

CHATTERBOX

Reshuffle on the cards?

Fifty days of the Bharatiya Janata Party-led National Democratic Alliance (NDA) government are over but two important parties in the NDA: the All India Anna Dravida Munnetra Kazhagam (AIADMK) and the Janata Dal United (JDU) have no representatives in the union government. So is a reshuffle overdue? Ahead of cabinet formation in May, Deputy Chief Minister O Panneerselvam's son P Raveendranath Kumar and Rajya Sabha member R Vaithilingam were considered as probables in the Union government. While Kumar was the lone AIADMK-NDA victor from Tamil Nadu winning from Theni in the Lok Sabha elections, Vaithilingam was the housing minister in the late J Jayalalithaa's tenure during 2011-16. JD(U) was offered a place in the Union government but was offended with just one ministership. At the last minute, JD(U) leader and Bihar Chief Minister Nitish Kumar, decided the party will not be a part of the government. So a reshuffle is inevitable: the question is, when?

On his way out

Former Himachal Pradesh minister and MLA Anil Sharma — who quit the BJP cabinet in April when his son Aashray contested the Lok Sabha election on a Congress ticket (and lost) — is expected to be kicked out of the party any day. The saffron party had offered its incumbent MP Ram Swaroop the ticket from Mandi constituency, which he won by over 4 lakh votes. At a celebration function in his own constituency that was attended by Chief Minister Jairam Thakur, there was no chair on the stage with Sharma's name on it. He just left the venue. He is expecting marching orders.

DID THEY REALLY SAY THAT?



**"Our neighbouring country (Pakistan) cannot fight a full-fledged war or a limited war with India. It is fighting a proxy war"**

Defence Minister Rajnath Singh in Lok Sabha on the 20th anniversary of Kargil conflict as Parliament paid tributes to Indian soldiers, July 26



OPINION

JAIRAM RAMESH

Amendments ordered to make CIC toothless

Why are these amendments being brought about now? It is very interesting. It is very important to understand that the timing of these amendments is not so innocuous; it is not so innocent; and after reviewing RTI decisions some of which have already been alluded to by Mr Singhvi, I have here five cases that have propelled the government to bring forward these amendments.

Between 2003 and 2013, the Chief Minister of Gujarat came to the Planning Commission, and the Planning Commission would ask him uncomfortable questions on the state of health in Gujarat, on the state of education in Gujarat; why social development in Gujarat was not commensurate with economic development in the state.

In 2014, the chief minister of Gujarat became the Prime Minister of India (expunged) and abolished the Planning Commission. Today, the Prime Minister of India is (expunged) on these five cases.

What are these five cases? Firstly, the CIC ordered disclosure of the Prime Minister's educational qualification; the matter is in the Delhi High Court today, as I speak.

The second embarrassing case for this government is, the Prime Minister claimed that 40 million bogus ration cards were weeded out by his government. The RTI showed that the number of bogus ration cards is about 23 million and a correction had to be made by the Prime Minister to make that number commensurate with the Parliamentary question that was answered by Ram Vilas Paswan.

The third is the disclosure on demonetisation. It was the Chief Information Commission's decision which revealed that less than four hours before the Prime Minister announced demonetisation on November 8, 2016, the Central Board of the Reserve Bank of India gave its approval.

The first embarrassing case was the disclosure of the Prime Minister's educational qualification. Since it is pending in the court, I am not expanding on it. The second is the false claims made by the Prime Minister on bogus ration cards. The third, which I was reading before I was interrupted is that four hours before the television announcement on demonetisation, it is an RTI request that revealed that the RBI gave its approval to the scheme.

The fourth embarrassing case to this government is that an RTI enquiry revealed that the former Governor of the Reserve Bank of India, Dr Raghuram Rajan — the Minister may kindly listen to me and not look perplexed because these are all facts; it is the RTI enquiry that revealed this — had listed out the names of NPA defaulters to the Prime Minister's Office eight months into his Prime Ministerial tenure.

The fifth case, which is embarrassing to this government is that the Chief Information Commission directed the Prime Minister's Office to disclose information about quantum and value of black money brought back from abroad. The Prime Minister's Office refused to share the details of the quantum of black money brought back from abroad despite the CIC ordering the disclosure.

So, the real reason is not this false reason of parity with the Chief Election Commission. The real reason for these Amendments is to make the Information Commission toothless, to make sure that these types of embarrassments don't repeat themselves. And the only way to do it is to convert the Chief Information Commission from an independent autonomous body to a toothless government, Prime Minister's Office-directed body. That is the real business of this Amendment Bill.

A couple of days ago, the Minister defended these amendments. And, while defending these amendments, he said, 'We have strengthened the RTI Act. We have given the CIC its own building. They have their own building.' Mr Minister, you did not do the CIC any favour by giving them a building. The building was under construction. You were fortunate that the Prime Minister happen to be there in Office to go and inaugurate the building. So, to say that you have strengthened the RTI by giving the CIC a separate building is a deliberate falsification of facts.

The second point that the Minister made is, 'One of the missing links is that there was no provision to frame rules under the RTI Act. It should have been there.' Sir, this is completely an erroneous impression. Section 27 — I don't know whether the Minister has ever read the RTI Act — of the Act empowers the Central Government and the State Governments to make rules. We don't pass any Bill without the power to make rules.

The third claim, the Minister said, 'It is this Government which introduced a portal for the RTI.' Sir, the portal was inaugurated on August 21, 2013, by his predecessor, Shri V Narayanasamy, who is now the Chief Minister of Puducherry.

He said, 'We walked an extra mile. There should be Leader of Opposition in the Selection Committee. But, now, the leader of the largest Opposition party is a Member.' He made it sound as if he was doing us a favour. You look at the original RTI Act and I invite the Minister's attention to Section 12(2). What does it say? It says that the Chief Information Commissioner and Information Commissioners shall be appointed by the President on the recommendation of the Committee consisting of the Prime Minister, the Leader of Opposition in the Lok Sabha and a Union Cabinet Minister to be nominated by the Prime Minister.

The Minister has forgotten to add the explanation in the original Act. The explanation says, 'for purposes of removal of doubts, it is hereby declared that where the Leader of Opposition in the House of People has not been recognised as such, the leader of the single largest group in Opposition of the Government in the House of People shall be deemed to be the Leader of Opposition.' This is in 2005. And, the Minister tells Lok Sabha that there was no provision for the leader of the largest party and we are making this provision. These are all misleading statements being made.

*Edited excerpts from Congress MP in the Rajya Sabha, Jairam Ramesh, speaking during the debate on the RTI (Amendment) Bill, 2019, on July 25, 2019*



ILLUSTRATION BY BINAY SINHA

The Indian Council for Medical Research's National Institute for Medical Statistics (ICMR-NIMS), in partnership with Population Council, recently launched the National Data Quality Forum. Dr Balram Bhargava, Director General, ICMR speaks to Aditi Phadnis elaborating on how the platform will bring both data producers and consumers on a common platform and ensure efficient utilisation of the quality data in formulating policies. Edited excerpts:

'Aim is to create a space for better data'

Why are we launching another exercise to collect health-data when India already has the Family Health Survey, the NSSO, the Census?

The National Data Quality Forum (NDQF) is a platform where both data producers and consumers will come together on a common platform to discuss and encourage the inculcation of best practices required to generate good quality data and its efficient utilisation for data driven evidence-based policy formulation. This platform will aim to carve out ways for improving the current practices of data collection, collation and utilisation which can help in achieving robust estimates at district, state and pan India level.

Such an initiative is not another data col-

lection exercise but has been launched to usher in standardisation and enhanced quality in the existing ongoing periodic surveys and routine programme data landscape in India. We envision that NDQF will provide guidance in standardising tools for indicators emerging from different data sets. When multiple ministries and decision-making bodies refer to these indicators, we hope it will provide them with a guide for selection and appropriate policy changes. It is important that consumers also understand the quality of data before they start utilising the same. India is a very data rich country, if its administrative data is being questioned, platforms like NDQF are critical in providing the solutions to this.

CHECKLIST SERIAL OFFENDER: RECENT GAFFES OF US PRESIDENT DONALD TRUMP

- Ahead of his meeting with Japanese Prime Minister Shinzo Abe at G20 summit in June: "If Japan is attacked, we will fight World War III. But if we're attacked, Japan doesn't have to help us at all. They can watch it on a Sony television."
- Amid allegations that Russian agencies 'influenced' US elections, During a meeting with Russian President Vladimir Putin on the sidelines of G20 summit in Japan, Trump said, at a press conference: "Don't meddle in the election, please." At the same press conference, he said: "Get rid of them [journalists]. Fake news is a great term, isn't it? You don't have this problem in Russia but we do."
- In June, during a visit to the UK, POTUS tweeted: "I meet and talk to "foreign governments" every day. I just met with the Queen of England (UK), the Prince of Whales (sic)

the P.M of the United Kingdom, the P.M of Ireland, the President of France and the President of Poland and we talked about "Everything!"

- This was in July: "For all of the money we are spending, NASA should NOT be talking about going to the Moon — We did that 50 years ago. They should be focused on the much bigger things we are doing, including Mars (of which the Moon is a part), Defense and Science!"
- Talking about the turn of events in America in 1775, Donald Trump said, in his 4th of July (US independence day) speech: "Our army manned the air, it rammed the ramparts, it took over the airports, it did everything it had to do." When pointed out that there was no air force or airport in 1775, that airplanes were only invented in 1903 (by the Wright brothers), he said: "I guess the rain knocked out the teleprompter."

If more rigour is sought to be introduced in data then are we to understand that the previous health-related data — that told us, for instance that India was in the grips of a diabetes epidemic — was inaccurate?

The entire exercise of conducting surveys is to ensure we get clarity of estimates for any indicator which can be further inferred to achieve clarity about an entire population. Improvement in data quality is an ongoing process and the National Data Quality Forum will guide in achieving a common goal of improved quality of survey and programme data. Currently, the data for any indicator comes from various sources and sometimes the process of conceptualisation, collection, collation differs. Bringing harmony among various datasets is key and one of the major goals of the Forum.

Every day, there is new data, new technologies that emerge. There is a need to have a robust mechanism and with emerging technologies we can take advantage to create one. For example, earlier the only way to measure height and weight of a child was through the weighing machine and stadiometer (height measuring stand). Now using artificial intelligence, we can try to measure the same variables using the actual picture of the child. This does not mean that the earlier measurement results were incorrect, but simply signifies that one can reduce the efforts of frontline workers and make results more accurate.

As you know, a Personal Data Protection (PDP) Bill is to be introduced in Parliament. How will this dataset tie in with the PDP?

The PDP Bill focuses on creating policies and procedures seeking to minimise intrusion into the privacy of an individual caused by collection and usage of their personal data. It is also true that over the years there have been rapid advances in technology — leading to large volumes of data being collected for decision making — to benefit the population through services.

That said, the NDQF is not a platform for generating new data. The forum will bring in new innovations to improve the data quality and in doing so we will be cognizant of ensuring no breach of personal identifiers takes place. Ethical requirements and protecting personal privacy is the bedrock of NDQF while we create a space for better quality data for policy change.

Who will have access to this data? Data is power — and money. How will you monetise this?

The NDQF envisions following a collaborative

approach built on a partnership model to provide solutions on the challenges faced by both data producers and consumers. As stated previously, NDQF does not aim to collect any new data, but initiate a concerted effort, bringing together key stakeholders to create a common data model approach leading to a one stop data repository for health and other domains of datasets in India. New technologies and innovations will be shared with all stakeholders. The new innovations will be introduced as a pilot in one — two districts to check feasibility. If results are positive, then these solutions can be shared for potential funding under the Corporate Social Responsibility (CSR) bodies and scaled up for a wider implementation and change. We envision working with the young bright minds of India, to share solutions to the data challenges we have, and lead the pathway for change.



DR BALRAM BHARGAVA

Director General, ICMR

**There are many commercial entities like the pharma industry and medical device manufacturers for whom this data will be a gold mine. Do you agree?**

The point of the NDQF is to improve data quality and policy for India so we as a nation surge towards meeting the outline Sustainable Development goals (SDGs) taking everyone along. The goal of the forum is to create an evidence based ecosystem to promote health and wellbeing. Pillar 4 of the ICMR Strategic Agenda 2030 talks about enabling evidence to policy action by closing the knowledge to policy gap. We expect the forum to build capacities of all stakeholders, and not a limited set to drive this evidence-based ecosystem to develop a standard policy for data quality assessment by various governmental and intergovernmental bodies to generate a dialogue in relevant policy spheres.

However perfect or imperfect, India's data collection agencies collect masses of data but it lives in silos and one set of data doesn't talk to another. How will your initiative change that?

Often, there are multiple sources of data for the same indicator and the results do not match. This is mainly because they differ in purpose and design, resulting in different physical formats and logical organisation. However, it is confusing to the data consumers/users to understand which data source to consider for specific indicators. Through this initiative we plan to develop a Common Data Model, which will standardise different data sources into a common format, thus helping cross comparison between various data sources and improve its utilisation.

Coming soon, India's first garbage cafe

In a bid to provide a full meal to ragpickers and homeless, Chattisgarh's Ambikapur is all set to open a cafe that's asking them to come with plastic waste and in return get free food, writes R Krishna Das

Papa, why don't you follow the model of London Rubbish Café?" Kamayani exclaimed. Her father, Manoj Singh, thought this would be the perfect idea to give Chhattisgarh's Ambikapur city an unmistakable identity in the country. The theme of swapping plastic waste for food deeply influenced Singh, who is the Commissioner of Ambikapur Municipal Corporation (AMC).

Kamayani, who has cleared class XII this year, helped him with the business model. Without further ado, the project to set up India's first Garbage Café in the city that houses a population of about 200,000 was finalised. The plan will help ragpickers and the homeless to get a full meal in return for collecting a kilogram of plastic waste; and snacks with tea for half a kilogram from the proposed Café.

"My child conceived the plan that I presented it before the Mayor (Dr Ajay Tirkey)," Singh says. Dr Tirkey approved it without reservation and included it in the agenda of the general body meeting of the AMC held last week. The proposal was passed unanimously. The corporation has made a provision of ₹5,50,000 from its own resources to begin with and will arrange further funds as required.

The AMC aims to target two issues in one go — getting rid of plastic waste and providing food to the needy. About 100 ragpickers and homeless people have been identified in the town, about 450 kms from the Chhattisgarh capital, for the job. The concept addresses their concern of food security.

Singh says they will watch the response to the project for a month. "If it succeeds, it will be expanded accordingly," he says. The authorities are in touch with small private hotel owners to open sub-centres across the city. "The sub centres will help the beneficiaries to cover shortest distance," he adds.

The Café was scheduled to start from August 1. Singh says it will be delayed slightly and is likely to start operations from August 15. "Initially, we planned to start the project from a small centre; without much fanfare," he adds. After the idea of the Café was noticed and picked up by the national media, they thought of giving the project a new look and launching it in a big way. The new centre, comparatively bigger, is being developed.

Under the plan, beneficiaries coming with the plastic waste will be provided a coupon that will provide meal or snack. "The menu consists rice, dal, one vegetable curry, papad and pickle," Singh says. The snacks include either *samosa*, *poha* or *bhajiya* with *jalebi* and tea.

The proposed Garbage Café will be another leap forward in the cleanliness drive of Ambikapur, the divisional headquarters of coal-rich Sarguja region. The town has created a niche with the green warriors (as the women group is known).

Clad in green-orange saris and masks, caps, gloves and shoes, these women trudging down the streets with rickshaws painted green and red have begun to represent an inimitable identity. Besides making money out of garbage, they have set a precedent in the Swachh Bharat campaign by making the town waste free.

Under the Central government's Swachh Survekshan 2019 rankings, Ambikapur was declared India's second cleanest city, following Indore in Madhya Pradesh, jumping 15 places from last year. The Solid Liquid Resource Management (SLRM) method, adopted in the state for the first time, has made the difference in solving the problem of urban waste.

The then district collector, Ritu Sain took the initiative while chairing a review meeting



Ambikapur was declared India's second cleanest city after Indore in Madhya Pradesh. A major credit for the same is given to the solid waste management project adopted by the municipal corporation with the help of women self help groups

on February 22, 2015. The local civic body officials demanded 20 acres of land for dumping garbage. Sain suggested instead of dumping the garbage, they should develop a mechanism for managing it.

The entire administration plunged into action, and the journey began. Inspired by an episode from the TV show *Satyamev Jayate* and C Srinivasan of India Green Service, the project started within a month with training and capacity building of women self help groups (SHGs). About 1,000 women were trained of which 610 members were selected.

Most of the women belonged to the economically weaker section; a good number of them were widow and divorcees. The 444-member team of women now working in the streets of 48 wards in the city is converting the waste as resource. The job starts early in the morning. Each group comprising 10 members

covers about 300 houses, collects the source segregated waste at door-step every day and deposit them at their respective SLRM center. The work of collection is completed by noon. The organic waste is turned into compost while the inorganic waste is further segregate into 158 categories after cleaning (if required). The city now does not have a dumping area.

While the women's drive has gained national acclaim, it has cast a shadow over the success of Garbage Café. "Since the women groups are collecting waste from doorstep and city is free from the dumps, from where will the plastic waste come from?" senior councillor from the opposition BJP, Madhusudan Shukla says. And even if the ragpickers collect the waste, they would prefer to sell it to scrap dealers. For, cash is more preferable than food for them. But till then, the Garbage Café is getting ready to open.



# Behind the FaceApp magic

## New questions arise about privacy breaches, data misuse

The latest app to take social media by storm raises new questions about privacy breaches, data misuse, and the commercial monetisation of social media. FaceApp has a tiny team of 12 people based in St Petersburg. It uses artificial intelligence (AI) to morph portraits. Users upload digital portraits to a cloud, where these are processed to create likenesses of themselves as they will look (or looked) a decade or two later (or earlier). FaceApp also “gender-switches” portraits, and facial expressions, on request.

It is an intriguing business. The AI must not only apply facial recognition techniques to “recognise” faces; it has to guess how ageing, “youth-ing” and gender-

switching could lead to alterations in facial appearance. It must distinguish between happy, sad, and pensive faces. This places it at the cutting edge of face-recognition technology.

In behavioural terms, it has hit a sweet spot. FaceApp is one of the most popular downloads with at least 100 million users. It appears that a lot of people want to know what they will look like a few decades down the line. Many also wish to wallow in nostalgia and look at morphed pictures of themselves as children and quite a few are curious about gender-switching appearances.

This may seem like a harmless, if narcissistic, pastime. However, before FaceApp

can apply its magic, it needs portraits to be uploaded by users. Those portraits are associated with other data, like mobile numbers, device models, user-names, locations, birth years, and so on.

The app has a “freemium” subscription model. It claims that 99 per cent of its revenue comes from premium user subscriptions even though only about 1 per cent of users pay to use the service. Every paid subscriber yields some more sensitive data such as credit cards details.

The terms of use are roughly modelled on Instagram, which means that users grant permission for their uploaded shots (including altered versions) to be retained and used by the service provider, permanently, for a broad range of commercial purposes. This permission is royalty-free, and granted by default at the time of installation.

Moreover, there is a boilerplate indemnity protecting the company from being

sued for any loss or injury suffered via the app (such as damaged reputation or embarrassment). The terms of service also mean that users agree, by default, to cover all legal fees for third-party claims against FaceApp arising from their use of the app. It is possible to opt out of these legally restrictive clauses. But that involves reading some very fine print and pro-actively contacting the company within 30 days of installation.

So, FaceApp is sitting on a treasure trove of data given by users. It can easily monetise this. Face-recognition platforms need big data-sets to train algorithms. Every national security agency worth its salt, as well as countless local police forces, is trying to set up efficient facial recognition systems. So the company could simply offer its 100 million-plus portraits to face recognition developers.

Beyond this of course, there is a real fear that the databases could be hacked,

and misused. There are new morphing technologies such as DeepFake, which recombine existing images to create fake new images and malicious videos, which are not easily distinguishable from the authentic. The scope for misuse of such a database is horrifyingly large.

FaceApp's Russian founder, Yaroslav Goncharov, says that it retains only specific pictures uploaded to the cloud for a maximum of 48 hours of processing. Goncharov also says that FaceApp is reviewing its terms of service to soften the legal implications and offer more user-privacy.

Given the success of this app, other face-morphing systems will surely be on offer soon. Users would be well-advised to read the fine print in terms of service with care. This is especially so, in India, which has no specific privacy law. If you are being offered something for free on social media, the chances are payment is being extracted in hidden ways.

# Why the Wage Code is inadequate

It contains numerous positive elements, such as introduction of a statutory national floor-level minimum wage for the first time in India, but it has missed an opportunity to do more

K R SHYAM SUNDAR

The National Democratic Alliance (NDA) government during its first stint (2014-19) took a bold decision to rationalise the numerous labour laws into four codes, of which the Code on Wages was one. The Wage Code, which replaces four laws — the Payment of Wages Act, 1936; the Minimum Wages Act, 1948; the Payment of Bonus Act, 1965; and the Equal Remuneration Act, 1976 — was first placed in Parliament in August 2017. It was referred to the Parliamentary Standing Committee, which submitted its report on December 18, 2018. The NDA returned to power with a massive electoral mandate in May 2019 and promptly tabled the Wage Code — revised in the light of recommendations made by the Parliamentary Standing Committee — in Parliament on July 23, 2019.

The Wage Code contains numerous positives, such as universal minimum wages and a statutory national floor-level minimum wage, both for the first time in the history of labour legislation in India, among other things. But law-makers have missed an opportunity to do more, and could have avoided several costly mistakes.

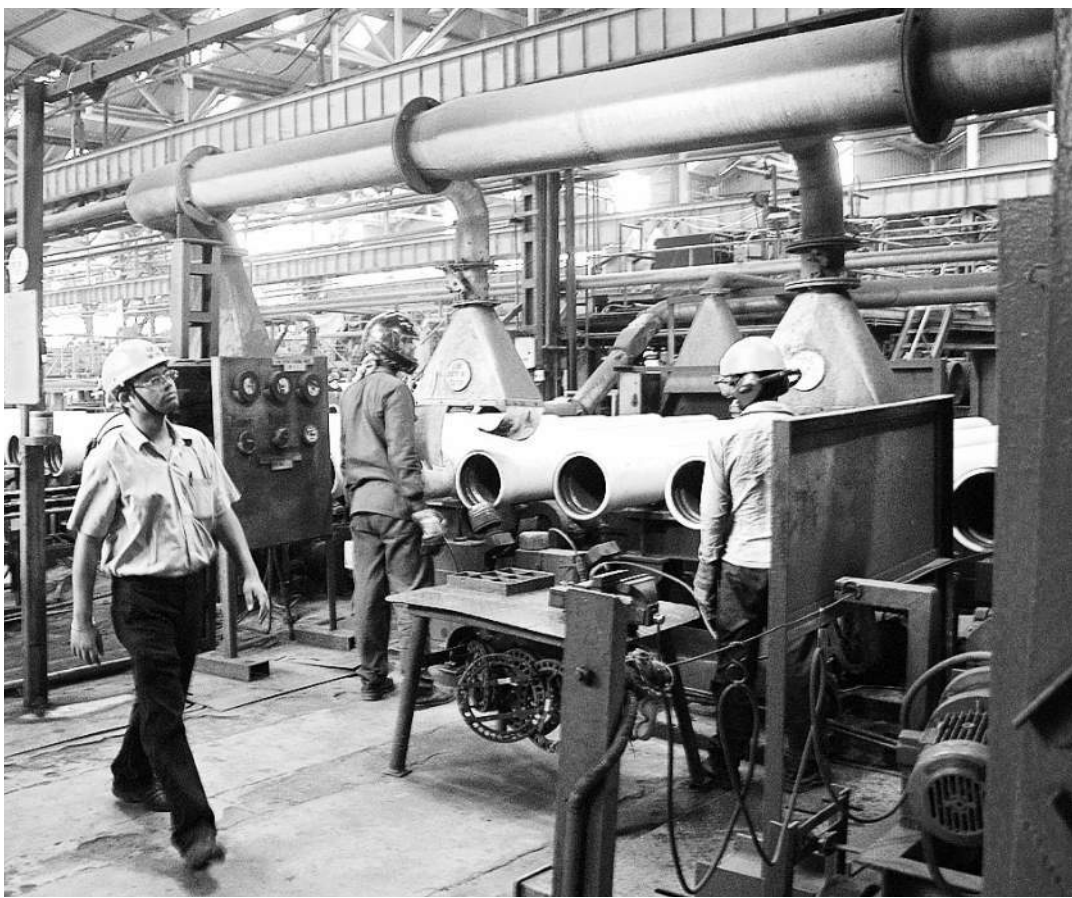
The Preamble of the Code should state the substantive aims of the Code, such as preventing gender-based discrimination, extending universal minimum wages, and so on, rather than stating that it is to “amend [and] consolidate the laws relating to wages bonus and matters connected...”, which is a procedural act.

The late Prof T S Papola, using National Sample Survey data for 1999-2000, had estimated that the Minimum Wages Act, which provides for coverage of workers in scheduled employments, covered 38.1 per cent of total workers, and even with this restrictive coverage, effective implementation of this law was extremely poor, to put it mildly. Now, the Code claims that it covers all workers in the organised and unorganised sectors (which should include agriculture also) and this would mean coverage of at least 450 million workers (excluding government employment from the 461.4 million workers estimated for 2017-18 by the Periodic Labour Force Survey).

By the way, unlike the existing law, the Code does not specifically mention inclusion of agriculture. Does the government have the wherewithal to effectively ensure realisation of minimum wages for all workers? While it does not mean that the government cannot and should not universalise minimum wage entitlement, this ruthless reality should lead to a gradual strengthening of enforcement, to avoid the risk of it degenerating into political rhetoric.

The Code has diluted the provisions relating to gender-based equity in the labour market, contained in the existing Equal Remuneration Act, (ERA) 1976, and missed an opportunity to do more in this regard. Its original draft included only a provision prohibiting gender-based discrimination in wages, and responding to the Parliamentary Standing Committee's recommendation, it has included prohibition of such discrimination in recruitment only in case of similar work. It has left out existing entitlements concerning conditions of service subsequent to recruitment, such as promotions, training and transfers.

Further, the ERA even conceived ways and means of increasing employment opportunities for women by consulting expert advisory committees. To conceive that gender-based discrimination pertains only to earnings and perhaps at the recruitment stage, and to ignore pernicious forms of discrimination and even



The Wage Code will bring down the numerous existing minimum wage rates

deprivation in many aspects of the world of work is to adopt a narrow approach.

By providing for a mandatory national floor-level minimum wage instead of the earlier minimum wage rate, the Wage Code will surely bring down the numerous minimum wage rates that exist currently. It propagates multiple wage rates by stipulating minimum wages at the national, zonal and state levels, and further on the basis of norms like skill (four types), arduousness and hazardous. What is worse, it empowers the government to create more norms and yet expects that the number of minimum wage rates will be kept at a minimum.

**The Code has diluted the provisions relating to gender-based equity in the labour market, contained in the existing Equal Remuneration Act, 1976**

If the objective of minimum wages is to prevent exploitation or poverty alleviation, it should provide not “merely for the bare sustenance of life, but for the preservation of the efficiency of the worker”. In other words, it should provide for some measure of education, medical requirements and amenities as well. Why should there be a hierarchy of multiple min-

imum wage rates based on skills? Regional peculiarities could be tackled by a state-level single minimum wage, plus a universal variable cost of living allowance adjusted quarterly instead of half-yearly.

More important is the debate on the determination of the minimum wage, and the fact that the expert committee's “scientifically arrived at minimum wage”

falls far short of the Seventh Pay Commission's level of ₹18,000. This needs urgent resolution lest labour becomes restive. Further, the existing law stipulates revision of minimum wages “within an interval of any five years”, while the Code requires revision “ordinarily at an interval not exceeding five years”, and the latter may formalise revision only after every five years, if at all it is done religiously by governments.

The Minimum Wages Act allows representation on behalf of minimum wage-deprived workers by a legal practitioner, any authorised office-bearer of a trade union, an inspector, or any authorised person chosen by the Authority concerned, which empowers the affected workers considerably. But the Code restricts representation to the trade union of which the affected workers are members, and the inspector. Given low and declining rates of unionisation, this will hurt workers.

Finally, the role envisaged for the curiously titled “inspector-cum-facilitator” is quite limited, as the fundamental “power of entry at any time (or even reasonable hours), any frequency and unattended one” has been removed in the Code, which violates International Labour Organisation norms on this. The inspection system needs reform to remove harassment and corruption, but the Code is making inspectors powerless “visitors”.

In short, the Code aims very high but is inadequate in vital respects, which may even militate against the realisation of its grand promise.

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RAJAN S MATHEWS

The emergence of a dynamic telecom sector that has taken connectivity to the remotest villages with perhaps the lowest tariffs in the world has been one of the key success stories for India in the 21st century. Seamless mobile connections along with robust data have meant that a host of services, including those from the government, are riding the airwaves and making lives better and simpler for every Indian. Uninterrupted telecom services are as critical as power and fuel supplies for India's rapidly expanding economy, which is tipped to touch \$5 trillion in the next few years.

The telecom industry has invested over ₹10.44 trillion over the years to take mobile services to every Indian at rock-bottom tariffs. The same industry that has emerged as the backbone for several other sectors, including start-ups, is now struggling to stay afloat, due to multiple challenges. The combination of high levies, double taxation and rising debt has meant that telecom is now under tremendous financial stress with doubts arising over its viability and sustainability. Even as tariffs have continued to head southwards, the need for regular and sizeable investments for upkeep of the network and telecom infrastructure has meant that debt on the books of telecom operators has risen nearly 10-fold, from a mere ₹0.8 trillion in FY2009 to ₹7.7 trillion in FY18.

The telecom industry is seeking favourable regulatory initiatives and policy reforms that will help revive it. The once thriving sector, which provided jobs and brought returns to all stakeholders, is now in a dismal state. It is in dire need of an efficient blueprint for growth, minus uncertainties, multiple cascading taxation and various anomalies, so that it regains its past glory. The industry is looking to adopt a growth framework that takes into account recommendations made by the regulator and negates the reasons for the current financial distress. It is crucial for policymakers to devise effective strategies that can alleviate the industry's woes, including provision of incentives on the lines of concessions for other sectors.

The return on investment of the private sector has also plummeted from a healthy 14 per cent to a meagre one to two per cent. While falling tariffs are benefiting customers, the industry is struggling to make ends meet. In just over 18 months, listed players' market capitalisation plummeted to ₹2.03 trillion on July 23, 2019, from ₹2.59 trillion on December 29, 2017. Ballooning debt has meant that interest payments as a percentage of EBITDA rose to nearly 71 per cent in FY19. The financial stress can be gauged from

the fact that the Reserve Bank of India, leading financial institutions and credit rating agencies have raised a red flag over the sector's viability. In February 2019, Morgan Stanley and Moody's downgraded India's telecom sector.

As a result, the Indian telecom industry, which once comprised more than a dozen established players, is now left with only three large players, courtesy the consolidation that happened over the last one year. Incapacitating hyper-competition leading to significantly squeezed margins, rising debt and falling revenues, is the reason behind the sector's acute financial distress today. Such market dynamics, where a few players dominate, can also leave consumers vulnerable.

Despite such worrying numbers, the telecom sector has continued to contribute to the exchequer in the form of taxes and levies such as licence fees, spectrum usage charges and revenue sharing. In fact, the telecom sector is one of the largest taxpayers, contributing ₹10,000 crore every year to the government treasury, though that too has come under pressure now owing to falling revenues. Telcos, in addition to building a world-class telecom infrastructure, have also spent around ₹76,000 crore in spectrum auctions to transition from 2G to 3G and 4G services. The cumulative payout at spectrum auctions is a whopping ₹3.68 trillion since 2010.

Apart from mammoth investments that went into the successful rollout of the 4G network, duplication of taxes and levies took a further toll on the financial health of telecom players. The Indian telecom sector pays 29-32 per cent in terms of taxes and levies — one of the highest in the world. Chinese companies, on the other hand, pay just 11 per cent. With the commercial rollout of 5G expected to begin by early next year, the requisite spectrum will come at a very high price, further crippling the sector financially.

In light of the challenges, the industry is asking for a practical policy roadmap designed to revitalise the sector and the allied ecosystem. The need of the hour is to take brave decisions, as the government did in 1999, when the sector shifted to a revenue sharing regime. The result was that telecom saw explosive growth and the government ended up earning more revenue than in the fixed licence fee regime. It's time to get the industry back on its feet, so that it can become a major contributor to fulfilling the Digital India vision and building a nation that is digitally and economically robust.

*The writer is Director General, COAI*

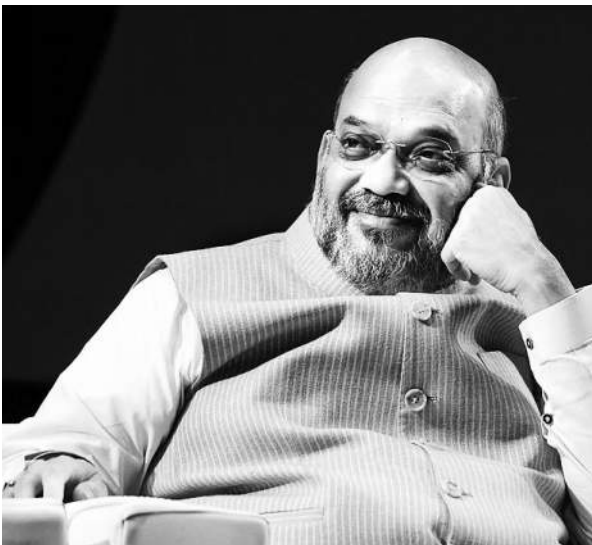
## ▶ OTHER VIEWS

### Latest amendments to NIA Act can be misused

Government has obligations to preserve fundamental rights

The idea of designating an individual as a terrorist, as the latest amendments to the Unlawful Activities (Prevention) Act propose to do, may appear innocuous. However, designating an individual as a terrorist raises serious constitutional questions and has the potential for misuse. However, there is no set procedure for designating an individual a terrorist. The absence of a judicial determination may render the provision vulnerable to invalidation. There ought to be a distinction between an individual and an organisation, as the former enjoys the right to life and liberty. The likely adverse consequences of a terrorist tag may be worse for individuals than for organisations. This makes it vital that individuals have a faster means of redress than groups.

A wrongful designation will cause irreparable damage to a person's reputation, career and livelihood. Union Home Minister Amit Shah's warning that his government would not spare terrorists or their sympathisers, and his reference to “urban Maoists”, are portentous about the possibility of misuse. The provision to empower the head of the National Investigation Agency to approve the forfeiture of property of those involved in terrorism cases obviously overrides a func-



tion of the state government. At present, the approval has to be given by the state police head. This significantly enhances the scope for misuse. While none will question the need for stringent laws that show “zero tolerance” towards terrorism, the government should be mindful of its obligations to preserve fundamental rights while enacting legislation on the subject.

The Hindu, July 26

### Reconsider sovereign bonds

They entail undue risks

According to a Bloomberg report, the Government of India is planning to raise \$10 billion in its first overseas bond sale by October. The decision to resort to this route for raising capital was announced in the Budget earlier this month. There are both pros and cons of using this route to raise capital. The biggest benefit of such bonds is that interest rates in international markets are much lower than domestic markets. Such borrowing also does not lead to the government crowding out the private sector from a finite, and decelerating, pool of domestic savings. The biggest risk is that such borrowings have an in-built unpredictability because of foreign exchange move-

ments. Because the debt has to be repaid in foreign currency out of domestic resources, a depreciation in the Indian rupee vis-à-vis the currency in which the debt is denominated can lead to a spike in domestic debt burden.

It is because of these downside risks that a wide gamut of economists and policymakers, including three former governors of the Reserve Bank of India, has advised against this route to raise investible resources. Therefore, it is necessary that the government engages with these voices and tweaks its policy decision to allay their concerns. It is in our best interests to continue avoiding riskier forms of engagement with the global economy.

Hindustan Times, July 26

### A flawed approach

Andhra Pradesh's divisive precedent

He vowed to bring such a law during his padyatra as an Opposition leader, and now that he is the Andhra Pradesh Chief Minister, YS Jagan Mohan Reddy's government is set to make it mandatory for existing and upcoming industries in the state to ensure 75 per cent jobs for local candidates within three years. In case no suitable candidates are available, employers will have to train and engage locals within three years in collaboration with government agencies. The first-time CM cannot be faulted for his intent — ensuring jobs for the large unemployed workforce, particularly in the rural belt, and living up to his promise. Reservation and imposing such constricting restrictions in an already circumspect

industrial climate, however, can only impede growth, not generate jobs. It is an embarrassing truth for generous state governments that big-ticket projects which are projected as life-altering for locals, whose land is often acquired, only end up providing numbered low-income jobs.

The erroneous economics apart, the divisive concept encourages inter-state, inter-community, inter-racial tensions, discourages merit, and challenges the “one nation” constitutional right. Jobs are at the centre of the debate; state governments have little to offer on their own, so nudge private players, form pragmatic partnerships. Don't bring the system down.

The Tribune, July 26



# Opinion

SUNDAY, JULY 28, 2019

IT TAKES A lot of courage to speak in a House of Parliament where the Opposition benches are empty. That is precisely what the Finance Minister, Ms Nirmala Sitharaman, did on July 23, 2019, in the Rajya Sabha! She piloted her maiden Finance Bill, the Rajya Sabha (minus the Opposition) ‘considered and returned’ the Bill, and all is well with the Indian economy. Congratulations, Finance Minister!

Like there were serious questions about the Budget, there are serious questions about the Finance Bill.

## Brazen Violation

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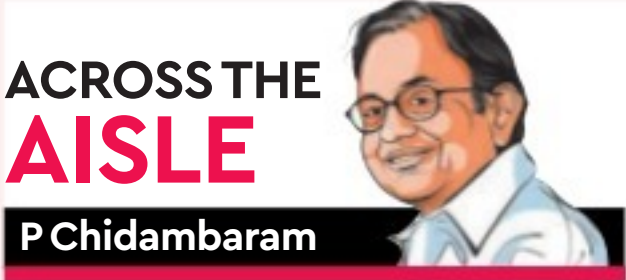
## From Trot to Gallop!

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How does the government propose to achieve these high revenue targets? Especially when the IMF, ADB and RBI have reduced their estimate of India’s GDP growth rate to 7% and that of the world’s growth rate to 3.2%. Every economist who has knowledge of the Indian economy (the latest is Dr Kaushik Basu) has warned of a further slowing down — that is a continuation of the trend witnessed in the four quarters of 2018-19 (8, 7, 6.6 and 5.8%). How does the government expect that revenue collections will gallop to high double-digit rates after the single-digit trot of 2018-19?

I suspect that the government will squeeze the present taxpayers. The government has already conferred extraor-



ACROSS THE AISLE  
P Chidambaram

# Unconstitutional and unrealistic



Finance minister Nirmala Sitharaman

dinary powers upon income tax, GST and other tax officers. There will be more notices, more summons for personal appearance, more arrests, more prosecutions, more penalty orders, more harsh assessment orders, more summary dismissals of appeals — in short, there will be more harassment of the taxpayer.

## Denying States’ Share

*Thirdly*, are the states getting their share of the taxes? The Fourteenth Finance Commission (FFC) awarded 42% of gross tax revenue (GTR) of the Central government to the states. The FFC report was accepted. The share of 42% became a constitutional right of the states and a constitutional obligation of the Central government. The FFC Award is applicable

during the period 2015-16 to 2019-20. Despite the award, what was actually devolved upon the states was much less, as can be seen from the table below:

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they do not have to be shared with the states. That is one whammy.

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INSIDE TRACK  
COOMI KAPOOR

## ‘Congress’ heads BJP

An embarrassing secret from his past for the BJP’s new Uttar Pradesh chief, Swatantra Dev Singh, is that his parents had actually named him Congress Singh. The first name ‘Congress’ was hastily changed once Singh joined the BJP. If it is a bit confusing that the former ‘Congress Singh’ now heads the BJP in UP, it is also true that descendants of most of the old Congress families in the state are now in the BJP. Late prime minister Lal Bahadur Shastri’s grandson, Sidharth Nath Singh, is a minister in the Yogi Adityanath Cabinet. Former UP chief minister Hemwati Nandan Bahuguna’s daughter, Rita Bahuguna Joshi, is a BJP MP. The grandson of two Congress stalwarts, Rajendra Kumari Bajpai and Shyama Charan Shukla, Harsh Vardhan Bajpai, is the BJP MLA from Prayagraj; and former UP CM Vir Bahadur Singh’s son, Fateh Bahadur Singh, is a BJP MLA and a favourite of Adityanath.

## A Haryana tradition

The Congress high command has put everything on hold including Bhupinder Singh Hooda’s pressing demand that Ashok Tanwar be removed as Haryana PCC chief. The party keeps Hooda dangling at its peril. Hooda and his son Deepender still command considerable loyalty in their constituencies of Sonapat and Rohtak. Deepender, in fact, won in the count from the EVM machines by 1,900 votes in Rohtak and lost the seat narrowly only because of the postal ballots, which were largely from those in the services. As CM, Hooda’s word was law in Haryana affairs because of his proximity to Robert Vadra. But the Gandhis have turned cool, believing he got their son-in-law into trouble with land deals. But if Hooda is not mollified, he could walk out and form his own regional party. This is an old Haryana tradition followed by former chief ministers Bansilal, Bhajan Lal, Rao Birendra Singh and Devi Lal, among others.

## Rajiv memorial row

Shortly after Rajiv Gandhi’s tragic death, the Gandhi family had a huge row with then prime minister Chandra Shekhar over the location of his memorial. Chandra Shekhar suggested that the proposed memorial be within Shakti Sthal, Indira Gandhi’s samadhi. However, Sonia wanted Rajiv’s commemoration site to be separate from his mother’s since Rajiv was a leader in his own right and should not be remembered merely as Indira’s son. But Chandra Shekhar was adamant that he would not permit a plot to be cut out from Lal

Bahadur Shastri’s samadhi and pointed out that he had earlier turned down Ajit Singh’s request for space for Charan Singh’s memorial at the rather neglected Shastri samadhi site. The incident is mentioned in the just released biography of Chandra Shekhar, co-authored by his reverential disciple, Harivansh, now Deputy Chairman of the Rajya Sabha.

## Speaking his mind

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## No name-calling

After his defeat in Patna by Law Minister Ravi Shankar Prasad, Shatrughan Sinha did not show his face in Delhi till earlier this month, when fellow BJP rebel Yashwant Sinha’s book was released. In fact, after the parliamentary poll results, Sinha did not wish his rival in person but simply tweeted his congratulations, describing Modi as a friend, Prasad as a family friend and Amit Shah as a master strategist. Incidentally, though rivals, neither Sinha nor Prasad mentioned each other’s names during the Patna campaign. For Prasad, it was his first Lok Sabha contest and he and his wife Maya were on the move from 6 am. A two-time Lok Sabha MP, Sinha only left Maurya Hotel, where he was camping, for the campaign trail past noon, after his lunch.

# No more tears

## Ireland’s golf prodigy Shane Lowry delivers a magnificent comeback win at The Open

## OVER THE TOP

Meraj Shah



“A CALM DAY for Portrush,” intoned the weatherman on the radio after predicting gusts of 15 to 25 miles per hour and moderate rain on Sunday last week. As the final round of the Open Championship got underway, veteran Scottish golfer, Sam Torrance, sitting in the commentary box at the Royal Portrush Golf Club, keenly observed the dark clouds moving in from the North Atlantic, and chuckled wryly. “Either the forecaster doesn’t play golf, or he’s a member (of Royal Portrush Golf Club).” The conditions, that would qualify as inclement in pretty much any part of the world except Ireland, (and perhaps Scotland), typified the British Open’s moniker of ‘the true test of golf’ — a claim that buttresses the logic of why the oldest championship in golf is definitively referred to as ‘The Open Championship.’ Links golf, where it’s been played along the coast for centuries, is all about man versus the elements, and therefore, man, against his own

follies and strengths.

The Dunluce Links at Royal Portrush provided the heady mix of tradition and history that the Open Championship is steeped in. A course that has never been outside the Top 100 courses of the world ever since rankings began, and which has been stymying golfers for close to 150 years continues to rely, unlike modern layouts, on unpredictable weather conditions, rather than mere length, to challenge players. Sidelined as a venue for the Open on account of volatile political conditions and social unrest in Northern Ireland since 1951, Royal Portrush is part of the milieu where some of the world’s finest golfers cut their teeth in the game. These include major winners Darren Clarke, Rory McIlroy, Graeme McDowell, and now, as the entire world knows — Shane Lowry.

Even before Lowry’s magnificent performance to win the Open last week, the Ulsterman had signalled a return to form by winning the HSBC Abu Dhabi Championship on the European Tour in January this year. It was only his second victory on the continental tour ever since he turned pro and came five long years after he won the Portugal Masters in 2012. Not that he was winless throughout — in 2015 he won



Golfer Shane Lowry, a prodigy who stunned the golfing world when he won the Irish Open as a 20-year-old amateur in 2007

the WGC Bridgestone Invitational on the PGA Tour. It hasn’t been a groundbreaking career, but certainly a successful one. Why then, you’ll ask, was Shane Lowry dubbed an underachiever until the win last week? Ask any Irish golf fan and he’ll tell you: Lowry is no ordinary golfer. A prodigy, a boy who stunned the golfing world when he won the Irish Open as a 20-year-old amateur in 2007, and was expected, to achieve great things when he turned pro.

While the friend he grew up playing with — McIlroy — would go on to deliver on that promise, Lowry’s fortunes never quite lived up to the hype.

In 2018 at Carnoustie, Lowry missed his third consecutive cut at the Open Championship. He spoke at the press conference last week about how he went to his car and wept. The slide had begun since he lost his nerve at the US Open in 2016. Leading by four strokes going into the final

round at Oakmont, Lowry crashed to a six over and finished way down the leaderboard. At Portrush last week, he remarked to his caddy after the end of the third round after seeing yet another four-shot lead, “...at least I won’t have to answer any questions about Oakmont, I’m four ahead going into the final round of a major.” In a sense the wry remark was typical of someone who’s been beaten down by golf. Not that Lowry need to be humbled — a dyed-in-the-wool traditionalist, and polite to a fault, Lowry has no airs about him. Playing with Phil Mickelson in the opening two rounds, Lowry reportedly told the American, “My game hasn’t really been where it should be for some time now. And it’s been an honour to play with you today.” You just don’t get that sort of niceness in pro golf anymore.

Lowry is different in other ways too: most players give practised responses to standard queries in the press room. Not Lowry: asked at the end of the third round about what he’s going to be thinking about that night, Lowry didn’t repeat any platitudes about ‘staying in the moment.’ “Obviously I’ll go to bed thinking about holding the Claret Jug,” he said. “It’s only natural, isn’t it?” There’s no point in saying ‘I’ll go out and enjoy myself tomorrow because it’s going to be a very stressful and very difficult day. So I’m going to take the bad shots on the chin and I’m going to take the good shots and try to capitalise. I’m just going to be myself and play my game and see where it leaves me.”


As it turned out, acknowledging those nerves helped Lowry overcome them. He started shakily but grew in confidence as the day wore on; the shot of the day came when he stiffed his 4-iron pin high on ‘Calamity’ — the dreaded par-3 16th hole at Royal Portrush. At the end the man waltzed to victory with one of the biggest margins ever recorded in Open history — five strokes.

For those not aware of Ireland’s golfing tradition, the very vocal gallery that swelled to a quarter of million people, came as a bit of a surprise. Golf is an all-Ireland sport, much like rugby and Irish Football — that means it’s played on a national scale, with school, university and county teams competing regularly against each other with their legions of supporters. That’s why it looked like all of Ulster landed up on Portrush last Sunday — umbrellas, rain capes and all. And they found their hero all right. For an Ulsterman to win at home is beyond a dream come true. But this time, unlike the time he lost at Oakmont, Lowry had less ambition and more equanimity. “...I felt at the time in Oakmont my golf just meant a lot more to me back then than it does now. I’m not saying that it doesn’t mean everything. It’s my career. But I’ve got certain things in my life that make it different. I’ve got family now. No matter what I shoot, tomorrow my family will be waiting for me.”

*A golfer, Meraj Shah also writes about the game*



ACROSS THE AISLE



P CHIDAMBARAM

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COOMI KAPOOR

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OUT OF MY MIND



MEGHNAD DESAI

CHANDRAYAAN 2 has been launched and with that, India joins the small select club of nations which have major space missions on their CV. It is much more important than even the nuclear capability. It shows that India is able to meet the high standards of space technology.

How has India done this? Gandhiji was against modern machinery, modern medicine and the whole Western civilisation as he explained at length in his first major

Why Budhni matters

GAINED IN TRANSLATION



SARAH JOSEPH

സാറാ ജോസഫ്

IN 2015, an extraordinary seminar was conducted in Chalakudy under the aegis of the River Protection Forum. It was a seminar to discuss the impact of the proposed hydroelectric project at Athirappilly.

At the seminar, I heard about Budhni for the first time from poet and political activist Civic Chandran, who had written a poem on the same. He asked me if I could elaborate it into a story. It was a theme that touched me deeply. It stayed in my mind for long. Chandran found the story of Budhni in an article, 'Recovering Budhni Mejhan from the silted landscapes of modern India', by Chitra Padmanabhan, published in *The Hindu* on June 2, 2012. I read the article several times and went through a lot of studies related to it.

Crores of people have been uprooted from their soil for mega development projects before and after Independence. It was a disturbing thought that their stories had gone unrecorded. According to data with the United Nations Commissioner for Refugees, people have been displaced for development projects on a large scale in India. Since 1947, 60-65 million people have been uprooted, including 40 per cent tribals, and 40 per cent Dalits and marginal farmers, and activist Medha Patkar had sought UN intervention.

On December 6, 1959, then Prime Minister Jawaharlal Nehru had gone to inaugurate the Panchet dam across the Damodar river. A girl chosen by the Damodar Valley Corporation (DVC) welcomed the PM with a garland and *tikka* on his forehead. The 15-year-old girl was ostracised by villagers later, citing violation of Santal tribal traditions. She was expelled from the village. Budhni was her name.

Nehru had made the labourer girl who used to carry bricks and mud for the construction of the Panchet dam inaugurate the dam. But after the photo session, she had ceased to be a story for newspapers. DVC also dismissed her from her job,

SPEAKING HIS MIND

During the discussions before the trust vote in the Karnataka Assembly, someone mentioned that former CM HD Kumaraswamy was seen eating biryani at a particular spot. Kumaraswamy countered that this was impossible since he had turned vegetarian a few years ago, to which Speaker K R Ramesh Kumar responded that in his case it worked the opposite way — that he started out as a vegetarian and ended up eating non-vegetarian food. The Speaker, who took his own time about holding the confidence vote and is still to decide on action against all the rebel MLAs, is not a man to be cowed down and has a history of being independent-minded. He started his political career as a Congress corporator and MP. But he left Indira Gandhi and joined Devaraj Urs in 1979. Later, he aligned with S Bangarappa, before shifting loyalties to Ramakrishna Hegde of the Janata Party. In 1985, he was chosen as the Assembly Speaker by the Janata Party. In 1998, Ramesh returned to the Congress, mentored by S M Krishna. When the Congress and JD(S) came together to form a government in 2018, Ramesh was the obvious choice as Speaker, particularly as none from the JD(S) qualified for the post.

NO NAME-CALLING

After his defeat in Patna by Law Minister Ravi Shankar Prasad, Shatrughan Sinha did not show his face in Delhi till earlier this month, when fellow BJP rebel Yashwant Sinha's book was released. In fact, after the parliamentary poll results, Sinha did not wish his rival in person but simply tweeted his congratulations, describing Modi as a friend, Prasad as a family friend and Amit Shah as a master strategist. Incidentally, though rivals, neither Sinha nor Prasad mentioned each other's names during the Patna campaign. For Prasad, it was his first Lok Sabha contest and he and his wife Maya were on the move from 6 am. A two-time Lok Sabha MP, Sinha only left Maurya Hotel, where he was camping, for the campaign trail past noon, after his lunch.

perhaps because of the talk among villagers that she was "Nehru's wife"!" How she lived her life after the incident wasn't anyone's concern.

Budhni started taking shape in my mind as a symbol of crores and crores of people who have been drowned in memory during nation-building, mega projects, including dams, and companies such as DVC and Bharat Coking Coal Limited.

Even now, people in 11 villages on the eastern borders of Jharkhand are fighting against the acquisition of their fertile land for construction of a thermal power plant by the Adanis. The realisation that the story of Budhni is also the story of uprooted people is what motivated me to write a novel on her. Her story should not have gone unwritten. I had to develop it into a story of the Santal tribe as well — a population that lives peacefully in areas that are fertile and rich in resources, without exploiting them.

In her article, Padmanabhan mentioned her attempts to meet Budhni. "All this while, I had debated the merits of meeting Budhni. Last week, through a friend's friend in Ranchi I got news that Budhni died last year, disconsolate to the end. She was in her late 60s," she writes.

In the third week of November 2018, I reached Jharkhand. It was a pilgrimage through the memories of Budhni, who I believed was dead. Also to meet people related to her and gather all available information on her.

I felt Budhni had to be revived from the criminal forgetfulness of the country; she wasn't just a mud block that was broken during the great nation-building process. I felt that she should rise again in the nation's memory along with hundreds of villages, vast farmlands, forests and temple complexes that were drowned in the Panchet reservoir.

Budhni is a novel based on a news article. It is not her life story or a historical novel. I started writing it as a story of Budhni who was dead. While writing it, I took utmost care on how to blend history with fiction, and how to merge news and fiction. The life Budhni lives in my novel may not be the life of the original Budhni. Original Budhni's life wasn't what my character called for. That I left to imagination and possibilities. My assessment is that imaginative power will help make historical facts truthful.

In the course of researching the novel, I discovered that Budhni, now in her 70s, was alive. It was purely coincidental that I got to meet her as well. I could experience the same wonder and happiness I felt all through the writing of this novel.

Sarah Joseph is a renowned Malayalam fiction writer. Budhni will be published in September.

Translated from Malayalam by Yamini Nair

ILLUSTRATION: SUVAJIT DEY



Moon Struck, and more of it

book, *Hind Swaraj*. Left to him, India would never have industrialised. It was the younger generation of Nehru, Ambedkar and Savarkar who wanted to westernise and modernise India. Subhas Chandra Bose was of the same view.

Nehru wanted to industrialise India but without the help of private business. As he said to J R D Tata, he thought profit was a dirty word. Business people were shunned. The government took the view that profits of private business were due to monopoly and restrictive practices. In Japan and South Korea, business and government were partners to make the country prosperous. It was a very costly ideological stance which kept India poor for longer than necessary.

The exception was in science and technology. It was the genius of Vikram Sarabhai which launched India on the fast track, which has brought us Chandrayaan.

Sarabhai came, of course, from one of the top industrialist families. Amba Lal Sarabhai and his sister Anasuya had been captivated by Gandhiji. Vikram was not an industrialist but a scientist. He saw that India could leapfrog by using the latest technology of television and of space rocketry.

It was a lucky break for India that Nehru listened to Sarabhai. People complained that when Indians lacked basic amenities, why were we going for space? Such a utilitarian argument may seem attractive but it is false. A country has to take the untrodden path if it is to reach the top.

India escaped from the tyranny of government-controlled telephones and TV only thanks to the leap into open economy, privatisation of telephony via mobile telephones and private TV channels. It was a combination of enlightened public policy, private entrepreneurship of Indians and foreign capital investing in India which cracked the ceiling.

If India leads in financial transactions technology, in online payments system, in e-commerce, it is no thanks to any Planning Commission.

There used to be constant fear of the return of the East India Company and a virulent xenophobia. Now India is a major capital exporter to the UK and Indian capital is the largest employer of British manufacturing workers. That is because

the UK does not have an antediluvian labour hiring and firing policy, as India adopted in the name of protecting workers' rights.

If India had the guts to modernise its labour laws and if the trade unions could be made aware that liberal labour laws will expand union membership rather than reduce it, we may make the final leap towards a \$15 trillion economy by 2030.

India requires 10% per annum growth of industrial output if this ambition is to be realised. Narendra Modi has to offer the bold leaders needed to take India out of the low-lying areas of industrial stagnation and aim for the heights.

A country which can become a leader in space flights can scale any heights.

FIFTH COLUMN



TAVLEEN SINGH

Bad tidings from Mumbai

ASSOMEONE who has vivid memories of our bleak socialist decades, alarm bells start going off in my head when I see the smallest signs of socialism. They have been going off loudly since the Budget because a pall of despair has descended over Mumbai. It is as if businessmen, big and small, have given up all hope of India ever becoming a country in which they will be able to do business without some regulator, inspector or corrupt official breathing down their necks.

Things have been bad for a while. This is why, according to the Global Wealth Migration Review, 5,000 Indian millionaires fled the country last year. But, there was hope that with the massive mandate that Narendra Modi has just won he would come up with a Budget that would revive private investment. It has been dangerously stagnant for so long that the Economic Survey for 2018-19 said that reviving private investment was critical. The Finance Minister said she wanted 'animal spirits' to return, but how can this happen with corporate taxes going up to more than 40 per cent? When the Finance Minister says proudly that high taxes will affect less than 5,000 rich Indians, the signal she sends is that rich Indians deserve to be penalised.

She seems to have forgotten that it was this handful of rich Indians who transformed India from an economic backwater into a country that now dares to dream of becoming an economic superpower. It was this handful of rich Indians who created world-class airlines, hotels, hospitals, schools, airports and consumer goods. Remember for a minute what socialist India was like. Remember a time when the only domestic airline was so badly run that we used to joke about how Indian Airlines had more employees than passengers. Remember a time when Doordarshan was the only TV channel, when the only jobs available were in government offices, when airports looked like tin sheds, when hotels reeked of shabby service, when everything in India was second rate.

Having been part of the 'Khan Market gang' since my childhood, I remember well what it looked like in socialist times. It consisted of a handful of scruffy shops that sold such shoddy goods that 'Made in India' became a guarantee of poor quality. It was only after P V Narasimha Rao ended the licence raj that things began to change. Today Khan Market has shops that sell Indian goods of such high quality that my foreign friends come to India to shop. Personally, I cannot remember when I last felt the need to buy something that was not Made in India.

All this could change if the Prime Minister does not discover soon that 'black money' is not India's biggest economic problem. This obsession with black money has brought back an inspector raj that is like a blight. Instead, what he should do is set up a task force in the Finance Ministry to investigate why black money exists in the first place. He might discover that it is one of the legacies of socialism. In socialist countries, taxes are usually so high and unreasonable that even salaried middle-class people are forced to evade them.

To return, though, to those 5,000 Indians that will now be paying crippling taxes, may I stress once more that it is because of them that some things in India changed from second-rate to world-class. It is they who create most of India's wealth, and if they stop being able to do this, where will the Prime Minister find the money to finance the welfare schemes that persuaded voters to give him this huge mandate? Where will he find the money to make our cities look like real cities instead of slums? It is not his fault that they look so bad. It is not his fault that national highways collapse when the rains come. It is not his fault that socialism kept millions of Indians mired in hideous poverty for such a long time. What is his fault is that he has not done enough to change course.

In the speech he made in Varanasi after the Budget, he warned people not to be misinformed by those who went about spreading despair. I do not count myself among them, but cannot emphasise enough that the pall of despair I detect in Mumbai is real. Since the Budget, I have had conversations with a whole range of people, from small shopkeepers to big businessmen, and have not met a single person who said confidently that the future looks bright and hopeful. Most said that what worried them was that the Budget that the Finance Minister brought to Parliament in that bright red bag, old-fashioned, Indian-style, indicated to them a return to old-fashioned, Indian-style socialist policies. This is what set alarm bells ringing in my head.

Follow Tavleen Singh on Twitter  
@tavleen\_singh





## What will the move to Bharat Stage VI mass emission standards for various classes of motor vehicles by April 2020 entail?

**The story so far:** The Union Government, through an order dated September 16, 2016, mandated Bharat Stage VI (BS-VI) mass emission standards for various classes of motor vehicles throughout the country from April 1, 2020, leapfrogging BS-V. While this will lead to better air quality in the short term, it also means higher vehicle prices and costs. For the automobile industry, this has meant accelerated development of all related technologies and components and big investments.

BS-VI confers several benefits, the most important of which is limits set on Particle Number (PN) for engines, a reference to direct injection engines that emit more particulates but are more efficient and release less carbon dioxide. Also, there are lower limits for hydrocarbons (HC) and nitrogen oxides (NOx) in diesel engines and lower Particulate Matter limits for both petrol and diesel engines.

auto industry may opt to absorb some costs and

As per June 2019 sales data released by SIAM, automobile companies sold 16.28% fewer passenger vehicles compared to June 2018. There was a 23.39% drop in the sale of commercial vehicles in the same period. Two-wheeler sales dipped by 11.70%.

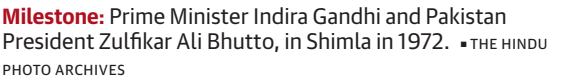
As of January 1 this year, there were 57,468 retail fuel outlets of the oil marketing companies across the country. Although BS-VI fuel was introduced in the national capital last year, and extended to some contiguous districts in neighbouring States, the release of the higher grade fuel in all the pumps in the country has to be simultaneous. The auto industry wants it done by February. The cost of upgrading refineries to produce the higher-quality fuel is estimated at between ₹25,000 crore and ₹30,000 crore.

What are the historical reasons why third party mediation is avoided by the government? Will the status quo on India's Kashmir policy remain?

**The story so far:** On Monday, U.S. President Donald Trump claimed that Prime Minister Narendra Modi had sought mediation in Kashmir when they met during the G-20 summit in Osaka. In Parliament, External Affairs Minister S. Jaishankar categorically said that Mr. Modi did not request Mr. Trump to “mediate or arbitrate” on the Kashmir issue. He said India remains committed to discussing all issues with Pakistan bilaterally.

In fact, until Mr. Trump dropped a bombshell during his joint press appearance with Pakistan Prime Minister Imran Khan on Monday, where he claimed that Mr. Modi had asked him to “mediate or arbitrate” on Kashmir, no U.S. leader has publicly crossed that line in 25 years. Responding to a swift and angry denial from the Ministry of External Affairs, the U.S. State Department seemed to backtrack from the allegation by saying that Kashmir remains a “bilateral issue”, but maintained that the U.S. “stands ready to assist” any India-Pakistan talks.

India's firm position against mediation on Kashmir or any other issue stems from several reasons, most notably a historical suspicion, since the 1950s and 1960s, as mediated talks by the United Nations and World Bank, the United States, the United Kingdom and Russia have been unsuccessful in resolving the issues between India and Pakistan. At best, the attempts have worked for diffusing tensions, or calling off hostilities at the Line of Control and the International Border, but not in terms of their rival claims over Jammu and Kashmir. Another reason is that India sees itself as a regional leader, and does not require any assistance in sorting out its issues with other regional countries. In addition, the widespread belief is that mediation favours the weaker party by levelling the playing field, and with its stronger



conventional and non-conventional military prowess, India has seen no significant gain from bringing a third-party into its 70-year-old conflict with Pakistan.

Kashmir region, followed

plebiscite would never be accepted. Where the UNCIP was successful was

in mediating a ceasefire in 1949, and negotiating the geographical location of the cease-fire line which would be monitored by the United Nations Military Observer Group In India and Pakistan (UNMOGIP). Individual U.N. representatives continued to visit both sides from 1949 to 1953 but failed to improve the atmosphere for a resolution, or to convince either side to demilitarise the two sides of the LoC. The first United Nations Representative for India and Pakistan (UNRIP) appointed to mediate the dispute was Sir Owen Dixon, an Australian jurist, who was followed by Frank Graham, an American diplomat, who gave up after his proposal was rejected by

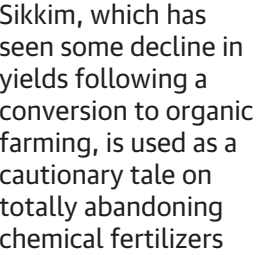
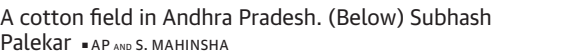
Will this form of chemical-free agriculture increase farmers' incomes? Where are the pitfalls?

**The story so far:** Finance Minister Nirmala Sitharaman thrust zero budget farming into the spotlight in the first Budget speech of the 17th Lok Sabha earlier this month, calling for a “back to the basics” approach. She said, “We need to replicate this innovative model through which in a few States, farmers are already being trained in this practice. Steps such as this can help in doubling our farmers’ income in time for our 75th year of Independence.” Several States, including Andhra Pradesh and Himachal Pradesh, have been aggressively driving a shift towards this model.

It was originally promoted by Maharashtra's agriculturalist and Padma Shri recipient Subhash Palekar, who developed it in the mid-1990s as an alternative to the Green Revolution's methods driven by chemical fertilizers and pesticides and intensive irrigation. He argued that the rising cost of these external inputs was a leading cause of indebtedness and suicide among farmers, while the impact of chemicals on the environment and on long-term fertility was devastating. Without the need to spend money on these inputs – or take loans to buy them – the cost of production could be reduced and farming made into a “zero budget” exercise, breaking the debt cycle for many small farmers.

The ZBNF method also promotes soil aeration, minimizes watering, intercropping, bunds and topsoil mulching and discourages intensive irrigation and deep ploughing. Mr. Palekar is against vermicomposting, which is the mainstay of typical organic farming, as it introduces the most common composting worm, the European red wiggler (*Eisenia fetida*) to Indian soils. He claims these worms absorb toxic metals and poison groundwater and soil.

According to National Sample Survey Office (NSSO) data, almost 70% of agricultural households spend more than they earn and more than half of all farmers are in debt. In States such as Andhra Pradesh and Telangana, levels of indebtedness are around 90%, where each household



The Economic Survey has also highlighted the ecological advantages.

ZBNF critics, including some experts within the Central Board of Directors, policy and planning think tank NITI Aayog, note that India needed the Green Revolution in order to become self-sufficient and ensure food security. They warn against a wholesale move away from that model without sufficient proof that yields will not be affected. Sikkim, which has seen some decline in yields following a conversion to organic farming, is used as a cautionary tale regarding the pitfalls of abandoning chemical fertilizers.

According to the Economic Survey, more than 1.6 lakh farmers are practising the ZBNF in almost 1,000 villages using some form of state support, although the method's

On November 21, 1962, the day the war ended, a team of 24 American negotiators headed to India, led by U.S. Assistant Secretary of State Averell Harriman. They worked, along with U.S. Ambassador John Kenneth Galbraith and British High Commissioner Paul Gore-Booth to bring India to the table for six rounds of talks between Foreign Minister Swaran Singh and Pakistan Foreign Minister Zulfikar Ali Bhutto. Eventually, however as India regained its confidence, the talks floundered, and ended in 1963 after Nehru made it clear that India would never give up the Kashmir Valley.

In February 1999, the Lahore declaration signed by Nawaz Sharif and Atal Behari Vajpayee also affirmed the bilateral nature of issues and their resolution. Thus, even when Mr. Trump spoke this week, India's response, in Parliament, was to invoke the Shimla Agreement and the Lahore Declaration saying that they "provide the basis to resolve all issues between India and Pakistan bilaterally". These bilateral efforts are at an end at present, and little has moved since the last negotiations on Kashmir in 2003-2008, when Indian and Pakistani negotiators discussed the four-step formula.

India has maintained its opposition to third-party mediation, however, and despite offers from several leaders including South African President Nelson Mandela, UN Chief António Guterres, and more recently, the Norwegian Prime Minister, Erna Solberg, has said, “thanks, but no thanks”.

Himachal Pradesh, Chhattisgarh, Kerala, Karnataka and Uttarakhand have also invited Mr. Palekar to train their farmers.

However, this is only a fraction of the spending on Central government subsidies for fertilizers, pesticides and mass irrigation that has driven the Green Revolution model.

If found to be successful, an enabling institutional mechanism could be set up to promote the technology, NITI Aayog vice-chairman Rajiv Kumar has said. The Andhra Pradesh experience is also being monitored closely to judge the need for further public funding support.



CAPSULE



**Origin of photosynthesis**  
Imperial College London researchers, studying *Helio bacterium modesticaldum* – an ancient bacterium – have found structures in it that suggest photosynthesis may have evolved a billion years earlier than is presently believed, and oxygenic photosynthesis need not have evolved from anoxygenic photosynthesis.



**Love hormone**  
Oxytocin is believed to regulate maternal behaviour. Now, a study in *PLOS ONE* finds a group of cells activated by oxytocin present in one area in female mice but not in the same area in males. Activation of the receptors correlates with estrogen presence, implying the cells can induce maternal behaviour. The finding has potential for treating postpartum depression.



**Fountain of youth**  
Senescent cells are the opposite of stem cells: they can never divide again. New research finds that ageing, senescent cells stop producing nucleotides, the building block of DNA. When young cells were prevented from producing nucleotides, the cells became senescent. The findings have potential to help with ageing and related diseases.

# Reversible superglue inspired by snail epiphragm

Snails secrete a mucous film which dries to forms a glassy structure that fixes them to the substrate

SHUBASHREE DESIKAN

A hydrogel-based adhesive that combines strength and reversibility has been developed by a collaboration of researchers based in the U.S. and Korea. This combination is not easily found in adhesives. The group has drawn inspiration from snails in developing this adhesive.

Snail mucous

When snails are startled or encounter discomfort, they shrink into their shells. They secrete a mucous film around the opening of their shell, which on drying forms a glassy structure that both seals them in and fixes them strongly to the object they are sitting on. This structure formed by the dry mucous is called an epiphragm.

The strength of this epiphragm stems from the fact that before it dries it penetrates into the microscopic crevices on the surface the

# IIT Madras: Breath humidity sensors for wearable electronics

It detects ethanol, acetone in oral breath of alcoholics, diabetics, respectively

R. PRASAD

A nanofibre sensor capable of sensing minute variations in relative humidity levels in the exhaled breath has been fabricated by a team led by T. Pradeep from the Department of Chemistry at the Indian Institute of Technology (IIT) Madras. The highly sensitive sensors can be integrated into wearable electronics and might have applications in assessing human metabolism and calorie burn rates.

The sensor can also detect traces of ethanol and acetone, two major components present in the oral breath of alcoholics and diabetics, respectively.

Quick response time

The sensors have very quick response time of about one second and can detect a range of relative humidity from 0-95%. The sensor was found to have high stability. “Even after exposing the sensor to ambient conditions for a week, we still found the response time to be about one second and could match the breathing rates quite effectively,” says Sathvik Ajay Iyengar who was a short-term student with Prof. Pradeep’s team and is one of the first authors of a paper published in the journal *ACS Applied Electronic Materials*.

The breath rate was measured for one-two hours prior to and after exercise. The heart rate is higher soon after exercise and this is reflected in higher breath rate. “We intend collecting breath rate over a period of few days to establish the relationship between heart and breath rate and metabolism,” says Pillalamarri Sri-



**Portable:** The nanofibre sensor can be easily integrated to the base of wearables such as common place masks, say (from right) Pradeep, Pillalamarri Srikrishnarka and Sathvik Ajay.

krishnarka from IIT Madras, the other first author of the paper.

The nanofibre mat is fabricated by electrospinning poly(vinylidene fluoride) and reduced graphene oxide. Coating the mat with polyaniline turns the mat into a sensor.

The moisture in the breath reduces the resistance of the sensing material thereby allowing more current to flow. So when a fixed voltage (1-2 volts) is applied to the sensor, there is more current that is detected when the sensor comes in contact with moisture in the breath.

“In the presence of humidity, 100-1000 times more current can be detected using our sensor compared with other sensors,” says Iyengar. “So when the current measured is in nanoampere range when other sensors are used, we were able to measure it at microampere range using our sensor.”

When there are traces of

ethanol and acetone in the breath, the resistance of the sensor increases and conductivity reduces. Hence, there is a dip in the current measured from the baseline. “The reduction in conductivity is because of the absence of moisture – the hydrogen bond between the sensor and analyte [ethanol and acetone] is less likely to form,” says Srikrishnarka.

“Polyaniline is the major contributor of current conduction, and reduced graphene oxide complements it. The combination of polyaniline coating and reduced graphene oxide allows higher current conduction,” says Srikrishnarka. “In the absence of reduced graphene oxide, polyaniline can still conduct current but at a significantly lower level. The reduced graphene oxide alone does not help conduct current.”

“The coating of the mat with polyaniline occurs in water and so can be scaled up to get large-scale coat-

ings. This process also makes it easier, quicker and relatively more eco-friendly than other commercial processes,” says Prof. Pradeep. The nanofibre mat obtained is very thin and offers breathability. In order to integrate sensors like this into wearable electronics to monitor breath, resistance-free air flow is the key.

Portable sensor

To make the sensor truly portable, the researchers are using the popular Arduino prototyping platform coupled with Bluetooth module for collecting data wirelessly.

“We initially tested the sensor performance using an Arduino Uno and we observed a good response. We intend to team up with other departments to recognise patterns by using machine learning and to develop mobile-friendly apps to monitor health,” says Prof. Pradeep. The team plans to take the work forward via startup initiatives.

# Predicting pollution levels using oceans’ memory

Patterns like El Nino can help predict weather conditions and pollution, nearly a season in advance

ASWATHI PACHA

Researchers from China and the U.S. have been successful in predicting air pollution levels in northern Indian States. The model they have developed shows 75% accuracy in predicting pollution levels, and the prediction can be done even a season in advance. The model takes into account certain climatic patterns related to the ocean which have a regulatory effect on the wintertime air pollution over northern India. Studying these patterns can help predict pollution levels.

India has been emerging as one of the world’s most polluted countries, with particulate matter PM 2.5 levels spiking more than 999 microgram per cubic metre in parts of Delhi last year.

Studying a combination of El Nino, Antarctic Oscillation and the anomalies in sea surface temperature during autumn (September-November), can help forecast the pollution conditions in winter (December-February).

The statistical model developed by the team can also help the government in adjusting policies and strategies for pollution control before winter comes, the paper published in *Science Advances* adds.

It is known that the aerosol over an area is modulated by meteorological conditions and circulation patterns. Stagnant weather conditions such as low wind speeds and descending air can favour rapid aerosol formation and accumulation. Understanding these climatic factors which influence the wintertime haze pollution can help foresee the future ventilation conditions too.

Also, the ocean data serves as a memory and large-scale climate patterns like El Nino can tell what the weather conditions and pollution will be, nearly a season in advance

The team constructed a computer model which incorporates the El Nino and Antarc-



**Winter haze:** The ocean data serves as a memory to foretell how the weather conditions and pollution will play out.

tic Oscillation data for autumn. Climatic data from the National Oceanic and Atmospheric Administration, U.S for the period 2003-2018 and the aerosol optical depth observed by various satellites were also used.

“It will help identify if the weather conditions will be favourable or unfavourable for pollution, helping the government frame a more stringent pollution control plan if needed,” explains Dr. Meng Gao, assistant professor at the Hong Kong Baptist University, China. He is the first author of the study.

The Antarctic Oscillation does not act directly to influence Indian climate but affects the Indian Ocean Meridional Dipole which in turn plays a role in our climatic conditions.

He added that there have been several studies in China connecting extreme pollution with East Asia winter monsoon, Arctic sea ice loss, the El Nino-Southern Oscillation, and Pacific sea surface temperature anomalies. The predictions from these studies have helped the government make the needed reforms, especially in its industrial sector, helping bring down pollution levels in the country.

# Bees use complex memory for communication

Waggle run correlates with distance from food site to hive

L.T. ILAVENIL

Bees use waggle dance to communicate with their nest mates the flight distance and direction to foraging sites. Now, a research team led by Axel Brockmann at the National Centre for Biological Sciences (NCBS), Bengaluru, has studied how bees use complex memory to generate dance duration to communicate a change in foraging distance.

Bees are known to waggle dance near the entrance of the hives. The duration of the waggle run of a dancing bee correlates with the distance between the food site and the hive. For instance, as the distance to the foraging site increases, the duration of waggle increases too.

The team used the honey bee species *Apis mellifera* for the study. “Most of the research on the brain and behaviour of bees around the world is done with the help of *A. mellifera* and therefore we could put our results into the context of all the research done previously,” says Dr. Brockmann.

Memory formation

To understand in detail memory formation in bees for waggle dance, the researchers trained a group of honey bees to forage food kept 300 metres away from the hive. When the food source was shifted to 400 metres, most of the bees took multiple trips to the new foraging site to update their dance. Till such time the bees formed the new memory, they displayed an intermediate dance duration indicating distances in between the new and old foraging locations.

“One must assume that the bees, when arriving at the new feeder site, know the distance between the feeder and the hive. If not, they will not be able to find the way back. The occurrence of intermediate dance durations indicates that the bees use memo-

ry of both distances when they update the dance information,” says Dr. Brockmann.

It was also noticed that the memory processes of bees responded differently depending on whether the foraging distance was extended or shortened from the original distance of 300 metres. When the feeder was shifted from the original distance of 300 metres to 200 metres and back to 300 metres, the bees were able to update the feeder distance following each shift and communicate the distance correctly through waggle dance.

In contrast, when the feeder was shifted from the original distance (300 metres) to 400 metres the bees were able to communicate the longer foraging distance. But when brought back to the original distance of 300 metres, it continued to exhibit the waggle duration for 400m.

“The foraging site at 400 metres was new to the bees unlike the one at 200 metres which the bees visited earlier during the training process. Therefore, when the feeder was first shifted to a novel site [400 metres] and then back to the original site [300 metres], honey bees did not update the waggle duration after the second shift. This is likely due to new memory interfering with the recall of an older one,” says Arumoy Chatterjee, a PhD student at the institute. He is the first author of the paper published in *Journal of Experimental Biology*.

“Previously, there was no easy way to dissociate the waggle dance activity of honey bee foragers from their foraging activity. Our experiments now provide us with the means to dissociate them, an essential first step towards understanding the mechanisms underlying the conversion of flight information to waggle dance information”, adds co-author Ebi George, another PhD student at the institute.

# IISER Mohali finds that zebrafish use landmarks for navigation

The presence of colourful landmarks, visible even in turbid conditions, plays an important role in improving foraging success

R. PRASAD

Low to extremely turbid water conditions are quite common in areas that humans inhabit. Under such conditions, it is a challenge for fish to forage food as they rely on vision to navigate and find food. Now, in a study carried out using zebrafish, researchers at the Indian Institute of Science Education and Research (IISER) Mohali have found hard evidence to support how turbidity negatively affects foraging efficiency and how they learn to cope with it. The study was done in collaboration with IISER Kolkata.

The team led by Dr. Manjari Jain from the Department



**Smart fish:** The zebrafish used visual cues and landmarks to navigate to foraging sites.

of Biological Sciences at IISER Mohali found that with acclimatisation to turbidity conditions zebrafish did overcome the challenges

posed by reduced visibility. The study found that acclimatisation to the immediate visual environment does play an important role in de-

termining success in foraging food. The results of the study were published in the journal *Biology Letters*.

Colourful landmarks

In addition to acclimatisation, the presence of colourful landmarks that are visible even in extremely turbid conditions plays an important role in improving foraging success. The study could conclusively show that zebrafish use visual cues to navigate to foraging sites especially when turbidity is high and visibility is low.

“The cornerstone of the study is the visual learning capability of zebrafish. We found the wild freshwater zebrafish (*Danio rerio*) are cap-

able of using familiar visual landmarks to find food locations even when vision is compromised,” says Dr. Jain.

“This is the first study to show the ability of zebrafish to use any landmark for navigation,” she says. The study highlights the important role of behavioural plasticity and spatial learning to cope with altered sensory environments, which in this case is increased turbidity of the water they live in.

Effect of turbidity

“Here we demonstrate the detrimental effect of turbidity on zebrafish with respect to foraging. Turbidity is likely to increase the metabolic cost associated with foraging

behaviour,” Dr. Jain stresses. “But what is unique is that within one month of acclimatisation they seem to deal with it. The foraging ability improves drastically. It highlights the importance of acclimatisation.”

If zebrafish do indeed learn to cope with turbidity and find food in a matter of one month, should the effect of turbidity on zebrafish matter at all? “Just because they are able to cope with turbidity in a month does not mean that chronic exposure to turbid water is not going to affect them. The resilience to survive in turbid water has not been studied,” she warns.

“If one of the sensory mo-

dalities is compromised in some species they are capable of switching over to another. But in the case of zebrafish we found they continue to use visual sensory to locate food,” Dr. Jain says.

For the study, the researchers collected 160 zebrafish from a clear stream near Kolkata. The fishes kept in tanks were fed fish pellets and *Artemia* (genus of aquatic crustaceans). They were trained for two weeks to navigate and locate food. After training fish to find food, 75 fishes were split into three groups and the different groups were acclimatised for a month in clear, low turbid and high turbid conditions. The low turbid condition

mimicked coastal water and high turbidity mimicked an estuary mouth.

Acclimatisation

The researchers found that one month of acclimatisation was sufficient for fishes to forage food even when the turbidity was high.

Even during training, the researchers did find that zebrafish in turbid water did learn to use colourful stones as proxy for food locations. During the tests, even in highly turbid conditions, the ability to locate food was superior when there landmarks. Their ability to locate food was compromised when the landmarks were not present.



# Life as one big BREADBOARD

Outcomes hardly matter; just do it as diligently as possible

SHANKAR GOPALKRISHNAN

The electronics laboratory sessions at the engineering college were eventful. A motley set of equipment lay scattered on the table – a breadboard, a display screen, a clump of wires and colourful beads comprising resistors, transistors and capacitors. The objective was simple: to follow a set of instructions, create an electronic circuit on the breadboard and read the resultant output waveform on the display screen. The breadboard had tiny holes into which you inserted the resistors and capacitors and connected them up with wires.

It would be unnerving especially if you were doing it for the first time. You had to contend with multiple challenges – instructions that were unclear, the pressure of time and the overbearing

presence of the professor who looked out for the slightest error to give you an earful! It was often an exercise in futility, and there were days when the experiments completely failed despite your best efforts. Still, you soldiered on.

If you managed to get the desired output waveform and successfully completed the lab work, it was deemed a miracle.

### The miracle

One afternoon, a miracle did happen. The display screen suddenly sprang to life, and registered this most beautiful waveform. It was a sight to behold – a rainbow of sorts for our thirsty eyes!

We were a team of three and had struggled through the entire afternoon putting the pieces of the circuit together until the breadboard resembled a wild jungle... with wires hanging all over!

We impatiently waited until the professor was at the table to evaluate our artwork. It was our crowning glory moment. The professor's expression was inscrutable – he looked at the waveform with interest and then looked at each of us with equal interest. He carefully removed one of the resistors from the breadboard, reaching out for it between the wild undergrowth of wires. "Watch, my dears; the waveform output is still intact!" Our response was muted. "Yes, sir," we mumbled. In such a complicated circuitry, there could be some scope for redundancy, where the loss of a body part need not affect the overall health, or so we thought.

What happened from this point on was nothing short of dramatic. The professor did quick work: he removed a capacitor here, a resistor there and uprooted wires by the

handful. Like dead pieces outside a chessboard, there was a now a growing heap of deadwood piling up outside the breadboard. "My dears, your waveform is still intact!" We knew something was wrong. Soon, the professor plunged his entire fist into the breadboard and exhumed whatever came in his grasp and exclaimed, "My dears, your waveform has still not changed!" Eventually, in a manic rage, he had emptied the entire breadboard of all its components. The waveform still smiled back at us, unaffected. The rest of the afternoon was not

pleasant. The professor asked for the lab record-books and scrawled, "repeat the experiment" in red across the entire page. He was evidently angry. The above incident is actually several decades old. To this day, I am baffled how the waveform output could be so precise especially when the breadboard was emptied out. There are plausible explanations, no doubt, of the circuit being 'shorted' or the display wires possibly connected back-to-back. I do not know. However, I do know this incident has taught some valuable lessons for life.

Often we wonder about our contribution to this world, our role in the scheme of things and how it will shape the future. As the years roll by, these larger-than-life questions nag us. We worry that if by a quirk of fate, we move on today, would we have done enough for the future, for the family, for society so that they are better off, just that little bit, because we lived. But there are no easy answers. It is here that the breadboard and the waveform come to our rescue. The waveform did not require the elaborate circuitry on the

breadboard at all. So too with life. The cosmic laws will take care of the future on their own. In front of these mighty laws of time, space and causation, my puny existence and contribution amounts to nothing. Hence, I need not worry about the future. The future will unfold on its own, regardless of me. This attitude frees me from unnecessarily carrying a load that I need not! If that is the case, do I need to struggle with the breadboard at all? Do I need to wire those elaborate connections? Can I simply eject out of the whole framework

if anyway my contribution amounts to nothing? No, I do need to wrestle with the breadboard and arrange those resistors and wires to the best of my ability. If I look back, those electronics laboratory sessions were important. We experienced the whole gamut of emotions – of elation and dejection, ear and futility (often on the same day). The tapestry of emotions made our lives richer. Without them, our lives would have been boring and hollow. The diligence, the teamwork, the common goal and the shared emotion... everything was essential and helped us emerge stronger and wiser. In the process, we had a lot of fun. So too with life. I am placed today in a particular role, to wire up some circuit on some breadboard. The outcome just does not matter. I only have to be busy in the process of wiring the breadboard as diligently as I can. That alone is my lot. Ours is not to question why. Ours is but to do and die! Therefore, we keep doing, like the busybee... with a heart for any fate. Still achieving, still pursuing, we learn to labour and to wait!

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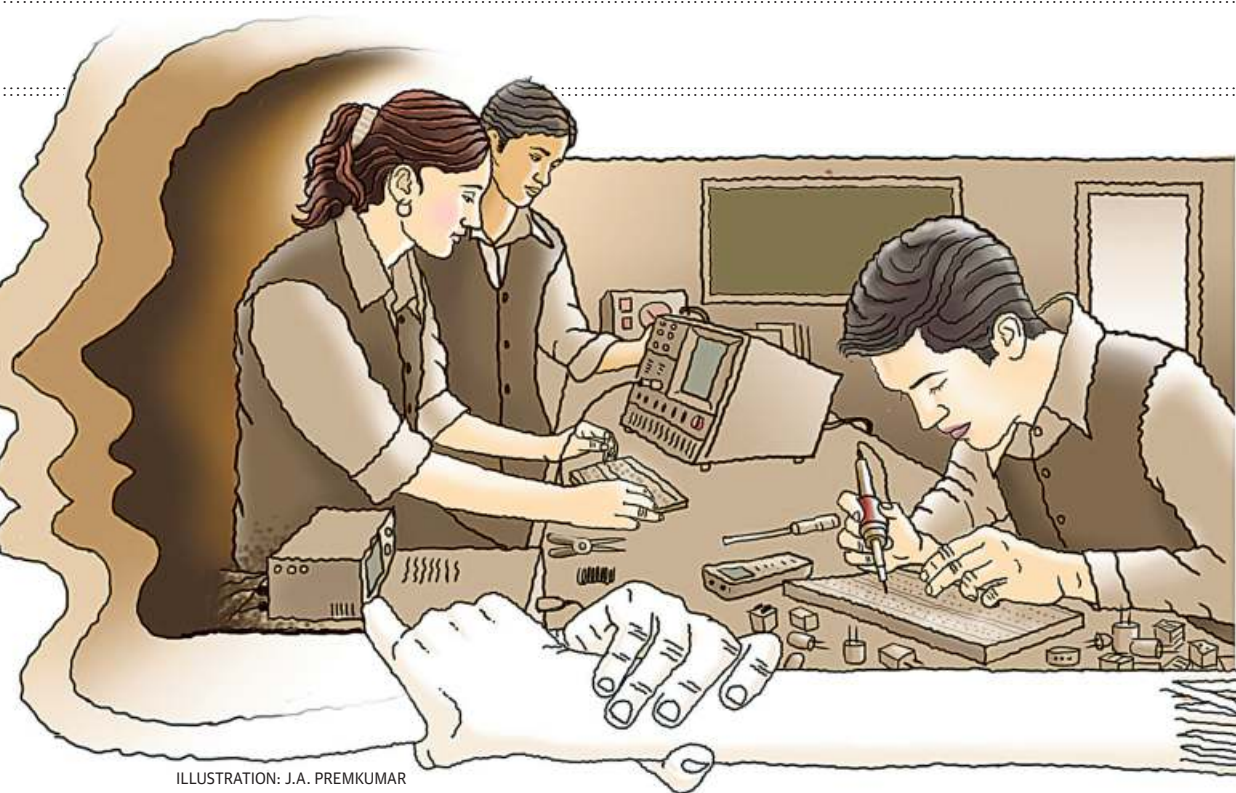


ILLUSTRATION: J.A. PREMKUMAR

## The striking tales the rain tells

The universal truths and some age-old lessons of water management

C.N. PILLAI

Rain, or the lack of it, is very much on our minds today. Though about 70% of the surface of the earth is covered with water in the form of oceans, life on the land depends on precipitation as rain and snow.

The occurrence of precipitation is subject to the vagaries of nature, leading to unexpected droughts and floods. Man, over the ages, has adopted various strategies to propitiate nature and the gods to ensure adequate rainfall. The ancients were aware of the importance of trees and mountains in ensuring rainfall and conserving water. I recount two stories from Indian mythology to illustrate the point.

*Bhagavatha Puranam* contains chapters on Govardhan puja practised in Gokulam during Krishna's childhood.

This was an agrarian community whose livelihood was farming and cattle-rearing, and timely rain was important. Every year, they would conduct a puja or *yagam* to propitiate Lord Indra who was believed to be the one who controlled rain.

Once when Krishna was about seven years old, preparations were afoot for the annual Indra puja. Krishna questioned the elders of the community on the puja. When told about its purpose, he could not accept it. He argued that rain was a natural phenomenon and Indra, if at all involved in it, could act only according to the rules of nature. Scanty rainfall, if it happened, was the result of our own acts of commission



ILLUSTRATION: SATWIK GADE

and omission. (I am using modern terminology here for what I think Krishna meant by ascribing it to *karma*.)

He further said they were living in the foothills of the Govardhan mountain and the trees were responsible for bringing forth rain. We neglect the mountain and the trees at our own risk and Indra had no role to play in this.

So he suggested they perform a puja for the mountain. An environmental activist today could not have expressed it better. He was so persuasive that the people of Gokulam followed his advice. The subsequent events are well-known. Krishna's suggestion should be interpreted as a call to protect and conserve nature.

### Bhagiratha's task

Let me now go fast backward to another era and another scenario. King Bhagiratha ruled his country in the foothills of the Himalayas. He was a troubled person. The souls of his forefathers were

doomed to perdition without salvation due to their own *karma*. Rituals had to be performed with holy waters from heaven to put their souls to rest.

Bhagiratha was determined to cajole Ganga Devi herself from the heavens to come down to earth, and to this end, he performed rigorous *tapasya*. His arduous ef-

**The ancients were aware of the importance of trees and mountains in ensuring rainfall**

forts finally bore fruit and Ganga Devi agreed to come down to the earth.

But the fall of the waters would result in a deluge and the entire earth could be washed away unless means were in place to contain the floods. Lord Siva agreed to receive and hold the waters when they descend, in his tresses. Here Siva symbolically stands for the Himalayan mountains and his tresses for the trees, vegetation, hills, valleys and lakes.

Ganga Devi did descend in the form of heavy rains or cloudbursts and the waters were contained by the mountain.

But even that did not solve the king's problem. Water in the mountain is not water in the plains where the ancient ashes were waiting to be quenched, and that location was far away. Poor Bhagiratha went back to his *tapasya* and persuaded Siva to release the waters in measured quantities via rivulets and finally into the mighty Ganga, which flowed down the plains till it reached the grounds where the rituals were performed.

The purpose of reciting this well-known story is only to emphasise the importance of mountains and trees to regulate floods and in water management, to use a modern term. Disturbing the ecosystem of the catchment areas, be they the hills or the plains, can have disastrous consequences all around the region. The devastating flood that inundated Uttarakhand and the neighbouring Himalayan States in 2013 was attributed to the wanton destruction of the mountains in various ways by people for short-term gains.

In the present-day context, experts in this field are aware of these matters. While a spate of quick-fix measures are being undertaken, it is good to remember that such measures can only be of limited use, and long-term measures should be implemented on an ongoing basis.

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## All in a day's work for this doctor

Two patients, the same kind of effort put in; one survives, the other dies

PINGALI GOPAL

The one-hour-old blue baby was brought in at 5 a.m. with rapid breathing. A quick examination and an X-ray established a diaphragmatic hernia – a defect in the muscle separating the abdomen from the chest. This allowed loops of bowel and other abdominal organs to enter the chest, compressing the lungs and the heart. The only course open was surgery.

As the paediatric and neonatal surgeon in the hospital, I gave the attendants a rough estimate of the cost, including the possible variances in the event of complications arising. I added that in case they are not happy to stay in that hospital, we would transfer the child to the government facility – and told the father to communicate his decision to the nurse.

The consent came after a few hours. The child was born after years of marriage. The father asked me to do my best; and sought a discount on the bill as he had limited means. I promised to do my best with the medical efforts and the bill too if everything went well. The child had a smooth surgery and went on elective ventilation.

I saw another patient just as I was coming out of the theatre, and as it happened, it was an exactly similar case. I groaned. The same bit of counselling went into the discussions with the family attendants. The father was absent in the proceedings. The attendants said he was working in Mumbai and was on his way. The treatment



ILLUSTRATION: SREEJITH R. KUMAR

started and the child underwent surgery the next day. The surgical findings were very similar, and the child went on ventilatory support.

On the third day, the condition of both babies started deteriorating, the cause being sepsis. For the next few days, it was a see-saw between life and death for them, amid our efforts. The

**Thank you so much for saving the child. You are but God to us**

babies would improve, raise hopes, and then sink a bit. I spent two consecutive nights in the neo-natal intensive care unit (NICU) over endless cups of tea. On the seventh day, the first baby started to improve; unfortunately, the condition of the second progressively deteriorated. The attendants of the second baby stopped buying medicines, and we had to supply them from our stock. The number of attendants started dwindling at a slow rate. Five days later, the first ba-

by recovered and was ready for discharge. The father came to my room and spoke, with tears in his eyes, "Thank you so much for saving the child. You are but God to us." Suddenly, he bent down along with his aged mother to touch my feet. I recoiled in shock. The father pleaded: he was extremely poor and had taken money from a loan shark. He built up his case slowly and finally managed to take a whopping quarter off the bill, and I approved it.

That evening, the second child died. The only person outside the NICU was an old lady to whom we declared the death. She said the attendants would come the next day. That day, two tractors filled with people landed at the hospital gate demanding to see me. My chamber was flooded with at least 20 people, smelling strongly of country liquor. And then came abuse, allegations of negligence, exploitation, and demands for compensation. A figure of one lakh rupees started floating around, an

impossible amount those days. Members of the local doctors' body and the police later added to the already cramped room.

Shouting matches between some of our more vocal doctors and angry members of the crowd ensued. The original attendants of the patient were completely missing from the scene of action now. After four hours, a deal was finalised on the intervention of some local politicians and the police. The hospital and the pharmacy are to waive the dues and pay some extra money for funeral expenses on 'humanitarian' grounds. There was a threat to me and the hospital from a mob. Amid slogans on loudspeakers, journalists taking photographs, and curious onlookers, the body of the child left the hospital.

I sat helplessly and burnt with impotent anger. The family had lost the child, but a doctor had just lost some faith. When a doctor hardens a little bit, what are the consequences for the medical profession and society? Two patients, the same kind of effort put in; one survives and makes me god and the other dies making me a devil.

Triumph and disaster stalks everyone, and it is well worth remembering the words of Lord Krishna: I am indifferent to triumph today, but still to handle disaster similarly. In their own ways, both the families managed a huge discount! I, god and devil rolled into one, went home, had dinner, and slept fitfully to see another day.

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## How nature sorts us

No two lives are comparable, and no two achievements can be similar

G. SWAMINATHAN

I recently watched a movie on social discrimination and its perils. The Indian Constitution does not permit such acts, but unfortunately we live in a country soaked in discrimination from time immemorial.

Can we find any society where there is no discrimination? Probably not; only in terms of the degree there might be differences.

Let us look at this objectively. Nature, or the Almighty, or the Creator of this world – depending on your point of view – discriminates among everything. Is he or it not discriminating between an animal and a human from birth? Do we have the same geography and climate in every part of this un-

iverse? Does every human being or animal look the same though there are similarities?

Can we confidently say life is fair to everyone? When I mentioned this once to my friend, she asked: "Why do you expect life to be fair to everyone?" She was right. Life cannot be fair to everyone. So there is definitely a bias.

If we look at a human being's life from his or her birth, at every stage he/she has to face or find inequity. First, the looks and colour, then IQ, then education, then academic achievements, job or marriage, children, health, and finally, death.

Factually speaking, the whole world survives only because of discrimination. If

everyone is equal and same, life will just not move. An engineer cannot do the job of a doctor and a factory worker cannot execute the position of a CEO. One can argue that some start their career on the shopfloor and one day become CEOs. But such instances are far and few between.

Can we vouch that all the intelligent students reach high positions in their professions, or *vice versa*? I have seen many intelligent students who turned out to be mediocre in their careers while many of the mediocre and dull ones achieved great heights in the later part of their lives.

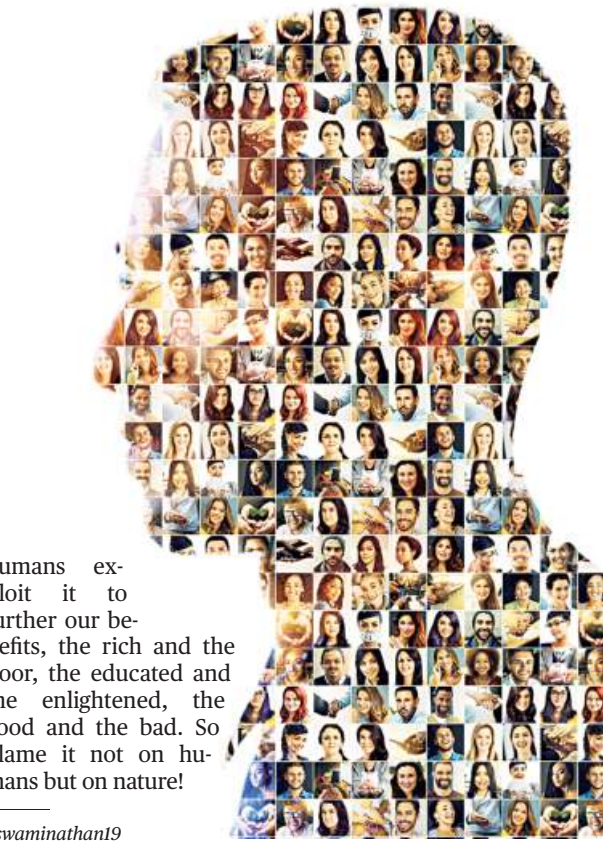
If everyone is intelligent there is no need for education; if everyone is beautiful, the world may not exist in

the lexicon at all. If everyone is rich, there will not be anyone to do the work. If everyone is healthy, there is no need for doctors. When equality is attained, one cannot talk about bigotry.

Life and humans are in black, white or grey. No two things are equal. No two lives are comparable. No two achievements can be similar. Life runs because the roads of life are made by destiny with several ups and downs. Everyone, except the blessed few, had no option but to pass through them.

A world without discrimination or distinction is an utopian concept. Contrasts only propel life.

So basically, nature itself differentiates everyone and every life and every act; we



humans exploit it to further our benefits, the rich and the poor, the educated and the enlightened, the good and the bad. So blame it not on humans but on nature!

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### A son flies free

Seeming freedom and novelty for him, misery and apprehension for mother

RAMAN NAIR

### My sin, the sin of sloth

Being lazy could be a state of mind that could well liberate you

ACHYUT NAMBIAR

### Mock-meet and all that

Coping with a certain kind of ambiguity in vegetarianism

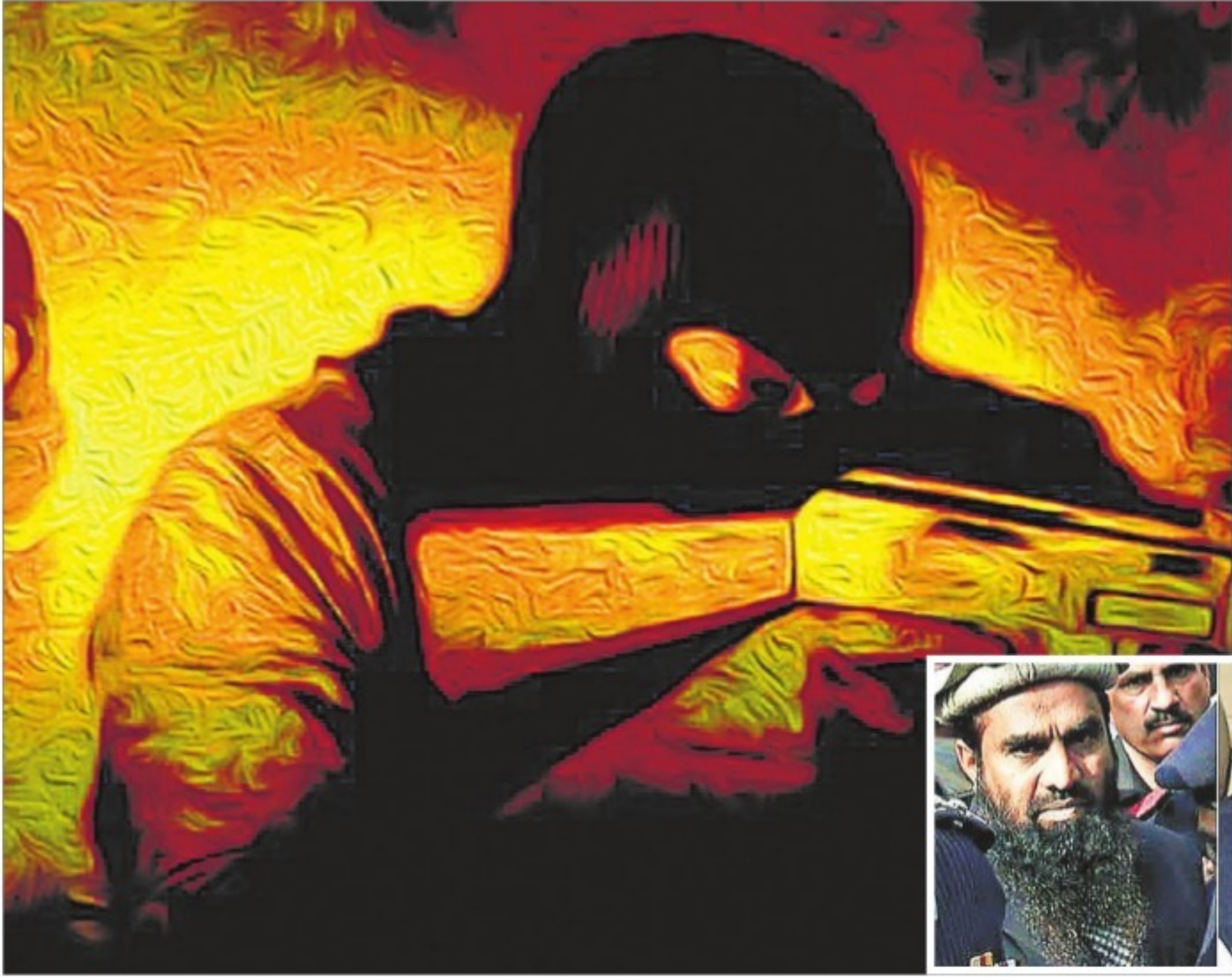
VIMAL KUMAR

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पाकिस्तानी जमीन पर पल रहे हथियारबंद जिहादियों की संख्या बता कर प्रधानमंत्री इमरान खान ने दुनिया के सामने एक नया ढोंग रचा है . दरअसल, नफरत और साजिश की नीतियों के रास्ते पर पाकिस्तानी सत्ता को चलानेवाली वहां की सेना और आइएसआइ ऐसे प्रपंच रचने में माहिर है . आतंकवाद से खुद को पीड़ित बताना और जम्मू–कश्मीर व अफगानिस्तान समेत समूचे दक्षिण एशिया में आतंकियों की सप्लाइ करना पाकिस्तान की राष्ट्रीय नीति है . आतंकवाद के खिलाफ वैश्विक मुहिम में पाकिस्तान की छद्म भूमिका उसे गैर जिम्मेदार मुल्क की पहचान दे चुकी है . इमरान के हालिया बयान के निहितार्थ, पाकिस्तान में आतंकियों की मौजूदगी और विशेषज्ञ की टिप्पणी के साथ प्रस्तुत है आज का इन दिनों ...

# आतंकपरस्त नीतियों से दुनिया भर में फजीहत हरकतों से बाज आयेगा पाक!

### पाकिस्तान प्रायोजित आतंक

पाकिस्तान पर आतंकियों को पालने का आरोप भारत, अफगानिस्तान और ईरान ही नहीं, बल्कि अमेरिका, ब्रिटेन और अन्य यूरोपीय देश भी लगाते हैं . पाकिस्तान अधिकृत कश्मीर और अफगानिस्तान से लगे सीमावर्ती जनजातीय इलाकों में पाकिस्तानी सह पर कई आतंकी कैंप संचालित हो रहे हैं . वर्ष 1979 से ही पाकिस्तान धार्मिक उन्मादियों को संरक्षण देकर दक्षिण एशिया क्षेत्र में आतंक को उकसावा दे रहा है . भारत के खिलाफ आतंकियों को फंडिंग, ट्रेनिंग और हथियार मुहैया कराने में आइएसआइ और पाकिस्तानी सेना की सक्रिय भूमिका है .

### अफगान आतंकियों से जुड़े पाकिस्तानी आतंकी

बीते 26 फरवरी को भारतीय वायुसेना द्वारा बालाकोट के आतंकी कैंपों पर स्ट्राइक के बाद पाकिस्तानी आतंकियों ने नये सिरे से तैयारी शुरू कर दी है . इंटेलीजेंस इनुइट के अनुसार पाकिस्तान स्थित आतंकी संगठनों जैश-ए-मोहम्मद और लश्कर-ए-तयबा ने अफगान चरमपंथी संगठनों हकानूनी नेटवर्क और अफगान तालिबान से साथ हाथ मिलाया है . पाकिस्तानी आतंकी अपने कैंपों को अफगानिस्तान से लगी अंतराष्ट्रीय सीमा के निकट कांधार और कुनार में शिफ्ट कर रहे हैं .

आतंकी गतिविधियां रोके पाकिस्तान : अमेरिका

जून में इमरान खान ने प्रधानमंत्री नरेंद्र मोदी को पत्र लिखकर दोनों देशों के बीच बातचीत बहाली का अनुरोध किया था . उसी समय ट्रंप प्रशासन ने पाकिस्तान से कहा था कि वह अपनी धरती पर हो रही आतंकी गतिविधियों और भारत में हो रहे घुसपैठ को रोके . राष्ट्रपति ट्रंप ने भी पाकिस्तानी प्रधानमंत्री के सामने कहा है कि आतंक पर लगाम लगाने में पाकिस्तान की भूमिका संतोषजनक नहीं रही है . उल्लेखनीय है कि इस वजह से पिछले साल उन्होंने अमेरिकी आर्थिक सहायता को भी रोक दिया था .

### वैश्विक आतंकियों की भी पनाहगाह

भारत में हमले के आरोपी आतंकी पाकिस्तान में खुलेआम घूमते और रैलियां करते हैं . आइएसआइ और पाकिस्तानी सेना इन आतंकियों के लिए अनुकूल माहौल तैयार करती है . संयुक्त राष्ट्र द्वारा प्रतिबंधित आतंकी संगठन लश्कर-ए-तयबा और जैश-ए-मोहम्मद जैसे खूंखार आतंकी संगठन भारत के खिलाफ पाकिस्तान में बैठकर भड़काऊ बयान देते हैं . पाकिस्तानी में छिपे ओसामा बिन लादेन को एबटाबाद में अमेरिकी कमांडो ने ऑपरेशन कर मौत के घाट उतार दिया था . मुंबई 26/11 हमले का सरगना हाफिज सईद और अन्य आतंकी सैयद सलाहुद्दीन, मसूद अजहर और दारुद इब्राहिम आदि पाकिस्तानी में शरण ले रहे हैं .

### पाकिस्तान ने 69 संगठनों पर लगाया प्रतिबंध



पाकिस्तान की नेशनल काउंटर टेररिज्म अथॉरिटी (एनएसीटीए) अब तक ( फरवरी 2019 तक) 69 आतंकी संगठनों पर प्रतिबंध लगा चुकी है . एनसीटीए ने वर्ष 2001 में लश्कर-ए-झांगवी पर प्रतिबंध लगाने के साथ ही आतंकी संगठनों को गैरकानूनी घोषित करना शुरू किया था . एनसीटीए के अनुसार, जिन आतंकी संगठनों को पाकिस्तान ने गैरकानूनी घोषित किया है, उनमें बड़ी संख्या बलूचिस्तान, गिलगिट-बाल्टिस्तान और फाटा स्थित संगठनों की है . एनसीटीए दस्तावेज के अनुसार, उसने जिन संगठनों पर प्रतिबंध लगाया है, उनमें तहरीक-ए-तालिबान पाकिस्तान (अफगानिस्तान) , बलूचिस्तान रिपब्लिकन आर्मी, बलूचिस्तान लिबरेशन फ्रंट, लश्कर-ए-बलूचिस्तान, बलूचिस्तान लिबरेशन यूनाइटेड फ्रंट, तंजीम नौजवान-ए-अहले सुन्नत, गिलगिट, अंजुमन-ए-इमामिया गिलगिट बाल्टिस्तान और मुस्लिम स्टूडेंट्स ऑर्गनाइजेशन गिलगिट शामिल हैं . इसके अलावा

अब्दुल्लाह आजम ब्रिगेड ( लेबनान, सीरिया व अरब प्रायदीप) , इस्ट तुर्कमेनिस्तान इस्लामिया मूवमेंट ( तुर्की, अफगानिस्तान) , इस्लामिक मूवमेंट ऑफ उज्बेकिस्तान ( उज्बेकिस्तान) व इस्लामिक जिहाद यूनियन ( उज्बेकिस्तान, अफगानिस्तान, जर्मनी) पर भी प्रतिबंध लगाया गया है . वहीं गुलामन-ए-सहाबा और मयमार ट्रस्ट पर पाकिस्तानी सरकार की नजर है, जबकि अल अख्जर ट्रस्ट को संयुक्त राष्ट्र सुरक्षा परिषद के प्रस्ताव के तहत गैरकानूनी घोषित किया गया है . इतना ही नहीं, बढ़ते वैश्विक दबाव के कारण हाफिज सईद के संगठन जमात-उद-दवा और इसके धर्मार्थ संगठन फलह-ए-ईसानियत फाउंडेशन पर भी इस वर्ष की शुरुआत में पाकिस्तान ने प्रतिबंध लगा दिया है . हालांकि, इसने हिज्बुल मुजाहिद्दीन, हरकत-उल-मुजाहिद्दीन और जम्मू-कश्मीर में सक्रिय अल बदर जैसे प्रमुख आतंकी संगठनों को प्रतिबंधित नहीं किया है .

# इमरान मुखौटा, बयान की नहीं कोई अहमियत



अजय साहनी  
रक्षा विशेषज्ञ

मुंबई हमला हो, उरी हो या पठानकोट हो, न तो इमरान के बयान से ये रुकेंगे, न ही भारत के किसी नेता के बयान से . यह सब सैन्य क्षमता और राजनीतिक इच्छाशक्ति से ही रुकेंगे .



ब्लैकमेल भी करता रहा है कि अगर उसे पैसा नहीं मिलेगा, तो वह अफगानिस्तान में हालात सुधरने नहीं देगा. दुनिया मदद करेगी तो वह तालिबान से बात करा देगा, लेकिन तालिबान पर उसका कोई अंकुश नहीं होगा. यही उसका दोहरा रवैया है. वह तालिबान को शह भी देता है और यह भी कहता है कि उस पर उसका अंकुश नहीं है. इसलिए दुनिया को इसका कोई हल नहीं मिल रहा है. और सीधी बात यह भी है कि दुनिया में उसके खिलाफ कार्रवाई करने की हिम्मत भी नहीं है. क्योंकि, कोई भी देश यह जोखिम नहीं उठाना चाहता है.

इमरान खान ने आतंकवाद के प्रशिक्षण के लिए कश्मीर और अफगानिस्तान पर जो दोष मढ़ा है, वह निहायत ही गलत और बेबुनियाद आरोप है. इमरान पाकिस्तान की गलती को इन दो जगहों पर डाल रहे हैं. इन दोनों जगहों की समस्या का मूल कारण पाकिस्तान है. अफगानिस्तान में हजारों निर्दोष लोग मार दिये गये, जबकि वहां अफगानिस्तान की समस्या ही नहीं थी. समस्या तो पाकिस्तान में थी, लेकिन अमेरिका ने अफगानिस्तान में अपने सैनिक भेज दिये. अफगानिस्तान के मसले का हल निकालने के लिए पहले पाकिस्तान

का हल निकालना पड़ेगा. अफगानिस्तान में तालिबान तो पूरी तरह से पाकिस्तानी समर्थन की बुनियाद पर टिका हुआ है. तो फिर यह अफगानिस्तान का मसला कैसे हुआ? ठीक इसी तरह से कश्मीर की समस्या कश्मीर में नहीं है, उसकी समस्या पाकिस्तान है. कश्मीर से पाकिस्तान निकल जाये तो यह मुद्दा तुरंत खत्म हो जायेगा.

मुंबई हमला हो, उरी हो या पठानकोट हो, न तो इमरान के बयान से ये रुकेंगे, न ही भारत के किसी नेता के बयान से. ये सब सैन्य क्षमता और राजनीतिक इच्छाशक्ति से ही रुकेंगे. हमारी क्षमता बस इतनी ही रह गयी है कि हम कश्मीर में ही जवाब दे सकते हैं, सरहद पार नहीं कर सकते. बालाकोट में हमने जो किया उसकी प्रतिक्रिया भी वहां से आ गयी, क्या कर लिया हमने? एक सीधी सी बात है, जब किसी के पास हार-जीत की क्षमता नहीं होती, तो वह बयानबाजी से काम चलाता है. इस मामले में पाकिस्तान से कुछ कम हम भी नहीं हैं. इसलिए इमरान के बयान का कोई अर्थ नहीं है. अगर भारत यह सोचता है कि पाकिस्तान उससे डरता है, तो यह भारत की गलतफहमी भी हो सकती है. क्योंकि पाकिस्तान तो अमेरिका से भी नहीं डरता. इसलिए अमेरिका को कोई फर्क नहीं पड़ता कि कश्मीर मसला हल हो या न हो. हमारे पास सिवाय बयानबाजी के रक्षा क्षेत्र को लेकर जब कोई तैयारी ही नहीं है, तब हम क्या किसी से लड़ेंगे. हमारी संसद में हुई चर्चा को जरा देख लीजिये, आतंकवाद को लेकर जो भी बात कही गयी है, उसका क्या असर होगा? उसका यही होगा कि मुझे किसी से खुंदक है, तो मैं उसको पकड़ कर आतंकवादी घोषित करके जेल में डाल दूंगा. इसके अलावा आतंकवाद से लड़ने की हमने कोई क्षमता विकसित नहीं की है, जिससे कि देश में धार्मिक उन्माद भी न बढ़े और आतंकवाद भी खत्म हो जाये. क्या हमारे नेताओं में ऐसी राजनीतिक इच्छाशक्ति है?

### आतंकियों की मौजूदगी स्वीकार की इमरान ने

पहली बार पाकिस्तान के शीर्ष नेतृत्व ने यह स्वीकार किया है कि बड़ी संख्या में जिहादी संगठन पाकिस्तान में सक्रिय हैं . अंतरराष्ट्रीय समुदाय के बढ़ते दबाव के बीच इमरान के इस कबूलनामे को दुनिया को एक संदेश के तौर पर देखा जा रहा है . वाशिंगटन में पाकिस्तानी प्रधानमंत्री ने कहा कि देश में 30 से 40 हजार के बीच हथियारबंद आतंकी हैं, जिनको कश्मीर और अफगानिस्तान में लड़ने के लिए प्रशिक्षित किया गया है . भारत ने पाकिस्तान से आतंकियों पर कठोर कार्रवाई की मांग की है .

### क्या बदल रहा है पाकिस्तान का मिजाज!

इमरान का बयान नया नहीं है, बल्कि पाकिस्तान की इस सच्चाई से दुनिया पहले से ही वाकिफ है . इमरान ने कोई गोपनीयता या अपनी आतंक पररस्त नीति को उजागर नहीं किया है . वर्षों से पाकिस्तानी नेता वैश्विक मंचों पर सच्चाई को स्वीकारने की बजाय ‘पाकिस्तान आतंकवाद का सबसे बड़ा भुक्तभोगी है ’ की रट लगाते रहे हैं . जिहादी संगठनों से बातचीत या कार्रवाई की शुरुआत करने की कोशिश करनेवाले हर नेता को हटा दिया गया या दरकिनार कर दिया गया . पहली अफगान लड़ाई से ही जिहादी प्रोजेक्ट को पाकिस्तान सेना और आइएसआइ का उसे समर्थन मिलता रहा है .

### इमरान का वक्तव्य और सच्चाई

इमरान खान द्वारा बतायी गयी जिहादियों की संख्या आश्चर्यजनक है . पाकिस्तान की आतंकरोधी एजेंसी एनएसीटीए की वेबसाइट के मुताबिक, पाकिस्तान के आतंक रोधी अधिनियम के तहत 40 संगठनों को सूचीबद्ध किया गया है, जिनमें 8307 सक्रिय आतंकियों का जिक्र है . यही सूची पाकिस्तान द्वारा फाइनेंशियल एक्शन टास्क फोर्स ( एफएटीएफ) को सौंपी गयी है . एफएटीएफ वर्तमान में आतंकवाद पर पाकिस्तान द्वारा की जा रही कार्रवाई की समीक्षा कर रहा है . भारत के लिए इमरान का बयान अहम है, क्योंकि कश्मीर में सीमा पार आतंकवाद का मुद्दा भारत अरसे से उठा रहा है, जिसे पाकिस्तानी प्रधानमंत्री ने अब स्वीकार कर लिया है .

### भारत की प्रतिक्रिया

इमरान खान द्वारा अपने अमेरिकी दौरे पर यह स्वीकार किये जाने के बाद कि पाकिस्तान में 30 से 40 हजार हथियार बंद जिहादी सक्रिय हैं, भारत ने कड़ी प्रतिक्रिया दी है . भारतीय विदेश मंत्रालय के प्रवक्ता ने मीडिया ब्रीफिंग में कहा है कि पाकिस्तानी नेतृत्व ने स्पष्ट रूप से प्रायोजित आतंकवाद को स्वीकार किया है . उन्होंने कहा अब समय आ गया है कि पाकिस्तान आतंकियों और संगठनों पर कठोर व विश्वसनीय तरीके से कार्रवाई करे . प्रवक्ता ने अमेरिकी राष्ट्रपति द्वारा कश्मीर मसले पर दिये गये बयान की आलोचना की .



## पाकिस्तान में सक्रिय आतंकी

**अलकायदा** : वर्ष 1988 में ओसामा

बिन लादेन और मोहम्मद अतीक ने पेशावर में इसकी स्थापना की थी. अफगानिस्तान में सोवियत घुसपैठ के खिलाफ लड़ रहे लड़ाकों को एकजुट करने के उद्देश्य से स्थापित इस संगठन के वर्तमान में तकरीबन 60 देशों में आतंकी सेल हैं. ओसामा बिन लादेन के मारे जाने के बाद अयमान अल-जवाहिरि इसकी कमान संभाल रहा है.

**हिज्बुल मुजाहिदीन** : सितंबर 1989 में मास्टर अहसान डार ने कश्मीर घाटी में इस समूह की शुरुआत की थी. पाकिस्तान कब्जे वाले कश्मीर के मुजफ्फराबाद में इसका मुख्यालय है. इस समूह का मुखिया सैयद सलाहुद्दीन है. इस संगठन में कम-से-कम 1500 कैडर हैं. यह उन 32 आतंकी संगठनों में से एक है, जो आतंकवाद निरोधक धारा, 2002 (प्रिवेंशन ऑफ टेररिज्म एक्ट) के तहत प्रतिबंधित है.

**लश्कर-ए-तयबा** : वर्ष 1990 में अफगानिस्तान के कुनार प्रांत में लश्कर-ए-तयबा की स्थापना हुई थी. वर्तमान में लाहौर के नजदीक मुरीदके से यह संगठन संचालित होता है. इसका मुखिया हाफिज मोहम्मद सईद है. यह संगठन जम्मू-कश्मीर के अलावा नयी दिल्ली, मुंबई, बेंगलुरु, वाराणसी, कोलकाता, गुजरात में भी आतंकी हमले

का जिम्मेदार है. भारत में गैरकानूनी गतिविधियां (रोकथाम) अधिनियम के तहत यह प्रतिबंधित है. अमेरिका, ब्रिटेन और संयुक्त राष्ट्र ने भी इस संगठन को प्रतिबंधित किया हुआ है.

**जैश-ए-मोहम्मद** : इस समूह की स्थापना जनवरी 2000 में मौलाना मसूद अजहर ने कराची में की थी. यह संगठन 31 दिसंबर, 2001 को भारतीय संसद पर हमले का जिम्मेदार है. भारत सरकार ने पोटा के तहत इस संगठन को प्रतिबंधित किया हुआ है.

**हरकत-उल-मुजाहिदीन (पूर्व में हरकत-उल-अंजार)** : हरकत-उल-अंसार की शुरुआत हरकत-उल-जिहाद अल-इस्लामी और हरकत-उल-मुजाहिदीन के विलय के बाद हुई थी, जिसका सरगना मौलाना सादतुल्लाह खान था. वर्ष 1997 में अमेरिका ने इसे आतंकवादी संगठन घोषित किया था. इस समूह ने नाम बदलकर फिर से हरकत-उल-मुजाहिदीन कर लिया .

**अन्य आतंकी संगठन** : अल बदर, जमीयत उल-मुजाहिदीन, लश्कर-ए-जब्बार, हरकत-उल-जेहाद-उल-इस्लामी, मुत्ताहिदा जेहाद कौंसिल, तहरीक-उल-मुजाहिदीन, अल उमार मुजाहिद्दीन समेत अनेक ऐसे आतंकी संगठन हैं, जो पाकिस्तानी जमीं से संचालित होते हैं.

#### भारत में

#### आतंकी हमले

**मुंबई आतंकी हमला** : 26 नवंबर, 2008 को पाकिस्तानी आतंकी संगठन लश्कर-ए-तयबा द्वारा मुंबई में किये गये 12 धमाकों में 174 लोगों की जान चली गयी .

**पठानकोट हमला** : पठानकोट एयरफोर्स स्टेशन पर 2 जनवरी, 2016 को हुए आतंकी हमले में पांच हवाईवाह और सुरक्षा बल के तीन जवान मारे गये थे. सभी हमलावर जैश-ए-मोहम्मद से जुड़े थे.

**उरी हमला** : 18 सितंबर, 2016 को उरी स्थित भारतीय आर्मी ब्रिगेड मुख्यालय पर चार आतंकियों ने ग्रेनेड फेंका था . कैंप के टेंट में आग लग गयी और 17 जवानों की जान गयी. इस हमले को जैश-ए-मोहम्मद शामिल था .

**पुलवामा हमला** : इसी वर्ष 14 फरवरी को जैश-ए-मोहम्मद के आत्वघाती हमलावर द्वारा सीआरपीएफ के काफिले पर किये गये हमले में 40 जवान शहीद हो गये थे .

#### पाक के घरेलू आतंकी संगठन

**तहरीक-ए-तालिबान पाकिस्तान** : 9 सितंबर, 2011 को ट्रेड टावर पर हुए हमले के बाद नाटो द्वारा अफगानिस्तान में ऑपरेशन किये जाने के प्रतिक्रिया स्वरूप तहरीक-ए-तालिबान का गठन किया गया . बेतुल्लाह महसूद के नेतृत्व में 13 चरमपंथी समूहों द्वारा पाकिस्तान के फेडरली एडमिनिस्टर्ड ट्राइबल एरिया ( फाटा) में इसकी स्थापना हुई थी .

**सिपह-ए-सहाबा पाकिस्तान** : सुन्नी समुदाय के इस आतंकी संगठन को पहले अंजुमन सिपह-ए-सहाबा के नाम से जाना जाता था . वर्ष 1985 में स्थापित इस संगठन का लक्ष्य शिया समुदाय को निशाना बनाना है . इस आतंकी समूह का गठन मौलाना हक नवाज झांगवी, मौलाना जिया-उर-रहमान फारूकी, मौलाना ऐसार-उल-हक कामसी और मौलाना आज़म तारिक ने किया था .

**लश्कर-ए-झांगवी** : इस सुन्नी-देवबंदी आतंकी समूह की स्थापना 1996 में सिपह-ए-सहाबा के टूटने से हुई थी . वर्तमान में समूह का प्रमुख मुहम्मद अजमल है .

इन सभी घरेलू आतंकी संगठनों के अलावा लश्कर-ए-उमर, तहरीक-ए-नफज-ए-शरीयत-ए-मोहम्मदी, सिपह-ए-मोहम्मद पाकिस्तान समेत अनेक घरेलू संगठन पाकिस्तान में सक्रिय हैं, जो समय-समय पर आतंकी हमलों को अंजाम देते रहते हैं. इसके साथ ही अल-राशिद ट्रस्ट, अल-अख्जर ट्रस्ट, राबिता ट्रस्ट, उम्माह तमिर-ए-नाउ जैसे कई चरमपंथी समूह भी पाकिस्तान में सक्रिय हैं .

