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   National
   Economy
   India and World
   International
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Introducing a new and convenient product, to help the aspirants for the various public services examinations. The knowledge of the Current Affairs constitute an indispensable tool for all the recruitment examinations today. However, an aspirant often finds it difficult to read and memorize all the current affairs, from an exam perspective. The Newspapers and magazines are full of information, that may or may not be useful for the exams. Thus, a candidate is forced to spend a substantial amount of his time in selecting and maintaining notes for the current affairs.

Another problem is that it is difficult to get every bit of information, relevant from the exam perspective at one place. Thus, candidates are often found wasting their time in search of current affairs material. It is with this problem in mind that we have come up with the GIST of The Hindu and Press Information Bureau (PIB).

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Best Wishes
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Courtesy:
The Hindu
Press Information Bureau (PIB)
INS Karanj boosts Navy’s firepower

The Navy’s third state-of-the-art Scorpene class submarine, INS Karanj, was launched by Reena Lanba, wife of Chief of Naval Staff Admiral Sunil Lanba, here. The new submarine is named after the earlier Kalvari class INS Karanj, which was decommissioned in 2003.

Six Scorpene class submarines are being built under Project 75 by the Mazagon Dock Shipbuilders Limited (MDSL), Mumbai, under a $3.75 billion technology transfer signed in October 2005 with the Naval Group of France. However, the programme has been delayed by four years due to construction delays. The Prime Minister’s Office conveyed its annoyance to the Defence Ministry for not taking stringent action against the Naval Group and MDSL for the delay.

Admiral Lanba said, “MDSL and the Naval Group have put their houses in order and we have seen quick launches of the first three boats. I am quite confident that they have learnt from the experience of building and commissioning the first boat. I do not foresee any more delays in the programme.”

The Scorpene class is the Navy’s first modern conventional submarine series in almost two decades, since INS Sindhushastra was procured from Russia in July 2000. INS Karanj saw action in the 1971 War and I am sure that this new incarnation will live up to its legendary name sake,” the Navy chief said, adding that he expected the new Karanj to be commissioned by the end of the year.

Wednesday’s launch follows the launch of the first two Scorpene submarines —INS Kalvari and INS Khanderi. INS Kalvari, the first to be launched, was commissioned in December 2017 by Prime Minister Narendra Modi. INS Khanderi, which was launched in January 2017, is currently undergoing deep dive trials and is expected to be commissioned later this year, according to Navy officials.

‘Speedy delivery’

Admiral Lanba said he expected timely construction and speedy delivery of the remaining three submarines —Vela, Vagir and Vagsheer. “The three submarines are in various stages of outfitting. The entire project is expected to be completed by 2020,” a defence official said.

Scorpene submarine programme makes progress

The second Scorpene submarine Khanderi is expected to complete sea trials by the middle of this year, while the fourth and the fifth submarines, under construction at Mazagon Dock Limited, Mumbai, are expected to be assembled later this year. The third submarine Karanj was launched into water early this week.

Khanderi is undergoing extensive trials, including deep dive trials. The fourth and fifth Scorpene submarines are to be boot ed up this year,” a senior officer said.

‘Boot Together’ is a process wherein five separate sections are welded to put a submarine together.

Technology transfer

Khanderi, which was launched in January 2017, is expected to complete all trials by the middle of this year, subject to the Monsoon and will be ready for induction. MDL is manufacturing six Scorpene submarines under technology transfer from Naval Group of France under a 2005 contract worth $3.75 bn. The first of the class, INS Kalvari, joined service in December last year.

Meanwhile, the just launched Karanj has to undergo rigorous harbour and sea acceptance trails after which it would be commissioned into service.

“Karanj will join the Navy next year. The fourth Scorpene is expected to be launched into water next year,” the officer added.

The Scorpene class is the Navy’s first modern conventional submarine series in almost two decades since INS Sindhushastra which was procured from Russia in July 2000. Meanwhile, the Navy is drawing up plans to install Air Independent Propulsion (AIP) modules on all the Scorpene submarines when they go for normal refit six years after their induction.

Jallikattu pleas go to Constitution Bench

They contended that the amended laws had opened the gates for the conduct of the popular bull-taming sport in the name of culture and tradition despite a 2014 ban by
the Supreme Court. It is the first time the Supreme Court is considering the question of granting constitutional protection to jallikattu as a collective cultural right under Article 29 (1), a fundamental right guaranteed under Part III of the Constitution to protect the educational and cultural rights of citizens. “It has never been looked into whether a State can claim constitutional protection under Article 29 (1) for what it thinks is a cultural right,” Chief Justice of India Dipak Misra had orally observed in the previous hearing. Finally, the Bench would examine whether the new Jallikattu laws are “relatable” to Article 48 of the Constitution, which says it is an endeavour of the State to organise agriculture on modern and scientific lines.

Vehicular pollution to hit generations: SC
The Supreme Court described the issue of vehicular pollution as “very serious” and a “critical problem” and observed that it would have an impact not only on this generation but also on the children yet to be born. The apex court said the Government could not take the issue lightly and directed the Ministry of Petroleum and Natural Gas (MoPNG) to file an affidavit indicating the position as regards the availability of Bharat Stage (BS)-VI emission standard compliant fuel in Delhi. BS-VI emission standard is scheduled to come into force from April 1, 2020 across the country. A bench comprising Justices Madan B Lokur and Deepak Gupta asked the Ministry of Environment, Forest and Climate Change (MoEF&CC) whether any study was conducted on environmental pollution, its effect on the health of people and the cost to deal with it. Additional Solicitor General A.N.S. Nadkarni, appearing for the MoEF&CC, said a study was underway and that he would get back to the court with its details. To this, the bench said if the Government did not have any material of its own and claimed that a scientific study carried out by any foreign scientist on the issue was useless, then it was creating a problem for itself as well as the people. “It is a very, very serious matter. It is a critical problem. It is going to impact children who are already born and who are going to be born. We do not think that the Government of India will take it so lightly.”

Advocate Aparajita Singh, assisting the court as an amicus curiae (friend of the court), told the bench that the BS-VI norms should be made applicable in the Delhi-National Capital Region (NCR) from April 1, 2019 as the government itself had acknowledged that the people were suffering due to pollution. She also questioned the April 1, 2020 timeline for BS-VI norms. “They cannot take the health of citizens so lightly,” Ms. Singh said, adding that as per the Centre’s affidavit, Rs. 80,000 crore were spent on BS-VI norms.

Electric cars
She also raked up the issue of electric cars in India and asked that when the manufacturers were able to make these cars, then why could they not shift to the BS-VI norms earlier. Ms. Singh also said that cars which were not BS-VI compliant should not be allowed to be registered after the new norms came into effect. Referring to data, she said pollution would come down by around 80% in case of the BS-VI vehicles, as compared to the BS-IV ones.

Fresh Constitution Bench to examine Citizenship Act provision
The Supreme Court decided to refer to fresh Constitution Bench pleas to examine the validity of various aspects of a provision of the Citizenship Act 1955, including the cut-off date for awarding citizenship to Bangladeshi immigrants in Assam. Section 6A of the Act relates to provisions for citizenship of people covered by the Assam Accord.

India successfully test-fired its short-range nuclear capable ballistic missile Agni-1 with a strike range of over 700 km from a test range off the Odisha coast, Defence sources said. The indigenously developed surface-to-surface missile was launched as a part of a periodic training activity by the Strategic Forces Command (SFC) of the Army to consolidate operational readiness, they said. The state-of-the-art missile was launched around 8.30 a.m. from a mobile launcher at Pad 4 of the Integrated Test Range (ITR) at the Dr. Abdul Kalam Island, formerly known as Wheeler Island, the sources said. Describing the trial a “complete success”, they said that all the mission objectives were met during the test. The sophisticated Agni-I missile is propelled by a solid
rocket propellant system and is equipped with a specialised navigation system that ensures it reaches the target with a high degree of precision, the sources said.

**On alert**

Meanwhile defence sources said troops have been put on alert as the situation is still developing in the Maldives. No order has been issued to move any troops or aircraft towards the country, they said. Resources could be mobilised at a short notice, the sources added, but rejected the reports that India was preparing for action. "Talk of any kind of intervention seems premature," said former diplomat Rajiv Bhatia, advising caution and restraint.

"This is not the first time we have seen neighbouring countries move from democracy to dictatorship, or carrying out policies inimical to India," he added, saying New Delhi would have a reason to move if Indians in Male face any direct threat.

Former Foreign Secretary Shyam Saran also said India's options would be limited if it decided to "go it alone" in the Maldives, even though President Yameen's actions to contravene the Constitution could be seen as a "challenge to international order".

Adding to the limitations is the fact that the Maldives has left the Commonwealth, and the SAARC (South Asian Association for Regional Cooperation) is not meeting, and neither multilateral fora has much leverage over the Maldivian government at present.

**Intervention in 1988**

As New Delhi weighs its options, a former diplomat who was part of previous Indian interventions in the Maldives, including in 1988, when Indian troops defeated a coup d'etat against then President Gayoom, said it would be a mistake to see the situation there in isolation.

"The Maldives is only one part of the troubled region, and a misstep here could become a trigger for other problems for India in South Asia," the retired official, who preferred not to be named, told The Hindu.

**India successfully test-fires nuclear capable Prithvi-II**

India successfully test-fired its indigenously developed nuclear capable Prithvi-II missile as part of a user trial by the Army from a test range in Odisha, Defence sources said. The trial of the surface-to-surface missile, with a strike range of 350 km, was carried out from a mobile launcher from launch complex-3 of the Integrated Test Range at Chandipur.

**SC flags exclusions under Aadhaar**

The Supreme Court asked the government and UIDAI whether it was not their obligation to ensure that ordinary people, especially pensioners and the marginalised sections, were able to access their entitlements till an "adequate mechanism" for authentication of identity under the Aadhaar Act is put in place.

Justice D.Y. Chandrachud, one of the judges on the Constitution Bench led by Chief Justice Dipak Misra hearing the challenge to the Aadhaar law, was responding to Additional Solicitor General Tushar Mehta, who read out a communication by the Cabinet Secretary in December last year, informing that possession of Aadhaar is enough to access entitlements if online authentication is not feasible.

**Nationwide problems**

"This shows that the Cabinet Secretary, as late as this, perceived a countrywide problem," Justice Chandrachud reacted.

But the government insisted that the law does not exclude anyone from accessing their entitlements merely because of authentication failures by fingerprint and iris scanners.

Justice D.Y. Chandrachud, on the five-judge Constitution Bench, termed exclusion of people from their rightful entitlements because of biological reasons like old age was of a "permanent nature" unlike exclusion due to infrastructural failure like lack of electricity, Wi-Fi or biometric scanners in certain regions of the country. The latter can be remedied, while the former cannot, the judge pointed out to the government.

The court was hearing submissions by senior advocate Kapil Sibal, on behalf of petitioners, that Aadhaar was a scheme which "works against people like the poor, the marginalised and the old who already have entitlements."

He submitted that the elderly were unable to get their pension because the scanners were unable to read or scan their fingerprints or irises.

"Nobody is being excluded. It is enough to furnish proof..."
of Aadhaar number wherever infrastructure is not functioning. That is what the government wants,” senior advocate Rakesh Dwivedi, for UIDAI, countered by reading out provisions from the Aadhaar Act.

**Lack of awareness**

“But many people are illiterate and may not know about these provisions. You (government) have to take care of them,” Justice A.K. Sikri, on the Bench, reacted. Attorney-General K.K. Venugopal intervened to say that there was no need for an interim order as the government had extended the deadline for Aadhaar linkage to subsidies, benefits and services to March 31, 2018. Chief Justice Misra said there was no need to pass any interim orders for now and the hearing should proceed. “We are not taking any note of that,” Chief Justice Misra said.

**Rafale deal: Jaitley counters opposition**

Opposition ruckus over the Rafale deal interrupted Union Finance Minister Arun Jaitley’s Lok Sabha speech defending the Budget 2018-19, even as he countered allegations regarding the aircraft contract, saying the opposition was trying to manufacture a scam when there was none.

Mr. Jaitley also alleged the Opposition were seriously compromising India’s national security by seeking to make public the details of the Inter-Governmental Agreement with France.

On the Budget and economic issues, the Minister said the NDA government has remained committed to fiscal prudence, Aadhaar’s privacy framework, providing relief to the middle class, the salaried, pensioners, senior citizens and small firms, besides curbing price rise and preventing round-tripping of money via overseas tax havens. He also assured that the Centre would address Andhra Pradesh’s financial concerns by honouring its commitments and by expediting a solution by which funds can be provided through an alternative mechanism.

On the Rafale deal, Mr. Jaitley said, “The new trend [of the opposition including Congress] is to manufacture corruption charges when there is none... they are seriously compromising India’s national security by asking for such details.”

Stating that it is in the larger interest of India’s national security to keep the price details of defence deals a secret, Mr. Jaitley added that if such specifics were revealed, enemies would get to know about the weapons systems and their capacity.

Congress leader Shashi Tharoor interrupted to state that allegations were not being manufactured and that the government was accountable to Parliament to disclose the expenditure of public money.

**UPA precedent**

Mr. Jaitley responded by referring to the UPA government’s responses in Parliament — including those given by Pranab Mukherjee, who was the finance and defence minister in the UPA government — to say the UPA had also declined to disclose the price of various defence procurement citing confidentiality requirements.

The Minister said, “Please ask your [Congress] party president to go back to Pranab Mukherjee and take certain lessons from him,” adding that the NDA was as accountable to Parliament as the UPA was. On former finance minister P. Chidambaram’s question on whether the impact of ‘high’ deficits would be inflationary, Mr. Jaitley said Congress party should remember that during the UPA regime inflation was 11-12% and that the fiscal deficit was higher than 6%.

On the concerns over agriculture and job creation, the Minister said he would like the Congress “to introspect how much it has contributed to these problems” while being in power for 55 years.

Referring to the GDP growth, he said, “the narratives we inherited and the narrative we have now is entirely different. No one then mentioned that India is the fastest growing economy. It has only happened now. Data speaks for itself.”

**NHRC seeks action taken report on pesticide deaths**

The National Human Rights Commission (NHRC) sought an action taken report from the Tamil Nadu government following a spate of pesticide poisoning deaths reported from the State in October and November last year.

Acting upon the complaint of an activist who was part of a fact-finding team that investigated into the deaths and several instances of hospitalisations after exposure to pesticides in Perambalur, Ariyalur, Salem and Cuddalore districts of Tamil Nadu, the Commission issued a notice last month demanding the State government to submit a report on the actions undertaken to address the problem. However, response from the concerned authorities is still awaited as per the status displayed on the NHRC website.

In the NHRC complaint, activist V.M. Parthasarathy alleged that no concrete preventive measures had been put in place by the government, and no ex-gratia relief...
Nirav Modi, 47, moved into a sprawling corporate office in Lower Parel, Mumbai, to run his global business empire from there. The office was on the 20th floor of a plush building. Even on the first day in the new office, Nirav Modi was seen working with his design team to create the next luxury jewellery.

Nirav Modi had the burning desire and ambition to build a globally known Asian fashion jewellery brand, having boutiques on the high streets of fashion capitals. Till recently, there was no hint or indication that he was involved in a massive Rs. 11,500 crore scam, India’s biggest ever.

**Early start**

Nirav literally means silent. He speaks in a very low voice. This 5.5 feet tall, slim handsome man with a receding hairline has been a recluse.

Born in Antwerp, Belgium, where his parents now reside, Nirav Modi did his schooling there and, after dropping out of Wharton, relocated to Bombay at the age of 19. “I was born to a family which is into diamonds for seven generations. As a young boy, I heard my father and grandfather talking about the trade. I started working at the early age of 19 when I moved to Bombay to work for my uncle for 10 years in buying and selling polished diamonds,” Nirav Modi said in an interview to The Hindu in November last year, possibly his last to the Indian media before news of the scam broke.

In 2000, he ventured out on his own and started Firestar Diamond International with 15 employees, buying and selling diamonds. In 2002, his company became a jewellery contract manufacturer for a diamond customer. In 2005, he bought a jewellery distribution and marketing business from his largest jewellery customer Fredrick Goldman in the U.S. “That gave us the style, the relationships, the account codes of the retailers in the U.S.,” he said.

**Expanding business**

In 2007, he bought another company called Sandberg & Sikorsky, which was the oldest bridal jewellery manufacturer selling to independent retailers and was also into distribution to the U.S. armed forces.

“In 2009, with the chaotic financial climate, we got into a good position and expanded. So at that time, we opened marketing offices in Dubai, Hong Kong, and sourcing offices in Antwerp and manufacturing plants in Moscow and Johannesburg,” he said.

In 2009, by chance he got into luxury fashion jewellery, which gave him an international name. “I had a friend who wanted me to design a pair of earrings for her. The first time, I said no. After a few meetings I agreed and made a simple pair of earrings. She was very happy. This inspired me and I decided to start an Indian global luxury jewellery brand,” Nirav Modi said.

**Nirav brand**

At the end of 2010, when he was making the ‘hero jewellery piece’ for the launch of his brand, Christy’s heard of it and they put it up for auction. It was sold for Rs. 16 crore against the base price of Rs. 12 crore. “It worked out well and we got worldwide recognition. In December 2010, we launched the Nirav Modi brand,” he said.

**Retail stores**

In March 2014, he ventured into retail stores, the first one at Defence Colony, New Delhi. Then he opened stores in Mumbai, Hong Kong, New York, London, Las Vegas, Honolulu, Beijing and Singapore. In all, 15 stores now. His plan was to open 100 such stores by 2025, of which 85 would be outside India.

Nirav Modi, whose clientele included those frequenting...
red carpet events such as the Oscars, does not draw the designs. "I speak the thinking and my people sketch and then the design is made. I design every single jewellery, whether it is priced at Rs. 5 lakh or Rs. 5 crore," he said. His range starts at Rs. 2 lakh and the most expensive one costs Rs. 105 crore. Most of his collection is priced between Rs. 5 lakh and Rs. 20 lakh and he competes with Cartier and Tiffany & Co.

**Known for innovations**

Some of his collections were stretchable. "We are known for innovations. We manufacture stretchable bangles and rings. This is an innovation and engineering. This is where art meets science. So this is why my fashion jewellery is in demand," he said.

Nirav Modi’s global business was supported by his workshop in Kurla, suburban Mumbai. A global citizen and a frequent traveller, his family lives in New York. Nirav Modi said his children are too young and are yet to decide what to do.

The only Asian fashion jeweller to go international, having a presence in the Bond Street of London or the golden area of Madison Squire, Nirav Modi now faces bleak future.

With the law set to catch up, Nirav Modi’s global business has been flung into uncertainty.

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**Temple fire puts spotlight on safety measures**

A fire at a shop near the 14th century Meenakshi Sundareswarar Temple in Madurai has brought to light the woefully inadequate fire-fighting measures in busy temples. On an average, over 15,000 people visit the temple daily on weekdays and over 25,000.

What happened?

On February 2, around 10 p.m., smoke billowed from one of the shops in the VeeravasantharayarMandapam of the eastern corridor of the SundareswararSannidhi. In 20 minutes, the fire spread to other shops. These shops sell vibuthi, kumkum, sandal paste, toys, pictures, puja articles and decorative items. This mandapam was constructed by Muthuveerappanayakkar in 1611 and leads to the East Tower. The corridor is always crowded as people who visit the temple make it a point to stop to buy many items, especially kumkum.

**Why is it a worry?**

The row of shops is close to the temple museum, Thousand Pillar Hall that houses outstanding stone sculptures, rare bronzes and artistic paintings. Tourists are attracted to the museum in large numbers by a group of pillars that produces musical notes when struck in an order.

**How was the fire put out?**

A temple employee, who noticed the fire, got a fire extinguisher, which was not enough to check the spread. The challenge was multi-pronged: to contain the flames from spreading into the temple and the museum, protect sculptures from damage, and prevent the loss of life. The fire happened when almost all devotees had left the temple. Getting fire engines to wind through narrow passages, especially when power supply was cut off, proved difficult. The temple has five points through which devotees enter and exit and four of them are narrow. Though fire incidents have been reported in some of the big temples in Tamil Nadu, this was unprecedented for the MeenakshiSundaeswarar Temple.

**Has there been damage?**

As the flames reached the ceiling, gobbling up all plastic materials, the temperature shot up. When water jets reached the ceiling and tall pillars that was already hot, they started to show cracks. Portions of the side wings of the ceiling and a few pillars came crashing down. Twenty one of the 42 shops in the VeeravasantharayarMandapam were gutted. The side wings suffered the maximum damage but the main roof remained intact. Ten to 12 pillars of the structure, which has 46 in all, will have to be replaced. An area of 15,000 square feet has been damaged, according to Karumuttu T. Kannan, administrator of the temple. The day after, the area was cordoned aged, according to Karumuttu T. Kannan, administrator of the temple. The day after, the area was cordoned off and people were not allowed to use the East Tower as there was fear of the stone structures coming down. Props were put in place to support the ceiling and pillars. Pujas were not stopped, and devotees visited the temple through the other towers.

**Are fire safety measures in place?**

The temple has fire extinguishers but they are of no use when flames hit the ceiling. Longer hoses are required to put out fires in the interiors where vehicles cannot enter. There is no fire safety drill either for employees or devotees. The nearest fire station is a few kilometres away. Fire/emergency exits have not been identified in big temples like the Meenakshi Sundareswarar Temple. Another constraint is the non-availability of adequate water. The situation becomes difficult owing to the presence of plastic materials, camphor, oil and ghee in a temple. As a first step to ensure safety, the temple administration has decided not to allow shops in the complex.

Deputy Chief Minister O. Panneerselvam, after an inspection of the site, said the government would form a committee to protect temples from disasters. Construction of
A royal salute to India's religious plurality

India's religious plurality and success in fighting off the influence of Islamist terror groups such as Al-Qaeda and the ISIS will be highlighted as Jordanian King Abdullah II delivers a special address at VigyanBhavan here. Mr. Abdullah will land in Delhi for a three-day visit, the External Affairs Ministry said.

Prime Minister Narendra Modi, who met Mr. Abdullah in Amman earlier this month, will attend the function organised by the India Islamic Cultural Centre on March 1, where the Jordanian King will speak on “Islamic heritage: promoting understanding and moderation”, to an audience including academics, Islamic scholars and representatives of all denominations of the Muslim community.

“The King has personally chosen to give this address in Delhi, as Jordan has studied how India has been able to avoid the threats from ISIS and other groups,” an official involved in the planning of the visit said here.

Mr. Abdullah, who is himself a 41st generation descendant of Prophet Muhammad and the Custodian of the Holy Sites in Jerusalem, has taken a leadership role in countering extremism and radicalisation in the Arab world through what is known as the “Aqaba Process” initiative, officials said.

Though Jordan is home to about 2 million Palestinian refugees and more than 6,60,000 refugees from Syria, the kingdom has remained peaceful compared with the rest of the region and is seen as an “oasis of stability”, the official said. During the event, which officials said was the “first of its kind” for New Delhi; Mr. Abdullah will release an Urdu translation of a book, A thinking person’s guide to Islam, by his cousin Prince Ghazi Bin Mohammad. It includes a chapter on Jihad and the “Crisis of ISIS”, detailing how countries like India have escaped Jihadist influences because of the moderate or “Hanafi, non-Takfiri” form of Islam followed in the country.

The Jordanian King will be in Delhi from February 27 to March 1 and will hold bilateral talks with Mr. Modi on March 1, before the address.

The officials said the two sides were discussing a framework agreement on defence and security, and the Deputy National Security Adviser has held several talks with the Jordanian Director of Intelligence.

Any agreement will be significant, given Jordan’s closer ties to Pakistan in the past, and officials stressed that the discussions had only been initiated.

Earlier this month, King Abdullah had also paid a visit to Islamabad.

After talks with Mr. Modi, the two sides are expected to announce a number of agreements, including one to set up a “centre of excellence” in Amman by the Pune-based Centre for Development of Advanced Computing (C-DAC), a partnership agreement between heritage cities Petra and Agra, as well as a visa agreement to facilitate businessmen.

One pending issue not yet resolved is on the resumption of direct flights between Delhi and Amman, which were shut down when Royal Jordanian Airlines ended its service in 2014.

Business summit

King Abdullah will visit the Indian Institute of Technology in Delhi to “explore collaborations with Jordanian technical institutes” and address a business summit which will include some 30 businessmen from Jordan, a statement issued by the External Affairs Ministry said.

India is Jordan’s fourth largest trading partner, but bilateral trade, which is mainly dependent on fertilizer imports, dropped drastically from about $2.2 billion in 2014 to $1.3 billion in 2017, and both sides will discuss how to improve business ties.

While the visit will focus on bilateral issues, the two leaders are expected to discuss the Palestinian peace process.

“PM Modi’s recent visit [to Jordan and Palestine] gave momentum to the fact that India continues its very strong traditional support to Palestine, and this will definitely come up in the discussions [with King Abdullah],” said a source involved in the planning, but ruled out any plans for India to mediate or facilitate Israel-Palestine talks at present.

Do not deny cover for genetic defect: HC

Most policies have exclusionary clauses that deny clients’ claims if they suffer from such disorders. The verdict could open up a large number of ailments as claimable under medical insurance.

“The exclusionary clause of ‘genetic disorders,’ in the insurance policy, is too broad, ambiguous and discriminatory — hence violative of Article 14 of the Constitution,” Justice Singh said.

Under IRDA watch

The court directed the Insurance Regulatory Develop-
ment Authority of India to re-look at the exclusionary clauses in insurance contracts and ensure that insurance companies do not reject claims on the basis of exclusions relating to genetic disorders.

Justice Singh highlighted that there are different types of genetic disorders and even common diseases like diabetes and cardiac diseases could be included in the broad definition.

“In effect, it would mean that large swatches of population would be excluded from availing health insurance which could have a negative impact on the health of a country,” she remarked.

The High Court’s verdict came on a petition filed by United India Insurance Company Limited challenging an order passed by a trial court here directing it to honour the medical claim of a person who was suffering from genetic disorder. The court remarked that insurance companies are free to structure their contracts based on reasonable and intelligible factors which should not be arbitrary and cannot be ‘exclusionary’.
Rs. 370 cr. allotted for building border infra
Laying emphasis on building infrastructure along the Indo-Pak and Sino-India borders, the government has sanctioned nearly Rs. 370 crore to the BSF and the ITBP for construction of bunkers and special climate-controlled huts in forward areas, an official said.
A total of Rs. 369.84 crore has been sanctioned by the Home Ministry for construction of infrastructure for Border Security Force (BSF) and Indo Tibetan Border Police (ITBP), the official said.
The amount will be spent for construction of bunkers, fortifying border outposts of the BSF along the Indo-Pak border, construction of climate-controlled huts, and procurement of snow scooter for the ITBP besides other necessary works of the two forces.
The BSF guards the 2,526.86-km-long Indo-Pak border, including 237.2 km of the Line of Control, and 4096.7 km of the Indo-Bangladesh border.
The Indo-Pakistan border has been witnessing massive ceasefire violation from across the border since the beginning of 2017.
ITBP guards the 3,488-km-long Sino-India border that runs through Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh.
The force is specially trained to operate in high altitude mountainous terrain along the border.

Government proposes key amendments to PMLA
The Central government has proposed changes to various provisions of the Prevention of Money Laundering Act (PMLA) through the Finance Bill, including a crucial amendment that empowers the Special Court to restore confiscated assets to the rightful claimants even during the trial.
Welcoming the decision, Enforcement Directorate chief Kamal Singh told The Hindu that the amendments would make the implementation of PMLA more effective.
The amendment to Section 8(8) allows the Special Court, if it deems fit, to consider the claims for the purposes of restoration of such properties also during the trial. Earlier, the assets could be restored only after completion of the trial. “It will help provide quick relief in cases involving public money, including Ponzi scams,” said a senior official.
The government has introduced a new Sub-Section (2) of Section 66, making it mandatory for the ED to share relevant details with other agencies. “In case we come across any information that can be pursued by other agencies, it will have to be shared with the agency concerned for necessary action,” said the official.

A helping hand in times of health crises
Finance Minister Arun Jaitley unveiled an ambitious plan to launch “the world’s largest government-funded health care programme” that will benefit 10 crore households.
The proposed National Health Protection Scheme (NHPS) will provide coverage of up to Rs. 5 lakh per family annually to take care of secondary and tertiary care hospitalisation costs. Mr. Jaitley reckoned that this will benefit around 50 crore people from poor and vulnerable families. The Budget for 2016-17 had a similar announcement offering a Rs. 1 lakh cover for 8 crore families, but that’s yet to take off.
The Rashtriya Swasthya Bima Yojana (RSBY) now gives poor families an annual coverage of Rs. 30,000, while several State governments have implemented their own health insurance schemes with varying coverage levels.
“My government has now decided to take health protection to a more aspirational level,” Mr. Jaitley said.
“We have provided Rs. 2,000 crore for the next financial year under this scheme,” Expenditure Secretary Ajay Narayan Jha said at a press conference after the Budget.
“Once the contours take shape, the details will be worked out,” Mr. Jha said. “The present RSBY scheme will be modified for this,” he said.

In his final budget, Arun Jaitley seeks to revive India’s growth prospects
With a focus on agriculture, the rural economy and infrastructure creation, finance minister Arun Jaitley sought to revive India’s growth prospects in his fifth and final budget before the Narendra Modi-led National Democratic Alliance government faces elections in 2019. The budget targets 7.2% growth in gross domestic product (GDP) in 2018-19, against the 6.5% estimated for 2017-18. With higher exports and services growth, India is on its way to achieving sustained growth of 8%, Jaitley said.
“There are signs of revival of investment activity in the...
economy and the recent pick-up in the growth of fixed investment can be expected to maintain momentum in the coming year," the Union finance ministry said in its medium-term fiscal policy statement.

In order to create employment and aid growth, the government's estimated budgetary and extra-budgetary expenditure on infrastructure for 2018-19 was increased to Rs5.97 trillion against an estimated expenditure of Rs4.94 trillion in 2017-18.

Capital outlay on the Indian Railways was increased by 32.6% to Rs53,000 crore while allocation for the Union ministry of road transport and highways rose 24% to Rs30,000 crore. In total, capital outlay on the infrastructure sector through gross budgetary support increased 21% to Rs1.6 trillion.

To support the Make In India programme and improve job creation, the government increased customs duties on many electronic products such as mobile phones, LCD panels and automobile parts.

Recognizing micro, small and medium enterprises (MSMEs) as the engine of growth and employment generation, Jaitley announced an extension of the reduced corporate tax rate of 25% to companies with a turnover up to Rs250 crore.

Earlier, this scheme was available only to companies with a turnover up to Rs50 crore.

“The lower corporate income tax rate for 99% of the companies will leave them with higher investible surplus which in turn will create more jobs,” Jaitley said.

To address rural distress and double farmers’ income by 2022, Jaitley announced an increase in minimum support prices for agricultural produce, as well as better agricultural and rural infrastructure.

The budget measures announced for the rural economy are expected to increase demand and boost economic growth.

“In the year 2018-19, for creation of livelihoods and infrastructure in rural areas, total amount to be spent by the ministries will be Rs14.34 lakh crore, including extra-budgetary and non-budgetary resources of Rs11.98 lakh crore,” Jaitley said.

The focus on rural support will help sustain India’s long-term growth trajectory, N. Chandrasekaran, chairman of Tata Sons Ltd, said in a statement.

“Similarly, the provisions to enhance farm price support, expand food processing, and liberalize agricultural exports are encouraging; the next leg of reforms in agriculture will have to focus on reducing production risk and addressing yield and storage deficiencies to raise competitiveness,” he added.

Centre puts e-way bill on hold

The government deferred the implementation of the e-way bill system because of the "technological glitches" faced by the businesses and the transporter community on the first day of the rollout.

"In view of the difficulties faced by trade in generating e-way bill due to initial technological glitches, it has been decided to extend the trial phase for generation of e-way bill, both for inter- and intra-State movement of goods," the Central Board of Excise and Customs tweeted.

However, the government did not clarify how long the trial will last. "It'll be applicable from a date to be notified," it said.

“The portal has been down since 12 noon. e-way bill has much wider implication and applicability in the whole business eco-system, therefore its stability is important to ensure compliance," Archit Gupta, founder and CEO, ClearTax, told The Hindu.

Under the GST regime, all consignments worth over Rs. 50,000 moving over 10 km from their origin will require prior registration and generation of an e-way bill through the GST network. The system is aimed at helping authorities keep track of all taxable goods and detect potential tax evasion.

Pratik Jain, Partner & Leader, Indirect Tax-PwC India said: “This is precisely what Industry was concerned about. It is good that the government has been quick to defer it.”

The government had set a 15-day window for trials.

Foolproof e-way bill urged after deferment

A day after the Centre deferred February 1 rollout of the e-way bill in the wake of ‘technological glitches’ that left trucks stranded for hours across the country, transporters urged the Centre to fix all issues before introducing the measure.

“We have raised several issues with the GST Commissioner and we hope the government addresses them first rather than implementing without preparedness,” said Abhishek Gupta, Treasurer, and Bombay Goods Transport Association.

“Lakhs of trucks were stranded across the country and many companies and truckers were not aware of the decision,” he said, referring to the government’s decision, late, to suspend the rollout. The e-way bill portal had crashed leaving transporters waiting in vain for hours to
generate the bills.

**Back to normal**

"Today things are back to normal," said Ramesh Agarwal, Chairman, Agarwal Movers Group. "Government took a wise decision to put it [rollout] on hold. Otherwise by Saturday lots of factories would have closed down," he said. The Centre’s use of twitter to announce the decision added to the confusion.

"It will take time in India to accept information disseminated through twitter," said Devendra Patne, CEO, DTIX.org, a transport industry initiative. "Lots of people did not give credence to it and waited for logging into the portal." S.R. Hatti, VP of VRL Logistics in Bengaluru, said the firm had started moving goods from Friday morning with normal invoices as all States were accepting them. Finance Secretary Hasmukh Adhia told PTI the measure would be reintroduced in the "next few weeks" after the system was fully ready.

**Tea industry hopes to take a sip from Budget schemes**

There is some scope for the tea industry to cheer through the many social sector schemes announced in the Union Budget, according to officials. This despite the fact there were no industry-specific announcements in the Budget and its pleas on various issues had gone unheeded, they added.

There is also a hope of benefits accruing through the lowering of corporate tax rates for MSMEs with a turnover of up to Rs. 250 crore, industry officials said. The organised tea industry in India feels burdened by the social costs that it has to bear through legal frameworks like the Plantation Labour Act, which mandates it to provide the plantation workers facilities towards medical care, housing, subsidised rations and water supply. Industry pegs this to be at about 10% of its production cost. It is now having some cause for cheer in the National Health Protection Scheme announced in the Budget. The scheme envisages providing a health insurance cover of Rs. 5 lakh per ‘poor’ family. This would include secondary and tertiary health care. The scheme is expected to benefit 50 crore people.

“The sheer size of the scheme lends hope that the tea garden workers would be included within the scheme, thereby extending reasonable health care for a large sector of the tea garden population” said a senior official at Tea Association of India.

Similarly, the extension of the Swachh Bharat campaign to construct two crore toilets, establishment of Eklavya schools for scheduled tribes population could include a sizeable number of scheduled tribe populations of the tea industry.

However on AMRUT scheme, the tea industry felt that a similar initiative on augmenting water supply in rural sector would have benefited the tea gardens, which are predominantly located in rural areas and exist in difficult terrain.

"It remains to be seen whether at least some of these welfare measures percolate down to the tea industry or stop at the gate of tea estates", said a senior industry executive said on condition of anonymity. This was echoed by an official of the apex industry body, the Indian Tea Association.

Sources at the Tea Board were, however, of the view that often industry made it difficult for inclusion of its workers in government schemes by failing to create an enabling atmosphere for dovetailing government schemes with its own.

As for the West Bengal Budget, the industry is already relieved over the exemption granted in respect of agricultural income tax.

"The tea industry in the State has been in a dire state for past many years... I propose to fully exempt tea gardens from payment of agricultural income tax till 2019-20," State Finance Minister Amit Mitra said in his Budget speech. The education cess and the rural employment cess levied on green tea leaves had also been given full exemption.

Industry said this exemption was being given by the State Government on a year-to-year basis for the last few years. The industry pays a total of 12 paise per kg of tea on these two counts.

**Small growers**

Although there is no industry-specific announcement, small tea growers, who were more like farmers, could avail the scheme for fisheries, horticulture or could even plant bamboo for alternative source of income, said Bijoy Chakravarty, president, Confederation of Indian Small Tea Growers Associations. The government’s thrust on farm sector could be utilised, he said. The tea industry had sought support for tackling climate change besides seeking customs duty relief.

Strangely, neither the State government nor the Centre made any mention of the Darjeeling tea industry in their annual financial statements although the industry suffered major losses during last year’s separatist agitation.

**‘India’s growth depends on north-eastern States’**

The Centre has sanctioned Rs. 47,000 crore for 115 new
As part of the proposed amendments in the Finance Bill 2018, the government has given more power to the Securities and Exchange Board of India (SEBI) to impose monetary penalties on important market intermediaries such as stock exchanges and clearing corporations and also act against newer categories of participants like investment advisers, research analysts, real estate investment trusts (REITs) and infrastructure investment trusts (InvITs).

The proposed amendments to the SEBI Act and the Securities Contracts (Regulation) Act now allow the capital markets regulator to impose a monetary penalty of at least Rs. 5 crore on stock exchanges, clearing corporations and depositories for non-compliance with regulatory norms.

The penalty can go up to Rs. 25 crore or three times the amount of gains made out of such failure or non-compliance. Hitherto, SEBI only had the power to censure or warn against any form of failure.

Incidentally, the new powers come at a time when the National Stock Exchange is under the SEBI scanner in the co-location matter, with regard to which it has been alleged that a certain set of brokers were given preferential access allowing them to make undue gains.

The amendments also allow SEBI to act against entities that furnish false or incomplete information to the regulator. Earlier, it could act only if the entity did not furnish any information.

The whole-time members of SEBI have also been given additional powers to act against wrongdoers. “[Powers to] punish for filing of false, incorrect or incomplete information, return, report, books or other documents was very much needed for SEBI,” said Sumit Agrawal, a regulatory lawyer and an ex-SEBI official.

Quality of disclosure

“It will increase the quality of disclosure rather than just tick-the-box approach. Twin-fold penalty powers with the wholetime member and adjudicating officer (AO) is welcome for efficient use of human resources. Minimum penalty of Rs. 5 crore proposed on market intermediaries such as stock exchanges, clearing corporations and depositories [has emerged] for the first time and is likely to be used rarely,” he added. This is not the first time that the government has used the Union Budget to empower the capital market regulator.

While presenting the Budget for 2015-16, finance minister Arun Jaitley proposed the merger of the then commodity market regulator Forward Markets Commission with SEBI. This followed the Rs. 5,600 crore settlement scam at the National Spot Exchange Ltd., which came out in the open in July 2013.
“Since things are more electronic now, it is becoming easier for regulators to keep track of happenings in the market, more so [to track] non-compliance,” said Pranav Jain, partner, MDP & Partners, a law firm.

“India is giving exposure to a lot of hybrid funds such as AIF, InvIT and REITs. Though there were applicable laws for their incorporation, management and functioning, there was a need felt to impose deterrents. In the long run, it is expected that more investors will be investing in such funds and will have investment exposure. Hence such a deterrent is necessary,” he explained.

**Rs. 1 lakh per day penalty**

Incidentally, REITs and InvITs along with research analysts and investment advisers will have to be more careful now as the Finance Bill allows SEBI to impose a penalty of up to Rs. 1 lakh per day for the period of non-compliance.

Interestingly, the government has also allowed the regulator to pursue cases against the legal representatives of defaulters if in case a defaulter passes away during the course of regulatory proceedings.

“Provided that, in case of any penalty payable under this Act, a legal representative shall be liable only in case the penalty has been imposed before the death of the deceased person,” the Finance Bill states.

**Bitcoin PoS maker eyes India entry**

The Jakarta-based Pundi X is planning to bring cryptocurrency Point of Sale (POS) devices into India. This is significant given that the government, in its Budget last week, had made it clear that cryptocurrencies were not legal tender in India.

“We respect the sovereignty of the local currency,” Zac Cheah, CEO of Pundi X told The Hindu. “We have developed a platform based on blockchain technology to facilitate secure transactions.”

**‘Users to swipe cards’**

The company has developed a POS device that store owners can use. The device interacts with a ‘pass card’ that customers hold, similar to a debit card but only for cryptocurrencies.

“Essentially, it is the first device that allows people to use a card to purchase items using the cryptocurrency that they have,” Mr. Cheah said. “Imagine our device, which is slightly bigger than a mobile phone, as a POS terminal that is powered by blockchain technology.”

“For example, if you go to a convenience store and you want to buy a loaf of bread and you are a bitcoin owner,” he explained. “So, you have a Pundi X pass card, you use the card and it will interact with our devices and you [pay] for the loaf using bitcoin.”

The key in all of this is the fact that the actual transactions will be conducted in rupees, whereas the asset being exchanged would be bitcoins.

Both the Reserve Bank of India and the government have repeatedly said that cryptocurrencies do not qualify as legal tender and hence cannot be used to conduct transactions.

**‘Transactions in rupees’**

Mr. Cheah said his technology helps store owners “convert a crypto currency to a local currency, so all the transactions that we do are in the local currency. What will be exchanged is the bitcoin, but the actual mode of exchange will take place in rupees.”

The idea, he said, was to change the way we use cryptocurrencies like bitcoin, moving their use value away from simple storage of value, to a real-world everyday use. “We feel that the bitcoin movement now has to move to a real use case scenario,” Mr. Cheah said. “We want to help people to not just hold onto bitcoins, but to convert them into the local currency so that it can help the economy.”

The Pundi X devices will support all major cryptocurrencies including bitcoin, litecoin and etherium, and the company aims to roll out 100,000 devices across the world in the next three years. India will play a large part in this, and the roll out is set to begin soon, he said.

“We recently did a study on the global market and one of the focus markets was India,” Mr. Cheah said. “India is one of the biggest markets and constitutes about 10% of the trading volume of bitcoin. 50% of the trading globally is from Asia, a major [part] from Japan and South Korea.”

“The card terminals [from] Indian banks have increased to 2.7 million, compared to 1.5 million before demonetisation,” he added.

**RBI likely to keep repo rate on hold**

The six-member monetary policy committee of the Reserve Bank of India (RBI), which is meeting for the last time in this financial year, is expected to maintain the status quo for the third straight review meeting as retail inflation is hovering close to the central bank’s upper tolerance limit.

Consumer price index-based inflation or retail inflation — the central bank’s primary yardstick for setting interest rates — was 5.21% in December, just below the 6% upper band mandate of RBI.
Rising food prices was one of the main factors behind the 17-month-high retail inflation. Economists said there could be further pressure on inflation with rising oil prices and higher minimum support prices for farmers, as promised in the Union Budget last week.

All this would mean the RBI would hold the repo rate, the key policy rate at 6%, accompanied by ‘hawkish’ tone, though the stance of the policy would likely continue to stay neutral. "RBI is likely to stay on hold on policy rates tomorrow, but expect a hawkish commentary," said AbheekBarua, chief economist, HDFC Bank. “Rising oil prices, higher MSPs announced in the Budget and slight deviation in the fiscal consolidation path has increased the probability of higher rates in 2018-19. Bond yields are expected to remain around current levels in the near term but trend towards 7.75% by September 2018."

Bond yields have been rising since the Budget was presented, and after the government missed the fiscal deficit target and pushed back the glide path of attaining the fiscal deficit target of 3% to 2020-21 from 2018-19. Next year’s fiscal deficit target of 3.3% is also under a cloud as revenue projections are seen as optimistic.

**Bonds sell-off**

"Budget FY19 triggered a sell-off in the Indian bond markets last week," DBS economist Radhika Rao and Rates Strategist Eugene Leow wrote in a note to the bank’s clients. “Optimistic revenue projections and concerns over the inflationary impact of budgetary measures weighed on sentiment. Higher fiscal targets for FY18-19, along with rising oil prices, are set to make the RBI’s policy path a tricky one this year," DBS said in the note.

It added that the RBI would flag the projected fiscal slippage, higher oil, and MSPs as risks to future inflation, but not as factors that would warrant an imminent tightening. IndranilSengupta, economist at Bank of America Merrill Lynch, said while the MPC may continue with a ‘slightly hawkish’ pause in its review meeting, inflation risks were being overdone as vegetable prices had started easing.

**RBI keeps repo rate unchanged at 6%**

The Reserve Bank of India (RBI) held the policy repo rate at 6% as the central bank’s Monetary Policy Committee (MPC) raised the rate for fourth-quarter inflation and flagged concerns about the future outlook for price gains. Five of the six members of the RBI’s MPC voted in favour of keeping the benchmark interest rate unchanged for the third consecutive meeting, while one member, M.D. Patra, recommended a 25 basis points (bps) rate increase. While holding interest rates — as widely anticipated — the central bank also retained its ‘neutral’ policy stance.

**Fuel prices impact**

“Domestic pump prices of petrol and diesel rose sharply in January, reflecting lagged pass-through of the past increases in international crude oil prices,” the MPC said in its resolution. “Considering these factors, inflation is now estimated at 5.1% in Q4, including the HRA (house rent allowance) impact.” The RBI had in December projected inflation to range between 4.3-4.7% for second half of the current financial year. The central bank also projected retail inflation in the range of 5.1-5.6% for the first half of 2018-19, while assuming a normal monsoon — effectively ruling out any rate reduction in the near future.

The MPC has a mandate to ensure inflation remains in a band between 2% and 6%. For the second half of the next fiscal, inflation is projected at 4.5-4.6%, with ‘risks tilted to the upside’. Among the upside risks to inflation, the MPC noted that pick-up in global growth could exert...

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**Think, Ever Stream line up $300 mn for solar**

New Jersey-based Think Energy and EverStream Capital have entered into a joint venture to develop and/or acquire more than 2,000 MW of solar projects all over India over the next three years and hope to invest up to $300 million in equity capital. The Think-EverStream Joint Venture will pursue both ground-mounted and rooftop photovoltaic (PV) assets with commercial and industrial off-takers, as well as select State and Central government utility-scale tenders, EverStream Capital said in a statement.

The JV had recently participated in the Solar Energy Corporation of India’s (SECI) government rooftop tender and was awarded a project portfolio totalling 23.39MW, which will be located in the States of Karnataka, Maharashtra, Gujarat and Andhra Pradesh.

**Steady transition**

RavishankarTumuluri, MD of the Think–Everstream JV Development Company, said: "The Indian solar market is slowly, but steadily transitioning from large-scale ground mounted solar parks towards distributed generation, and from government PPAs towards commercial & industrial PPAs. As battery technology costs fall, distributed solar generation with commercial and industrial customers will drive growth."

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further pressure on crude oil, with the higher minimum support price to farmers, announced in the Budget, adding to the uncertainty. However, the exact impact of higher MSP on inflation could not be fully assessed at this stage, the RBI said. The proposed increase in customs duty on a number of items and fiscal slippage could also impinge on inflation outlook, the RBI added.

RBI Governor Urjit Patel said a key factor that had spurred the rise in government bond yields was the slippage in the fiscal deficit. “We have news of fiscal slippages at three levels. Fiscal slippage this year, fiscal slippage next year compared to what the market expected and what the target was and then a postponement of the medium term adjustment even further. If you look at all the factors it makes it very clear which way the bond yields are likely to move,” Dr. Patel told reporters.

‘No yield target’
Deputy Governor Viral Acharya said the RBI’s infusion of liquidity should not be seen as an effort to manage bond yields. “Except in rare, extraordinary economy-wide circumstances, the goal of RBI’s liquidity operations is not to manage directly the prices of any particular long-term asset market.”

The benchmark 10-year bond’s yield eased 4 bps to 7.53%. The RBI pared its 2017-18 GVA growth estimate to 6.6%, from December’s 6.7%.

GST-hit MSMEs get more time to pay dues
[Important for: Economy]
The Reserve Bank of India (RBI) has allowed micro, small and medium enterprises (MSMEs), whose cash flow was hit due to implementation of Goods and Service Tax (GST), additional time to pay their dues to banks and non-banking finance companies.

Registered borrowers
MSMEs with exposure of less than Rs. 25 crore, would get additional 180 days to pay their dues, provided the borrower is registered under the GST regime and the borrower account was standard as on August 31, 2017. “The amount from the borrower overdue as on September 1, 2017 and payments from the borrower due between September 1, 2017 and January 31, 2018 are paid not later than 180 days from their respective original due dates,” RBI stated, stipulating a condition.

At present, banks and NBFCs classify a loan account as non-performing asset (NPA) if payment is due for more than 90 days and 120 days respectively.

“The provision in respect of the account may be reversed as and when no amount is overdue beyond the 90/120-day norm,” the banking regulator said.

No fiscal incompetence: Jaitley
[Important for: Economy]
Union Finance Minister Arun Jaitley trashed the Opposition’s charge of fiscal mismanagement, stating that the four-year-old NDA government’s journey was that from a state of policy paralysis to structural reforms.

Replying to the Budget debate in the Rajya Sabha, Mr. Jaitley expressed surprise over former Finance Minister P. Chidambaram’s charge that by reducing corporate tax to 25% for companies with turnover up to Rs. 250 crore, he had favoured the corporates.

Mr. Jaitley said it was Mr. Chidambaram, who as then Finance Minister had drafted the Direct Tax Code mooting the idea of 25% corporate tax. The NDA government is also considering a legislation changing it to the turnover criteria for classification of industries. For medium scale industries, it would be Rs. 250 crore, he said.

The Finance Minister said the idea behind lower tax was to enable MSMEs to invest more, which would create more jobs. The same trend was noticed in the United States (with below 20% corporate tax) and other competing economies. Owing to this, while covering 99% of industries, the revenue forgone would be Rs. 7,000 crore, whereas implementing it across the board would have cost Rs. 40,000-50,000 crore.

Mr. Jaitley said indications from the Agriculture Ministry were that the basis for calculations would be actual paid out cost plus family labour. Mr. Jaitley also assured the House that the proposed health coverage plan for 10 crore families would in all likelihood be implemented completely this year. On expenses, the Finance Minister said the basic principle was that the bigger the size of population, the lower the per capita premium. He said it would be affordable, adding that the NITI Aayog had carried out an assessment.
The rise and fall of cryptocurrencies
[Important for: Economy]

Bitcoins have seen a steep correction, and were hovering at around $6,350 a bitcoin on 6 February 2018. This is a 66% decline from 18 December 2017, the time it had peaked to $18,674. Global developments and media reports seem to be the key reasons for this correction. Here is how:

**Union Budget impact**

Experts say that the Union Budget announcement is not the reason for the correction in bitcoin prices. "The price correction has nothing to do with the Union Budget. Indian market decisions don't impact global prices," said Praveen Kumar, chairman and chief executive officer of Belfrics Global SDH, a company that operates bitcoin exchanges in Singapore, Malaysia, Bahrain, Japan, Kenya, Nigeria, Tanzania and India.

In fact, companies are taking positive cues from finance minister Arun Jaitley’s speech and expecting regulatory guidelines to come out soon. Belfrics, which had temporarily shut operations in India, is planning to re-enter the market. “We are looking to restart operation in India post the Budget announcement. Nowhere in the Budget has the government called it illegal. We expect regulations to kick in soon,” said Kumar.

On 3 February 2018, Mint reported that Subhash Chandran Garg, secretary, department of economic affairs, Ministry of Finance, Government of India, said that there will certainly be regulations by the end of this financial year.

**Global events**

Bitcoin exchanges say that the fall in price has a lot to do with the negative news. “Not much positive news has come yet, to instil confidence in bitcoin. (While) there have been multiple media reports that are dampening the sentiments. A recent one is that China planning to block access to websites that offer cryptocurrency services,” said Benson Samuel, chief technology officer and co-founder, Coinsecure, a bitcoin exchange based in India.

According to an article published in Financial News, a publication affiliated to the People’s Bank of China (PBOC), to prevent financial risks, China will step up measures to remove any onshore or offshore platforms related to virtual currency trading or initial coin offerings (ICOs).

There has also been no major technological development in the cryptocurrency world to boost sentiments. “A very small development in Ripple has happened where a bank has accepted transactions using it. But other than that there has been no technological advancement or use as of now for cryptocurrencies,” said Kumar. He further added that the regulatory stance from all the economies is also not favourable for the cryptoworld. “Markets will wait for some regulatory changes from other countries,” said Kumar.

**What should you do?**

Bitcoin prices have declined sharply since last 1 month. In January 2009, when bitcoin was first created and launched, the idea was to use it as an alternative to fiat currency. The idea was to use it for making payments and transactions. However, by 2016 and 2017, the approach shifted from it being an alternative currency to it being an investment asset. But, most countries, including India, refused to accept bitcoin as a currency and have said that it is not legal tender. The future of bitcoin continues to remain uncertain.

**Cryptocurrency: ‘trustless’ nature irks regulators**

Last October, the Board of the International Organization of Securities Commissions (IOSCO) discussed the growing usage of Initial Coin Offerings (ICOs) to raise capital as an area of concern.

“There are clear risks associated with these offerings,” IOSCO had warned all nations in a statement after the discussions. The world body also said that ICOs are highly speculative investments in which investors were putting their entire invested capital at risk.

To be fair, some operators provide legitimate investment opportunities to fund projects or businesses. But, the increased targeting of retail investors through online distribution channels by parties often located outside an investor’s home jurisdiction — which may not be subject to regulation or may violate laws — “raises investor protection concerns.”

In Budget 2018, Finance Minister Arun Jaitley said the government did not consider cryptocurrencies legal tender and would aim to eliminate their use in financing illegal activities.

Many regulatory and self-regulatory authorities globally have cautioned investors on ICOs. ICOs, also known as token sales or coin sales, typically involve the creation of digital tokens — using distributed ledger technology — and their sale to investors in return for a cryptocurrency such as bitcoin or ether.

A survey by the North American Securities Administrators Association (NASAA) of state and provincial securities regulators showed 94% believed there was a “high risk of
fraud" involving cryptocurrencies. Regulators also were unanimous in their view that more regulation was needed for cryptocurrency to provide greater investor protection.

**Not for faint of heart**

"Cryptocurrencies and investments tied to them are high-risk products with an unproven track record and high price volatility. Combined with a high risk of fraud, investing in cryptocurrencies is not for the faint of heart," it added.

"Investors should go beyond the headlines and hype to understand the risks associated with investments in cryptocurrencies, as well as cryptocurrency futures contracts and other financial products where these virtual currencies are linked in some way to the underlying investment," said Joseph P. Borg, NASAA President in a statement last month.

German regulator Federal Financial Supervisory Authority said the acquisition of cryptocurrency coins may result in substantial risks for investors. As ICOs are a highly speculative form of investment, investors should be prepared for the possibility of losing their investment completely. It also said that the term ICO, stems from "initial public offering" (IPO), i.e. a floatation on a stock exchange. The apparent similarity of the terms gives the impression that ICOs are comparable to the issuance of shares. This is not the case, either technically or legally. In a recent interview published by the Federal Reserve Bank of New York, its economists Michael Lee and Antoine Martin raised the issue of the trustworthiness of such currencies. They highlighted the "trustless" nature as virtual currencies are "not backed by anything real" such as gold. "Trust is implicit for practically any means of payment," they added.

**Budget 2018 and Unemployment: Job creation comes in the spotlight**

Budget 2018-19 proposes several measures, including promoting exports and supporting fixed tenure jobs, to create employment. Giving a sense of urgency to the task of job creation in his fifth budget presented, finance minister Arun Jaitley's proposals include enhancing infrastructure spending; creating rural markets; giving tax sops to small industries; a special package for textiles; and a reduction in statutory provident fund contributions by new female employees.

Jaitley said creating and facilitating employment generation has been at the core of the government’s policymaking and indicated that it will keep focusing on labour-intensive sectors including textiles, leather, micro and small and medium enterprises (MSMEs) to aid jobs growth.

"The government had approved a comprehensive textile sector package of Rs8,000 crore in 2016 to boost the apparel and made-up segments. I now propose to provide an outlay of Rs7,148 crore for the textile sector in 2018-19," the finance minister said.

Calling it a "major engine of growth and employment" for India, Jaitley allocated Rs3,794 crore to the MSME sector as credit support, capital, and interest subsidy and "promotion of innovations".

"Massive formalization of the businesses of MSMEs is taking place in the country after demonetization and introduction of GST (goods and services tax)," he said underlining how the sector will play a key role in formalising India’s labour market.

The budget also announced a reduction in the contribution that new women workers make to the employees provident fund, from 12% to 8%, to promote women's participation in the labour force as well as increase their take-home pay. Women's labour force participation rate in India is below 25% as against 40% globally. Economists and industry veterans point out that improving their participation will help boost the economy.

"To incentivize employment of more women in the formal sector and to enable higher take-home wages, I propose to make amendments in the Employees Provident Fund... interest payment is such a large part of servicing... I think therefore time has come for this step to be taken in right earnest," he said.

**NITI bats for separate debt office at Centre**

NITI Aayog Vice-Chairman Rajiv Kumar made a strong case for setting up an independent debt management office, saying better servicing of loans could lead to substantial reduction in India’s interest payments.

At present, government debt is managed by the Reserve Bank of India (RBI). "Now, the time has come to seriously consider better management of India’s debt servicing obligations... interest payment is such a large part of the revenue expenditure that better management of debt servicing could substantially reduce interest payment," Mr. Kumar said.

Noting that India’s external debt is only 18% of total GDP, he said when the RBI manages India’s debt then there is conflict of interest.

"Because, if you let more external people come and compete in government debt market, then you get more foreign exchange, therefore exchange rate management gets problematic.

"So, debt market remains confined to few domestic players... I think therefore time has come for this step to be taken in right earnest," he said.
(EPF) and Miscellaneous Provisions Act, 1952, to reduce women employees' contribution to 8% for the first three years of their employment against the existing rate of 12% or 10% with no change in employers' contribution," Jaitley said.

Currently, an employee contributes 12% of his or her basic salary as the statutory monthly contribution to EPF and a matching contribution is made by the employer. The budget announcement will mean that while employees' contribution of 12% will continue, new women employees will be required to pay just 8% of their salary as EPF contribution.

Jaitley also announced that the government will now "contribute 12% of the wages of new employees to the EPFO for all sectors for the next three years" for the next three years. This means companies across sectors will not have to pay the employer's share of EPF contribution when they hire new employees. The move will reduce payroll costs of companies, and may encourage them to hire more.

To create quick jobs, the budget mentioned that the government is rolling out fixed-term contractual jobs across industry segments. Some experts say this will fuel the so-called hire-and-fire system. But both industry and the government believe it will add more jobs and reflect a shift in the government's policy from job security to job creation.

The finance minister also went on to talk about "productive jobs in the farm sector". "Our emphasis is also on generating productive and gainful on-farm and non-farm employment for the farmers and landless families," he said. The budget also talked up self-employment and entrepreneurship as a means to create more jobs. It said the MUDRA Yojana launched in April, 2015 has led to entrepreneurship as a means to create more jobs. It said the MUDRA Yojana launched in April, 2015 has led to

"It is proposed to set a target of Rs3 trillion for lending under MUDRA for 2018-19 after having successfully exceeded the targets in all previous years," Jaitley said, indicating how such loans will help job creation in the hands of small entrepreneurs. However, some experts feel the budget does not address the problems of employment creation in a holistic sense.

"It persists with short-term strategy of providing payroll tax sops and that too for just three years and encouraging fixed term employment contracts. This is myopic as this will just create "numbers" and not sustainable jobs and inclusive labour market strategy," said K.R. Shyam-Sundar, a labour economist and professor of XLRI Jamshedpur. "Nor is there much to incentivise private sector investment," he added.

Jaitley said all the steps the government has taken have started yielding results and a better economy will add more jobs.

"Manufacturing sector is back on good growth path. The services, mainstay of our growth, have also resumed their high growth rates of 8% plus. Our exports are expected to grow at 15% in 2017-18. We are now firmly on course to achieve high growth of 8% plus," he said in his budget speech.

‘New RBI norms to spur surge in NPAs’

The Reserve Bank of India’s new norms directing banks to start insolvency proceedings on accounts, if stress is not resolved in 180 days, could result in an increase in bad loans, according to Moody’s unit ICRA.

"In our view, the revised framework on resolution of stressed assets issued by RBI is likely to increase the reported non-performing asset (NPA) levels of the banks in coming quarters," ICRA said.

The RBI said that for accounts where a bank’s exposure exceeds Rs. 2,000 crore, a resolution plan must be implemented within 180 days from the date of first default, and in case a resolution is not implemented, lenders should file an insolvency petition within 15 days of the expiry of the 180 days.

"This has been the case with most of the NCLT 2 list of borrowers, whereby the resolution plans failed for most of the borrowers and were referred under IBC; this is expected to further spike up the credit provisioning requirements for banks during FY2019," ICRA said.

The RBI had sent two lists of firms against which insolvency proceedings could be taken at the National Company Law Tribunal. Banks have to make a 50% provision in respect of accounts that are subject to insolvency proceedings. In comparison, the provisioning norm for sub-standard assets is 15-20%.

**Proactive resolution**

The RBI norms, announced, entail proactive resolution of stressed assets with lenders needing to finalise the resolution plan as an account slips into special mention account category. SMA category indicates the time period over which repayment on a loan has not been made. Banks' gross NPAs and standard restructured advances were estimated at 12.6% as on September 30, 2017. The RBI had estimated SMA 2 advances (where repayment

is not made for more than 60 days) to be 3.5% of gross advances. ICRA said overall stress levels of banks including SMA0 (overdue between 1 and 30 days) and SMA1 (overdue between 31 and 60 days) borrowers was much higher than the reported GNPA level of 10.3% as on September 30.

“While in the short-term this will increase the pain for the borrowers as well the lenders... early identification of stress and resolution will prevent future evergreening of loans and ensure a good financial health for the banking system in the long-term,” said Karthik Srinivasan, Group Head, Financial Sector Ratings, ICRA.

KPMG said RBI should have been more accommodative on provisioning. Genuine business cycles and economic cycles that could lead to payment delays should have been factored in, observed Manish Aggarwal, Partner & head resolutions — special situations group, KPMG India.

‘PSU insurers’ merger may be completed by March 2019’
The proposed merger of three public sector insurance firms may be completed by early 2019, said M.N. Sarma, chairman and managing director of United India Insurance Co. Ltd.

Talking to the media on the sidelines of a National Insurance-ASSOCHAM Summit, he said that a meeting of all the three heads of the respective insurance PSUs had been convened on February 16 in New Delhi to discuss the budget proposal.

Finance Minister Arun Jaitley had in the Budget, proposed a merger of three general insurers — National Insurance Co. Ltd., United India Insurance and Oriental Insurance Company Ltd.

‘Operational advantages’
“There are a lot of operational advantages and savings that will accrue from this proposed merger,” Mr. Sarma said even as he expressed confidence that neither competition nor manpower would be affected by the creation of a single entity. “The issue is to make the companies stronger,” he added.

To a question on the management of the assets of these three companies, he said that all the finer points would be worked out progressively.

Earlier at the event on connecting wellness to health awareness, he mooted the idea of pursuing a carrot-and-stick policy to incentivise people to buy health insurance cover while leading a more healthy life. “Unless the rod is used, people will not fall in line...insurers could then give discounts to the insured for staying healthy,” he said.

National Insurance chairman-cum-managing director K. Sanath Kumar said that an awareness campaign was needed to remove the air of distrust between the insurer and the insured while encouraging people to take care of their health. R. Chandrasekharan, secretary general of the General Insurance Council said that health insurance was not for aggrandisement of the hospital chains but for helping a person in health distress.

Centre plans to merge small savings, PPF laws
In a bid to consolidate the legislations pertaining to small savings schemes, the government is proposing a merger of the various laws into a Government Savings Promotion Act.

“The government gives highest priority to the interest of small savers, especially savings for the benefit of the girl child, senior citizens and regular savers who form the backbone of our country’s savings architecture,” the government said in a release.

“In order to remove existing ambiguities due to multiple Acts and rules for small saving schemes... [the government] has proposed merger of Government Savings Certificates Act, 1959 and Public Provident Fund Act, 1968 with the Government Savings Banks Act, 1873.” “All existing protections have been retained while consolidating PPF Act under the proposed Government Savings Promotion Act,” the release added.

Benefits retained
“No existing benefits to depositors are proposed to be taken away through this process. The main objective in proposing a common Act is to make implementation easier for the depositors as they need not go through different rules and Acts.”

India in pact with UAE to spur energy security
Prime Minister Narendra Modi’s recent trip to the UAE has resulted in two agreements being signed that will strengthen India’s energy security, said Petroleum and Natural Gas Minister Dharmendra Pradhan.

“Two highlights of the PM’s visit were the signing of the Concession Agreement between an Indian consortium and Abu Dhabi National Oil Company for award of 10% stake in Lower Zakum Offshore oil field, and an agreement between Indian Strategic Petroleum Reserves (IS-
Centre targets industry to save power

The Centre, through its company Energy Efficiency Services Limited (EESL), is planning to replicate its success in the LED space in the commercial sector by creating a market for low-cost, energy-efficient motors, a senior official said.

"A large chunk of energy consumption goes to industry," S.P. Garnaik, national programme manager (CGM) at EESL told The Hindu. "About 30-34% of the total energy consumption goes to the industrial sector, which is a substantial amount. And out of that, about 70% is electrical energy consumption." Most of this electricity consumption is due to the use of motor-driven systems, Mr. Garnaik added.

"Now, we can address the efficiency issues in the entire system or as at the sub-assembly level, which is at the motor level," Addressing the entire system has larger opportunities but is more complex. You need so many technological interventions. So, initially, we decided to address it at a component level," Mr. Garnaik said.

Using a combination of economies of scale and design efficiencies, Mr. Garnaik said EESL had so far been able to create motors in the capacity range of 1.1 KW to 22 KW that are 30% cheaper and result in an average of 15% lower electricity usage.

‘Other levers’

“Apart from the price benefit, one of the other levers to create demand is the fact that the Department of Industrial Policy & Promotion has issued a quality assurance guidance that says that manufacturers will have to supply a minimum energy performance standard adhering to the ‘International Efficiency-2’ (IE-2) level,” Mr. Garnaik said.

The EESL motors are of the IE-3 level, which saves between 7% to 23% of electricity compared with the current industry standard, depending on the application, Mr. Garnaik said.

“The present practice is of using non-IE motors,” he said. “About 99% of the motors being used are IE-1 or non-IE.”

Phase 1 of the nation-wide programme, to be unveiled by Power Minister R.K. Singh, would seek to replace 1.2 lakh motors of the capacity of 1.1-22 KW, which would save 175 million units of electricity, he said.

In the second phase, , two lakh motors would be replaced, including those of a capacity higher than 22 KW. “There are in total about 11 million motors that can be replaced, which works out to about 15 billion units of electricity being saved,” Mr. Garnaik said. “This can lead to 6,000 MW of capacity reduction. But 11 million cannot be done overnight.”

PNB fraud may wipe out profit

The Rs. 11,500-crore fraud at state-owned Punjab National Bank (PNB) could have a significant impact on its profitability, which is already under pressure due to an increase in bad loans.

Not too long back, in the January-March quarter of 2016 (FY2015-16), the lender had reported a record quarterly loss of Rs. 5,370 crore due to a jump in bad loans. As part of its plan to bolster capital at state-run banks, the government had recently decided to infuse into PNB Rs. 5,473 crore, which is less than half the amount involved in the fraud.

The country’s second-largest lender had reported a net profit of Rs. 1,134 crore for the first nine months of the current financial year — a growth of only 6.7% over the same period of the previous year. The bank reported gross non-performing assets of Rs. 57,519 crore as of end December, which was 12.1% of its total advances. Since PNB had issued Letters of Undertaking (LoUs) in favour of three companies run by Nirav Modi — Solar Exports, Stellar Diamonds and Diamond R Us — for availing buyers’ credit, PNB may have to bear the liability and pay the other banks such as Allahabad Bank and Axis Bank.

“We are already in discussion with all the lenders,” Sunil Mehta, MD & CEO of PNB, said at a news conference. “If the entire onus is on us, we are not going to back away from it. We don’t have any funded exposure as of now, but whatever is our liability that will be worked out under the investigation... we will take action,” he said.

Banking sources said PNB had already made some payments to other banks.

‘Weak systems’

“The amount involved is substantial,” Edelweiss wrote in a note to its clients. “But more worrying is the stark process lax and repeated instance of similar frauds. "PSU banks continue to grapple with weak systems, raising questions on why the processes are not centralised,
unlike most private banks where bypassing CBS [core banking solution] is not easy,” Edelweiss said.

MSCI calls exchange data restriction anti-competitive, says could impact India weightage

Global index provider MSCI, in a press statement issued late night said that it considers the move by Indian stock exchanges to restrict data feeds as anti-competitive and it could impact India weightage and India asset classification in its indices.

“The breadth of the restrictions imposed by Indian exchanges is unprecedented in any equity market in the MSCI Emerging Market Series,” said the index provider in the press statement.

“MSCI strongly suggests the Indian exchanges and their regulator Securities and Exchange Board of India (Sebi) reconsider this unprecedented and anti-competitive action before it leads to any unnecessary disruptions in trading or a potential change in the market classification of the Indian market in the MSCI Indexes,” the index provider added.

India’s top two stock exchanges—National Stock Exchange of India Ltd (NSE) and BSE Ltd—on 9 February terminated agreements that allowed their index derivatives to be traded on overseas exchanges and data vendors from providing data to entities which would use it to trade on overseas exchanges.

This holds true for index providers such as MSCI too, if any of its indices gives more than 25% weightage to Indian securities. MSCI Emerging Market Index has given 9% weightage to India. Most of the international interest in India, and inflows, comes through it. MSCI India has over $9.2 billion in total assets under management for MSCI India family ETFs.

While an NSE spokesperson was not immediately available for comments, BSE declined to comment. Meanwhile, a person familiar with matters in the Indian exchanges said, on the condition of anonymity, that they have had conversations with MSCI in the past week.

“We have had conversations with MSCI and we have assured them on our thought process. This won’t impact MSCI emerging markets which carry a 9% weightage to India as it is too broad to lead to any meaningful decisions by investors,” he said.

MSCI is also in discussion with international investors on the potential change in its indices.

“The introduction of restrictive measures that may result in a material deterioration of the accessibility of an equity market is reviewed carefully by MSCI in consultation with international institutional investors and other market participants and could lead to a change in market classification,” said MSCI.

A SEBI probe stuttered to a stop

In March 2017, an order issued by the then whole-time member of the Securities and Exchange Board of India (SEBI) found Mehul Choksi, owner of Gitanjali Gems, along with other promoter entities of the company, guilty of violating various security market regulations and advised the capital market regulator to conduct further investigations but it seems that the case did not progress much beyond the initial findings.

“... this is the fit case for investigation and SEBI should employ all the investigative powers entrusted to it to unearth the entire truth and to find out the role of alleged Choksi Group entities vis-a-vis the promoter entities of Gitanjali Gems,” said a 29-page order issued by S. Raman, adding that SEBI should “investigate the matter of alleged manipulative trading in the scrip of Gitanjali Gems along with violations of the Takeover Regulations, 1997 read with the Takeover Regulations, 2011.”

While the SEBI order also stated that the regulator “shall endeavour to complete the investigation within six months”, it is believed that there has been no further progress in the matter. An e-mail query to SEBI regarding the current status of the matter remained unanswered till the time of going to press.

A spokesperson on behalf of Gitanjali Group said that “there has been no update given to the company from SEBI, as regards the status of the same.”

Disclosures on shares

The order, however, did allege serious violations by Mr. Choksi and the promoter entities of the company. The SEBI probe found that the promoter entities bought shares of the company and allegedly did not make the stipulated disclosures and also submitted false informa-
The lowdown on industrial renewal

Industrial activity, as measured by the government’s Index of Industrial Production (IIP) and the private sector Purchasing Managers’ Index (PMI), has improved significantly over the last two months. Growth in the IIP soared to 8.8% in November, the highest since October 2015, and stood at a slightly slower but still robust 7.07% in December. These two instances mark a return to above 5% growth after a year. Within the IIP, growth was largely driven by the manufacturing sector, which grew 10.7% and 8.4% in November and December respectively. Similarly, the PMI surged to a 60-month high of 54.7 in December and came in at 52.4 in January. These two sets of data are interesting because not only do they show the picture from both the government and private sector sides but also highlight different elements of the sectors they measure. While the IIP is an output measure, the PMI is an indication of the activity at the input, or purchasing, level. If both show strong growth, the implication is an overall recovery in industrial activity and sentiments.

Given that the average growth in the IIP in financial year 2017-18 prior to November was only 2.5%, the months of November and December certainly stand out as outliers. To understand what happened in these two months, it is important to understand what happened before. The November 2016 demonetisation had a major impact on industrial activity. For example, growth in the IIP was a relatively robust 5% in November 2016, but slowed to 1.2% by February 2017. Activity resumed thereafter, but was hit again by the prospect of the Goods and Services Tax and then its fallout. Industrial activity contracted in June because firms halted production to get rid of their stock in preparation for the GST, which rolled out on July 1. Similarly, July saw only 1% growth as companies came to terms with the new tax regime. A combination of the impending festive season and the re-stocking of inventory led companies to increase their activity thereafter, with a recovering global economy boosting exports, which further propelled industrial growth in November and December. There were other factors at play, such as companies getting increasingly comfortable with the GST regime, the government taking steps to ease the woes of exporters who saw a large chunk of their working capital tied up because of the input tax credit system, domestic demand recovering somewhat, and the government investing heavily in roads.

The recovery in manufacturing and in the overall industrial sector should come as some relief to the government, which has come under criticism for the impact demonetisation and the hurried roll-out of GST had on economic growth. Economic growth itself is expected to increase, with private sector analysts and economists saying there are signs of a recovery.

With economic growth should come job creation that is needed?

However, it is worth keeping in mind that the IIP and the PMI measure only the formal sector. Several accounts say the informal sector, a very large segment of the economy that accounts for significant employment, is still recovering from the effects of demonetisation. That effect has not been effectively measured, and any talk of a recovery leaves the informal sector out. A significant part of the recovery is based on how the informal sector, a very large segment of the economy that accounts for significant employment, is still recovering from the effects of demonetisation. That effect has not been effectively measured, and any talk of a recovery leaves the informal sector out.
a “reciprocal tax” in the U.S. Whether this happens or not, such statements add to the uncertainty over Indian exports. That said, most commentators do say there are signs of recovery in the economy and in the manufacturing sector in particular.

Cryptoassets: regulation in the air?
Despite repeated cautions by the Reserve Bank of India and the Finance Ministry about the risks associated with investing in cryptocurrencies and their illegality when used as actual currency, the crypto-industry is still pretty enthusiastic about India and maintains that even the government’s negative stance has been exaggerated.

The RBI has issued three warnings about cryptocurrencies since 2013, and the Finance Ministry in December issued a strongly-worded notice likening cryptocurrencies to Ponzi schemes and emphasised that buyers and investors were risking their money by investing in these products. This culminated in Finance Minister Arun Jaitley’s Budget speech on February 1, when he again reiterated the government’s position that cryptocurrencies were not legal tender and the government would look to curb any illegal transactions and financing using these digital currencies.

Legal or not?
While several commentators took this to mean that the government had declared cryptocurrencies illegal, industry players in contrast took a lot of heart from Mr. Jaitley’s statement, saying that instead of suggesting a ban, the government looked like it was considering regulation of the industry.

“When Mr. Jaitley said it was not legal tender, this is the stand the RBI has always maintained,” said Rahul Raj, co-founder and CEO, Koinex, one of India’s rapidly growing digital assets exchanges.

“Even foreign currencies in the country are commodities and not legal tender. He also mentioned that they are looking to curb the illicit financial of illegal activities. If they are talking about illicit use, it seems to suggest a regulatory environment rather than destroying the entire industry.”

In one of the Finance Minister’s media interviews, Mr. Raj added, “it came out very clearly that he meant regulation. “In a separate panel discussion, Economic Affairs Secretary Subhash Chandra Garg said that they were looking at a regulatory framework before the end of the financial year, and said the government was not comfortable with the words ‘coin’ or ‘currency’ because these are not legal tender, and so instead wanted to call them ‘cryptoassets’.”

Likewise, the industry body representing most of the blockchain and cryptocurrency companies in India agrees with this assessment.

“There is a lot of negativity... arising out of repeated caution by the government and RBI that people are investing in cryptocurrencies at their own risk, which we agree with, and second, that it’s not legal tender, and third, some bank or the other says that you cannot use credit or debit cards to purchase cryptocurrencies,” Ajit Khurana, head of the Blockchain and Cryptocurrency Committee of the Internet & Mobile Association of India said. “But none of this goes to the existence or legality of cryptocurrencies.”

Earlier this month, Citibank banned the use of its credit and debit cards for the purchase of cryptocurrencies in India “given concerns, both globally and locally, including from the Reserve Bank of India, cautioning members of the public regarding the potential economic, financial, operational, legal, customer protection, and security-related risks” associated with dealing in them.

The central bank’s view, however, doesn’t seem as cut-and-dry as made out to be. On February 8, the RBI came out with a report on the fintech sector, in which it dedicated a section to digital currencies (DCs). It went into the modalities of such currencies and also their future potential, an indication that the RBI was not totally closed to the applications of digital currencies.

“The implications of DCs for financial firms, markets and system will depend on the extent of their acceptability among users,” the report said. “If use of DCs were to become widespread, it would likely have material implications for the business models of financial institutions. DCs could potentially lead to a disintermediation of some existing payment services infrastructure.”

Some cryptocurrency players are also of the opinion that if the government wished to act decisively against cryptocurrencies, it would have already done so.

“If the government had to completely ban these cryptocurrencies, then they would have do so already,” Ashish Agarwal, founder of Bitsachs said. “I think they want to understand whether calling it illegal would result in serious harm, or whether simply declaring it illegal will stop the system or force people into buying these digital currencies using cash.”

The Income Tax Department this year sent one lakh notices to people who invested in cryptocurrencies and whose investments didn’t match their income profile. This too was widely seen as an anti-cryptocurrency move, but industry players downplayed its significance saying the number of notices sent was too small and that they didn’t have much weight given that the current finan-
Customer centricity was an early lesson for Judy Marks, who grew up helping her father in his shop. “It was a small store and every day we discussed the business when dad came home. My two older siblings and I, we all worked in the store. We learnt the value of customer service. More importantly we learnt the value of how people do business with people.” This, she said, is helping in her mission to run a $12.3-billion company in start-up mode. Ms. Marks, in October 2017, took over as president of Otis Elevators Co., the 165-year old firm whose founder invented the elevator. Excerpts from an interview:

**The global economy is recovering. What are your challenges and opportunities now?**

We’re excited by what we see in the economy throughout the world; especially here in India, we see demand picking up. We see stabilisation in some of the financial metrics and the economics here. With growing economies comes the opportunity to be able to serve retail customers, our industrial customers, and importantly our commercial and housing customers.

**What challenges accompany recovery? In the last 7-8 years, large economies have been struggling...**

When you have either stable or declining economies, you always have an opportunity to evaluate your strategies and your investments. We spend time trying to understand where the potential pockets of growth would be, what the demand signal would look like, how to optimise both our portfolio and our manufacturing capabilities. But, most importantly we evaluate how to invest for the digital economy we are in today.

**What potential do you see in the Indian market?**

The opportunity to us is very real because we believe the Indian market can best be served by our localised India footprint. We have the largest service base here and a service portfolio which is at about 70,000 units in the country. We view ourselves as a ‘Make in India’ company. And because of that I had an opportunity to visit our Bengaluru factory as well as our R&D facility in Hyderabad, and our lead office in Mumbai. We have 80 service locations and close to 3,000 employees. We have continued to assess and implement our localisation initiatives. We are proud to now manufacture escalators and our Gen2 product. We are excited about rolling out our Made in India escalator product, which will be coming off our lines in the next few months from Bengaluru.

**A lot of metro rail projects are being executed here...**

Infrastructure obviously appeals to our elevator and escalator business in general. We are a company that moves people and every day in the world we move two billion people across our products. And here in India, we think that can change the way of life. We work with our...
customers who can provide, with our technology, a better passenger experience. They may be architects, general contractors, developers, the government, and then obviously our service contractors or building managers.

**What is your investment plan for India?**

We are committed to our Bengaluru manufacturing facility. We’ve also grown our presence in Hyderabad in terms of professional engineers who are very much a part of our Internet of things and digitalisation strategy.

Our factory here is focused on providing the best products, again using local content, local suppliers that we can provide both here and eventually someday for export. India is an important node for our manufacturing network and we find the talent here to be wonderful.

Otis has been in India for the last 100 years. The first Otis elevator was installed 125 years ago. But now it is not the market leader. How do you plan to regain top slot?

We are very proud of [our history] and not only did we create the industry here in India but 165 years ago Elisha Otis created the first safe elevator. And with that comes pride and responsibility of being able to support not only cities being built, but rising above four and five floors. We have now for the past several years gained market share every year.

It starts with focusing on customers and understanding the markets we are going to serve. We believe that that quality and that personal relationship and innovation will be key to securing customers. Our approach to a ‘connected’ elevator that allows for a different passenger experience, providing more safety for our mechanics and riding public is important. All this is part of our strategy to become a leading digital industrial company.

You said your mission is to run Otis as a start-up. We have 68,000 employees globally. With that comes the opportunity to lead and be local everywhere. We have 33,000 mechanics making 1,20,000 visits to customers every day.

They have the opportunity to see where they can add value and make improvements. We should be able to take that information, fuse that, understand where customers’ needs are going, predict that and get there first. That’s what start-ups do. They look at things from a different perspective.

They offer solutions that haven’t even been applied to certain industries. That’s the spirit I am trying to instil in all of our colleagues. Yet, in our industry you have to balance that, because we are in a life safety business. We don’t have the opportunity to just write a software app and allow that to control an elevator without regulation or safety. So we have to balance [against] that.

Consider privatising public sector banks:

**FICCI to govt.**

Industry body FICCI has called for privatisation of public sector banks (PSBs), saying that the recapitalisation efforts by the government have had little effect on improving their health.

**‘Pressure on finances’**

“Given the continuous pressure on the government finances on account of the weak performance of the banks, the government should consider privatisation of PSBs,” FICCI president Rashesh Shah said in a statement. This would reduce the drain on the exchequer and the money saved could be used for developmental schemes and programmes of the government.” “A dynamic banking sector is the need of the hour and we should examine if there is at all a case for public sector domination in the banking sector,” he added. “FICCI firmly believes that the recapitalisation of PSBs alone is not a permanent solution and will not be effective unless the inherent issues related to governance, productivity, risk management, talent, customer service, etc. are resolved.”

Mr. Shah’s statement follows the government announcement last October of a Rs. 2.11 lakh crore recapitalisation plan for PSBs, of which Rs. 88,000 crore is scheduled for this financial year. Of this, Rs. 80,000 crore is to come through bonds and a little more than Rs. 8,000 crore through budgetary support this financial year.

**China outbids India for stake in DSE**

Bangladesh has agreed to sell a large stake in its stock exchange to a Chinese consortium, an official said, rebuffing a rival bid from India that raised political sensitivities.

The Dhaka Stock Exchange on February 10 had approved the Chinese offer to buy a quarter of the bourse’s 1.8 billion shares, but Bangladesh’s financial regulator asked it to “further scrutinise” the decision.

“The board has reconfirmed its decision about approving the Chinese consortium’s bid as it is higher than its nearest competitors,” said stock exchange spokesman Shafiqur Rahman after the meeting.

India’s NSE had offered 15 taka ($0.18) per share during the tender process this month. China’s Shanghai and Shenzhen stock exchanges made a joint higher bid of 22 taka per share, or $122 million, and offered additional technical support worth nearly $37 million.

**Allegations of meddling**

The intervention by the Bangladesh Securities and Ex-
change Commission in the sale sparked allegations in local media that it was trying to favour India. The Bangladesh office of Transparency International, the Berlin-based corruption watchdog, issued a statement “strongly condemning” what it called unethical and illegal meddling. The regulator — which, at the time, defended its final authority to override decisions made by the stock exchange — was not immediately available for comment. The competing bids have exposed tensions in Bangladesh as it juggles growing interest from China against long-standing ties with its huge neighbour India. New Delhi threw its weight behind the 2014 elections that returned Prime Minister Sheikh Hasina to power, despite boycotts by the opposition who feared the vote would be rigged. Prime Minister Narendra Modi’s government has made big investments in Bangladesh and Indian companies have won multi-billion contracts in key sectors in recent years. But increasingly it must counter China, which has also courted India’s arch-rival Pakistan and strategic Indian Ocean nations including Sri Lanka and the Maldives.

‘NITI Aayog preparing new list of sick PSUs’ NITI Aayog is working on a new list of sick and loss-making Public Sector Units (PSUs) that could be privatised, said CEO Amitabh Kant. “NITI Aayog has already given recommendations with regard to strategic disinvestment of 40 PSUs. Department of Investment and Public Asset Management (DIPAM) is working on it and the process is in an advanced stage,” Mr. Kant said. He added that the Aayog had already prepared and given four lists of such PSUs and was “working on the fifth list.” The government has set a target of Rs. 80,000 crore from disinvestment proceeds in 2018-19.

Stake sales In the current fiscal, the government has earned more than Rs. 1 lakh crore from stake sales in public sector firms, as against the Budget estimate of Rs. 72,500 crore in 2017-18 for the disinvestment process. Minister of State for Planning Rao Inderjit Singh, who was also present at the conference, pointed out that the Budget allocation for NITI Aayog had been increased by more than 20% to Rs. 339.65 crore in 2018-19 from Rs. 279.79 crore in 2017-18.

RBI: inflation could spur shift in stance The Monetary Policy Committee of the Reserve Bank of India (RBI) could shift from its current ‘neutral’ policy stance to a ‘withdrawal of accommodation’ stance if headline inflation projection for the year ahead remained well above the target, the minutes of the central bank’s interest rate setting panel’s last meeting show.

‘Coming months key’ “The next few months of inflation and growth data will be key to determining the evolution of policy rates,” Viral Acharya, Deputy Governor, RBI, who oversees the monetary policy department was cited as having said at the two-day meet of the MPC earlier this month. The meeting’s minutes were released by the RBI. “If growth remains robust and inflation prints continue to project headline inflation a year ahead well above the target, then a change in stance from “neutral” to “withdrawal of accommodation” might have to be considered,” he added.

RBI, which has a mandate with keep retail inflation between 2% and 6%, decided at its sixth bimonthly policy review on February 7 to keep interest rates unchanged, while maintaining a neutral stance. While five MPC members voted to preserve the status quo, one of them recommended a 25 basis points rate increase.

RBI Governor Urjit Patel observed that consumer price inflation — the main yardstick to determine policy rates — had accelerated for a six consecutive month in December and said inflation was getting generalised with rising input prices. “Inflation expectations have remained elevated,” Dr. Patel was cited as having said. Dr. Patel also said that since the economic recovery was at a nascent stage, a cautious approach was needed at this juncture.

DoT’s plan to spur synergy among 7 PSUs The government unveiled a ‘strategic plan’ to enable seven state-owned companies under the Department of Telecom (DoT) to work closely with an aim of promoting greater operational synergy among them, including pooling of resources and effective utilisation of human resources as well as land and buildings. The action plan covers MTNL, BSNL, Indian Telephone Industries (ITI), Centre for Development of Telematics (CDOT), Telecommunications Consultants India Ltd. (TCIL), Testing and Certification of Telecom Equipments (TEC) and BharatNet (BBNL). “Under the plan, we have identified specific areas where our teams will work on including manpower, settlement of legal issues and utilisation of vacant space,” Telecom Minister Manoj Sinha said. He, however, added there were no plans to merge BSNL and MTNL for now.

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“There is no thinking in the government on merging the two. But we are taking steps to ensure that collaboration between MTNL and BSNL strengthens and benefits both the organisations,” he told reporters. MTNL shares rose 7.78% to Rs. 24.25 per share while the ITI scrip climbed 2.13% to Rs. 126.90 on the BSE.

Work for the strategic plan began in January 2016 when a core committee of senior officers was formed to look into “the whole issue of synergy in totality and prepare a comprehensive plan covering various issues affecting the functioning of different organisations.”

The strategic plan, finalised after several discussions between all stakeholders, entails effective utilisation of human resources, optimum use of vacant space and promoting ‘Make in India’, among other things.

**Training manpower**

Some units have excess manpower whereas others face a shortage, the minister explained. Under the plan, the Centre intended to train and redeploy manpower, he said. Also, telecom PSUs will refrain from going to court against one another and, instead, first approach DoT for resolution of disputes. The strategic roadmap will also cover other areas such as standards and certification, and preparing to tap opportunities in areas like 5G and Internet of Things.

Centre resumes search for RBI Dy. Gov.

The Centre has resumed the process of looking for a suitable candidate to appoint as the fourth deputy governor at the Reserve Bank of India (RBI) — a post which has been lying vacant for almost seven months now. Deputy Governor S.S. Mundra, who was looking after banking supervision, retired on July 31. Though the Centre had initiated the search for a replacement in May last year, the process appeared to have stalled for unknown reasons.

**Fresh advertisement**

The Finance Ministry issued a fresh newspaper advertisement inviting applications for the central bank deputy governor’s post. The latest move comes in the wake of the Rs. 11,500-crore fraud at Punjab National Bank, which has thrown the spotlight on internal oversight failures at the state-owned bank and drawn criticism about possible audit and regulatory lapses. The latest advertisement specifies the eligibility criteria for candidates — these include a minimum 15 years of experience in banking and financial sector with an understanding of supervision and compliance. A candidate’s age should not exceed 60 years as on July 31, 2017, the ministry said, adding the criteria could, however, be relaxed for deserving candidates. The tenure of appointment would be three years and could be extended.

Similar to last time, the post is open to candidates from the private sector. Also, the criterion that a candidate must have served as a bank CEO has been dropped. and anyone with board experience is eligible to apply. Out of the four Deputy Governors, two are promoted from within the RBI and one is an economist. The fourth is typically a commercial banker. In the past, only the CEO of a public sector bank — like Mr. Mundra of Bank of Baroda or his predecessor K.C. Chakrabarty of Punjab National Bank — was selected as Deputy Governor.

Candidates who had applied in response to the earlier advertisement in May would not need to apply afresh. The last date for submitting applications is March 14, 2018. The Financial Sector Regulatory Appointments Search Committee (FSRASC) would shortlist and interview the candidates. However, the FSRASC can recommend a candidate’s name even if he/she had not applied. The FSRASC “is free to identify and recommend any other person also, based on merit,” the ministry said.

‘Competition via commercial mining of coal will enhance energy security’

The success of commercial mining will hinge on the size of mines being offered, their reserve price, and the norms pertaining to the auction of mines, but the ensuing competition would enhance India’s energy security, according to industry insiders.

Opening up commercial coal mining for Indian and foreign companies in the private sector, the Cabinet Committee on Economic Affairs, on February 20, approved the methodology for auction of coal mines/blocks for sale of the commodity.

A key feature of the proposal is allowing 100% FDI in commercial mining as well as coal export. “Coal production is likely to increase in future, transforming into a competitive scenario,” said Subhashri Chaudhuri, secretary general of the Coal Consumers Association of India. “This [new norms] would be a great opportunity to overseas companies in countries where coal mining is either on the wane or has been stopped completely, but there is a need to choose companies with superior technology and competence,” according to former Coal India Ltd. chairman Partha S. Bhattacharyya.

‘Not just revenue’

Mr. Bhattacharyya said proven mining experience and core competence should get more weightage in bidder
evaluation rather than mere revenue maximisation. Revenue maximisation should not be the only focus of the auction methodology. Moreover, it was also important to offer larger coal blocks, say about 50 million tonnes of annual capacity, for about 25 to 30 years. “Offering smaller mines will not attract either the right type of companies or adequate investment — it may rather defeat the very purpose of this reform if a small mine of 2 to 5 million tonne capacity is to be offered,” he said. “We have seen the ill-effects in the first round of coal auctions, after the cancellation of the 204 coal mine blocks — most of the blocks auctioned have not been developed so far as the buying cost was too high to make the investment feasible”, said Mr. Bhattacharya, who was on one of the first Advisory Groups set up by the NDA government to suggest integrated development of power, coal and renewable energy. On the competition likely to be faced by CIL, Mr. Bhattacharya, under whose charge CIL’s listing took place in 2010, said that CIL was unlikely to suffer beyond facing a competitive pressure as its prices had always been at a discount to import prices and it did not utilise its position to raise prices.

‘Oil, lower than expected GST revenue, risks’
There is a need to restore macroeconomic stability considering inflation has been rising, as have crude oil prices, with both the current account deficit and fiscal deficit coming under pressure, according to Sudhakar Shanbhag, chief investment officer, Kotak Mahindra Life Insurance Co. Limited. Excerpts from an interview:

**What is your outlook for financial year (FY) 2019?**
The last three years have been a story of macro improvements. This has been confirmed by Moody’s upgrade of Indian government bonds to Baa2 from Baa3, while changing the outlook to stable from positive. However, it seems that apart from a cyclical recovery in GDP, all other macro parameters would either be static or would deteriorate. A GVA growth of 7.1% in FY2019 is expected, rising from 6.5% in FY2018. Economic growth is likely to recover as the negative effects of demonetisation and GST recede. Government expenditure on the rural economy and the investment cycle will pick up from the second half of calendar 2018. However, we see headwinds from domestic and external factors, such as rising inflation trajectory, hardening global interest rate cycle, lower fiscal space, and normalisation of monetary policies by developed market central banks.

CAD is expected to remain in the negative 2% range and CPI average is expected to move up by about 100 basis points due to unfavourable base effect and the global commodity cycle. Higher than expected crude price and lower than expected GST collections will add to the risks. On the external front our current foreign exchange reserves are reasonable. However, we do expect to see a depreciating bias on the rupee.

**How will the impact of monetary policy play out?**
Less accommodative monetary policy of global banks will put the onus of market performance on earnings. We can expect high double-digit growth in the net profits of the Nifty-50 companies in FY19 and FY20. This will be led by improved operating conditions in many sectors, such as banking, pharmaceuticals and telecom that saw a sharp deterioration in their operating conditions over FY16-18. We can expect strong earnings growth in the global commodity sectors although their performance will depend largely on the strength of the Chinese economy. Earning risks also exist across sectors from various global and domestic factors and high profitability in case of several consumptions sectors. The Nifty-50 trades at about 17.2 times FY2019 EPS on a free float basis and is already discounting a sharp recovery in FY2019 net profits.

It offers reasonable valuations on a FY2020 basis. However, we can also expect high double-digit CAGR in net profits for Nifty-50 companies between FY18 and FY20. This compares with 7% CAGR between FY14 and FY18 on a like-to-like basis. The market appears to be quite sanguine about the BAU investment case for many sectors, as is implied in the rich valuations.

The high valuations for several sectors that face challenges suggests that the market is not worried about forthcoming disruptions even over the medium term, which is quite remarkable in an era of rapid technological advancements.

Having said that, on a price-to-book ratio basis, if we look at the last 15 years’ average, the market seems to be in a reasonable band at this stage. Normalisation of monetary policy by global central banks may weaken the valuation support for global and Indian markets.

**How do you read Budget 2018?**
The finance minister has been able to address the stress in rural and farm sectors by making enough allocations as also taking structural decisions like making minimum support prices at 1.5 times the cost of produce.

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The equity markets will move back to their focus on earnings which are expected to be in the mid-teens for FY19 and FY20. Debt markets over the next year will face the brunt of macro deterioration at a margin compared to FY18.

**How will the bond markets play out?**

For the last 6-9 months, the bond markets have been in a bear market grip. Brent prices have seen a movement to an average of about $57 with a low of $47 and a high of $70 in FY18 adding to volatility in bonds and the range is expected be between $60 and $70 in the next 12 months. One of the biggest variables will be the level of GST collections with an expectation of better compliance leading to achievement of budgeted collections.

A surprise on either side can lead to more volatility. In the recent past, we have observed less participation from public sector banks that control about 40% of the G-Sec market, impacting prices. All variables as observed are currently leading to a high uncertainty premium in bonds. From an investor’s point of view, the current yields are in an attractive zone.

**Centre may enact law against fugitives**

The Union government may consider enacting the Fugitive Economic Offenders Bill to confiscate assets of those who flee the country and refuse to return after committing frauds in excess of Rs. 100 crore. Such a law assumes significance as major bank frauds have come to light in quick succession of late. Nirav Modi, a diamond merchant accused in the Rs. 11,400-crore Punjab National Bank case, and his family members are currently abroad. The passports of Mr. Modi and his uncle Mehul Choksi have been revoked.

In another case involving Rs. 389 crore of the Oriental Bank of Commerce, a Delhi-based jewellery exporter and his business partners fled the country in 2014. Under the existing laws, the bank has failed to recover the dues in the past three years.

**Feedback taken**

A draft of the Bill, which is in consonance with similar legislation in several countries, was circulated last May seeking comments from all stakeholders. The Bill was cleared by the Union Law Ministry with certain recommendations on reconciliation of provisions with the existing laws.

The draft Bill followed an announcement in the Union Budget for 2017-18 that the government planned to introduce a legal measure to confiscate assets of the economic offenders who flee to foreign jurisdictions to escape the clutches of law.

**Is the endgame for NPAs in sight?**

Of late, the Reserve Bank of India’s (RBI’s) attempt to purge the banking system of bad loans has begun to resemble the spring-cleaning of a long-neglected kitchen cupboard. After demolishing the first few cockroaches with glee, one is dismayed to find dozens more sauntering out of the woodwork.

So, given that non-performing assets (NPAs) have been making headlines for nearly three years now, how far have we come in identifying the extent of these bad loans? And given the big hits that banks have been taking lately, how close are we to the endgame on NPAs?

We take stock, using RBI’s statistical tables and its half-yearly Financial Stability Reports.

**Galloping NPAs**

Gross NPAs of Indian banks, after staying below the Rs. 1 lakh-crore mark between FY06 and FY11, began to gallop from FY12. Jumping to Rs. 1.4 lakh crore in March 2012, gross NPAs proceeded to rise almost sixfold over the next five years to Rs. 7.9 lakh crore by March 2017. The picture is equally dire if one considers gross NPAs as a proportion of total loans. After hovering below 3% till March 2012, it soared to 10.2% by September 2017, data from RBI’s financial stability reports show. In effect, for every Rs. 100 in loans advanced by Indian banks over the years, Rs. 10 is already in default. Indian banks recognise a loan as an NPA if its interest or principal repayments are overdue for more than 90 days.
The bulk of these NPAs have been stockpiled by public sector banks. In March 2017, they held Rs. 6.8 lakh crore of the Rs. 7.9 lakh crore bad loans; private sector banks held Rs. 91,900 crore and foreign banks the rest.

**Provisions kill profits**

As soon as a bank recognises a loan as an NPA, RBI rules require it to set aside a percentage of its current profits towards the likely loss, ranging from 15% to 100% of the loan amount.

Therefore, as banks’ NPAs soared in the last five years, bad loan provisions rose in tandem. This has directly dented their reported profits. Aggregate net profits of Indian banks have slumped from about Rs. 91,000 crore in FY13 to Rs. 43,900 crore by FY17. That there is still a profit, is thanks to private sector banks. Public sector banks in aggregate, have reported losses since FY16.

Persisting losses pose a threat to continued operations for a bank because they eat into its capital buffers. Basel III norms require banks to maintain a minimum 9% of owned capital to its total assets (CRAR).

RBI’s FSR reports, which keep a close watch on the capital adequacy ratios of Indian banks, have shown that Indian banks have consistently maintained a CRAR above regulatory norms in the last four years. Though private sector banks (16%) were far more comfortably placed than public sector ones (12.2%), none of the banks fell short of 9% in March 2017.

But given the galloping NPAs, RBI’s worry is whether individual public-sector banks are teetering on the brink and runs half-yearly stress tests to assess capital adequacy. The most recent one showed that if the system GNPA ratio were to spike to an extreme 16.6%, 19 banks would fall short of 9%.

RBI can stop worrying about capital adequacy, if only the gross NPA ratios of Indian banks showed signs of peaking out. But the higher ‘stressed advances’ ratios of Indian banks hint at more bad news to come. While the gross NPA ratios of banks were at 10.2% as of September 2017, their ‘stressed assets’ were higher at 12.2%.

While the gross NPAs of Indian banks reflect overdue loans recognised in their books, there’s a whole bunch of dubious loans outside these, which go by the moniker of ‘stressed assets’.

Basically, after indiscriminate lending during the boom times of 2003 to 2010, banks found that many large corporates couldn’t service their loans. They entered into restructuring deals to extend their repayment timelines, and managed to keep these loans out of their official NPA accounting, with RBI looking the other way.

In 2014, as it became increasingly clear that ‘restructured’ was euphemism for ‘doubtful’, RBI cracked the whip on banks to estimate and account for these NPAs. This is the key reason for the sharp spike in both the stressed advances and gross NPA ratios between March 2015 and September 2017.

While banks have reluctantly identified stressed assets, their bad loan provisions haven’t kept pace with the sprinting NPAs. As a result, as of September 2017, the average provision coverage ratio for all banks stood at about 44%. In effect, for every Rs. 100 worth of disclosed NPAs, banks had provided for losses of just Rs. 44.

RBI is not yet done with tightening the screws either. Recently, it decreed that banks would have to take more proactive steps to report large corporate loans overdue for less than 90 days and abruptly discontinued older schemes to restructure corporate loans.

Over the next few quarters, therefore, apart from dealing with slippages on their legacy loans, banks may have to come clean on NPAs on newer loans as well.

**Is it over?**

So, given that this spring-cleaning has been on for three years now, when can we expect Indian banks to emerge squeaky clean from this exercise? There’s a long way to go. As the Economic Survey noted, resurrecting Indian banks requires four Rs — recognition, resolution, recapitalisation and reforms.

We’re still not done with the first one — ‘Recognition’. One can presume that the first R is over and done with when the key indicators of bad loan stock — the stressed advances ratio, gross NPA ratio and the net NPA ratio — stop escalating.

On this, FSR data for the period between September 2016 and September 2017 does offer hope. The stressed advances ratio for the banking system, after peaking at 12.3% in September 2016, has dipped a bit this year to 12.2%. The gross NPA ratio has risen by 1 percentage point to 10.2%, but the pace of increase is far slower than the 4-percentage point spike last year. Net NPAs have also just inched up from 5.4% to 5.7% over 2016-17.

But still, stability in these ratios is contingent on no new cockroaches, such as the PNB fraud, emerging from the woodwork. It is also important that newer bank loans given out in the last three years display good behaviour. The rating agencies are optimistic that the stock of NPAs may not grow rapidly from here. Crisil expects the stock of gross NPAs for Indian banks to stand at 10.5% by March 2018 and stressed assets to top out at 14%. But provisioning and losses from these NPAs are expected to stretch on for the next year or two.

Yes, depositors can take comfort from the fact that the capital adequacy problem has been addressed by the Centre’s mega recapitalisation package for public sec-
ICAI favours existing audit mechanism
The Institute of Charted Accountants of India (ICAI) has said that it supports efforts to strengthen its existing disciplinary and oversight mechanism through amendments to the CA Act.

This comes in the backdrop of allegations about the role of Chartered Accountants (CAs) in the Punjab National Bank (PNB) scam and Finance Minister Arun Jaitley pointing fingers at auditors and regulators for failing to detect such frauds. However, ICAI has indirectly opposed the setting up of a super regulator National Financial Reporting Authority (NFRA) to regulate the CA profession. “ICAI supports every effort of strengthening the existing mechanism. But the model of oversight mechanism on the pattern of overseas regulations like Sarbanes Oxley Act 2002 (or SOX) has been found to be ineffective in so far in back-drop of banking sector mortgage scams in the U.S. [in] 2008-2009,” the CA regulator said in a statement.

The SOX is a U.S. federal legislation that had brought in new or expanded norms for American public accounting firms, public company boards as well as management. The ICAI also said a Parliamentary Standing Committee had recommended that, “Consistent with its position on strengthening the oversight of corporate audit, the committee desires that the existing mechanism in this regard under the CA Act should be streamlined and strengthened without needlessly adding to regulatory levels. This may be undertaken in consultations with the ICAI, which is the designated elected self-regulatory body for professional audit in the country.”

‘Imprudent to judge’
The CA regulator said till the time disciplinary inquiry was concluded in the PNB matter and the role of all those who acted in fiduciary responsibility was established, it would not be prudent to draw any conclusion against the profession. The ICAI remained committed to ensure accelerated inquiry and conclusion of the disciplinary proceedings in the PNB matter, it said. An ICAI High Powered Group to look into the alleged PNB bank scam had held its first meeting on February 23 in Mumbai, the CA body said, adding that the GM (Western Zone), PNB, appeared and made his statement.

On strengthening its disciplinary and oversight mechanism, the ICAI said it had already submitted its comments for the recommendation of the Central Government-appointed High Level Committee (HLC), which had also already drafted amendments to the CA Act. Even before formation of the HLC, ICAI constituted an internal group to review the disciplinary mechanism and submitted its suggestions to the Centre for suitable amendments in the CA Act.

CRDA inks MoUs with 37 investors
AP Capital Region Development Authority (APCRDA) has entered into Memorandum of Understanding with 37 investors with potential investment of Rs. 49,800 crore and to create jobs for over 78,000 persons in the CII Partnership Summit 2018 organised by Andhra Pradesh Government, in association with Department of Industrial Promotion & Policies (DIPP), Government of India and Confederation of Indian Industry in Vishakhapatnam, according to a press note.

Some of the prominent investors are ANAS International Enterprises, Italy, KumiUmi Asset Management CO. Ltd., Japan, Vindhya Telelinks, Smartbikes Mobility India Pvt. Ltd., LEH Confluent Corp., Toonz Animations India Pvt. Ltd., Gold Fish Abode, Whistling Wood International Institute, Astragen India Pvt. Ltd., Kosta Marina, Cube Design Consortium, various international and national schools, universities and academies. These investments are spread across sectors like housing, infrastructure, education, healthcare, sports, tourism, entertainment, hospitality, disruptive technology projects, media and animation, industrial parks, logistic hub etc.

3D models
The summit was meant to attract both international and domestic investments into Andhra Pradesh including Amaravati. APCRDA participated in the summit and displayed 3D models of master plan of Amaravati, master plan of Amaravati Government Complex (AGC), designs of iconic legislature building and AP High Court coming up in AGC. During the Partnership Summits held in 2016 and 2017, APCRDA had entered MoUs with 57 investors of which five projects have commenced operations and another 21 projects are in advanced stage of implementation and they will be operational soon.

The committed investment of these 26 projects is about Rs. 66,200 crore when these projects are completed. This investment is roughly 69% of the total committed investments.
International

India ‘disturbed’ by emergency
India issued another statement of concern over the growing crisis in the Maldives, but didn’t respond to former President Mohamed Nasheed’s appeal for military intervention.

“We are disturbed by the declaration of a state of emergency following the refusal of the government to abide by the unanimous ruling of the full bench of the Supreme Court on February 1, and also by the suspension of constitutional rights of the people of the Maldives,” the Ministry of External Affairs (MEA) said in a statement. The government also criticised the arrest of the Supreme Court Chief Justice Abdulla Saeed and former President Abdul Gayoom night as “reasons for concern”, adding that it “continues to carefully monitor the situation”.

However, the MEA refused to respond to questions about Mr. Nasheed’s call for international intervention.

Narendra Modi meets President Mahmoud Abbas on historic visit to Palestine
Prime Minister Narendra Modi met Palestinian President Mahmoud Abbas on his historic visit to Palestine and the two sides signed agreements worth around $50 million that includes setting up of a $30 million super speciality hospital.

President Abbas received Prime Minister Modi in an official ceremony at the presidential compound, also known as Muqata’a, in Ramallah—the Palestinian seat of government. Modi is the first Indian Prime Minister to make an official visit to Palestine.

After their talks, Prime Minister Modi said he has assured President Abbas that India is committed to the Palestinian people’s interests. He said India hopes for return of peace in this region. “We know that it’s not easy, but we should keep striving because a lot is at stake,” he said in a joint press conference with President Abbas.

On his part, President Abbas acknowledged that the Indian leadership has always stood by peace in Palestine. Abbas said Palestine is always ready to engage in negotiations to achieve its goal of an independent state. He asked India to facilitate the peace process with Israel.

“We rely on India’s role as an international voice of great standing and weigh through its historical role in the Non-Aligned Movement and in all international forum and its increasingly growing power on the strategic and economic levels, in a way that is conducive to just and desired peace in our region,” President Abbas.

The two sides signed agreements worth $50 million. The agreement includes setting up of a super speciality hospital worth $30 million in Beit Sahur and construction of a centre for empowering women worth $5 million. Three agreements in the education sector worth $5 million and for procurement of equipment and machinery for the National Printing Press in Ramallah were also signed.

President Abbas also conferred the ‘Grand Collar of the State of Palestine’ on Prime Minister Modi, recognising his key contribution to promote ties between India and Palestine. The Grand Collar is Highest order given to foreign dignitaries—Kings, Heads of State/Government and persons of similar rank.

Earlier, the two leaders exchanged hugs and stood for the national anthem of the two countries and then inspected the guard of honour before their bilateral talks. Archbishop of Catholic Church, PoulosMarcuzzo, and religious leaders of the Al-Aqsa mosque were also at the Muqata’a to greet Modi. Modi flew in a Jordanian army helicopter straight from Amman to Ramallah, where he was received by his Palestinian counterpart Rami Hamdallah.

Prime Minister Modi’s chopper was escorted by choppers from Israel Air Force. “This is a historic visit that will lead to stronger bilateral cooperation,” Modi said shortly after landing. Soon after his arrival, Prime Minister Modi visited the Mausoleum of Yasser Arafat in Ramallah and laid a wreath at the grave of the iconic Palestinian leader. He was accompanied by his Palestinian counterpart Hamdallah.

The mausoleum was unveiled on 10 November 2007 and is located adjacent to the Palestinian Presidential compound, also known as Muqata’a in Ramallah. After paying homage to Arafat, Modi took a short tour of the Arafat Museum located adjacent to the mausoleum.

During his maiden visit to Israel last year, Modi did not travel to Ramallah. His standalone visit to Israel had led to analysts questioning the future of the Indo-Palestine ties. This time Modi skipped Israel in a clear message that India is de-hyphenating its ties with Israel and Palestine.

Modi’s visit to Palestine comes amid heightened tensions in the region after US President Donald Trump recognised Jerusalem as the capital of Israel. The unilateral US decision to declare Jerusalem as the capital of Israel was challenged at the UN General Assembly where 128 nations, including India, voted to turn down the move as
“null and void”. Trump’s decision to declare Jerusalem as Israel’s capital angered the Palestinians, sparked protests in the Middle East and raised concern that it could further destabilise the region.

Though India has shied away from becoming a party in the Israel-Palestinian conflict, the Palestinian leader on several occasions has stressed on a possible role for New Delhi in the Middle East peace process. India believes in a two-state solution in which both Israel and a future Palestinian state coexist peacefully. The two-state solution envisions independent Israeli and Palestinian states coexisting side by side peacefully. The Palestinians see east Jerusalem as their future capital.

India, Oman agree to isolate sponsors of terror
India and Oman have agreed to isolate the sponsors of international terrorism, the External Affairs Ministry said here.

The declaration on battling terrorism came at the end of Prime Minister Narendra Modi’s visit to the country during which both sides acknowledged that there was an “inter-linkage” between the stability of the Gulf region and the Indian subcontinent.

“The two sides also emphasised the need to isolate the sponsors and supporters of terrorism and agreed that the international community should take urgent action against all such entities, which support terrorism and use it as an instrument of policy,” a joint statement issued at the end of Mr. Modi’s visit declared.

The visit to the strategically located country is of special significance as the monarchy, led by Sultan Qaboos bin Said for more than four decades, is soon likely to undergo a phase of succession.

Indian officials last week thanked Oman for providing refuelling facilities to Indian ships and aircraft.

The delegations declared that both sides recognise “the close inter-linkage of the stability and security of the Gulf region with the Indian subcontinent”. Mr. Modi appreciated Oman’s help in dealing with “specific” security challenges, the joint statement mentioned.

Prime Minister Modi arrived in Oman after visiting Jordan, Palestine and the UAE. He addressed a gathering of Indian workers and professionals during his stay in Muscat.

Military cooperation
Mr. Modi thanked Sultan Qaboos for “exceptional warmth” and said, “My visit to Oman (is) one of the most memorable visits I have undertaken anywhere.”

On military cooperation, the joint statement said: “The Indian side thanked Omani side for facilitating operational visits by Indian Naval ships and aircraft as well as Indian Air Force aircraft to various Omani ports and airports.

The Omani side expressed appreciation of the training facilities provided to the Omani Royal Armed Forces personnel by India.”

Strategic oil reserve
Mr. Modi also informed Oman’s ruler about the strategic oil reserve that India plans to build and invited Oman to participate in the project.

The Omani side briefed India about its own strategic oil reserve project in Ras Markaz near the port of Duqm.

A total of eight MoUs were signed on health, legal cooperation, tourism and military cooperation. Oman also expressed that it would like its scientists to be trained in Indian space research facilities.

Trump mulls China sanctions, scrapping S. Korea trade deal
U.S. President Donald Trump threatened retaliatory action against two major Asian trading partners, warning of sanctions against China while vowing to revise or scrap a free trade deal with South Korea.

Accusing Beijing of decimating American steel and aluminium industries, Mr. Trump said he was “considering all options”, including tariffs and quotas.

Mr. Trump recently received two Commerce Department reports concerning alleged Chinese subsidies for steel and aluminium exports-materials that are vital for industries from construction to autos.

Spectre of a trade war
He has another two months to decide on possible retaliatory action, but strongly indicated that he is leaning toward hitting back at Beijing.

“I will make a decision that reflects the best interests of the U.S., including the need to address overproduction in China and other countries,’ he said.

Experts believe any U.S. sanctions would prompt China to respond with sanctions of its own, raising the spectre of a trade war between the world’s two largest economies.

China produces around half of the world’s steel and is accused of flooding the market to keep the economic wheels turning at home.

For decades, Chinese leaders have been consumed with the need to — as former President Hu Jintao once put...
it — create “25 million jobs a year.” But Mr. Trump also is under domestic pressure. He came to office vowing to be a champion of America’s rust belt and said Monday he had to act to save the “empty factories” he saw on the campaign trail.

**Widening trade deficit**
The U.S. trade deficit — which Mr. Trump has vowed repeatedly to fix — widened even further during his first year in office, up 12% to $566 billion.

“They’re dumping and destroying our industry, and destroying the families of workers, and we can’t let that happen,” Mr. Trump told a group of Republican and Democratic lawmakers at the White House.

Mr. Trump received some support from the group, but also warnings that action against China could drive up prices and hurt U.S. manufacturing outside the steel and aluminium sectors.

“Mr. President, I think we do need to be careful here, that we don’t start a reciprocal battle on tariffs,” said Republican Senator Roy Blunt. “You know, we make aluminium and we make steel” he said. “But we buy a lot of aluminium and we buy a lot of steel as well.”

Daniel Ikenson of the pro-trade CATO institute said that Trump may be forced to moderate his actions, if not his tone.

“Despite the rhetoric, Mr. Trump doesn’t want to subvert ‘his’ economy,” Mr. Ikenson wrote this week.

**India still hopeful of nuclear deal with Westinghouse**

India is confident of concluding the nuclear deal with reactor-maker Westinghouse Electric very soon as it expects the company to come out of bankruptcy very soon, said Satish Sharma, Chairman and Managing Director (CMD) of Nuclear Power Corporation of India Ltd (NPCIL).

“The discussions are happening and they are of a very complex nature. Any progress will happen only after bankruptcy which is likely to happen very soon. That is why we are continuing the discussions,” Mr. Sharma said. Some officials said they were hopeful that Toshiba, which had acquired the U.S.-based Westinghouse in 2006, was too big to fail and would be bankrolled either by the Japanese government or the Japanese Development Bank.

Following the Indo-U.S. nuclear deal, India has been in discussion with Westinghouse since 2005 to build six AP1000 nuclear reactors. After protracted negotiations and concerns on the nuclear liability, NPCIL and Westinghouse had agreed to “work toward finalising the contractual arrangements by June 2017.”

However, the process was stalled after Toshiba Corp declared bankruptcy and decided to move out of reactor-building business.

**Second site in A.P.**

Meanwhile, the second site for constructing additional Russian reactors in Andhra Pradesh is yet to be finalised.

“The site selection committee is evaluating a second site in Andhra Pradesh other than Kovvada which was initially proposed. There are DAE guidelines laid down for finalising a site,” an official of the Department of Atomic Energy (DAE) told The Hindu.

Stating that the process is under way, the official said that various factors such as land type, earthquake potential, and availability of water should all be factored in. “Given that it is a coastal site, there are also other parameters,” he added.

**New Zealand seeks clarity on India’s military ambitions**

As India expands its influence in Southeast Asia and the Indian Ocean Region, New Zealand’s Chief of Defence Force Lt. Gen. Tim Keating has sought clarity on a probable military component to New Delhi’s ‘Act East’ policy.

In an exclusive interview to The Hindu, Lt. Gen. Keating, currently on a visit to India, said, “We want to understand as India grows, how it intends to grow its influence militarily both regionally and near region. What does ‘Act East’ mean? We can see that economically and politically. But does that have a military element? From a military strategic point getting that understanding whether there are common interests and how they can be managed is important for us.”

**Role of the Quad**

Lt. Gen. Keating also queried the objectives of the recently resurrected quadrilateral (Quad) comprising India, Australia, Japan and the U.S. New Zealand has always balanced its relations with the U.S. and China.

He observed that the Quad need not necessarily be a military agreement at this stage but four large influential nations developing a common policy framework to various opportunities and potential threats in the region.

Asked if New Zealand would be interested in joining the grouping at some point, Lt. Gen. Keating said, “There is lot of clarity to be gained about what the Quad is. What does it mean to the four individual nations…. I will be very interested to engage my Indian counterparts to see what Quad means to them and put a question — do they see a role for New Zealand?”

Last year on the sidelines of the East Asia Summit in Ma
A Canada project, inspired by India
Amarjeet Sohi, Canada’s Minister for Infrastructure and Communities, spoke of his country’s Smart City Challenge, something that has been inspired by India, from where he migrated in 1981.

“IT companies are of particular interest. We want to see how we can help with Smart City challenges of major urban centres. Problems of transportation, social laws, etc. If we partner, we can find innovative solutions to these issues. The way the challenges work is we call municipalities to identify problems and then technology is used to solve these problems. We then fund viable projects. This is something that is inspired by Indian Smart City challenges,” Mr. Sohi said. The Minister in Justin Trudeau’s Cabinet was delivering the keynote address at the Canada-India Mumbai Business Forum in the city. “Economic growth is top on the agenda of Prime Minister Justin Trudeau. Growth that helps everyone as businesses and individuals. The same values are also shared by Prime Minister Narendra Modi,” he said.

“Each time I come to India, it gives me an opportunity to reflect on the time when I was a young man and went to Canada and built my life there,” said Mr. Sohi, a Sikh who was born in 1964, in Sangrur district of Punjab. Mr. Sohi explained that Canada’s Smart City Challenge aims to find the city that possesses the boldest, most experimental, inclusive, empowering, and digitally transformative ideas in the country. “As a former city councillor, I know first-hand that local leadership understands best what their communities need,” the minister said. “When talented people come together in pursuit of a common goal, they can come up with inspired solutions that will have a real and tangible impact. We are calling on everyone to step up and give us their best ideas on how technology can make our cities even better places to live.”

South Asians protest ‘unjust’ treatment of ‘Tier I’ visa-holders
A group of South Asians in the U.K. are considering a hunger strike alongside legal action, as they continue to build a campaign against what they believe is an unjust treatment meted out to those attempting to gain an indefinite leave to remain in the country. The campaign focusses on the increasing number of migrants from the subcontinent who have come on a ‘Tier 1 Highly Skilled Visa’ and have had their applicants to remain rejected or delayed because of amendments made to their tax filings.

Campaigners say that with increasing regularity, a clause within Britain’s immigration legislation — which focusses on a person’s character and is intended to prevent the settlement of criminals — is being used to reject applicants.

“We have a very strong case... the current treatment of people is inhuman,” said Aditi Bhardwaj, one of the leaders of the campaign, who joined hundreds of protesters outside Parliament. ‘Negative portrayal’
Nargis Awan, a solicitor who has been representing clients in such cases, said that the government was “totally misusing” rules originally designed to prevent those considered undesirable from settling in the country. She said that the government was attempting to negatively portray workers who had simply made tax errors in their filings.

One New Delhi-born property investor based in Nottingham explained how, despite him having lived and worked in the U.K. since 2006, his life had been turned upside down after his application to remain was rejected, leaving him and his wife unable to work.

The campaign group, which has garnered over 22,000 signatures in an online campaign to persuade the government to “stop creating a hostile environment for immigrants”, is due to hold a meeting in Parliament on March 6 to draw attention of the MPs. It is also set to meet with other migrant support groups.

India, Canada hold strategic dialogue
Ahead of Friday’s India-Canada bilateral summit, External Affairs Minister Sushma Swaraj and Canadian Foreign Minister Chrystia Freeland held a strategic dialogue...
here covering a wide range of bilateral issues. In a tweet, External Affairs Ministry spokesperson Raveesh Kumar tweeted that the two leaders “had wide ranging discussions on strengthening relations in trade and investment, security and cyber security, energy, people-to-people contacts and other relevant bilateral and regional issues.” Ms. Freeland arrived here evening ahead of the bilateral summit between Prime Minister Narendra Modi and his Canadian counterpart Justin Trudeau. Thursday’s meeting was held amid wide speculation of Mr. Modi and his government cold-shouldering Mr. Trudeau during his eight-day state visit to India that started on February 17.

**Frosty ties**
Ties between New Delhi and Ottawa have been frosty in recent times as Canada is being seen as offering a platform to separatists demanding an independent Khalistan. The visiting dignitary and his family have visited Agra, Ahmedabad, Mumbai and Amritsar but Mr. Modi has not yet issued any welcome statement or tweet.

**Bilateral trade must benefit poor: Trudeau**
Canadian Prime Minister Justin Trudeau said while the focus of his country’s relations with India has shifted from aid in the 1950s to trade today, it was important to ensure that greater bilateral trade and investment benefits all, especially the poor.

Speaking at the India Canada Business Session organised by the industry body CII along with the Canada-India Business Council and the Indo-Canadian Business Chamber, Mr. Trudeau pointed out that so far “too many people” have not been beneficiaries of trade and investment. He emphasised that “economic growth must benefit all...trade and investment must benefit the poor.”

**Shared legacy**
Terming democracy and diversity as common factors for India and Canada, he said, “If you want to progress as a community, you should not just tolerate diversity but champion it.”

“Diversity, including of religion and gender, enriches us, make our communities stronger and more resilient,” he said, adding that diversity opens societies to new ways of thinking and spurs innovation. In this regard, the Prime Minister cited Toronto in Canada and Bengaluru in India as examples of multi-cultural cities that are also hi-tech hubs. He said Canada and India need to capitalise on people-to-people ties, and leverage business and knowledge networks.

This week alone saw business deals of over $1 billion between companies of both nations that will in turn create many good jobs, he said. To improve business ties, he also referred to the benefits of Canada’s ‘startup visa program’ to start businesses in Canada, and its ‘global skills strategy’ to help firms recruit and bring talent to Canada at short notice.

**Leaders break ground on Afghan section of TAPI**
Turkmenistan, Afghanistan, Pakistan and India ceremonially broke ground on the Afghan section of an ambitious, multi-billion dollar gas pipeline expected to help ease energy deficits in South Asia.

Afghan President Ashraf Ghani and Turkmen counterpart Gurbanguly Berdymukhamedov joined Pakistani premier Shahid Khaqan Abbasi and India’s Minister of State for External Affairs M. J. Akbar for the ceremony at gas-rich Turkmenistan’s border with Afghanistan.

Speaking at the ceremony, Mr. Ghani said the pipeline would “unite [the] countries”. “There were pessimistic voices, but now we are witnessing the construction of the TAPI gas pipeline,” he said, using the acronym for the conduit which takes its name from the four countries.

The quartet aims to complete the 1,840 km pipeline and begin pumping natural gas from Turkmenistan’s giant Galkynysh gas field by the beginning of 2020. While the pipeline will traverse war-wracked Afghanistan, raising security concerns, the bulk of the 33 billion cubic metres of gas to be pumped annually through the conduit will be purchased by Pakistan and India.

Mr. Berdymukhamedov, whose country currently depends heavily on China as a market for its natural gas exports, called diversification of gas deliveries an “important part of the politics” of the isolated Central Asian country.

India’s stand
India’s commitment to the pipeline has previously been questioned over its relationship with Pakistan and easy-access to liquified natural gas markets seen as potential stumbling blocks.

But Mr. Akbar hailed the project as “a symbol of our goals” and “a new page in cooperation” between the four countries.

**U.S. tightens norms for issuing H-1B visas**
The agency said the petitioner will need to show that, the “petitioner has a specific work assignment in place for the beneficiary; the petition is properly supported by a Labor Condition Application (LCA) that corresponds to
such work; and the actual work to be performed by the H-1B beneficiary will be in a specialty occupation based on the work requirements imposed by the end-client who uses the beneficiary’s services."

The USCIS said the updated policy guidance aligns with President Donald Trump’s Buy American, Hire American guideline “to protect the interests of U.S. workers.” Employment-based petitioners who circumvent the worker protections outlined in the nation’s immigration laws not only injure U.S. workers (e.g., their wages and job opportunities), but also the foreign workers for whom they are petitioning.“

Wage violations
The memorandum said while the USICS acknowledged third-party arrangements as a legitimate and frequently used business model, it had noticed significant violations, “such as paying less than the required wage, benching employees (not paying workers the required wage while they wait for projects) and having employees perform non-specialty occupation jobs — may be more likely to occur when petitioners place employees at third-party worksites.”

India’s top software industry lobby group Nasscom said while the new norms were unlikely to significantly impact its member companies businesses, it would add to the red tape they face in the U.S.

India, China hold talks ahead of SCO summit
Foreign Secretary Vijay Gokhale has held across-the-board talks with top Chinese officials on advancing ties between India and China, which have encountered several points of friction.

Mr. Gokhale’s visit is also seen as part of preparations for talks between Prime Minister Narendra Modi and President Xi Jinping at the June summit of the Shanghai Cooperation Organisation (SCO) in the Chinese coastal city of Qingdao. The Foreign Secretary met Politburo member and State Counselor Yang Jiechi, China’s top foreign policy official, as well as Foreign Minister Wang Yi and Vice-Foreign Minister Mr. Kong Xuanyou.

Last year, Prime Minister Modi and President Xi met in Xiamen on the sidelines of the BRICS summit in September to revive ties that had been hit by the Doklam border crisis. As a follow-up to these talks, Mr. Yi and Mr. Yang visited New Delhi in December.

“During the consultations, the two sides reviewed recent developments in bilateral relations, including high-level exchanges, and discussed the agenda for bilateral engagement in the coming months,” an Indian Embassy press statement said.

India’s concerns regarding China’s growing influence in the Indian Ocean have been rising, and have peaked after the pro-China President of Maldives Abdulla Yameen declared a state of Emergency on February 5 in the island nation.

Without making any specific reference to the Maldives, the statement said the “two sides also exchanged views on regional and international issues of common interest”. Building convergence
The statement noted the necessity of building on “convergences” between the two countries. It stressed that Beijing and New Delhi should “address differences on the basis of mutual respect and sensitivity to each other’s concerns, interests and aspirations”.

In the past, Indian officials have pointed to the China Pakistan Economic Corridor (CPEC), which passes through Pakistan-occupied Kashmir (PoK) as an infringement of India’s sovereignty.

China’s decision to come in the way of a UN ban on Masood Azhar, head of the Pakistan-based terror group Jaish-e-Mohammad (JEM), and Beijing’s objections to India’s entry into the Nuclear Suppliers Group emerged as additional points of abrasion in ties.

Vietnam and India to discuss South China Sea
Vietnam will take up South China Sea-related issues during the March 2-4 visit by President Tran Dai Quang. Speaking to the media here, the Ambassador of Vietnam said that Hanoi wished to fully utilise the comprehensive strategic partnership with India and was likely to sign a civil nuclear agreement during the visit.

“South China Sea issue will be discussed between leaders as the situation in the South China Sea is complicated. Some positive developments have taken place but the ground reality remains problematic,” said Ambassador Ton Sinh Thanh. Beijing’s claims over most of the South China Sea is a major issue between the two countries, and Hanoi has been one of the more vocal countries in the 10-member ASEAN grouping to find a solution to China’s expansionist policy in the crucial water body. The Ambassador however assured that his country remained committed to maintaining cordial ties with Beijing.

He clarified that Vietnam had not yet firm up its position on the ‘One Belt, One Road’ initiative of China and said, “OBOR is a big project, we need to look into it whether it is good for the country or not, will then take a position on
Areas of convergence

The visit, he said, would provide India and Vietnam an opportunity to build on the areas of convergence in the strategic domain. The envoy acknowledged India’s support in capacity building by the Vietnamese naval forces and said that the Vietnamese army and the air force are in the process of considering some hardware purchase from India. The presidential visit will begin with a stopover at Bodhgaya where Mr. Tran will reach on March 2. The delegation will reach New Delhi later on the same day and both sides will hold official talks on March 3.

Maldives rejects invite for naval exercise

Maldives has declined an invitation to join the MILAN series of multilateral exercises to be hosted by the Indian Navy in March off the Andaman and Nicobar Islands. The Maldives Ambassador clarified that it was due to the state of emergency in his country.

“We have invited Maldives, but they declined it. They did not give any reason, but I think it is due to the current situation,” Navy chief Admiral Sunil Lanba said. He was speaking on the sidelines of the Indo-Pacific Maritime Dialogue, organised by the Navy and the National Maritime Foundation.

MILAN is a congregation of littoral navies conducted biennially by the Navy under the aegis of the Andaman and Nicobar Command, which began in 1995. MILAN 2018 will be held from March 6-11. This year 23 countries have been invited, of which 16 have confirmed so far. Admiral Lanba dismissed concerns over the presence of Chinese ships near Maldives. He said China had been conducting anti-piracy patrols in Indian Ocean since 2008 and India had been monitoring their movements. “They have a standard pattern of operating. There has been no change in it,” he said.
India and The World

U.S. air chief flies on Tejas

Chief of Staff of the United States Air Force Gen. David L. Goldfein flew on India’s indigenously built light combat aircraft (LCA), Tejas. He is the first air chief of a foreign country to fly on the Tejas.

“The sortie was undertaken in the morning from the Jodhpur Air Force Station and lasted approximately 40 minutes. The jet was piloted by Air Vice-Marshal A.P. Singh, Principal Director, Flight Testing, at the National Flight Test Centre,” an Indian Air Force officer said.

Last year, Singapore Defence Minister Ng Eng Hen took a sortie on the LCA and called it a “superb plane.”

Gen. Goldfein is on an official visit to India and has already held discussions in New Delhi including with his Indian counterpart Air Chief Marshal B.S. Dhanoa. He is accompanied by General Terrence O’Shaughnessy, Commander of the U.S. Pacific Air Force.

The visit of two top officers of the USAF, another first, comes at a time when the IAF is getting ready to float a global tender for a single-engine fighter. F-16 of the U.S. is competing with Gripen of SAAB for the multi-billion dollar deal.

Indian, U.S. air forces to deepen cooperation in Indo-Pacific: U.S. Air Force chief David L. Goldfein

Chief of the U.S. Air Force General David L. Goldfein has said Indian and U.S. Air Forces will significantly ramp up operational cooperation to complement the strategic interests of the two countries in the Indo-Pacific region, where China has been expanding its military influence.

Calling India a “central strategic partner” of the U.S. in the region, he said two of the world’s largest Air Forces were going to shift the focus jointly on the Indo-Pacific region, and asserted that the rules-based order must be preserved in the critical sea lanes.

Gen. Goldfein, who held extensive talks with Air Chief Marshal B.S. Dhanoa and the top brass in the defence establishment during his three-day visit, said the “Quad-rilateral” coalition among the U.S., India, Japan and Australia would provide for deeper cooperation between the Indian and American Air Forces.

Asked if cooperation between the two forces would deepen in the wake of the four countries joining hands to contain Chinese influence in the Indo-Pacific region, he replied, “I do [think so] and that is a big part of my visit and in my discussions here.”

“We have common interests in preserving the rules-based order. So while we look for opportunities for partnerships, it is actually appropriate also for us to be critical of those who are trying to change,” he said in an interview in New Delhi.

Gen. Goldfein refused to commit when asked if the U.S. would increase its military presence in South China Sea.

“We want to be strategically predictable but operationally unpredictable. I am not going to share with our adversaries what our intentions are. If we are to increase our presence or decrease our presence, that is something we will do at our time and place of our choosing,” he said.

India rejects Maldives offer to send envoy

“Democratic institutions and the judiciary continue to be undermined and concerns ignored. These issues need to be properly addressed,” they added.

Sources also said Male had not given adequate notice for the visit, and that both Prime Minister Narendra Modi and Minister for External Affairs Sushma Swaraj were “away” this week. Mr. Modi is expected to travel to Jordan, Palestine, UAE and Oman on a trip beginning Friday. And Ms. Swaraj returned from a three-day visit to Saudi Arabia night.

The strain in ties between New Delhi and Male comes in sharp contrast to an attempt to boost ties just last month. On January 11, Foreign Minister Mohamad Asim had travelled to Delhi and met Mr. Modi and Ms. Swaraj, inviting Mr. Modi to visit Male and had affirmed Maldives’ policy of “India First”.

Denying reports that President Yameen had intended to “bypass” India, Maldives High Commissioner to India Ahmed Mohamed, who is at present in Male, said, “India was in fact the first stop planned and proposed for a visit of a special envoy of the President of the Maldives.”

A press release from the Maldivian embassy said that Mr. Yameen had proposed to send Foreign Minister Mohamad Asim to Delhi for a visit 8-9 February, but the visit was “cancelled on the request of the Government of India”.

Maldives crisis: India in touch with U.S., China
India rejected the envoy’s visit, asking the Maldives to “address the concerns of the international community” on the situation in Male.
Maldives Ambassador Ahmed Mohamed, who returned to Delhi expressed regret over India’s decision, and is expected to hold talks with the government in Delhi over the next few days in an attempt to smooth matters over after India’s snub and sharp statement.
Meanwhile, Pakistan’s foreign ministry said President Yameen’s envoy, Foreign Minister Mohammad Asim, had meetings with Foreign Minister Khwaja Asif and Prime Minister ShahidKhaqan Abbasi in Islamabad. “As a matter of policy, we don’t comment on the internal matters of other country. Pakistan firmly believes that the rule of democracy and Constitution must be upheld and allowed to take its course,” the Pakistan Foreign Ministry spokesperson said.

‘We need India’s help to solve the impasse’
International actors may intervene to try and resolve the current crisis in the Maldives, but India alone can be the game changer, according to the island nation’s exiled former President Mohamed Nasheed.
“I have faith in India,” he said, amid few indications from New Delhi on its response to the development.
“Without doubt, we need India’s robust physical presence there to solve this problem,” he said, in a select media briefing. The ex-President — who has been living in London since 2016, after the U.K. granted him political asylum — is currently in Colombo.

Increased scrutiny
On February 5, the Maldivian government declared a state of emergency, following it up with a spate of high-profile arrests that have put President Abdulla Yameen under increasing international scrutiny.
The U.S., the U.K., the European Union, India and the UN have all criticised his government for defying a Supreme Court order which had called for the release of his jailed political opponents, including Mr. Nasheed.
Earlier this week, the former President had appealed to India, asking for military intervention in the Maldives.
Observing that he was aware of India’s “ambivalence” towards him, Mr. Nasheed said it was on account of two reasons — his opening of the Chinese embassy in Male above 2°C which, he said, was not well received by India. He had reasons for both, he explained, pointing to diplomatic obligations and his own campaign against climate change.
He, however, said he felt a close connection with India — be it through literature, Bollywood films or food. “India may not like me [for some reasons], but all I am saying is please listen to me.” His Maldivian Democratic Party (MDP) and India have common interests and shared concerns — like the increasing Chinese presence in the Maldives, and the apparently growing Islamist radicalisation — he said.

‘Time is running out’
Mr. Nasheed has in the past accused China of grabbing land in the Maldives — he said he has commissioned research papers on the topic — and of creating a debt trap. “While we are not against FDIs, we don’t need vanity projects and roads leading nowhere.”
Indicating that time was running out, he urged India to intervene soon. According to the Maldives’s Constitution, the Parliament needs to approve declaration of a State of Emergency within 48 hours.
If the House is not in session — the government has indefinitely postponed Parliament session citing security concerns — it has to convene within 14 days.
Meanwhile, a popular, privately-owned television network in the Maldives shut down late, citing threats to its staff, as the government continued its crackdown on dissent.

Channel shuts down
RaajjeTV, which airs news in the local Dhivehi language as well as English, had started receiving threats following its coverage of the February 1 Supreme Court ruling that set off the crisis.
“In spite of serious threats and intimidation, which escalated after the government’s declaration of a state of emergency, the police service has stopped protecting RaajjeTV, while security is being provided to government-backed TV stations,” the channel said in a statement, adding that it had no choice but to suspend its regular services safety to ensure the security and security of the station and its staff.

India, UAE to deepen strategic ties, counter terror
India and the UAE will hold a bilateral naval exercise, the External Affairs Ministry announced.
The declaration came during Prime Minister Narendra Modi’s discussion with the leadership of the Gulf country with both sides agreeing to deepen the strategic partnership and counter terrorism in “all forms”.

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Inter-govt. defence deals gain traction

While allegations continue to be made on the Rafale fighter deal with France, government-to-government deals have become the preferred route to conclude major defence contracts and will remain so in the face of unending delays in defence modernisation, officials said. Several deals are being lined up for likely conclusion through inter-governmental agreements (IGA), some of which can happen this year.

It's transparent

“An inter-governmental agreement (IGA) between two sovereign governments ensures transparency and avoids troubles later. It has become the only way now to conclude pending critical deals. Especially with elections close by, this is a safe bet,” an official source said.

The official stated that despite several efforts, the Defence Procurement Procedure (DPP) remains cumbersome and deals invariably get delayed. For instance, the Navy’s multi-role helicopter (MRH) tender for 16 helicopters, which began in 2009, was stuck over cost negotiations with Sikorsky for over two years due to price escalation. The Navy cancelled the tender last year and a fresh tender for 24 MRHs will be issued shortly.

“Despite the IGA is being looked into as the platform has already been tested. It will ensure delivery at the earliest,” one official said.

Similarly, the Army’s Spike Anti-Tank Guided Missile (ATGM) tender was cancelled last year after protracted negotiations.

Last month, the Defence Acquisition Council (DAC) cleared the procurement of 72,400 assault rifles and 93,895 close quarter battle (CQB) carbines for Rs. 3,547 crore on a fast-track basis. Both the deals have been repeatedly cancelled.

Russia seeks Rs. 125 cr. to repair INS Chakra

Meanwhile, government sources indicate that they want responsibility fixed for the damage suffered by INS Chakra.

As part of the firm stand taken by the government, it is believed to have put on hold the proposal to appoint Inspector General of Nuclear Safety Vice Admiral Srikant as the new Commandant of the New Delhi-based National Defence College (NDC), until responsibility is fixed for the Chakra mishap.

Vice Admiral Srikant is the senior most naval officer responsible for nuclear submarines. Lt. Gen. YVK Mohan moved out as NDC commandant early in January to take over as the General Officer Commanding IX Corps headquarterd at Yol in Himachal Pradesh. Denying any specific knowledge of the Ministry’s move, Navy officials admitted that a series of appointments in the Navy are currently waiting to be cleared by Defence Minister Nirmala Sitharaman and Vice Admiral Srikant is also among them.
India offers support for reconstruction of Iraq

India has called for a comprehensive political settlement and reconciliation in Iraq at the International Conference for Reconstruction of Iraq in Kuwait, where major world powers are meeting to chalk out a plan of recovery for the country.

Union Minister of State for External Affairs M.J. Akbar, who is leading the Indian delegation, has announced that India will play its part in the reconstruction, and called for an end to global terrorism.

Collaborative approach

“We will play our part with project-specific proposals. We support the important role assigned to private sector investors in the rebuilding of the terrorist-affected areas in Iraq. We are willing to play a substantive role in major projects in petrochemicals, health, education, infrastructure and other sectors. We will also look at any specific requests for rehabilitation projects and essential supplies like medicines, equipment, etc., as required for internally displaced persons as part of our assistance programme,” said Mr. Akbar indicating a collaborative approach to rebuilding the country, which has witnessed war since the early 1980s.

The conference being held in Iraq’s neighbour Kuwait has so far received promises of billions of dollars in the form of lines of credit from the international community and private investors, but reports say that Baghdad is yet to raise the resources for recovery from the destruction from years of foreign invasion and war with the Islamic State.

Pact against terror

Mr. Akbar drew the attention of the conference towards India’s current campaign for a comprehensive global convention against terrorism.

“This is also the moment to remind the international community that an early adoption of the Comprehensive Convention on International Terrorism, a draft of which was proposed by India as part of our assistance programme...” he said.

During the visit of Iraqi Foreign Minister Ibrahim Jaafari last year, India assured Baghdad of support in the reconstruction of the country. Since the outbreak of the war in 2003, India had frequently responded to the humanitarian needs in Iraq and contributed in several ways, including providing $10 million in aid towards the International Reconstruction Fund Facility for Iraq (IRFFI) for investments, reconstruction and development in Iraq.

Chabahar will be a golden gateway, says PM Modi

Iran joined hands with India to promote connectivity through the port of Chabahar and asked the United States to respect territorial sovereignty.

Welcomeing the Iranian President Hassan Rouhani, Prime Minister Narendra Modi urged for closer cooperation in the fields of energy, banking and countering terrorism.

Common views on issues

“On important bilateral and international issues, we have no divergence. Today, we discussed our agreements and the future course of action on Chabahar and India’s contribution to the Chabahar-Zahedan railways,” said President Rouhani in his speech at the end of bilateral talks with Prime Minister Modi and official delegates.

Both sides agreed on making transit and trade the core of bilateral ties and emphasised the role of Chabahar in serving as a door to the landlocked Afghanistan.

Mr. Modi described Chabahar as the “golden gateway to Afghanistan and the Central Asian region.”

Expressing a common resolve to go ahead with developing the area around the port of Chabahar, a joint statement at the end of the visit said, “The Iranian side welcomed the investment of the Indian side in setting up plants in sectors such as fertilizers, petrochemicals and metallurgy in the Chabahar FTZ.”

“Might is not the criterion to be right as there are other criteria also. Our destiny was in the hands of the U.S. for a long period of time,” said President Rouhani, addressing the Observer Research Foundation. “The U.S. made a promise to us and they have broken it. If it violates this agreement (n-deal), you will see it will regret it,” he added.

Maldives on a collision course with India

The Maldives looked set for a collision course with India, as the Majlis (Parliament) cleared an extension of the current state of emergency by 30 days, defying India’s expectation conveyed hours earlier.

According to an official statement from President Abdulla Yameen’s office, the Parliament’s National Security Committee approved the extension with additional amendments, including one stating that the emergency rule would apply only to those “alleged to have carried out illegal activities”, and not to “law abiding residents of, or visitors”.

On February 5, Mr. Yameen declared a state of emergency for 15 days, citing threats to “national security”.

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The move came after his government refused to implement a dramatic Supreme Court ruling delivered on February 1, which ordered the release of nine jailed Opposition leaders, including exiled former President Mohamed Nasheed, and the reinstatement of 12 expelled legislators.

Releasing a statement earlier, the Ministry of External Affairs said: “It is our expectation that the government of Maldives will not be seeking extension of the state of emergency so that the political process in Maldives can resume with immediate effect.”

**Illegal, says Nasheed**

The Opposition has termed the move illegal. Speaking to The Hindu, Mr. Nasheed said the government cannot legally extend the state of emergency because it does not have the 43 legislators in the Majlis that must vote in favour of it. “The Constitution states that 43 MPs must be present during a vote on a matter of public compliance and a state of emergency is a matter of public compliance.”

By implication, Mr. Nasheed said, the emergency, or any extension to it, is illegal. “It also means that any actions taken by the government or security forces using emergency powers are illegal. “President Yameen is ruling down the barrel of a gun. There is zero legitimacy to anything he is doing,” said Mr. Nasheed, who had earlier sought Indian military intervention to resolve the problem in Male.

However, in an official tweet evening, the President’s office said: “It is unconstitutional to say that the state of emergency cannot be declared.”

**‘Implement SC ruling’**

While India is yet to indicate its strategy in responding to the ongoing political and constitutional crisis in its neighbourhood, New Delhi reiterated its earlier position and urged the Maldives to implement the SC ruling.

“It is important that Maldives quickly returns to the path of democracy and the rule of law so that the aspirations of Maldivian people are met and the concerns of the international community are assuaged,” it said in a statement.

The UN, the U.S., the U.K., the European Union, Australia and Canada, among others, earlier asked Mr. Yameen to comply with the ruling and ensure that rule of law prevail. Many nations have issued travel advisories directing citizens to avoid travelling to the Maldives.

Karu Jayasuriya, Speaker of the Sri Lankan Parliament, and the Chairman of the Association of SAARC Speakers and Parliamentarians, has also appealed to the Speaker of the Majlis to “immediately take steps to restore normalcy and respect for the rule of law in the country through dialogue”.

**Rustom-2 UAV takes to the skies**

The Defence Research and Development Organisation (DRDO) carried out a test-flight of the unmanned aerial vehicle Rustom-2.

“This flight assumes significance because of the fact that this is the first flight in user configuration with a higher power engine. All parameters were normal,” the DRDO said in a statement. The flight was conducted at its Aeronautical Test Range in Chitradurga of Karnataka.

Rustom-2 belongs to a family of UAVs under development, besides Rustom-1 and Rustom-H. It is a medium-altitude long-endurance drone (MALE) and will fill a critical capability gap in the inventory of the armed forces.

It can fly up to an altitude of 22,000 feet and has an endurance of over 20 hours. It is capable of carrying payloads for electronic and signal intelligence missions. Currently, the three services employ hundreds of Israeli drones and have projected a requirement of hundreds of more UAVs, including armed variants, in the near future. The DRDO is also developing other drones in different categories.
Science, Tech. and Environment

More efficient desalination with crystalline carbon dots
Researchers at Indian Institute of Technology (IIT) Guwahati have been able to synthesise highly crystalline carbon dots by doping them with nitrogen, sulphur and phosphorus. The amount of phosphorus defined the extent of crystallinity. Unlike an amorphous material, less light was scattered or reflected from crystalline carbon dots on shining light. Instead, the crystalline material efficiently converted the absorbed light energy into heat energy.

Simulated sunlight
The team led by Prof. Arun Chattopadhyay from the Department of Chemistry successfully used the crystalline carbon dots for desalinating seawater by exposing the carbon dots to simulated solar conditions. “The doped carbon dots were not only able to convert light into heat energy but were also able to interact with water and transfer the heat energy to water thus raising its temperature,” says Prof. Chattopadhyay.

Compared with carbon dots that were doped with all the three elements, those doped with only nitrogen and sulphur were amorphous in nature. “When only nitrogen and sulphur are present the polycyclic carbon does not arrange in a particular manner, making it amorphous. But phosphate esters that form when phosphoric acid is added bond the polycyclic fragments. That is what makes it crystalline,” says Dr. Gayatri Natu from the Department of Chemistry, IIT Guwahati and a coauthor of a paper published in Journal of Materials Chemistry A.

The three- and two-element carbon dots added to water (with concentration up to 250 mg per millilitre) and exposed to simulated sunlight under reduced pressure showed wide variability in their ability to transfer heat energy to water. There was 43.5% evaporation of water within 15 minutes in the case of carbon dots doped with three elements and only 38.3% with carbon dots doped with only nitrogen and sulphur. “When we calculated the solar thermal evaporation efficiencies under standard atmospheric pressure, carbon dots doped with three elements had nearly 84% efficiency. It was about 44% with carbon dots doped with only nitrogen and sulphur,” Prof. Chattopadhyay says.

Thorough testing
The team tested the ability of the doped carbon dots to desalinate seawater samples from Bay of Bengal, Persian Gulf and a sample with average sea water salinity. Maximum desalination was achieved with carbon dots doped with three elements in the Bay of Bengal water sample — 43% evaporation of the initial volume in 15 minutes. Only 35.5% seawater evaporated during the same time in the case of carbon dots with two elements. They tested the doped carbon dots’ ability to desalinate seawater even when the salt concentration was in excess. To do this, more seawater was added to the residual seawater after each cycle and the desalination efficiency was tested for nine cycles.

“The doped carbon dots with nitrogen, sulphur and phosphorus elements retained up to 78% of the original desalination efficiency even at the end of the ninth cycle,” says Ayan Pal from the Department of Chemistry, IIT Guwahati and first author of the paper. “The doped carbon dots can be reused by removing excess salt through dialysis.” Recalling how they stumbled upon doped carbon dots for desalination, Prof. Chattopadhyay says: “We have been working with doped carbon dots and investigating their properties. We found that one set of doped carbon dots was highly crystalline. Since we were interested in the production of hydrogen from water using sunlight we tested these crystalline carbon dots. Though it didn’t produce hydrogen gas, it was evaporating water quickly. So we started testing it for desalination.”

“We are now trying to make doped carbon dots that are super crystalline so that energy is even more efficiently converted into heat. We also trying to make a film or sponge-like device that floats on water and evaporates water by converting sunlight into heat,” Prof. Chattopadhyay says.

Moth-proofing wool fabric
Using a cheap and easily available natural mineral, scientists from Central Sheep and Wool Research Institute (ICAR-CSWRI), Rajasthan have now moth-proofed woolen fabric. The moths did not consume the woolen fabric when treated with 1% nano kaolinite (an aluminium silicate clay mineral). The mineral costs just Rs 95/ kg while the existing anti-moth chemical (Eulan), which is imported, costs Rs 2,000/kg. The results were published...
in The Journal of the Textile Institute. A moth feeds on a protein present in the woollen fabric; a moth larva can consume about 40 mg of wool in a month. The researchers treated wool with different concentrations of nano-kaolinite solution and found just 1% was sufficient to protect the fabric. They adopted two different methods of wool treatments. One method was addition of kaolinite (dispersed in water) to fabric, followed by heating at 80 degree C for 30 minutes before water rinsing it. In the second method, fabric was dipped in the kaolinite dispersion for 30 minutes, squeezed and kept for 24 hours at room temperature and then water rinsed.

“The second longer treatment for 24 hours gave better moth repellence with lesser fabric damage,” says Seiko Jose from the Textile Chemistry Division and the first author of the paper. To test the effectiveness of moth-proofing, the treated wool was placed in a Petri dish along with 10 adult moths for 15 days in a dark chamber. They also conducted the same test with wool treated with a commercially available agent. The natural mineral treated wool showed a weight loss of just 1.5% while untreated one was 12.85%. It was 0.5% in the case of fabric treated with the imported agent (Eulan).

The researchers applied different concentrations of natural nano kaolinite and commercial anti-moth agent directly on the moth to study contact toxicity. Just 0.05% of the chemical killed the moth within a short span of time while the natural solution caused no or less toxic effect upon direct contact.

“It only stopped the moth from eating the wool and starved it to death. We think that the bitter taste of the natural mineral, triggered the deterrent receptor in the insects brain and signalled not to eat the wool,” adds Dr Seiko. “The nano-kaolinite is ecofriendly and causes no harm to humans and aquatic environment when the treated woollen fabric is washed,” says Dr. Ajay Kumar from the Textile Chemistry Division and one of the authors of the paper.

‘ISRO needs 4 years to catch up with satellite demand’

It has been a meteoric journey from a small farming village, SarakalVilai, in Kanyakumari for K. Sivan, who has taken charge as the Secretary, Department of Space, and Chairman of the Space Commission and the Indian Space Research Organisation. Just days after taking on new responsibilities, Dr. Sivan shares his plans for ISRO’s stepped up launch schedule and steps towards manned space flight.

You have just taken charge as Secretary, Department of Space, and Chairman, ISRO and the Space Commission. In the country’s space programme which area do you think needs immediate attention?

We now have 43 satellites in space — for communication, earth observation and navigation. To meet the present national requirement, we need an equal number of satellites in addition. The frequency of launches must definitely increase. With the present launch capability, it will take us four years to make the required satellites and launch them. By then we would need to replace a few [older] satellites. It is like trying to catch up with a moving bus! This gap can be met only by increasing the launch frequency. Our aim is to meet the immediate requirement and for that, we have set 18 launches per year as the target.

For over a decade now, ISRO has been facing a serious shortage of satellite transponders. How will you tackle the gap?

Yes, we are really short of around 100 transponders. But we are going to manage that with the new satellites that we will launch. We hope to bridge the gap very soon. One major satellite that we plan to launch in a couple of months is GSAT-11. It is around six tonnes [6,000 kg]. Once it is launched and starts working, most of our problems should be solved. It is getting ready and a launch date is not fixed. We will launch it from Kourou [in French Guiana, South America].

Do you see a need to change or re-focus activities related to development of launch vehicles, satellites and infrastructure?

There is really no need to change anything. In ISRO we define our priorities and requirements very clearly and well ahead. We have a clear plan up to 2025 for launch vehicles and spacecraft. Beyond that, too, there is an outline as to which way we should go. We have a three-year action plan.

Which missions are coming up this year?

As a part of the three-year short-term action plan, immediate missions that we plan to do this year are the GSLV-F08 that will launch the GSAT-6A communication satellite [around February]. Then we will have a PSLV mission with navigation satellite IRNSS-11. Then comes the second developmental flight D2 of GSLV-MkIII. It will launch the high throughput satellite GSAT-29. Later, GSAT-11, which will be our heaviest satellite as of now,
will be launched from Kourou. The Chandrayaan-2 mission will be launched this year on another GSLV.

**At what stage are some of ISRO’s ambitious projects — the semi-cryogenic launch vehicle and the human space flight?**

For the semi-cryogenic launch vehicle, the engine development is going on. Some critical [sub-systems] are getting fabricated or tested. Our target is to test fly it sometime in 2019.

The human space flight is really not in our approved programmes for now. Before it is taken up, a human mission requires many technologies. We should develop them and be ready to execute it in a shorter period. For example, the crew module shaping, certain thermal systems and the CARE (Crew Module Atmospheric Re-entry Experiment) that was tested in a partial flight of the GSLV-MkIII in 2014.

In the case of any disaster, there should be an emergency plan to rescue the crew from the capsule. One such experiment called ‘pad abort’ will be taken up this year. Studies related to life support systems, space suits, cabin pressure, oxygen levels, crew hygiene etc. should be completed.

**Last year, a plan was initiated to entrust the entire production of PSLV launchers to industry. A similar plan is under way to produce satellites. What is their status and how will this plan help?**

The process is on to give the major chunk of PSLV production to industry. Internal committees are looking at how to make work packages [i.e. distribute tasks.] The selection process is on. The first PSLV from industry should roll out in 2020. If this happens, it will take care of half our job. More people in ISRO will be available for doing R&D.

Of the target of 18 launches per year, we would like to do 12 to 13 PSLVs, of which a major chunk would be through industry; three GSLVs and two GSLV-Mark Ills.

Except for defining the modalities, which will take time, I would say that it should not be an issue for us. Major industries such as HAL (Hindustan Aeronautics Ltd, L&T, Godrej and MTAR have been already contributing to our programme in big ways.

Beyond these, we are developing a new launch vehicle to put small satellites to space.

We want to hand over its technology and production to industry right from the beginning after doing one or two technology demonstration flights. We will do this through [ISRO’s business entity] Antrix Corporation.

**When will public services based on the Indian regional navigation constellation NaVIC begin?**

This is an area of priority for me — to make micro and miniaturised NaVIC receivers and see that they get into our mobile phones. I am very clear about it — that any mobile without NaVIC receivers will not be allowed to be sold. How we can cajole industry to do this will take time.

How is NaVIC itself faring? All three atomic clocks on one of its satellites, IRNSS-1A, are said to have failed. Its replacement satellite IRNSS-1H was lost at launch last August. For NaVIC’s functions, four satellites are enough to get data.

Beyond four, the accuracy of giving location on ground beyond 20 metres will increase. We did want to put the replacement satellite but the loss of 1H is in no way affecting NaVIC’s performance.

**The Indian hand in a French satellite**

Vincent Lapeyrere’s day at work starts with a 200 m walk from his office to the ground station at the Meudon Observatory outside Paris. He has a 10-minute window to issue commands to the PicSat satellite as it flies over Paris, which it does four times a day. Mr. Lapeyrere and his team are trying to reduce PicSat’s spin by providing torque through on-board magnetorquers. Pic sat is expected to become stable in two weeks, after which it will commence its mission of studying the star Beta Pictoris and try to detect the transit of its exoplanet Beta Pictoris b.

It took the PicSat team just three years to design and build the nano satellite, which is made of three cubes, each just 10 cm in length, weighs no more than 3.5 kg and is equipped with a telescope which is 5 cm in diameter. The Indian Space Research Organisation (ISRO) played a pivotal role in the project’s quick execution as its PSLV launcher successfully placed the satellite in the helio-synchronous orbit (about 500 km in altitude), on January 12.

Sylvestre Lacour, who is the principal investigator of the PicSat project, said they chose ISRO as they wanted the satellite in the orbit at the earliest. “ISRO has been very successful in deploying cubesats. Their schedule is fast and flexible, making it possible to get a slot at a short notice. And equally important, it is inexpensive,” he said. Besides PicSat, PSLV’s 42nd flight deployed 30 other satellites in space. Last February, ISRO managed to deploy a staggering 104 satellites in a single flight. They
followed it up with a successful launch of 31 satellites in June. PicSat’s mission is expected to last for a year, during which time it will be continuously monitoring Beta Pictoris, which is located about 63 light years from the Earth.

Transit phenomenon

Mr. Lapeyrere listed multiple reasons why this star was chosen. “It’s a very young star, only 20 million years old. There is a debris disk around the star where the planet Beta Pictoris b was discovered a few years ago. It’s a very young planet and is still in its formation phase. Studying this planet could improve our understanding of how planetary systems are formed,” he said. PicSat will gather information about the planet by observing the transit phenomenon, when the planet passes in front of the star resulting in the change of its luminosity. By using this method, researchers can derive information about the size, density and composition of the planet. However, the transit window is quite small. According to Mr. Lacour, it could happen any time. “The transit phenomenon occurs every 18 years. And viewing from earth, this phenomenon lasts for a few hours. We don’t know the exact timing of this transit. It is for this reason that the star system has to be monitored continuously from space,” Mr. Lacour said. Since PicSat flies over Paris for just half an hour every day, radio amateurs around the world have been encouraged to collaborate in the project. “Amateur astronomers with radio antennae can receive the satellite data and relay it to the PicSat database. The more data we collect, the better,” system engineer Lester David explained.

In order to stabilise the satellite, an electrical current is run through the copper coils using on-board batteries and a solar array. “The current creates a magnetic field around PicSat which is already inside Earth’s magnetosphere. The magnetic field created by the coils align with Earth’s magnetic field. That’s how we are keeping PicSat stable,” said Mr. David, who was at Sriharikota to witness the January 12 launch.

Mitochondria: Immigrants that add power to the mother’s cells

Immigration is much in the news these days. But, go back to history, and we find that early humans started migrating ‘Out of Africa’ since about 3 million years ago. As territories, communities and nations became established, movement from a ‘foreign’ place or group into such ‘nations’ became the basis of accepting or denying entry. This depended on whether the migrants added ‘value’ to the locals or otherwise.

In biology, this process has been on even at the single-cellular levels, over 2.5 to 3 billion years ago — and continues even today. Leave alone infection by pathogens; there have been helpful ones too. Two outstanding examples of helpful immigration that happened during those early years are chloroplasts and mitochondria. The chloroplasts are neatly packaged mini-cells which come with their own genetic make-up, and they have the ability to absorb sunlight and use it to convert atmospheric carbon dioxide and water to produce the sugar glucose and the gas oxygen. They appear to have arisen from even more ancient cells called ‘cyanobacteria’ (3.5 billion years ago), and have migrated from there to plant cells. This immigration led to what is called the ‘oxygen revolution’, through which the air surrounding the earth became over 20% rich in oxygen (pranayavyu - a gas without which we cannot live).

Powerhouses and solar panels

At about the same time, or a bit later, another ancient life form, derived from ‘the purple bacterium’, migrated to both plant and animal cells. This is the mitochondrion. Mitochondria do the reverse; they use oxygen and enhance the metabolic energy production of their ‘host’ cells by as much as tenfold. (For example, when you exercise rapidly and are short of breath, each molecule of glucose in your cells generates three molecules of lactic acid, and produce three units of energy in the process. But when you now take a deep breath and inhale oxygen, the immigrant mitochondria in your body cells break down the accumulated lactic acid to produce carbon dioxide, water and 30 units of energy). Mitochondria are thus power houses in cells, as chloroplasts are solar panels of energy in plants.

Cellular immigrants such as these two are welcome in cells and have been given permanent residence permits therein. But they bring their own genomes through which they produce progeny, and live in ghettos called organelles in the cells, offering power and prosperity to their hosts. All animals, plants and fungi have accommodated mitochondria in their cells. The number of mitochondria in a cell varies depending on the role of the cell. Muscle cells, which have high energy needs have large numbers of mitochondria in them, while red blood cells whose job is just to transport oxygen have none.

Given all this importance of mitochondria, it comes as a surprise to learn that we humans inherit our mitochondria only from the mother and none at all from the father. In other words, it is the mother who provides her progeny...
the Power-Pack that her children’s body cells need. So it is in plants too; it is the female that provides the chloroplasts. This too is a process that has been conserved evolutionarily from worms, fruit flies, animals and humans, and is referred to as ‘uniparental inheritance’.

But how and why does this happen? After all the egg cell is fertilized by the sperm cell, and both of them carry their own mitochondria. And as the sperm cell enters the egg cell, its mitochondria are eliminated, and why? This is a puzzle that has bothered scientists, and several suggestions have come about recently. Some have proposed that mitochondrial DNA is inherently more prone to damage than nuclear DNA, and that if the introduced mitochondria are avoided or deleted, one can make do with what it has, and not said yet, but it does appear that the mother cell de-lays that it is best to make do with what it has, and not seek the aid of damage-prone external mitochondria for the job ahead. Mother knows best!

IACS’ new source of white light

Now, pure white light can be produced using zinc, which is usually used to protect iron from rusting and in making brass.

The most commonly used method of producing white light is by mixing three primary colour–emitting phosphors in a proportionate composition. The existing methods of white-light production are energy-intensive and involve a long process.

But the new LED device requires only a single active layer of zinc-based metal–organic framework to get perfect white light under UV-excitation. And synthesis of the zinc framework is easy and highly stable and is not energy-intensive.

Scientists from Indian Association for the Cultivation of Science (IACS), Kolkata, synthesised the zinc-framework and the results were published in Journal of Materials Chemistry C.

“Zeolite, a rare earth mineral, is also used for producing white light. But this is not environment-friendly. Our LED device uses zinc, one of the most abundant metals on earth, to do the work,” explains Shyamal K Saha, Department of Materials Science at the Institute and corresponding author of the paper.

For the LED fabrication, indium tin oxide–coated glass was used as anode and vacuum evaporated aluminium as cathode. “The zinc-based framework is used as the active layer in which electrons are recombined to produce white light. The precursor materials used to make the LED are easily available and very much cost-effective,” he adds. By checking with the International Commission on Illumination (CIE) standards, the researchers found that the emission was very close to that of ideal white light.

“The molecules were found to be very stable, and the whole crystalline network was stable up to 500 degree Celsius” says Saptasree Bose, Research Associate and co-author of the paper.

While commercially available white LEDs show slightly higher blue emission when compared with two other primary colours, the new white LED emits three primary colours proportionally to get perfect white light.

“We calculated the energy levels and the origin of photoluminescence. Emissions were obtained at three different wavelengths (384nm, 468nm, 570nm) under UV-excitation,” says Tuhina Mondal, PhD scholar at the institute and first author of the paper. “The final LED requires 8V, which is a bit higher than commercially available LEDs. We are working to minimise this.”
India records marginal increase in forest cover

India posted a marginal 0.21% rise in the area under forest between 2015 and 2017, according to the biennial India State of Forest Report (SFR) 2017. The document says that India has about 7,08,273 square kilometres of forest, which is 21.53% of the geographic area of the country (32,87,569 sq. km).

Getting India to have at least 33% of its area under forest has been a long standing goal of the government since 1988.

The 21% mark

However various editions of the SFR over the years, have reported the area under forests as hovering around 21%. So the government also includes substantial patches of trees outside areas designated as forests — such as plantations or greenlands — in its assessment. The total tree cover, according to this assessment, was 93,815 square kilometres or a 2% rise from the approximately 92,500 square kilometres estimated in 2015.

Andhra Pradesh, Karnataka and Kerala topped the States that posted an increase in forest cover. “Much of this increase can be attributed to plantation and conservation activities both within and outside the Recorded Forest areas as well as an improvement in interpretation of satellite data,” the survey notes.

Currently, 15 States and union territories have 33% of their geographical area under forests. In India’s northeast however, forest cover showed a decrease; 1,71,306 square kilometres, or 65.34%, of the geographical area was under forest and this was a 630 square kilometre decline from the 2015 assessment.

The category of ‘very dense forest’— defined as a canopy cover over 70% — and an indicator of the quality of a forest, saw a dramatic rise from 85,904 square kilometres to 98,158 square kilometres this year but the category of ‘moderately dense forest’ (40%-70%) saw a 7,056 square kilometre-decline from 2015.

“In different categories of forests there may be fluctuations within categories. However we are soon coming up with a comprehensive policy to address this,” said Siddhanta Das, Director General of Forests.

Union Environment Minister Harsh Vardhan lauded the survey findings.

“India is ranked 10th in the world, with 24.4% of land area under forest and tree cover, even though it accounts for 2.4% of the world surface area and sustains the needs of 17% of human and 18% livestock population,” he said at a press conference to release the survey results.

The forest survey for the first time mapped 633 districts and relied on satellite-mapping. Earlier this year, the government ceased to define bamboo as a tree to promote economic activity among tribals. The survey found that India’s bamboo bearing area rose by 1.73 million hectares (2011) to 15.69 million hectares (2017).

Chandrayaan-II to be launched in April

India’s second moon mission, Chandrayaan-II, which would land a rover on the lunar surface is expected to be launched in April, Minister of State, Atomic Energy and Space Dr. Jitendra Singh said.

“It is Chandrayaan-I which discovered water on the moon. This will be an extension of that,” Dr. Singh said.

Chandrayaan-II would cost about Rs. 800 crore. It presented many technological challenges as it had three components: an orbiter, a lander and a moon rover.

Dr. Sivan of the Indian Space Research Organisation (ISRO) said the launch window was April to October and they would attempt to launch it in April.

The orbiter had a life of one year while the lander and the rover were designed to last a lunar day, which was 14 days, as they worked on solar power.

A location had been identified at the Moon’s South Pole to drop the lander and rover.

“This site had not been explored by anyone before,” Dr. Sivan added.

Sundarbans mangroves struggle to find new ground

The India State of Forest Report (SFR) 2017 published recently has revealed that the mangrove cover in the country has increased by 181 sq. km. But the Indian Sundarbans that comprise almost 43% of total mangrove cover have shown only a marginal rise of 8 sq. km., at 2,114 sq. km. from 2,106 sq.km. in the 2015 SFR report. This is in spite of large scale planting of mangroves by the State Forest department and NGOs over many years.

The latest figures raise the question of whether an enhanced human pressure on the only mangrove forest that harbours a healthy tiger population is affecting the ecosystem.

Unlike the rest of the country, large areas of mangrove forest in the Indian Sundarbans fall under the Sunderban Tiger Reserve where human activities are prohibited. The Indian part of the Sundarbans covers 4,263 sq. km.out of which 2,584 sq. km is core and buffer area of the tiger reserve.

A detailed understanding of the threat to the mangroves
of Indian Sundarbans has been highlighted in a ‘State of Art Report on Biodiversity in Indian Sundarbans’ published by World Wide Fund for Nature, India (WWF). The publication reveals that along with climate change, the mangroves are threatened by habitat degradation due to industrial pollution and human disturbance, fuel-wood collection and lack of any high elevation spaces for the mangrove species to regenerate and thrive. The report states that it is a matter of concern that if the present rates of change prevail, the Sundarbans mangroves could disappear as the sea level rises. This is because the forest’s natural response to retreat further inland is blocked by geographical features and man-made obstructions.

Experts like former director of Sundarban Tiger Reserve and a specialist in mangrove conservation, Subrat Mukherjee, and botanists like P. Venu, Neera Sen Sarkar and Anirban Saha who have authored the chapter on Mangroves & Associated Flora put the number of mangrove and associated flora species in the region at 180.

**New mangrove areas**

The authors have suggested a “rehabilitation of former mangrove areas and creation of new mangrove habitations through intensified afforestation programmes.” Ratul Saha of the WWF, one of the authors of the publication, pointed out that the threat to each mangrove species varies in magnitude and it is important to fill these knowledge gaps through more research.

Of the 180 mangrove and associated species or halophytes (plants adapted to growing in saline conditions), 34 are true mangroves, of which 19 are major mangroves and 15, minor mangroves. The species diversity of halophytes of Indian Sundarbans is recorded as 71 mangrove associates, 30 back mangroves, six species of epiphytes and parasites, 23 grass and sedges, four ferns and 12 herbaceous plants. Mangroves are classified as plants having salt tolerance mechanisms like salt glands, aerial roots in the form of pneumatophores and viviparous germination (germinating before detaching from parent). They grow mostly in the inter-tidal spaces and are dispersed by water buoyout propagules (seeds or spores). There are several prominent mangrove species. Heritierafores or Sundari trees from which the Sundarban draws its name, has a very restricted distribution in South Asia and is classified as Endangered in the IUCN Red list.

The publication lists five species of mangroves whose status, as per the IUCN Red List, ranges from Near Threatened to Critically Endangered. Sonneratiagriffithii, one of the tallest trees of the Sundarbans referred to as Keora by locals is critically endangered while Ceriopsdecandra (Goran) is Near Threatened. C. decandra and Avicennia (locally known as Bain) are gathered in violation of law for supplementing fuel wood requirements by the residents. Species like Xylocarpus granatum, which has a traditional medicinal use in treatment of cholera, diarrhoea and fever is also one of the species which faces threat due to illegal felling.

Among the many associates of mangrove, which grow as climbers and shrubs, some are used for firewood. The other categories of flora, back mangroves, are not found in inter-tidal areas colonised by true mangroves. Excoecaria agallocha, commonly called Goria found towards the mainland along the small canal is one common example. Among the salt marshes of Sundarbans, Sesuvium portulacastrum, with thick, fleshy leaves borne on succulent, reddish-green stems is a pioneer species. Salt marshes are found hosting the mangrove fern Acrostichum aumeur.
witnessed an increase of 31 sq. km., Raigarh has 29 sq. km. and Mumbai Suburban, 16 sq. km.
Andhra Pradesh has seen a rise of 37 sq. km. in the SFR survey, done every two years, with districts like Guntur and Krishna contributing the most.
Gujarat’s tally rose by 33 sq. km. in Bhavnagar, Junaghar, Kutch and Jamnagar districts.
In all three States, the increase has been attributed to plantation and regeneration.
Tamil Nadu found an increase of 2 sq. km. of mangroves, taking the extent of such forests to 49 sq km, as recorded in the FSR report.
Among the striking features of Tamil Nadu’s efforts is that Nagapattinam district recorded a decrease of 16 sq. km, while Tiruvurur district posted a rise of 16 sq. km. Districts like Cuddalore, Pudukkottai and Thoothukudi also have recorded a small increase of 1 sq. km. of mangrove cover each, compared to 2015. Ramanathapuram district found its cover decreasing by one sq. km.

TIFR team plays timekeeper to speeding electron bunches
Physicists at the Tata Institute of Fundamental Research (TIFR), Mumbai, have succeeded in studying electron bunches, kicked up to high speeds within a glass slab by a short duration laser pulse. They have measured the lifetime of these electron bunches within the material. And so long, this has been only guessed at. The work, published in The Physical Review Letters, lies at the forefront of high energy density science.

Only time in India
Such electron pulses, carrying mega-sized currents, are created by high intensity lasers in many labs. “We are not the first [to create such pulses]. But we are the only lab in India, and are among 10–20 labs in the world where people look at the basic physics of the transport of such mega ampere, femtosecond electron current pulses through high density (solid) media,” says Prof G. Ravindra Kumar of TIFR, Mumbai, one of the principal investigators of the experiment.
Such mega-sized current pulses cause secondary emissions from their targets, which can be x-rays, ions and the like, which have applications in medicine and imaging technology. Hence understanding their properties and interaction with the material they travel through is important.
“They [the secondary emissions] are also of a very short duration (picosecond or less) making them very useful for these applications. On a bigger scale, such megampere electron bunches are also expected to be used in laser fusion research and how they lose energy thereby heating the fusion target is extremely important,” says Professor Kumar.

Tabletop lasers
In the tabletop experiment done at TIFR in collaboration with P P Rajeev of Rutherford Appleton Labs, U.K., a high-intensity femtosecond laser pulse is aimed at a spot on a glass slab. Bunches of electrons from the glass slab are kicked up to high speeds close to that of light in vacuum. These continue to travel within the glass slab, but at speeds higher than that of light, because light slows down within the glass medium. Such ‘faster-than-light’ electrons emit a radiation known as Cherenkov radiation, which is what the researchers used to track them.
Using the ‘optical Kerr effect’, the researchers innovatively devise an optical ‘time gate’, which allows them to time the duration of the Cherenkov radiation. It is natural to expect that the electron bunch will stay together for a duration in the order of femtoseconds, which was the duration of the pulse that kicked them. However the electrons live approximately 2,000 times longer, for about 50 picoseconds.
“The Kerr gate time we generated was as short as 2 picosecond, allowing us to time the evolution of Cherenkov emission in the best possible manner ever. All earlier measurements had a time window [electronically generated, not optically as in this case] that was thousand times longer and could say nothing about the time evolution of the Cherenkov emission process,” says Professor Kumar.
The ability to create extreme states of matter using high power, femtosecond lasers gives a chance to create in-trastellar and intraplanetary temperatures and pressures on a tabletop in the lab! You can ‘mimic’ those systems right on the earth, and that is the most exciting thing.

Want to save the planet? Try using less deodorant
The deodorants, perfumes and soaps that keep us smelling good are fouling the air with a harmful type of pollution — at levels as high as emissions from today’s cars and trucks.
That’s the surprising finding of a study published last week in the journal Science. Researchers found that petroleum-based chemicals used in perfumes, paints and other consumer products can, taken together, emit as much air pollution in the form of volatile organic com-
pounds, or VOCs, as motor vehicles do. The VOCs interact with other particles in the air to create the building blocks of smog, namely ozone, which can trigger asthma and permanently scar the lungs, and another type of pollution known as PM2.5, fine particles that are linked to heart attacks, strokes and lung cancer. Smog is generally associated with cars, but since the 1970s regulators have pushed automakers to invest in technologies that have substantially reduced VOC emissions from automobiles. So the rising share of air pollution caused by things like pesticides and hair products is partly an effect of cars getting cleaner. But that breathing room has helped scientists see the invisible pollutants that arise from a spray of deodorant or a dollop of body lotion. The researchers said their study was inspired by earlier measurements of VOCs in Los Angeles that showed concentrations of petroleum-based compounds at levels higher than could be predicted from fossil-fuel sources alone. Concentrations of ethanol, for example, were some five times higher than expected. And those levels were increasing over time.

“You can see these really rapid decreases in tailpipe emissions,” said Brian C. McDonald, a scientist at the Cooperative Institute for Research in Environmental Science at the University of Colorado, Boulder, who led the study. “It just made sense to start looking at other sources and seeing whether they could be growing in relative importance.”

Even though drivers can use gallons of gasoline each week, “It’s stored in an airtight tank, it’s burned for energy, and converted mostly to carbon dioxide,” said Jessica B. Gilman, a research chemist at the National Oceanic and Atmospheric Administration also involved in the study. Those carbon dioxide emissions are not smog-forming VOCs, though they are a major driver of human-caused climate change.

“But these VOCs that you use in everyday products — even though it may just be a teaspoon or a squirt or a spray — the majority of those kinds of compounds will ultimately end up in the atmosphere, where they can react and contribute to both harmful ozone formation and small-particle formation,” Gilman said.

Forty per cent of the chemicals added to consumer products wind up in the air, the researchers found. To make their calculations, the study’s authors constructed a computer model that simulated air quality in Los Angeles, weaving in data from the chemical composition of consumer goods and tailpipe emissions. Using the model, they could see the fingerprints of the chemical compounds coming from personal care products and also estimate how many VOCs from paints and finishes inside buildings were being released to the outside world. Roughly half of the VOCs in Los Angeles air could be attributed to consumer products, the authors found.

Concerned consumers may be tempted to turn to “natural” products, though the researchers say that isn’t a cure-all. For example, one class of compounds called terpenes gives many cleaning products a pine or citrus smell. These terpenes can be produced synthetically, or naturally from oranges. “But whether it’s synthetic or natural, once it gets into the atmosphere it’s incredibly reactive,” Gilman said.

Galina Churkina, a research fellow at the Yale School of Forestry and Environmental Studies who was not involved in the study, noted that the study did not consider emissions related to biological sources like trees and animals. But the authors said their study was not the end of this line of research.

There are tens of thousands of chemicals in consumer products, and researchers have not yet pinpointed which chemicals are most likely to form ozone or PM2.5 particles. “One of the things that we’re hoping the public takes away from this is that our energy sources and the consumer products we use every day are continually changing the composition of our atmosphere,” Gilman said.

Notably, some of the VOCs used in consumer products were replacements for chlorofluorocarbons, or CFCs. Those chemicals were phased out beginning in the 1980s because they thinned the Earth’s ozone layer. For consumers looking for a greener solution, McDonald offered some advice. “Use as little of the product as you can to get the job done,” he said.

Ancient climatic changes and central India’s rare forest owlet

Between four and six million years ago, long before humans evolved, drastic climatic changes in the Indian subcontinent led to the evolution of a new bird: central India’s now-endangered and rare forest owlet. Scientists have also found that it belongs to the same genus as the commonly-seen spotted owlet, finally settling a century-old debate on its genetic relationship with other Indian owlets.

The taxonomy of the forest owlet (Heteroglauxblewetti), which resembles the spotted owlet, has always been a mystery. Taxonomists placed it in a separate genus Heteroglaux and sometimes in Athene; others saw it as more closely related to another species, the jungle owlet.
For the first time, a team of scientists obtained permits to carefully take some feathers from forest, spotted and jungle owlets in the states of Madhya Pradesh, Maharashtra, Gujarat and Chhattisgarh. From the feathers, they extracted DNA (of five genes, both mitochondrial and nuclear) and built a genetic tree to reveal the relationship between the birds. Their results show that the forest owlet belongs to the same genus (Athene) as the spotted owlet, thus settling a century-old debate about its taxonomy. According to their paper published in PLoS ONE, the bird can now be known as Athene blewetti.

**Fossil records**

Using dated fossil records of ancient owls on this genetic tree, the team estimated the time at which the forest owlet diverged from its nearest relatives, the process by which new species evolve. Their results show that the forest and spotted owlets split as different species between 4.3 and 5.7 million years ago, when drastic climatic changes occurred in the Indian subcontinent.

“Multiple cycles of wet and dry climes characterised the Indian subcontinent then,” says lead author Pankaj Koparde (Salim Ali Centre for Ornithology and Natural History). “Independent research shows that this period, the Plio-Pleistocene, also saw the speciation of several other high-altitude birds in the Western Ghats.” This means that climate played a major role in the speciation of the owlets, says Koparde. With climate change being a concern now, it would be important to study how new weather events affect the forest owlet, he adds. This would be crucial to conserve the species, which is rare and found in a severely fragmented habitat threatened by the activities of humans, a species that came into being a few million years after they did.

**Taking a walk in the fruit fly’s shoes**

The humble fruit fly which has helped humans win five Nobel prizes has now revealed to scientists how we walk and the brain cells that control this mundane activity.

Researchers working at the National Centre for Biological Sciences, Bengaluru investigated the role of interneurons in walking. Interneurons generate the rhythmic pattern and control the leg motor neuron activity. The fruit fly (Drosophila melanogaster) was used to investigate the mechanism underlying elementary walking behaviour owing to their simpler neural circuitry, shorter life cycle and ease of study.

“The insect’s nervous system (ventral nerve cord) is comparable to that of a human’s spinal cord and comprises a group of motor neurons, interneurons and sensory neurons, which respond to the outside world,” says Swetha B.M. Gowda, a PhD student from Manipal Academy of Higher Education, and lead author of the paper in an e-mail to The Hindu. "While there is a good understanding of motor neuron structure and their connections to leg muscles, the role of interneurons in the regulation of walking is not explored.”

The researchers examined the role of a gene called Rdl that responds to a neurotransmitter called GABA and inhibits the activity of the motor neurons. They observed that a lowered level of Rdl in leg motor neurons alters normal walking in terms of speed and step length. The results were recently published in Proceedings of the National Academy of Sciences.

High-speed video recordings were then employed to monitor the individual leg movements of a freely walking fly. “We developed a computer program that automatically follows the legs of a walking fly and measures various aspects of walking such as coordination, step-length, speed etc,” says Pushkar Paranjape, co-author on the paper. The study also emphasises the role of the ventral nerve cord (similar to the spinal cord) in normal walking and excludes any participation from the central brain. They observed that defects in the ventral nerve cord can lead to problems in different aspects of walking.

“The molecules that govern the development and behaviour of a fruitfly are remarkably similar to the molecules important for normal human development and behaviour. Therefore, the pharmacological agents that are used to treat human neurological disorders can be studied in a fruit fly disease model,” says Sudhir Palliyil, also a co-author of the paper in an e-mail to The Hindu.

“The fly’s ventral nerve cord receives signals from the outside world and also from its brain. Its output is to control the muscles which result in movement. In this general sense, it is very similar to the spinal cord,” says K. Vijay Raghavan, the principal investigator of the group and corresponding author of the paper.

“Without brain input, co-ordinated walking can still take place in flies and in vertebrates too. But, visual inputs and other higher-level controls will of course be absent. As the ventral cord both receives signals (as above) and sends outputs; defects anywhere in this path can affect locomotion. The specific neuron where these defects are present, and when so, result in walking defects is what we seek to find. That can tell us both how and why defects can occur and how to fix them.” he explains in an e-mail.
Silver silk patch aids healing of wounds, prevents infection

By embedding silver oxide nanoparticles on silk fibre, scientists have produced a new material that can be used to make patches to help in healing of wounds and in preventing infection. The patch was able to heal scratch wounds completely in 24 hours and also kill pathogens like S. aureus and M.tuberculosis.

The researchers first tested the mechanical properties of the silk patch. “An ideal wound-dressing material should have good thermal insulation and also allow gaseous and fluid exchange in the wound area. The new material was able to maintain the moisture and had ideal water-holding capacity,” says Dr. PunuriJayasekharBabu, post-doctoral researcher, IIT Madras, and the first author of the paper published in Colloid and Interface Science.

“We also performed experiments to find the swelling and degradation properties of the silk patch, which are important for wound healing materials. The patch was hydrophilic in nature and its morphology did not change [that is to say] it did not degrade even after 14 days of immersion in phosphate buffer solution (PBS),” he adds. Phosphate buffer solution has a pH of 7.4 which is close to that of human cells.

Anti-bacterial activity of the patch against non-pathogenic E. coli and two pathogens S. aureus and M.tuberculosis was tested. The silk patch was found to be more effective than the commercially used antibiotic, ciprofloxacin.

The exact mechanism behind antimicrobial activity is unknown. Some studies have reported that silver creates ‘pores’ on bacterial cell walls, thereby causing their death.

Wound healing

In vitro wound healing (scratch assay/cell migration) study revealed faster migration of 3T3 Swiss mouse fibroblast (cells responsible for wound healing) cells to the wound area treated with the silk patch. The wound was completely covered in 24 h.

Cytotoxicity studies also showed that the silk patch was not harmful to the cell lines. Cells treated with silver alone and silk alone did not show such good wound-healing properties. “We will test the synergistic wound-healing and antibacterial activities of this silk patch on animal models and then this can be commercialised for clinical use” says Prof. MukeshDoble, Professor at the Department of Biotechnology, IIT Madras and corresponding author of the paper.

May pleads for post-Brexit security deal with EU

British Prime Minister Theresa May pleaded for an urgent deal with the EU on post-Brexit security cooperation, warning that citizens’ lives were at stake.

In a speech at the Munich Security Conference, she acknowledged that no deal currently exists between the EU and a third country “that captures the full depth and breadth of our existing relationship”.

‘Cannot delay’

But she said there was no reason both sides could not come up with practical ways to create a “deep and special partnership” on security.

“We cannot delay discussions on this,” Ms. May said. She also warned European partners not to put politics above cooperation against crime and terrorism.

“This cannot be a time when any of us allow competition between partners, rigid institutional restrictions or deep-seated ideology to inhibit our cooperation and jeopardise the security of our citizens,” Ms. May told the audience.

She cautioned that if there was no special deal on security by the time Britain leaves the bloc in March 2019, speedy extraditions under the European Arrest Warrant “would cease”.

And if the U.K. were no longer part of Europol, the EU’s law enforcement agency, information sharing would be hampered — undermining the fight against terrorism, organised crime and cyberattacks.

India test fires medium-range nuclear capable Agni-II missile

India test-fired its medium-range nuclear-capable Agni-II missile with a strike range of 2,000 km from Abdul Kalam Island off Odisha coast, Defence sources said. The trial of the surface-to-surface missile was conducted from a mobile launcher at the Launch Complex-4 of the Integrated Test Range around 8.38 am, the sources said.

IIT Delhi researchers develop scar-tissue model for screening drugs

Researchers at the Indian Institute of Technology (IIT) Delhi have for the first time developed a 3D scar-tissue model through tissue engineering. The two-member team led by Prof. Sourabh Ghosh from the Department of Textile Technology at IIT Delhi was successful in replicating the early inflammatory microenvironment that initiates a cascade of events that lead to scar development.
Drugs currently available to reduce scarring in the case of deep wounds that affect all the layers of the skin have limitations owing to poor understanding of scar tissue formation and the signalling pathways responsible for its development. This is particularly so as results of scar tissue models created in animals have limitations when extrapolated to humans. Also, the European Union directive to find alternatives to animals testing makes Prof. Ghosh’s relatively simple in vitro scar-tissue model ideal for drug testing.

**Optimised cocktail**

The researchers first encapsulated fibroblasts from healthy human skin within the collagen gel. Three days after an optimised cocktail of three cytokines were added to the media, differentiation of dermal fibroblasts into myofibroblasts was triggered. Myofibroblasts are bigger in size than fibroblasts and have greater contractile power, something that is essential to close the wound. Scar-specific proteins are expressed by myofibroblasts.

“There was an increase in the scar-specific proteins and gene expression with increasing duration of culture. By day 14, scar-tissue similar to what formed naturally on human skin was formed,” says Shikha Chawla from the Department of Textile Technology at IIT Delhi and first author of a paper published in the journal ActaBiomaterialia.

**Typical features**

In addition to the differentiation of fibroblasts into myofibroblasts, the researchers witnessed other typical features that cause scar formation. For instance, during the wound-healing process, excessive fibrous extracellular matrix is produced.

While there is excessive production of extracellular matrix proteins, the secretion of matrix metalloproteinase, whose role is to degrade certain proteins such as ECM, is reduced. As a result, the tightly regulated balance between synthesis and degradation of matrix components get disturbed, and the skin gets thicker and stiffer. There was also increased expression of alpha smooth muscle actin, a cytoskeleton protein, in the in vitro scar model.

“The alpha smooth muscle actin is a characteristic marker of myofibroblasts. The cytoskeleton protein is expressed as a thick bundle that stretches the cell thereby causing contraction,” says Chawla.

“All these features that make the scar tissue thicker and stiffer in humans are already known. Using tissue engineering strategies, we are now able to replicate these features in the in vitro 3D model,” says Prof. Ghosh.

“In addition to these five features, the scar model was also able to replicate two important cellular signalling pathways through which scar tissue are formed,” says Prof. Ghosh. “Since the scar tissue formed in vitro followed similar signalling pathways as natural scar tissue, new drug molecules and immunomodulatory strategies designed to manipulate one or both the pathways might help in modulating scar tissue formation.”

**Implications**

Creating scar tissue in the lab has great implications for the pharmaceutical industry. “The cosmetic and pharmaceutical industries, which are developing anti-fibrosis or anti-scar medicines, need not have to test them on animals. They can use our tissue-engineered model instead,” he says.

The team is now using selective peptide domains and a 3D bioprinting strategy to develop progressively more complex in vitro scar tissue, which would recapitulate more hallmark features that are critical for tissue fibrosis.

**Physics theory explains patterns of deforestation in the tropics**

Predicting rising numbers is usually good news in ecology, but not if they refer to forest fragments. Current rates of deforestation could cause a 33-fold increase in forest fragments over the next 50 years, shows a study published in Nature. Deforestation, fuelled by factors including habitat conversion and timber production, causes fragmentation. As large forests are cut into pieces, biodiversity suffers and carbon is also lost. To study patterns of tropical forest fragmentation, scientists at the Helmholtz Centre for Environmental Research (Germany) used remotely-sensed images to map more than 130 million forest fragments across 427 million hectares in the Americas, Asia, Africa and Australia.

**Across continents**

They found that fragment sizes in three continents followed similar frequency distributions. The number of forest fragments smaller than 10,000 hectares, for instance, is similar in Central and South America (11.2%), Africa (9.9%) and Southeast Asia (9.2%).

“This is surprising because land use noticeably differs from continent to continent,” said mathematician and lead author Franziska Taubert in a press release. While habitat conversion is what plagues the Amazon, it is logging of commercially-important forest trees in Southeast Asia.

So how was local deforestation causing similar fragmentation patterns on a global scale? The scientists found the explanation in percolation theory, which explains how individual particles of an object cluster, transforming the object itself once it reaches a critical point. The theory
(which has been used to explain phenomena including the trickling of water through soil and patterns of forest fires) states that in a certain phase of deforestation, the forest landscape exhibits structures that can be found repeatedly. The scientists found that forest fragmentation is currently close to a critical point beyond which fragment number will strongly increase.

Using this to predict future patterns of forest fragmentation, the team found that any additional forest loss can decrease fragment size and cause a 33-fold increase in the number of forest fragments over 50 years.

**Repercussions**

Though their models show that this could be partly mitigated by reforestation and forest protection, there will be repercussions for countries that fall in these zones, including India. More fragments mean more edges which are highly disturbance-prone and decrease habitat quality for wildlife.

“Carbon stocks tend to reduce in fragments due to several reasons including loss of large trees and edge effects which often favour tree species with lower wood densities,” said scientist Jayashree Ratnam of Bengaluru’s National Centre for Biological Sciences.

**IIT Bombay fabricates wearable sensor for monitoring movement**

A team led by researchers from the Indian Institute of Technology (IIT) Bombay has developed an inexpensive, flexible pressure sensor that can be used for a variety of health-care applications. The piezo resistive pressure sensor could efficiently monitor even small-scale movements caused by low-pressure variations.

**Pulse rate**

The sensor could measure blood pulse rate in real time when placed on the wrist and neck. It had the same sensitivity and accuracy at both sites of the body. The sensor was also tested for its ability to monitor respiration. When placed on the throat, the sensor could detect changes in pressure when different words were pronounced. Interestingly, the fabricated sensor also showed good sensitivity in detecting large-scale motion monitoring, as in the case of bending and extension of fingers' joints. The results were published in the journal ACS Applied Materials and Interfaces.

“While researchers have been working to develop sensors that can detect very small changes in pressure, our pressure sensor is able to detect both small-scale motion caused by low pressure (less than 2.7 kPa) and large-scale motion at high pressure,” says Amit Tewari at IITB-

Monash Research Academy, IIT Bombay and first author of the paper. “The sensor exhibited good flexibility and reproducibility over 5,000 cycles.”

“When you speak, the throat muscles respond differently based on the change in pressure. The vocal muscles undergo different motions when different words are pronounced. The sensor was able to detect the slight change in pressure when different words were said,” says Prof. Dipti Gupta from the Department of Materials Science and Engineering from IIT Bombay, who collaborated with researchers from Cambridge and Monash University, Australia.

**Word recognition**

The researchers tested its sensitivity in recording the difference in pressure when different words were said, and when the same word was repeated several times. “The sensor can be used as a word-recognition device. This is only preliminary work and more has to be studied before the sensor can be used for speech recognition,” says Prof. Gupta.

The device was also able to detect the pulse rate. “It is a proof-of-concept study and more work needs to be done. We are yet to calibrate the sensor,” she says. Since the sensor was able to detect differences in blood pulses, Prof. Gupta feels it can be used as a wearable sensor for long-term and continuous monitoring of heart rate.

In the case of finger bending and extension, which involves monitoring the large-scale motion, the sensor showed high sensitivity. The sensor generated different current signals when the index finger, to which it was attached, was bent. The current signal was the least when the angle of bending was small (15 degree) and maximum when the angle was high (90 degree).

“We have not tested the change in pressure due to change in direction of movement of the finger,” she clarifies.

The sensor is made using polyurethane foam coated with carbon nanomaterial-based ink. The ink is conductive due to the presence of large number of multiwalled nanotubes which are dispersed in reduced graphene oxide matrix. Conductive sheets were pasted on the top and bottom sides of the foam and electrical wires connected to the sheets for measurements.

“When the PU foam coated with the ink is perturbed, in this case compressed, the air gaps are removed and the foam gets thinner. This provides a conduction path for electrical charges. The resistance drops as the foam is compressed and it becomes more conductive,” says Tewari.
New plant species from West Bengal

Scientists from the Botanical Survey of India have identified a new plant species from two protected National Parks in West Bengal. Named Drypeteskalamii, it is a small shrub found to be shorter version of its close relative Drypetesellisii.This adds to the rich floral wealth of India.

Standing just 1 metre tall, the newly described plant is unisexual in nature, which means they have separate male and female plants.

“During the survey and documentation of the flora of Buxa National Park, West Bengal (core area of Buxa Tiger Reserve), in 2011, I came across these plants, but could not identify them. Another author of the paper had collected a new female plant with fruits from Jaldapara National Park, West Bengal. The fruiting specimen can be easily identified in Drypetes. We later found that both the plants belonged to the same species. Further consultations with plant biologists from India and abroad helped us confirm its new identity,” says Dr Gopal Krishna from BSI who is the first author of the paper published inPhyto-taxa. The researchers compared the new plant with other Drypetes species and found differences in the leaf, flower and fruit structures. There are about 220 species of Drypetes identified across the globe of which 20 have been reported from India.

Medicinal cousin

“The new species is a close relative of a medicinal plant known in Sanskrit asPutrajivah”, says Dr K. Karthigeyan, scientist at BSI and corresponding author of the work. “NASA had recently named a new bacterium after Dr Kalam, and we also chose his name as he is a big inspiration for students and young researchers,” adds Dr Karthigeyan.

The new species is found in wet, shaded areas of subtropical moist semi-evergreen forests, at a height ranging 50-100 metres. With pale yellow flowers in clusters and bright orange to red fruits, the plant is exclusive to the two national parks.

By following the IUCN (International Union for Conservation of Nature) rules, the scientists have provisionally assessed the plant to be “Critically Endangered”. The report states forest fires and grazing as two plausible threats to the new species.

Lithium ion batteries charge up rural houses

The shift towards lithium ion batteries from the older technology of lead acid batteries has allowed firms like Kaho India Private Limited to help the Centre achieve its rural electrification target even in areas beyond the reach of the grid.

Kaho India Private Limited, started in 2012, seeks to provide last-mile energy access through compact solar modules to areas that are so far not connected to the grid. “For instance, in Chhattisgarh, there are various tribal regions with no electricity and the grid cannot reach there maybe for the next 10 years because even roads cannot be built there due to the high intensity of LWE (left wing extremism) activities,” Subhag Jain, CEO, Kaho India Private Limited, told The Hindu.

The device, developed by the company, can power three lights, one fan, one phone charger and has a socket to power a DC-power television. The firm provides all the related appliances as well, except for the TV.

The firm had initially developed a unit using lead acid battery but found that the short lifespan of these batteries rendered the entire product all but useless.

“We imported 10 units for our first try in 2012, and they got sold in no time,” said Mr. Jain. “At that time, it was priced at Rs. 5,000. But everybody complained that these systems don’t work.

“We were in a state of shock and excitement that a Rs. 5,000 product is selling like hot cakes in spite of the customer knowing that they don’t work. Then, we stopped all commercial activity and got into an extensive R&D programme to understand why they don’t work, and what we need to do to get them to work reliably,” he added. “It took two years to identify that the problem was with the battery.” The problem, Mr. Jain explained, was that while the solar panel in the unit had a lifespan of 25 years, the lead acid batteries had a lifespan of only 2-3 years.

“And the battery is 40% of the cost of the product,” he said. “These people don’t want to spend 40% of the cost every 2-3 years to replace the battery and that’s why the perception came that they don’t work.”

‘Search for options’

Subsequently, the firm began looking at other battery options and settled on lithium ion batteries.

“This solved a lot of problems for the customer as well as for a lot of government schemes as well,” he said. “In lead acid batteries, the typical calculation is that you have to put 8 VAh per peak watt of solar panel. In lithium ion, you need to do 4.8 VAh per peak watt. So, you have the size benefit. In a smaller package, we could put in more storage, so it also became cheaper for the government on a per-energy cost basis.”

However, the introduction of the more efficient battery technology was accompanied by a rise in the price of the product. This, though, was not much of a problem for the
firm because it decided to sell its products to the government instead of to individual households. “Now, it priced at Rs. 50,000 per unit,” Mr. Jain said. “But the government is buying them now under the REC plan and the Saubhagya scheme.”

Another benefit of using lithium ion batteries was that they were much lighter than lead acid batteries, a key issue when delivering these units to remote locations. Also, the charging time had reduced by half with the introduction. “Lead acid battery is said to be charged at what is called a c/10 rate, that is, it has to be charged for 10 hours,” Mr. Jain said. “In lithium ion batteries, there are certain technologies where you can charge the battery in 10 minutes,” he added.
Misc. News and Events

Indus script was written from right to left, says computation

Two scientists working at The Institute of Mathematical Sciences, Chennai, (IMSc) have figured out a way to computationally estimate whether a language is written from left to right or otherwise. Most interestingly, they have studied the Indus script and calculated that it must flow from right to left.

“Professor Iravatham Mahadevan [the well-known Indus scholar] was one of the experts who had figured out that the Indus script ran from right to left by observing how the writing got a little cramped as it ran towards the left — suggesting that the writer started writing at the right end and ended up running out of space as he or she reached the left end,” says Sitabhra Sinha of IMSc, one of the two scientists who carried out the study. “In a workshop at Roja Muthiah Research library, he asked the audience whether it was possible to come up with a mathematically rigorous technique to infer the ‘handedness’ of a script — that is, to deduce whether the script was written from left to right or right to left,” adds Mr. Sinha. This question set Mohammed Ashraf, a research scholar with B.S. Abdur Rahman University, Chennai, and thinking and led him to this collaboration and discovery.

We know intuitively that in a language, some words are used more often than others. Similarly, some letters of the alphabet occur more at the start of words and others are more common at the end of words. The variation faced by different letters may be measured using two independent statistical indices — the Gini index and Shannon’s entropy. Mr. Sinha and Mr. Ashraf have established that there is a difference between these measures when calculated for the first letter and the last letter. This difference between start and end of a word makes it possible for them to identify whether the word is written from left to right or the other way around.

In most of the 24 languages studied, including Arabic, Chinese, Korean, and Sumerian, the two were able to predict using their computation alone whether the words in that language were written left to right or otherwise. In the hitherto undeciphered Indus script also, they predict that the words are written from right to left.

Two-fold rise in research publications on earth sciences

Between 2006 and 2015, India published 19,938 research papers in the domain of earth system sciences, nearly twice what it published in the previous decade. However in terms of high-quality publications, it improved its share from 4.7% in the previous decade (1996-2005) to 5.7% across the two comparative periods, says a report commissioned by the Ministry of Earth Sciences and prepared by analytics firm, Clarivate Analytics.

Global output up

This, even as the global research output increased from about 3,40,000 to 5,70,000 of which high-quality publications comprised 11% in both decades.

The analysis included publications in six major areas of earth science research: geo research, atmospheric research, ocean research, Arctic research, Antartica research and Himalaya’s research. Of these the majority of Indian publications were in the geosciences. Particularly, Himalayas-related research nearly tripled across the two periods but the citation impact — a proxy for the quality of the paper among peers — was the lowest among all research areas.

U.S., U.K. lead

The United States, the United Kingdom, Canada, Germany and France led the world in the number of high-quality research publications.

The report was made public by Earth Sciences Minister Harsh Vardhan, who said that India was placed 9th in the world in terms of the number of research publications related to earth sciences.

Given the impact of climate change and its disproportionate impact on different regions in the world, governments have upped funding in a variety of earth science disciplines.

In the sub-domain of Antarctica-related research, for instance, India had only three top papers in 1996 and this rose to 34 in 2015; in Arctic research, it had gone from one to eight during the same period. The Indian Institute of Tropical Meteorology and the India Meteorological Departments were the leading sources of top research publications.

The lowdown on pulse polio

On January 28, India carried out the first of its two national rounds of the Pulse Polio Campaign for 2018. The second is on March 11. These two campaigns will see a huge
mobilisation of resources to give the oral polio vaccine (OPV) to around 17 crore under-five children. Why do Indian policy-makers continue to focus on polio, though the Southeast Asian region, including India, became polio-free in 2014? This is because the threat of resurgence is real and can happen in two ways. As of today, two countries — Pakistan and Afghanistan — still have circulating polio. And the polio virus can cross borders easily through adults who show no symptoms. In 2011, 10 years after becoming polio-free, China’s Xinjiang province saw 21 cases of paralytic polio and two deaths. When the virus from the outbreak was sequenced, it turned out to be from Pakistan. In 2009, India exported polio to Tajikistan, where it caused an outbreak of 587 cases. Today, India’s only defence against the import of polio is watertight immunisation. A small gap in immunisation among newborns can be enough for the imported virus to seep in.

The second risk of resurgence comes, ironically, from OPV itself. In rare cases, this vaccine, which contains weakened but live polio virus, can cause paralytic polio. Also, because the vaccine-virus is excreted by immunised children, it can move from one person to another. This makes OPV a double-edged sword. On the one hand, a vaccinated person protects unvaccinated people he/she comes in contact with by spreading immunity through faeces. But on the other, such circulation allows the virus to stick around and mutate to a more virulent form, raising the spectre of vaccine-derived poliovirus (VDPV). VDPV, like imported wild polio, can cause outbreaks in under-immunised population. It is for this reason that the eradication of polio worldwide requires OPV to be stopped and replaced with the Inactivated Polio Vaccine (IPV). IPV does not cause VDPV but protects children equally well against polio.

Indian researchers started experimenting with the strategy of ‘pulse’ immunisation in the 1980s. By then, OPV was a part of India’s Expanded Programme on Immunisation, but polio burden remained high, with 1,000 children becoming paralysed each day. The success of the programme was being thwarted by low coverage of the vaccine, problems with potency and blunted immune response among Indian children. Against this background, a group of researchers, led by Vellore-based virologist T. Jacob John, championed the idea of pulse campaigns. While routine immunisation waits for parents to bring their children to the clinic, something that many parents do not do, pulse campaigns try to give a ‘pulse’ of vaccine to an entire population in one go. Dr. John suggested that routine immunisation worked in developed countries, because parents were motivated to vaccinate their children. But India needed a different strategy.

An early experiment in Vellore in 1978 showed that pulses delivered to a large cohort of children gave them strong immunity even when the vaccine was not so potent. This was because vaccine pulses rapidly replaced the wild-polio virus circulating in the community with the vaccine-virus. Vellore was the first Indian town to become polio-free through the pulse strategy, and the rest of India adopted the strategy in 1995.

Out of the three wild-types of poliovirus that cause the disease, the transmission of one, Wild Poliovirus 2 (WPV-2), was interrupted successfully more than a decade ago. The two remaining viruses that are circulating in Pakistan and Afghanistan are WPV-1 and WPV-3. Once we stop these two viruses in their tracks, OPV will be phased out and replaced globally with IPV.

IISc team identifies an early-stage biomarker for Alzheimer’s

Researchers at Bengaluru’s Indian Institute of Science (IISc) have identified a potential biomarker for Alzheimer’s disease. The biomarker shows up very early in the disease process and well before clinical and even pathological manifestation of the disease. They also found that it is possible to reverse the disease process if identified early.

Loss of dendritic spines from the surface of a nerve cell is already recognised as an early feature of Alzheimer’s. But the underlying mechanism behind this loss was not known. Now, a team led by Vijayakalakshmi Ravindranath from the Centre for Neuroscience at IISc has deciphered it. The results were published in Journal of Neuroscience. Projections on the dendrites called spines grow or shrink in response to activity-dependent modification and correlates with normal memory or memory deficit in animal models.

Filamentous actin (F-actin) is a cytoskeletal protein which is responsible for maintaining the shape of the spines. While F-actin is formed by polymerisation of monomeric globular-actin (G-actin), depolymerisation leads to loss of F-actin and, in turn, the loss of spines. F-actin is crucial for memory consolidation.

“In mice that are genetically altered to have Alzheimer’s, there was decreased F-actin protein level and increased G-actin protein level in animals as young as one month,” says Reddy PeeraKommaddi, a DBT-Ramalingaswami Fellow, from the Centre for Neuroscience at IISc and first author of the study. J Somasaradhan, another co-author, adds that they have already started using this biomarker to model the disease in animal models.”
IGIB researchers partially reverse a rare disorder

Researchers at Delhi’s Institute of Genomics & Integrative Biology (CSIR-IGIB) have for the first time used zebrafish to model the rare genetic disorder — Rubinstein Taybi Syndrome (RSTS) — seen in humans. They have also used two small molecules to partially reverse some of the defects caused by the disorder in zebrafish, thus showing them to be an ideal animal model for screening drug candidates. There is currently no cure or treatment for the disorder.

The Rubinstein Taybi Syndrome has a frequency of about one in one lakh people, and causes intellectual disability, growth retardation (short stature), craniofacial deformities, heart defects and broad thumbs and toes. The results were published in the journal Biochimica et Biophysica Acta (BBA) - Molecular Basis of Disease.

Close to human genome

Since zebrafish genome has very close similarity to human genome and the embryonic developmental is very similar in the two, the team led by Dr.Chetana Sachidanandan at IGIB went about checking if EP300, one of the two genes that cause the disorder is present in the fish and if mutations in this gene result in a RSTS-like disease in fish.

Using chemicals, the researchers inhibited the activity of the protein Ep300 to see if this resulted in the manifestation of the disorder in the brain, heart, face and pectoral fins (equivalent to forearm in humans). “Like in the case of humans, the same organs were affected in the fish when the functioning of the protein was stopped. This helped in confirming that the protein in question does the same functions in fish and humans,” she says.

Since zebrafish commonly has two copies of many human genes, the researchers first checked if one or both the genes were functional and equivalent to the human gene that causes the disorder. “We found Ep300a gene was active and functional while Ep300b was not,” says Prof. Tapas K. Kundu from the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru, the other corresponding author. The Ep300a gene is responsible for producing a protein (Ep300) that opens up the DNA.

“The protein Ep300 is evolutionarily conserved from fish to humans. Though the Ep300 gene has been earlier identified in fish, its function was not known,” says Prof. Kundu.

Reversal of effects

Like in the case of fish treated with chemicals manifesting the disorder, fish mutants that lacked the Ep300a gene too exhibited defects very similar to those seen in hu-
Copy... and paste: Plagiarism in literature over the years

When the springs of imagination run dry for some, their ethical gene sometimes takes a hiatus and furtively, some choose to glance sidelong at another's possessions and covet it for them. Ctrl C... Ctrl V is then a mere keystroke away.

In the January 1929 issue of the Modern Review, a certain Jadunath Sinha made a sensational claim. None other than SarvepaliRadhakrishnan had plagiarized from him, or so he said. His Indian Philosophy Vol. II had lifted several passages from Sinha's thesis. The battle spilled over into the February, March and April issues of the magazine too as Sinha cited several more passages to bolster his claim. Radhakrishnan hit back with letters in the February and March issues.

In August 1929, Sinha sued Radhakrishnan. Radhakrishnan counter-sued both Sinha and Ramnath Chattopadhyay, the editor of Modern Review. Given Radhakrishnan's stature, it was a battle royale.

Sinha himself was no sensation-monger. He had completed his BA in philosophy in 1915 from the Calcutta University, bagging both the Philip Samuel Smith Prize and the Clint Memorial Prize, and then finished his MA in philosophy in 1917. Well-regarded by his teachers, he was appointed an assistant professor in Ripon College, Calcutta, even before his MA results were announced. In 1922, he was awarded the PremchandRoychand Studentship. It was the two-part thesis that he submitted as part of this grant that Radhakrishnan allegedly filched from.

Recent scandals

About a year and a half ago, a Kenyan poet dazzled the English-speaking African literary world. In August 2016, he was awarded two literary prizes and shortlisted for a third. In no time, RedscarMcOdindoK'Oyuga was the toast of the literary establishment, till it emerged that he had been copy-pasting from many, many sources after merely altering a handful of words. The road to perdition came swiftly.

It was an echo of a similar scandal a decade ago in the US starring an Indian-American. Kavya Viswanathan published How Opal Mehta Got Kissed, Got Wild, and Got a Life while still a teen in 2005, and then landed a two-book $500,000 contract while a freshman at Harvard. And then the similarities of her book with another book by Megan MacCafferty tumbled out. “Photographic memory” was the first defence offered. But then, it turned out that she had copied from Rushdie too. The shutter came down on her contract and her published book.

In recent times, the late Avtar Singh “Pash” has been targeted by right-wing educationist DinanathBatra for his poem Sab ton Khattarnak. Batra objected to the poem's violent undertones and concluded that poems of this sort could “incite violence”, demanding therefore that it be removed from the Class XI NCERT Hindi textbook.

Parallelly, a scandal erupted that this poem was more than a little similar to Die Slowly by Martha Medeiros. A close reading of both is inconclusive. Experts, while acknowledging similarities, are loath to conclude plagiarism for this poem. But another by Pash—Gha (Grass) turns out to have lifted a few lines from Carl Sandburg’s Grass. Clearly, a moment of weakness for an otherwise great poet.

Scandals from the 20th century

In 1942, IsmatChughtai came out with Ziddi. The plot was set in rural India and had the rich boy-poor girl setting that became a common Bollywood theme in the years to come. Then it emerged that Ziddi was a rehash of a Turk-
ish novel, Hajira, the writer of which went by the pseudonym AdalatKhanam. Chughtai had altered the Turkish names, put Hindu and Muslim names in their place and turned the comedy into a tragedy, but had retained the plot, dialogue and settings. Regardless, Ziddi remains popular and was even turned into a Dev Anand movie in 1948, the first film to feature a Lata-Kishore duet, in fact. In 1977, the book Roots won both a Pulitzer Prize and a National Book Award. A highly acclaimed TV mini-series followed. But its author, Alex Haley, was soon subject to a plagiarism suit and forced to concede that he had in effect “borrowed” parts of the book from a 1967 novel, The African by Harold Courlander. The case was settled out of court for $650,000. But the scandal tainted the book and while the book is popular, it is not considered part of the literary canon, a more than a serious rap on the knuckles for Haley. In the early 1990s, a time before The God of Small Things, when Indian English writing was still in relative infancy, a book by IndraniAikath-Gyaltsen called Cranes’ Morning which was initially hailed by critics was found to have been plagiarized word for word from an earlier work, The Rosemary Tree by Elizabeth Goudge. It was puzzling why she had done so, especially since her first novel Daughters of the House had been well-received. But when the plagiarism was discovered, it was a huge scandal. The author’s mysterious death within a few months only made things murkier. The plagiarism is proven, but the author’s reasons will now never be known.

Once upon a time
In the 1840s, America was witness to what came to be termed the “Longfellow War”. While today Edgar Allan Poe is remembered as a poet and author of tales of the macabre and early detective fiction, then he was America’s pre-eminent critic. He was known as the Tomahawk Man, which tells us something about the nature of his reviews. A particular target of Poe’s was Henry Wadsworth Longfellow, whom he accused of imitation and also stealing from Tennyson and Milton, among others. When an unknown admirer (“Outis”) defended Longfellow and made the claim that Poe’s The Raven was plagiarized too, Poe in a series of five replies both defended himself and elaborated on his view of Longfellow. Poe claimed he had exercised “… great moderation in charging him (Longfellow) with imitation alone” and went on to add, “Had I accused him, in loud terms, of manifest and continuous plagiarism, I should but have echoed the sentiment of every man of letters in the land beyond the immediate influence of the Longfellow coterie.” Longfellow kept his silence throughout the humiliating battle and in the years following Poe’s untimely death in 1849, he maintained a running correspondence with Poe’s mother-in-law sending her books, money and doing her other favours—an odd conclusion to a bitter war. The Radhakrishnan tale ended happily... for Radhakrishnan! Sinha crumbled before the pressure exerted on him by the high and mighty, including the then vice-chancellor of Calcutta University, Shyamaprasad Mukherjee. In 1933, the matter was settled out-of-court. Indian Philosophy Vol. II remains in print.

42 Indian languages stare at extinction
More than 40 languages or dialects in India are considered to be endangered and are believed to be heading towards extinction as only a few thousand people speak them, officials said. According to a report of the Census Directorate, there are 22 scheduled languages and 100 non-scheduled languages in the country, which are spoken by a large number of people — one lakh or more. However, there are 42 languages which are spoken by fewer than 10,000 people. These are considered endangered and may be heading towards extinction, a Home Ministry official said. A list prepared by UNESCO has also mentioned about the 42 languages or dialects in India that are endangered and they may be heading towards extinction, the official said. The languages or dialects which are considered endangered, include 11 from Andaman and Nicobar Islands (Great Andamanese, Jarawa, Lamongse, Luro, Muot, Onge, Pu, Sanenyo, Sentilese, Shompen and Takanhylang), seven from Manipur (Amol, Aka, Koiyen, Lamgang, Langrong, Purum and Tarao) and four from Himachal Pradesh (Baghati, Handuri, Pangvali and Sirmaudi). The other languages in the endangered category are Manda, Parji and Pengo (Odisha), Koraga and Kuruba (Karnataka), Gadaba and Naiki (AP), Kota and Toda (Tamil Nadu), Mra and Na (Arunchal Pradesh), Tai Nora and Tai Rong (Assam), Bangani (Uttarakhand), Birhor (Jharkhand), Nihali (Maharashtra), Ruga (Meghalaya) and Toto (West Bengal).

The Central Institute of Indian Languages, Mysore, has been working for the protection and preservation of endangered languages in the country, under a central scheme, another official said.
Vaccine can prevent TB infections in adolescents
A clinical trial has provided encouraging new evidence that TB vaccines can prevent sustained infections in high-risk adolescents. The results will be announced at the 5th Global Forum on TB Vaccines in New Delhi.

**Subunit vaccine**
In the Phase 2 trial conducted in South Africa, revaccination with the BacilleCalmette-Guerin (BCG) vaccine significantly reduced sustained TB infections in adolescents. An experimental vaccine candidate, H4:IC31 also reduced sustained infections, although not at statistically significant levels.

However, the trend observed for H4:IC31 is the first time a subunit vaccine has shown any indication of ability to protect against TB infection.

The study was conducted to evaluate the safety and immunogenicity of the vaccine regimens, as well as their ability to prevent initial and sustained TB infections among healthy adolescents in the Western Cape Province of South Africa. Ann Ginsberg, MD, PhD, Chief Medical Officer at Aeras and a member of the organising committee for the 5th Global Forum on TB Vaccines, said: “We and our partners will share a range of new data at the 5th Global Forum on TB Vaccines, highlighting the scientific progress being made to develop potential new vaccines against TB, the world’s leading cause of death from an infectious disease.”

According to the World Health Organisation, about one-third of the world’s population has latent TB infection, which means people have been infected by TB bacteria but are not (yet) ill with the disease and cannot transmit the disease. People infected with TB bacteria have a lifetime risk of falling ill with TB of 10%. People ill with TB can infect 10-15 other people through close contact over the course of a year. Without proper treatment, 45% of HIV-negative people with TB on average and nearly all HIV-positive people with TB will die.

Mark Hatherill, MD, Director of the South African Tuberculosis Vaccine Initiative (SATVI) at the University of Cape Town, and the study’s principal investigator, said: “We are pleased to have performed the first-known randomised, placebo-controlled prevention-of-infection trial for TB and to have demonstrated that vaccination has the potential to reduce the rate of sustained TB infection in a high-transmission setting. While neither vaccine proved to be statistically significant in preventing an initial TB infection, we are extremely encouraged by the signals observed for both vaccines in preventing sustained TB infections.

“We believe the results from this novel trial design will provide significant scientific benefit to the field in understanding TB infection, and based on this positive signal, we look forward to testing the potential of such vaccines to prevent TB disease among uninfected adolescents in a larger, more traditional prevention-of-disease clinical trial.”

Kamal’s party to focus on a new south India
Veteran actor Kamal Haasan launched his political party, the Makkal Needhi Maiam (People’s Justice Centre), projecting himself as a serious alternative to the Dravidian majors in Tamil Nadu.

Explaining where his ideology lay, he said, “People are asking me if I am left or right (in ideology). That’s why we have ‘maiam’ (centre) in our party (name). We will absorb all good things from whichever direction they come.”

He promised to strive to offer quality education for all, end propaganda on caste and religious lines, provide uninterrupted electricity supply and eradicate corruption.

He also aspired to forge ties among the southern States as a federal concept. “Today is the day to speak up (against corruption) and tomorrow is for action,” he said to loud cheers.

Mr. Haasan, who commenced his political journey with a road show originating from the house of former President A.P.J. Abdul Kalam in Rameswaram, hoisted his party’s flag in front of a mammoth gathering here.