements. The adoption of line-sowing with seed drills has resulted in better germination (than when broadcast) as seeds are placed at right depths, get the required moisture and the plant population is denser. In the Malwa region, growers of extra bold seed *Kabuli chana*, the only variety allowed to be exported, have adopted integrated pest management practices and give water and nutrients in precise quantities through drip pipes, as they get premium prices. A hundred grains of these varieties weigh 45-50 gm, compared to *desi chana* varieties that weigh 15-27 gm.

The state's policies have been helpful. In Karnataka, varieties released elsewhere need the endorsement of an official committee for local sowing. In Madhya Pradesh, there is no such restriction. It also has a good seed production system, growing out of a 25-year-old programme at the agricultural university in Jabalpur which was funded by the Indian Council of Agricultural Research (ICAR).

About 60% of the chickpea varieties sown in the state are new and improved, says Gaur. In Andhra Pradesh, almost 100% of the varieties are new, but chickpea is a relatively new crop there.

The soybean-chickpea cycle, while profitable, has had deleterious consequences, too. In parts of Madhya Pradesh where it's alternated with soybean, the soil has been depleted of molybdenum, an element that enables leguminous plants to activate enzymes in their nodules, which help absorb and store nitrogen from the air. Studies by SC Gupta, principal scientist (soil science) at Rafi Ahmed Kidwai College of Agriculture, have shown that by coating 1 kg of seed with just 1 gm of ammonium molybdate—an extra cost of ₹400 per hectare—chickpea yield can go up by 3 quintals. This innovation was accepted and the government supplied the micronutrient at a discount for two years under the National Food Security Mission. But farmers couldn't get it in the last planting season because of the government's inability to contract supplies in time.

Madhya Pradesh's average chickpea productivity is 1,160 kg per hectare, higher than the national average of 972 kg. Within the state, average yields are higher in Chhindwara area (CM Kamal Nath's constituency), though the 16 districts of the Malwa and Vindhya plateaus, of which Indore and Bhopal, respectively, are best known, have larger areas under chickpea and higher production. Chickpea is unique among pulses, in that only 15% of the output is used as *dal*, says Singh. About 60% is consumed as *besan* or added to *atta* to fortify it with fibre and protein. The rest is used as seed—it takes 80-100 kg of seed to sow a hectare.

The production of pigeon pea has also doubled—from 2.36 million tonnes in 2003-04 to nearly 5 million tonnes in 2016-17. But it has not stabilised.

The development of a summer variety, which matures in 55-60 days, has expanded the mung bean area in Punjab and Haryana because of the prohibition on early planting of rice, to conserve groundwater. The crop is grown after wheat, and being a legume crop, helps improve soil fertility. Summer mung bean production has doubled over the past 15 years, though the output of the rainy season (*khari*) crop has been declining for much of that period.

To stabilise prices, higher pulses output will have to be complemented with better storage technologies. Whole pulses don't keep long. In the presence of moisture, they get infested with bruchids (lice-like pests) called *ghun* in Hindi. These enter during the flowering stage and get encapsulated in the seed coat. Singh recommends irradiating whole pulses with low doses of gamma rays. The IIPR has found the machines used by Kanpur tanneries to decontaminate leather to be effective. Gaur says triple-layer bags, developed by Purdue University of the US, are a low-cost, effective and insecticide-free method of storing pulses. They cut off oxygen supply and prevent insect infestation. Developed under a project funded by the Bill & Melinda Gates Foundation, the bags have been used effectively to store cowpea (*lobia*) in Africa. The Odisha government has given 60,000 of these bags to farmers in the state this year for storing groundnut. ICRISAT has recommended these for pulses as well.

Can we really prevent internet fraud?

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Understanding the dangers of cyberspace

THE WORLD WE ARE LIVING in is a tricky and, often, dangerous one. Over the years, danger came in various forms and from varying sources, from wild animals and epidemics to war and nuclear attacks. What constitutes danger also keeps changing over time, and in this age of digitisation and technology that we find ourselves in, cybercrime presents one of the most formidable dangers.

The internet, as a medium, is an inherently insecure space. Cybercriminals and fraudsters are constantly looking to exploit vulnerabilities to perpetuate frauds and extort victims. Credit card cloning, DDoS attacks, WannaCry, identity theft, social engineering are just some of the most commonly used tools of cybercriminals and this is changing. Cyber frauds and hackers are becoming more imaginative and their tools are becoming more sophisticated.

With connectivity and increased sharing of data, we are more than ever susceptible to such attacks. No one is safe and it is a matter of 'when' and not 'if' an online attack happens. With sufficient awareness and precaution, individuals and organisations can protect themselves from cyberattacks and that is the key. There is nothing to stop hackers and criminals from trying, but with the right awareness and systems in place, most, if not all, cyberattacks can be prevented.

A common misconception about cybercrime is that it is purely an IT problem. We must understand that cybersecurity is also about risk management. It is not just big organisations that are being targeted, small organisations with just 4-5 systems and even individuals with supposedly little or no valuable information are the targets. Believing the myth that it will not happen to me is erroneous. No one is really safe and we are perpetual targets of social engineering and phishing attacks looking to trick us into opening infected e-mails, web pages and links.

With things around us from watches, speakers, household appliances, buildings and even cities becoming connected and getting smart in the process, we are increasingly under threat and the danger will only grow as the connected network grows. While being connected may be empowering, it can cause serious privacy concerns. News of fitness apps giving away private information such as location, movement patterns and preferred routes is unsettling; this information can be critical when it pertains to military or law enforcement agencies. Broadly speaking, the world can be classified into two categories—ones who have been attacked by cybercriminals and the ones who are unaware that they have been attacked. This is true for companies as well as individuals.

Preventing a cyberattack will necessitate a change in attitude of individuals as well as organisations. Contrary to popular belief, cybersecurity is not always a costly affair if we are proactive. Taking small incremental steps and awareness is the key. We need to have a keen understanding of the risk factors, stay aware of the latest frauds and their modus operandi, limit social media posts to avoid sharing personal information, shouldn't share confidential information such as passwords and PINs, and use up-to-date anti-viruses and original software, along with other available safety and security tools when going online.

The 'watering hole attack', a targeted attack against a business or organisation, is an effective technique for hackers. In one such attack, hackers compromised the server hosting the website of a popular restaurant frequented by government employees—replacing the menu file with another set that was embedded with malware. So, when employees viewed the menu from their secure machines, they were unknowingly downloading the malware as well.

Dealing with cybersecurity also calls for a strategy towards risk mitigation and contingency planning. A one-off approach towards risk mitigation and dealing with attacks is unlikely to be effective in the fight against cyberthreats. Every threat, every incident should be viewed as a stepping stone to check preparedness and improve security standards. To be effective in dealing with cyberthreats, the entire exercise needs to be a sustained and proactive process, and not just a reflexive one. The same is true for individuals, as well as organisations of all shapes and sizes.

Cybersecurity is also about risk management. It is not just big companies that are being targeted, small ones with just 4-5 systems and even individuals are the targets

TO BRING HOME THE point, this piece focuses on a comprehensive manner on all types of disastrous impacts of climate change or global warming on all forms of life on planet Earth. I would discuss what environmental calamities are currently happening and what are very likely to happen in the future if 'climate change' is not tackled in right earnest with all urgency. Alas, nothing is being taken seriously by the world political leaders and particularly rich nations (US President Donald Trump is a notable case in point), even though it is their rampant overconsumption, pollution and food waste over more than 150 years (since the advent of the Industrial Revolution) that has greatly contributed to climate change. The International Energy Agency (IEA) recently reported that energy-related carbon dioxide emissions in 2018 rose by 1.7% to 33.1 billion tonnes from the previous year—the fastest since 2013. Is it not alarming!

The latest UN report 'Global Environment Outlook 6 (GEO 6)' in this regard is an eye opener, which states as under:

The current Nationally Determined Contributions (NDCs) under Paris Agreement (2015) are just a 'third' of carbon emissions mitigation required to keep the average global temperature rise below 2 degree Celsius over pre-industrial levels. It

Act on climate change, now

India and China should help bring all nations on a common platform at COP 26 in 2020

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means even if NDCs are fulfilled, the temperature will still shoot up to 2.7-3 degrees and may even go beyond 3 degrees with the US withdrawing from the agreement.

Although the report gives a global perspective, the outlook is sadly bleak for India as we may fail to achieve our Sustainable Development Goals (SDGs) despite our many national action plans to achieve them. Moreover, about 60 crore people in India depend on perennial rivers, which are in jeopardy due to glaciers receding and the ground water resources too being adversely affected because of this. Here, I may add that if the world fails

to keep the temperature rise under 2 degrees Celsius, rivers of the world (such as Yellow, Ganges, Yangtze, Yamuna and Mekong) would shrink. There would be more uncontrollable droughts, floods, intense landslides and avalanches. India is likely to see the greatest extremes because of its vulnerability and crores of Indians would have to move. The vast areas of Indo-Gangetic plains will become non-livable by the middle and the end of this century. What a catastrophe it would be!

The report emphasises adverse health impacts for all people in the world (expected to be 1,000 crore by 2050, of



which 66% would be living in urban centres) due to environmental degradation of atmosphere, land, oceans and biodiversity, which would be of irreversible nature.

Earlier, the Intergovernmental Panel on Climate Change (IPCC) report on global warming in October 2018 had stated that global temperature will rise by 1.5 degrees between 2030 and 2052 and a rise beyond 1.5 degrees would mean heat waves, heavy rainfall, water shortage, reduced farm output, coral bleaching and sea levels rising. It would inflict a colossal damage. Coastal nations and agricultural economies like India, already facing climate extremes,

would bear the greatest burnt.

There is yet another aspect of severely adverse impacts of climate change, which the world is slowly realising. It concerns various kinds of social stress linked to climate change, leading to conflicts among civilian population the world over. In this regard, I mention a very recent UNICEF report of 2019 which says that the lives of over 1.9 crore (including 5 lakh Rohingya refugees from Myanmar) Bangladesh children are at risk from impacts of devastating floods and cyclones because of climate change. The report documents that children are being forced into sex trafficking or marriage to survive, which has created tensions among people.

The World Meteorological Organisation in its just out annual report has particularly focused on this issue of linkage between climate change and social tensions creating imbalances and instability in many parts of the world in the future. This is simple to understand because climate change adversely affects agriculture, fishing, etc, and thus livelihood; coastal areas get submerged due to rise in sea levels and water scarcity is created. All this induces migration to other parts of the region or urban areas, leading to riots over limited resources as some research studies by reputed institutes in India and UN and other international organisations

have brought out. From India's point of view, Bangladeshi people may migrate to India in case of such calamities due to climate change. It is thought that rebel activities and Maoist movements gain momentum because of climate-related impact on livelihood pushing up migration of civilians to cities, adding to strife.

In view of this grim scenario, a debate is now raging in some parts of the world whether climate change should be a factor in decision to have children. There are even groups such as BirthStrike—people who have decided not to have children because of climate change. Even if this is dismissed as a stupid thought today, the change of our children's fate is not denied. In this respect, there was a protest on March 15 this year by schoolchildren across 90 countries of the world as part of 'Extinction Rebellion'.

To conclude, rich nations must sufficiently enhance their existing NDCs (in the light of available valuable reports) even magnanimously compensating for the lack of it on the part of the poor and small island nations. They have the financial power to do so. India and China should combine efforts and play strong leadership role by bringing all nations on a common platform at COP 26 in 2020, which would be a critical moment for our planet. That is the only way to save humanity.