

## Start-up to help IIT-M develop intellectual property for hyperloop

**The Hindu Bureau**  
CHENNAI

A start-up, TuTr Hyperloop, incubated in the Indian Institute of Technology Madras (IIT-M), will help the institute develop intellectual property in hyperloop technology. TuTr has partnered with Tata Steel to develop and deploy the technology.

It is finalising an agreement with an Indian engineering, procurement and construction services company to create and develop infrastructure and systems for hyperloop technology. TuTr operates from the National Centre for Combustion Research and Development (NCCRD) at the institute.

NCCRD coordinator Satyanarayanan Chakravarthy said TuTr's mission is to deliver customers with fast and reliable "on-demand" affordable transportation. It should be greener than other modes of transport.

"The initial focus will be on cargo movement. This will be a first step towards deployment of high-speed mobility corridors for passenger transportation across India and globally," he said.

TuTr Hyperloop has partnered with European company Hardt Hyperloop for interoperable hyperloop technology between India



The IIT-M has embarked on an initiative to develop cost-effective, sustainable high-speed mobility.

and Europe. Hardt has test facilities in the Netherlands and has demonstrated and proven core hyperloop technologies.

The European Commission has committed to investing in hyperloop technology in Europe. The goal of the agreement is to develop a roadmap for an operational demonstration route before 2030.

Aravind Bharadwaj, co-founder and chief technical officer of TuTr, said it had embarked on an initiative in the institute to develop a cost-effective, sustainable high-speed mobility technology solution for the country.

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## **Hyperloop Technology**

### **What is Hyperloop Technology?**

- Theoretical concept of hyperloop is mooted by maverick techno-entrepreneur Elon Musk in 2013.
- Hyperloop technology promises to move people and goods through **low-pressure tubes** far faster than commercial air travel, within earthly confines, of course.
- In hyperloop transportation, custom-designed capsules or pods are expected to zip smoothly through continuous steel tubes which are held at **partial vacuum**.
- The pod which sandwiches the passenger compartment between an air compressor upfront and a battery compartment in the rear is supported by air caster skis at the bottom.
- The skis float on a thin layer of air provided under high pressure, eliminating rolling resistance and allowing for movement of the pods at high speeds. These capsules are expected to be driverless with estimated speeds of 1,000 km/h.
- Linear induction motors that are placed along the tube control the speed of the pod. Electronically-assisted acceleration and braking determines the speed of the capsule.

### **Why is it important?**

Developments in traditional high speed railway technology have not made much progress in recent years. From steam to diesel to electric, locomotives have come up against the physical constraints of weight and drag.

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Frictional losses too come into play when a vehicle relies on wheels. As speeds accelerate, mechanical wear and tear leads to high maintenance costs. Maglev (magnetic levitation), which was expected to provide a solution has not gained traction. High-power consumption, accidents and technical challenges have hampered its progress.

In Hyperloop, during the pod's journey, an inlet fan and compressor push high pressure air from the nose to tail. This action and the partial vacuum which eliminates most of the drag, boosts the speed. Low power consumption and reliance on existing infrastructure after re-engineering, are big positives.

**Advantages**

- Hyperloop is two-to-three times faster than fastest high-speed rail and claimed to have speeds even greater than commercial air travel.
- It has smaller civil engineering footprint, with no direct emissions or noise compared to railways.
- Hyperloop system's capital cost per mile is 60% that of high-speed rail, and is less expensive to operate.
- Furthermore, Hyperloop departures could happen with a low frequency of a pod every 20 seconds which is not possible in railways.

**Challenges**

- It requires heavy investments and therefore effective public and private sector coordination is prerequisite for implementing it.
- It consumes high-power compared to railways.
- Technical challenges and accidents may hamper its progress.

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# Tamil to be additional compulsory language for Class IX, X students in private schools

T.N. Director of Private Schools announces change for the 2024-25 academic year and will also determine the syllabus and exam pattern. The final written exam for Class X will be conducted by the Director of Government Examinations, and a separate certificate will be issued, says circular

The Hindu Bureau  
CHENNAI

The Tamil Nadu Director of Private Schools has announced that students in Classes IX and X in all private schools affiliated to various boards except the State Board, who have not opted for Tamil as one of the languages as a part of their respective board exam requirements, will have to be taught Tamil as an additional compulsory language in the 2024-25 academic year.

A circular issued to this effect said the syllabus and exam pattern for the students taking up Tamil as an additional language would be determined by the Director of Private Schools. The final written exam for Class X for all private schools will be conducted by the Director of Government Examinations. A separate certificate will be issued.

While students who have opted for Tamil as one of the languages in Classes IX and X as a part of their mandatory board



For teaching Tamil, private school managements have been instructed to employ suitable, fully qualified teachers. FILE PHOTO

exam requirements can continue to do so, this additional subject will be compulsory for those students who have opted for

another languages and have been studying the same since Class I.

According to a Government Order passed based

on the Tamil Language Learning Act 2006, it was mandated that Tamil be taught as a subject for Classes I to X in private schools, and this commenced in a phased manner from 2015-16, beginning with Class I. By the end of the 2024-25 academic year, the order stated that all private schools affiliated with boards besides the State Board will have to ensure that all students from Classes I to X are taught Tamil.

However, not all private schools have been offering

Tamil as the second language for the last few years.

Private school managements have been instructed to employ suitable, fully-qualified teachers to teach Tamil as an additional compulsory language. They have also been asked to hold periodic tests at the school level as is done for other subjects. District Educational Officers have been asked to monitor and ensure that Tamil is taught by qualified teachers in the schools that come under their jurisdiction.

## Union Education Ministry discontinues two awards

The Union Higher Education Ministry has discontinued the 'Shiksha Puraskar', launched by the Centre in 1992 for encouraging original writings in Hindi. The decision is part of the Union Home Ministry's move to rationalise various awards instituted by the Centre. The 'Hinditar Bhashi Hindi Lekhak Puraskar', an award given to promote writings in Hindi by writers from non-Hindi speaking areas, has also been discontinued. Under the 'Shiksha Puraskar', five awards worth ₹1 lakh each is given every year. The 'Hinditar Bhashi Hindi Lekhak Puraskar' carries a cash prize of ₹50,000.



# Chief Minister's visit to Japan and Singapore to focus on attracting investments into T.N.

**The Hindu Bureau**  
CHENNAI

Chief Minister M.K. Stalin will start an official visit to Singapore and Japan today. The visit will focus on bringing investments and new technologies into the State and extending invitations for the Global Investors' Meet in 2024, according to an official statement.

The Chief Minister will be accompanied by Industries Minister T.R.B. Rajaa and senior officials. On May 23, a delegation led by Mr. Stalin will leave for Singapore, where he will meet the country's Minister for Transport and Minister-in-Charge of Trade Relations, S. Iswaran, Law Minister K. Shanmugam and top officials from com-

panies including Temasek, Sembcorp and CapitaLand Investment.

At an investors' conference to be held in the evening, memoranda of understanding are expected to be signed between Guidance Tamil Nadu, State Industries Promotion Corporation of Tamilnadu Ltd, FameTN, TANSIM and Tamil Nadu Skills Development Corporation, and Singapore University of Technology and Design, Singapore India Partnership Office and Singapore Indian Chamber of Commerce and Industries.

The delegation will also take part in cultural programmes organised by Singapore Tamils.

In Japan as well, an investment promotion con-

ference would be held, and a slew of memoranda of understanding would be signed, the release added.

The delegation led by Mr. Stalin would visit the commercial hub of Osaka and participate in an investors' conference to be organised jointly with JETRO. He will make a pitch for investing in Tamil Nadu, and also participate in a reception organised by people of Indian origin.

In Tokyo, Mr. Stalin would hold meetings with Japan's Minister for Economy, Trade and Industry Nishimura Yasutoshi and JETRO chairman Ishiguro Norihiko. He would take part in an investors' conference in which over 200 Japanese firms would also participate.

## Stalin expresses concern over T.N. lagging behind in prevention of deaths due to manual scavenging

**The Hindu Bureau**  
CHENNAI

Chief Minister M.K. Stalin on Monday expressed concern over Tamil Nadu lagging behind in preventing deaths due to manual scavenging, despite leading in many other social indicators and sectors such as industry and Information Technology.

"I think the officials are not paying enough attention to this," he said, during a review meeting organised by the Municipal Administration and Water Supply Department at the Secretariat to discuss steps to prevent deaths due to manual scavenging. "The State government has a duty and a responsibility to prevent deaths due to manual scavenging, which is a black mark on humanity," the Chief Minister pointed out.



Chief Minister M.K. Stalin holding a review meeting to discuss steps to prevent deaths due to manual scavenging, at the Secretariat on Monday. SPECIAL ARRANGEMENT

Mr. Stalin said that as per a review undertaken by him, most of the deaths took place in urban areas. He warned of strict action against officials who did not take enough precautionary measures to prevent such deaths.

Mr. Stalin also requested Shiv Das Meena, Additional Chief Secretary, Municipal Administration and Water Supply Department, to come out with a standard operating procedure to be followed to prevent such deaths. He also cited

an agreement signed in February between the Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) and the Dalit Chamber of Commerce to train 'cleanliness workers' to become entrepreneurs by imparting skill

training to operate modern equipment, and to prevent loss of lives.

Mr. Stalin said the Greater Chennai Corporation was planning to empower people engaged in cleaning septic tanks with modern equipment, and turn them into entrepreneurs through the Ambedkar Business Champions Scheme, announced in the Budget for 2023-24, for which ₹100 crore had been allocated. This plan should be implemented within four months, he said.

Municipal Administration Minister K.N. Nehru, Minister for Rural Development I. Periyasamy, Chief Secretary Irai Anbu, Greater Chennai Corporation Commissioner J. Radhakrishnan and Finance Secretary T. Udhayachandran were among those who participated in the meeting.

### What is Manual Scavenging?

- Manual scavenging is defined as "the removal of human excrement from public streets and dry latrines, cleaning septic tanks, gutters and sewers".
- India banned the practice under the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 (PEMSR).
  - The Act bans the use of any individual manually cleaning, carrying, disposing of or otherwise handling in any manner human excreta till its disposal.

- The Act recognizes manual scavenging as a “dehumanizing practice”.

### **What are the Reasons for the Prevalence of Manual Scavenging?**

- Indifferent Attitude:
  - A number of independent surveys have talked about the continued reluctance on the part of state governments to admit that the practice prevails under their watch.
- Issues due to Outsourcing:
  - Many times, local bodies outsource sewer cleaning tasks to private contractors. However, many of them fly-by-night operators, do not maintain proper rolls of sanitation workers.
  - In case after case of workers being asphyxiated to death, these contractors have denied any association with the deceased.
- Social Issue:
  - The practice is driven by caste, class and income divides.
  - It is linked to India's caste system where so-called lower castes are expected to perform this job.
  - In 1993, India banned the employment of people as manual scavengers (The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993), however, the stigma and discrimination associated with it still linger on.
    - This makes it difficult for liberated manual scavengers to secure alternative livelihoods.



### **What are the Steps taken to tackle the Menace of Manual Scavenging?**

- The Prohibition of Employment as Manual Scavengers and their Rehabilitation (Amendment) Bill, 2020:
  - It proposes to completely mechanise sewer cleaning, introduce ways for 'on-site' protection and provide compensation to manual scavengers in case of sewer deaths.
  - It will be an amendment to The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.
  - It is still awaiting cabinet approval.
- The Building and Maintenance of Insanitary Latrines Act of 2013:
  - It outlaws' construction or maintenance of unsanitary toilets, and the hiring of anybody for their manual scavenging, as well as of hazardous cleaning of sewers and septic tanks.
  - It also provides a constitutional responsibility to provide alternative jobs and other assistance to manual scavenging communities, as reparation for historical injustice and indignity.
- Scheduled Castes & Scheduled Tribes (Prevention Of Atrocities) Act, 1989:
  - In 1989, the Prevention of Atrocities Act became an integrated guard for sanitation workers, more than 90% people employed as manual scavengers belonged to the Scheduled Caste. This became an important landmark to free manual scavengers from designated traditional occupations.
- Safaimitra Suraksha Challenge:
  - It was launched by the Ministry of Housing and Urban Affairs on World Toilet Day (19th November) in 2020.



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- The Government launched this “challenge” for all states to make sewer-cleaning mechanised by April 2021 — if any human needs to enter a sewer line in case of unavoidable emergency, proper gear and oxygen tanks, etc., are to be provided.
- Swachhta Abhiyan App:
  - It has been developed to identify and geotag the data of insanitary latrines and manual scavengers so that the insanitary latrines can be replaced with sanitary latrines and rehabilitate all the manual scavengers to provide dignity of life to them.
- National Action Plan for Mechanised Sanitation Ecosystem (NAMASTE):
  - The NAMASTE scheme is being undertaken jointly by the Ministry of Housing and Urban Affairs and the MoSJ&E and aims to eradicate unsafe sewer and septic tank cleaning practices.
- SC Judgment: In 2014, a Supreme Court order made it mandatory for the government to identify all those who died in sewage work since 1993 and provide Rs. 10 lakh each as compensation to their families.

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# Centre seeks stricter implementation of ban on e-cigarettes

**Press Trust of India**

NEW DELHI

With electronic cigarettes easily available online and at tobacco shops despite a ban, the Union Health Ministry has issued a public notice for stricter implementation of the Act which prohibits their manufacture, sale and advertisements.

The Prohibition of Electronic Cigarettes (Production, Manufacture, Import, Export, Transport, Sale, Distribution, Storage and Advertisement) Act came into force in 2019.

The Ministry has directed all producers, manufacturers, importers, exporters, distributors, advertisers, transporters, including couriers, social media and shopping websites, shopkeepers, retailers and others not to directly or indirectly produce, manufacture, import, export, transport,

sell, distribute and store e-cigarettes, whether as a complete product or any part thereof. It has also asked them not to advertise e-cigarettes.

“Offence of production, manufacture, import, export, transport, sale [including online sale], distribution, storage and advertisement of electronic cigarettes is cognisable and punishable as per the statutory provisions of the Act,” the Ministry added.

## ‘Weak enforcement’

Binoy Mathew, manager, Voluntary Health Association of India, said, “The ban on electronic cigarettes was introduced to protect our younger generation from a new form of toxic addiction. However, its enforcement has been weak, resulting in the market being flooded with cheap and unbranded Chinese-made electronic cigarettes.”

## What are E-cigarettes?

- E-cigarettes are sometimes called “e-cigs,” “vapes,” “e-hookahs,” “vape pens,” and “Electronic Nicotine Delivery Systems (ENDS).”
- Some e-cigarettes look like regular cigarettes, cigars, or pipes. Some look like USB flash drives, pens, and other everyday items.
- Using an e-cigarette is sometimes called “vaping.”



- **Potential Benefits:** E-cigarettes have often been suggested as a potential means to help smokers quit.
- **What are the harmful effects?**
  - E-cigarettes are not **safe for youth, young adults, and pregnant women**, as well as adults who do not currently use tobacco products.
  - **In 2016**, the U.S. Surgeon General had concluded that “e-cigarette use **among youths and young adults** is a public health concern; exposure to nicotine during adolescence can cause addiction and can harm the developing adolescent brain.”
  - **Study of 2018:** It found the use of e-cigarette daily was associated with a 79% increase in **heart attack risk** after other variables were taken into account.
  - **the Indian Council of Medical Research (ICMR):** According to a white paper on e-cigarettes by the Indian Council of Medical Research (ICMR),

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depending on the battery output voltage used, nicotine solvents can release in **varying amounts potential carcinogens** such as acetaldehyde, formaldehyde and acetone.

- The liquid-vaporizing solutions also contain “toxic chemicals and metals that **can cause several adverse health effects including cancers and diseases of the heart, lungs and brain**”.
- **Defective e-cigarette batteries** have caused fires and explosions, some of which have resulted in serious injuries. Most explosions happened when the e-cigarette batteries were being charged.

### Steps of Indian Government

- **Prohibition of Electronic Cigarettes Bill, 2019:** It prohibits production, manufacture, import, export, transport, sale, distribution, storage and advertisement of e-cigarettes.

## PRODN, SALE PUNISHABLE BY JAIL, FINE

### WHAT IS AN E-CIGARETTE?

Electronic-cigarettes are **battery-operated devices that produce aerosol by heating a solution containing nicotine**, which is the addictive substance in combustible cigarettes. These include all forms of Electronic Nicotine Delivery Systems (ENDS), Heat Not Burn Products, e-hookah and similiar devices



### STOCKS TO BE DEPOSITED WITH POLICE

- Any **production, manufacturing, import, export, transport, sale (including online sale), distribution or advertisement** (including online advertisement) of e-cigarettes shall be a cognizable offence
- Owners of existing stocks of e-cigarettes on the date of commencement of the ordinance will have to suo moto **declare and deposit these stocks** with the nearest police station

**e-cigarettes are banned in around 30 countries**

### 3 YRS' PRISON, ₹5L FOR REPEAT OFFENCE

The first offence will be punishable with an **imprisonment of up to 1 year or fine up to ₹1 lakh or both**

Repeat offence will attract **imprisonment of up to 3 years and fine up to ₹5 lakh**

Storage of e-cigarettes shall also be punishable with **jail term up to 6 months or fine up to ₹50,000 or both**

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- Combating the menace of e-Cigarettes through a Statute on Prohibition of Electronic Cigarettes and like devices, regulation of display and use of tobacco products in films and television programs.
- **Cigarettes Act, 1975:** Tobacco control legislation in India dates back to the Cigarettes Act, 1975 which mandates the **display of statutory health warnings in advertisements** and on cartons and cigarette packages.
- **Delhi Prohibition of Smoking and Non-Smokers Health Protection Act:** It was passed in the Delhi assembly in 1997 and became the model for Central Legislation banning smoking in public places in 2002, on the directions of the Supreme Court.
- **Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade, Commerce, Production, Supply and Distribution) Act (COTPA) 2003:**
  - The comprehensive tobacco control legislation aims to **provide smoke-free public places** and also places restrictions on tobacco advertising and promotion.
- **Tobacco Quitline Services:** These toll-free quitline services (1800-112-356) were initiated in 2016 and were expanded in September 2018.
  - These are now available in 16 languages and other local dialects from 4 centres.
- **National Health Policy 2017:** It sets an ambitious target of reducing tobacco use by 30 per cent by 2025, which has been devised keeping in view the targets for control of NCDs.
- Ratification of the **WHO Framework Convention on Tobacco Control (FCTC).**
- **National Tobacco Control Programme (NTCP)**
  - The **Ministry of Health and Family Welfare** launched the National Tobacco Control Programme (NTCP) in 2007- 08 in 42 districts of 21 States/Union Territories of the country.
  - Currently, the Programme is being implemented in all States/Union Territories covering over 600 districts across the country.
  - **Objectives**
    - To bring about greater awareness about the harmful effects of tobacco use and Tobacco Control Laws.

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## Chennai to host squash World Cup in June

**Sports Bureau**  
CHENNAI

The Sports Development Authority of Tamil Nadu-World Squash Federation Squash World Cup will be held from June 13 to 17 at the Express Avenue mall and the Indian Squash & Triathlon Academy (ISTA) here, it was officially announced on Monday.

Hong Kong, Japan, Malaysia, Egypt, South Africa, Australia, Colombia and India will participate in the tournament. The last edition of the World Cup was also held in Chennai in 2011.

"This tournament marks a new chapter in the history of our event as we revive and revamp it to enhance its significance



**Full support:** Udhayanidhi Stalin hands over the ₹1.5 crore cheque to Ramachandran in the presence of Sports Secretary Atulya Misra, third from left, SDAT member-secretary J. Meghanatha Reddy, second from left, Abhay Singh and Joshna Chinappa. B. JOTHI RAMALINGAM

further," said N. Ramachandran, Squash Rackets Federation of India honorary life president and SDAT vice-chairman.

This will be the fourth edition and it is notable for the gender parity and the points system. There will

be two men and two women per team as opposed to two men and one woman in previous editions.

There will be a round-robin pool stage followed by the knockout stage.

Saurav Ghosal, Abhay Singh, Joshna Chinappa

and Tanvi Khanna will represent India.

Tamil Nadu Minister for Youth Welfare and Sports Development Udhayanidhi Stalin presented a cheque for ₹1.5 crore to Ramachandran for the conduct of the event.