

Death by methanol

There should be zero tolerance
for sale of illicit liquor

The death of 17 persons over the past few days, in two incidents in north Tamil Nadu, after consuming spurious liquor comes a month after the State government informed the Assembly that there has been no hooch tragedy for the last 14 years. As on Monday evening, 12 persons of Villupuram district and five of Chengalpattu district have died, while 50 people have been hospitalised. The development is surprising as Union Ministry of Home Affairs and National Crime Records Bureau data (2016-21) show that illicit or spurious liquor deaths have been largely contained. According to the central authorities, Tamil Nadu reported no deaths during 2016 to 2019; 20 in 2020 and six in 2021. Besides, the State has safeguards to prevent such tragedies. Since 2002, methanol, regarded as the main reason behind hooch tragedies, has been brought under the ambit of the Tamil Nadu Prohibition Act, 1937. Amendments have also been made to the Tamil Nadu Denatured Spirit, Methyl Alcohol and Varnish (French Polish) Rules, 1959, to maintain control over methanol supply. What is disturbing is that the two recent instances point to the apparent use of methanol.

While the government is expected to probe the causative factors, it is obvious that there are administrative lapses. The availability of cheaper brew than what is sold at retail outlets of the Tamil Nadu State Marketing Corporation Limited (Tasmac) is disconcerting. This could have been tackled had law-enforcing authorities, including the police, monitored the movement of methanol. It is no surprise that several police officials have been placed under suspension. Chief Minister M.K. Stalin, who visited the two districts on Monday, also announced a Crime Branch-CID probe. Apart from announcing a solatium of ₹10 lakh to every family of the deceased and ₹50,000 to each of those undergoing treatment, the Chief Minister has not provided any scope for debate whether the families concerned should get financial assistance. Perhaps, he has gone by the example set by Bihar Chief Minister Nitish Kumar, who announced last month, subsequent to the many deaths in East Champaran district, the payment of ₹4 lakh each to family members of those who had died in hooch incidents since 2016. Till then, Mr. Kumar had held the position against providing any compensation. Such a stand was in vogue once in Tamil Nadu, as administrators were of the view that financial assistance could encourage those on the wrong path. It is time States evolved a uniform and comprehensive policy to counter the problem of spurious or illicit liquor, apart from sending a strong message to the law-enforcement agencies that there would be zero tolerance to illicit liquor.

One-stop centres for zero waste to be launched in cities

The Hindu Bureau
NEW DELHI

In a step towards cutting down waste generation in urban India, the government will launch one-stop centres where citizens can deposit old clothes, shoes, books, toys and plastic that can be reused or recycled.

These special "Reduce, Recycle and Reuse" centres are to be launched nationwide on May 20. Individuals, institutions and commercial enterprises can deposit the items at these hubs.

The items will then be given to different stakeholders to be refurbished for reuse or would be made into new products contributing to a circular economy, the Ministry of Housing and Urban Poverty Alleviation said in a statement on Monday.

These 'RRR' centres would be set up as part of a nationwide campaign 'Meri LiFE, Mera Swachh Shehar' ('My Life, My Clean City') under the aegis of the Swachh Bharat Mission - Urban 2.0 (SBM-U 2.0) to strengthen citizens' re-



Used clothes can be deposited at the one-stop centres for repurposing.

solve to reduce, reuse and recycle, the Ministry said.

The objective of the campaign is to take collective action for the protection and conservation of the environment by adopting sustainable daily habits. "The 3Rs form the backbone of 'Waste to Wealth' and has empowered many craftsmen, recyclers, self-help Groups, entrepreneurs, startups, etc. to recycle waste into a host of products," a senior official in the Urban Affairs Ministry said.

The campaign will culminate on World Environment Day on June 5.

On sexual harassment in the workplace

How did the PoSH Act come into being? How does it define sexual harassment and the workplace? What does it require employers to do? What are the 'serious lapses' flagged by the Supreme Court? What have been the hurdles to the law's implementation?

EXPLAINER

Diksha Munjal

The story so far:

Ten years after the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (PoSH) came into force, the Supreme Court Bench of India has said there are "serious lapses" and "uncertainty" regarding its implementation.

How was the PoSH Act formed?

In 1992, Bhanwari Devi, a social worker with the Women's Development Project of the Rajasthan government was gang-raped by five men after she tried to prevent the marriage of a one-year-old girl. While hearing pleas filed by activist groups against the crime, the SC, noting the absence of any law "enacted to provide for effective enforcement of the basic human right of gender equality" guarantee against "sexual harassment at workplaces", laid down a set of guidelines in 1997, christened the Vishakha

Guidelines, to fill the statutory vacuum till a law could be enacted. These were to be "strictly observed in all workplaces" and were binding and enforceable in law.

After this, the Protection of Women against Sexual Harassment at Workplace Bill was introduced by then Women and Child Development Minister, Krishna Tirath, in 2007. It was later tabled in Parliament and went through amendments. The amended Bill came into force on December 9, 2013, as the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) or PoSH Act.

What is the PoSH Act?

The PoSH Act defines sexual harassment to include unwelcome acts such as physical contact and sexual advances, a demand or request for sexual favours, making sexually coloured remarks, showing pornography, and any other unwelcome physical, verbal or non-verbal



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conduct of a sexual nature. Under the Act, an employee is defined not just in accordance with the company law. All women employees, whether employed regularly, temporarily, contractually, on an ad hoc or daily wage basis, as apprentices or interns or even employed without the knowledge of the principal employer, can seek redressal to sexual harassment in the workplace.

The law expands the definition of 'workplace' beyond traditional offices to include all kinds of organisations across sectors, even non-traditional workplaces. It applies to all public and private sector organisations throughout India.

What are the requirements imposed on employers?

The law requires any employer with more than 10 employees to form an Internal Complaints Committee (ICC) which can be approached by any woman employee

to file a formal sexual harassment complaint. It has to be headed by a woman, have at least two women employees, another employee, and a third party such as an NGO worker with five years of experience, familiar with the challenges of sexual harassment. Besides, the Act mandates every district in the country to create a local committee to receive complaints from women working in firms with less than 10 employees and from the informal sector, including domestic workers, home-based workers, voluntary government social workers and so on. The employer has to file an annual audit report with the district officer about the number of sexual harassment complaints filed and actions taken at the end of the year.

What are the hurdles to the Act's implementation?

The Supreme Court in its recent judgment

called out the lacunae in the constitution of ICCs, citing a newspaper report that 16 out of the 30 national sports federations in the country had not constituted an ICC to date. The judgment also flagged the improper constitution in cases where the ICCs were established – pointing out that they either had an inadequate number of members or lacked a mandatory external member. This, however, is not the only implementation-related concern when it comes to the PoSH Act. One of the concerns is that the Act does not satisfactorily address accountability, not specifying who is in charge of ensuring that workplaces comply with the Act, and who can be held responsible if its provisions are not followed. Stakeholders also point out how the law is largely inaccessible to women workers in the informal sector. Additionally, experts have noted that in workplaces sexual harassment cases are hugely underreported for a number of reasons. The framers of the law had recognised that complaints could be more effectively addressed within civil institutions (workplaces) so that women did not have to go through the daunting processes of the criminal justice system related to accessibility and timeliness. However, the inefficient functioning and the lack of clarity in the law about how to conduct such inquiries have ended up duplicating the access barriers associated with the justice system. Most importantly, the power dynamics of organisations and fear of professional repercussions also stand in the way of women for filing complaints.

What are the SC's recent directions?

The court directed the Union, States and UTs to undertake a time-bound exercise to verify whether Ministries, Departments, government organisations, authorities, public sector undertakings, institutions, bodies, etc. had constituted Internal Complaints Committees (ICCs), Local Committees (LCs) and Internal Committees (ICs) under the Act. These bodies have been ordered to publish the details of their respective committees in their websites.

THE GIST

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What is a transformer, the machine learning model that powers ChatGPT?

In a pioneering paper entitled 'Attention Is All You Need' that appeared in 2017, a team at Google proposed transformers — a deep neural network architecture that has today gained popularity across all modalities. The capital 'T' in ChatGPT stands for 'transformer'

Makarand Tapaswi

Machine learning (ML), a subfield of artificial intelligence, teaches computers to solve tasks based on structured data, language, audio, or images, by providing examples of inputs and the desired outputs. This is different from traditional computer programming, where programmers write a sequence of specific instructions. Here, the ML model learns to generate desirable outputs by adjusting its many knobs — often in the millions.

ML has a history of developing methods with hand-crafted features that may work only for specific, narrow problems. There are several such examples. In text, classifying a document as scientific or literary may be solved by counting the number of times certain words appear. In audio, spoken text is recognised by converting the audio into a time-frequency representation. In images, a car may be found by checking for the existence of specific car-like edge-shaped patterns. Such hand-crafted features are combined with simple, or shallow, learning classifiers that typically have up to tens of thousands of knobs. In technical parlance, these knobs are called parameters.

Deep neural networks

In the first part of the 2010s, deep neural networks (DNNs) took over ML by storm, replacing the classic pipeline of hand-crafted features and simple classifiers. DNNs ingest a complete document or image and generate a final output, without the need to specify a particular way of extracting features.

While these deep and large models have existed in the past, their large size — millions of parameters — hindered their use. The resurgence of DNNs in the 2010s is attributed to the availability of

large-scale data and fast parallel computing chips called graphics processing units. Furthermore, the models used for text or images were still different — recurrent neural networks were popular in language understanding while convolutional neural networks (CNNs) were popular in computer vision, that is, a machine understanding of the visual world.

'Attention Is All You Need'

In a pioneering paper entitled 'Attention Is All You Need' that appeared in 2017, a team at Google proposed transformers — a DNN architecture that has today gained popularity across all modalities (image, audio, and language). The original paper proposed transformers for the task of translating a sentence from one language to another, similar to what Google Translate does when converting a sentence from, say, English to Hindi.

A transformer is a two-part neural network. The first part is an 'encoder' that ingests the input sentence in the source language (English) and the second part is a 'decoder' that generates the translated sentence in the target language (Hindi). The encoder converts each word in the source sentence to an abstract numerical form that captures the meaning of the word within the context of the sentence, and stores it in a memory bank. Just like a person would write or speak, the decoder generates one word at a time referring to what has been generated so far and by looking back at the memory bank to find the appropriate word. Both these processes use a mechanism called 'attention', hence the name of the paper. A key improvement over previous methods is the ability of a transformer to translate long sentences or paragraphs correctly. The adoption of transformers subsequently exploded. The capital 'T' in ChatGPT, for example, stands for 'transformer'.

Transformers have also become popular in computer vision as they simply cut an image into small square patches and line them up, just like words in a sentence. By doing so, and after training on large amounts of data, a transformer can provide better results than CNNs. Today, transformer models constitute the best approach for image classification, object detection and segmentation, action recognition, and a host of other tasks.

Transformers' ability to ingest anything has been exploited to create joint vision-and-language models which allow users to search for an image (eg, Google Image Search), describe one, and even answer questions regarding the image.

What is 'attention'?

Attention in ML allows a model to learn how much importance should be given to different inputs. In the translation example, attention allows the model to select or weigh words from the memory bank when deciding which word to generate next. While describing an image, attention allows models to look at the relevant parts of the image when generating the next word.

A fascinating aspect of attention-based models is their ability for self-discovery, by parsing a lot of data. In the translation case, the model is never told that the word 'dog' in English means *kutta* in Hindi. Instead, it finds these associations by seeing several training sentence pairs where 'dog' and *kutta* appear together. A similar observation applies to image captioning. For an image of a "bird flying above water", the model is never told which region of the image corresponds to "bird" and which "water". Instead, by training on several image-caption pairs with the word "bird", it discovers common patterns in the image to associate the flying thing with "bird".

Transformers are attention models on steroids. They feature several attention

layers both within the encoder, to provide meaningful context across the input sentence or image, and from the decoder to the encoder when generating a translated sentence or describing an image.

The billion and trillion scale

In the last year, transformer models have become larger and train on more data than before. When these colossuses train on written text, they are called large language models (LLMs). ChatGPT uses hundreds of billions of parameters whereas GPT-4 uses hundreds of trillions.

While these models are trained on simple tasks, such as filling in the blanks or predicting the next word, they are very good at answering questions, creating stories, summarising documents, writing code, and even solving mathematical word problems in steps. Transformers are also the bedrock of generative models that create realistic images and audio.

Their utility in diverse domains make transformers a very powerful and universal model. However, there are some concerns. The scientific community is yet to figure out how to evaluate these models rigorously. There are also instances of "hallucination", whereby models make confident but wrong claims. We must urgently address societal concerns, such as data privacy and attribution to creative work, that arise as a result of their use.

At the same time, given the tremendous progress, ongoing efforts to create guardrails guiding their use, and work on leveraging these models for positive outcomes (for example in healthcare, education, and agriculture), optimism would not be misplaced.

Dr. Makarand Tapaswi is a senior machine learning scientist at Wadhvani AI, a non-profit on using AI for social good, and an assistant professor at the computer vision group at IIT Hyderabad, India.

What are the gaps in the AePS transaction model?

What is the Aadhaar-enabled Payment System? How are cybercriminals using Aadhaar for financial fraud?

Nabeel Ahmed

The story so far:

Pushpendra Singh, a popular YouTuber, in a Twitter thread, shared how his mother's bank account was drained using an Aadhaar-linked fingerprint without needing a two-factor authentication. His mother was not informed of the transactions by her bank, via message or otherwise. A quick search on Google reveals that similar incidents have been reported in different parts of the country. Cybercriminals are now using silicone thumbs to operate biometric POS devices and biometric ATMs to drain users' bank accounts.

What is AePS?

The Aadhaar-enabled Payment System (AePS) is a bank-led model which allows online financial transactions at Point-of-Sale (PoS) devices and micro ATMs of any bank using Aadhaar authentication. The model removes the

need for OTPs, bank account and other financial details. It allows fund transfers using only the bank name, Aadhaar number, and fingerprint captured during Aadhaar enrolment, according to the National Payments Corporation of India (NPCI).

Is AePS enabled by default?

Neither the Unique Identification Authority of India (UIDAI) nor NPCI mentions clearly whether AePS is enabled by default. Cashless India, a website managed and run by the MeitY, says the service does not require any activation, with the only requirement being that the user's bank account should be linked with their Aadhaar number. Users who wish to receive any benefit or subsidy under schemes notified under section 7 of the Aadhaar Act, have to mandatorily submit their Aadhaar number to the banking service provider, according to the UIDAI.

How is biometric information leaked?

While Aadhaar data breaches have been

reported in 2018, 2019, and 2022, the UIDAI has denied any breach of data. In response to media reports, the UIDAI said that the Aadhaar data, including biometric information, is fully safe and secure. However, UIDAI's database is not the only source from where data can be leaked. "Aadhaar numbers are readily available in the form of photocopies, and soft copies, and criminals are using Aadhaar-enabled payment systems to breach user information. Scammers have, in the past, made use of silicone to trick devices into initiating transactions," cybersecurity expert Rakshit Tandon, told *The Hindu*.

How do you secure your Aadhaar biometric information?

The UIDAI is proposing an amendment to the Aadhaar (Sharing of Information) Regulations, 2016, which will require entities in possession of an Aadhaar number to not share details unless the Aadhaar numbers have been redacted or blacked out through appropriate means,