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MK Yadav Sir

Table of Contents

1. STRIPS
2. FAME India
3. Rapidx RRTS
4. Farmer Producer Organisations
5. Best Practices in Social Sector
6. Arab League
7. START Program
8. Snake Antivenoms
9. Optical Tweezers
10. Diamond League

STRIPS

(Syllabus: GS Paper 3 - Economy)

G-Sec STRIPS Trade Leaps 600% Since FY19 as Insurers Flock to Bond Street

Bhaskar.Dutta@timesgroup.com

Mumbai: In a sign of changing investment priorities in the country, insurance companies have displayed a robust appetite for sovereign debt since the Covid-19 pandemic.

In the process, a hitherto esoteric bond product — Separate Trading of Registered Interest and Principal Securities, or STRIPS — has emerged as a top pick amongst investors.

The face value of STRIPS trades has soared to ₹1.34 lakh crore in 2022-23 from ₹17,659.46 crore in FY19 — a 661.5% jump.

A STRIPS bond is one where the cash flows — the principal and the coupons — are separated and traded as individual securities.

From being exclusively the domain of primary dealers, the instrument is now being used by private and foreign banks as well on behalf of insurers, bond traders said.

Insurance companies' ownership of government bonds has increased to 26.14% in the quarter ended December 2022 from 24.9% in the quarter ended December 2019, the latest RBI data showed.

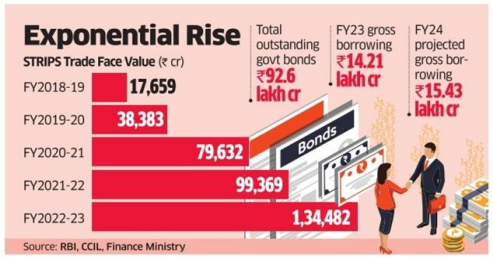
Tellingly, the value of STRIPS trades increased exponentially during the Covid-19 crisis. From ₹38,383 crore in FY20, the value of STRIPS trades shot up to ₹99,369 crore in FY22.

The STRIPS facility was introduced by the Reserve Bank of India (RBI) in 2010. It failed to garner yearly trades worth even ₹1,000 crore till 2013. In the next four years, the facility did not see any trades at all.

All that has changed in recent years.

"The main reason for the pick-up was the kind of products that the insurance companies started selling — largely long-term income-related plans, wherein investors give the money right now and they are guaranteed returns for a long period," said Abhay Garg, senior vice-president at PNB Gilts, a primary dealer and underwriter of government securities.

"To match this liability, from the perspective of insurance companies, they wanted long-term assets with very low or zero reinvestment risk," he said. "This is where STRIPS came into the picture. There is no reinvestment risk and you're getting a long-term asset."



MONEY MARKET SPILLOVERS

Over the past month, spikes in the interbank call money rate — despite surplus liquidity — have brought to the fore skewed distribution of cash among banks. The call rate represents the overnight cost of funds for banks and is a key determinant of other short-term borrowing costs in the economy.

A factor that has contributed to the jumps in the call rate, especially in the early hours of trade, is the requirement of the STRIPS operation. Banks and primary dealers buying STRIPS bonds at primary auctions would need to have the bonds stripped by the RBI.

This leads to a lack of securities that could be used for interbank repos as a way of raising funds.

The call money market — which is uncollateralised — then becomes the funding route for those in need of cash. The sudden demand amid skewed liquidity has been pushing the call rate, traders said.

"In most of the cases what happens is that the securities which are to be stripped are given to RBI on Tuesday," Garg said. "That means that on Tuesday when we are submitting, these securities cannot be repoed. So, these cannot be funded through the repo market. It needs to be funded through the call market," he said.

WHY THE DEMAND?

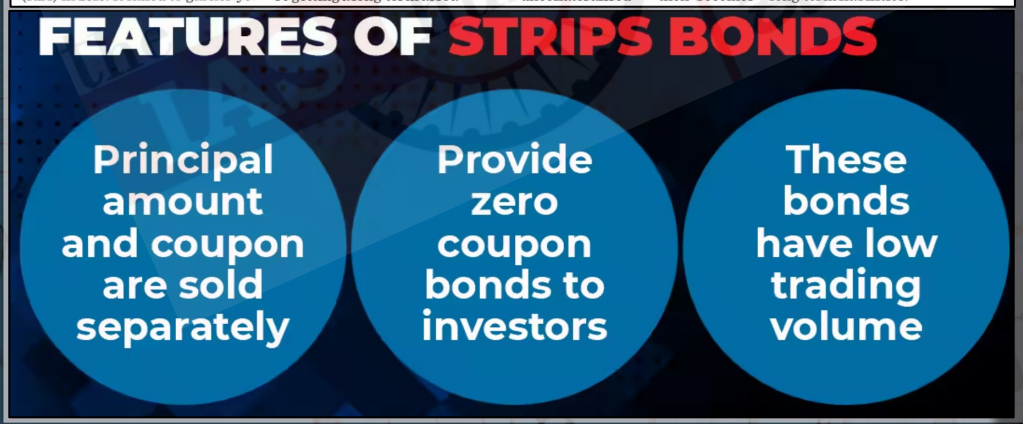
A key advantage of the STRIPS facility is the absence of 'reinvestment risk' — which refers to the possibility of investors not being able to deploy proceeds from bonds at a desirable rate of interest.

The STRIPS facility permits purchases and sales of a bond's coupon payments and principal amount as separate, individual securities. Essentially, the cash flows of a bond can be bought and sold.

These individual securities are free of reinvestment risk as they are 'zero-coupon' papers.

This means they do not provide interest payments. Rather, the draw for the investor is the fact that they are bought at a 'deep discount' or a much lower price than the sum that will be paid out when the bonds mature.

Such a facility provides advantages to insurance companies — which need to dexterously manage long-term liabilities.



Context: In a sign of changing investment priorities in the country, insurance companies have displayed a **robust appetite for sovereign debt** since the Covid-19 pandemic.

- In the process, a hitherto esoteric bond product - **Separate Trading of Registered Interest and Principal Securities, or STRIPS** - has emerged as atop pick amongst investors.

STRIPS

- These are the **securities created by way of separating the cash flows** associated with a regular G-Sec i.e. each semi-annual coupon payment and the final principal payment to be received from the issuer, into separate securities.
- They are essentially **Zero Coupon Bonds (ZCBs).**
- However, they are **created out of existing securities** only and unlike other securities, are not issued through auctions.

BUSINESS STANDARD Page 1

FAME INDIA

(Syllabus: GS Paper 3 - Infrastructure)

FAME fund tweak for e-buses on the cards

Unutilised ₹2,000 cr under E3W category may be used to sponsor 3,000 e-buses

NITIN KUMAR
New Delhi, 7 May

The central government is planning to tweak the allocation of funds under its electric vehicle subsidy scheme towards electric buses (e-buses), *Business Standard* has learnt.

The proposed plan is to divert unutilised funds for electric three-wheelers (E3Ws) towards sponsoring about 3,000 additional e-buses. "Around ₹2,000 crore of the E3W category is still unutilised. We are planning to redirect it to buy 2,500-3,000 e-buses," senior officials said.

Under the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME) II scheme, ₹2,500 crore was earmarked to support half a million electric three-wheelers. However, only 81,000 E3Ws were sold under the scheme until February 15. As the E3W category is still dominated by lead-acid batteries, which have lower purchase costs than lithium-ion batteries, the demand for subsidies did not see the expected results.

The proposal comes after a series of internal discussions in the heavy industry ministry (MHI) decided to exhaust the ₹10,000 crore allocated under FAME II before it expires in March 2024.

"In view of the fast-approaching deadline, we want to ensure that the complete fund gets exhausted in this fiscal year," said a senior official, adding: "e-buses also have the highest social and environmental impact."

In an interview with *Business Standard* last month, Union Heavy Industries Minister M N Pandey had also indicated about the possibility of tweaks in the scheme. "We have already created an electric ecosystem in the country. We are supporting more buses than we had aimed for. We will decide (on supporting electric two-wheelers and buses) based on the requirements at that time," Pandey had said.



THE PLAN ON TRACK

7,090 sanctioned under FAME

7,210 e-buses approved

2,435 already deployed

The government has approved 7,210 e-buses against the target of 7,090 under FAME II.

As of March 21, various state transport units have issued sanction orders for 3,738 e-buses, and the Convergence Energy Services (CESL) has undertaken the aggregation model for 3,472 e-buses, the MHI data reveals. Of the 7,210 e-buses sanctioned, 2,435 have been deployed.

Four hundred twenty-five e-buses were also deployed across 10 cities thanks to government incentives of about ₹280 crore during the first phase of FAME (from 2015 to 2019).

The government has already exhausted the ₹3,545 crore earmarked for e-buses under the second phase of the scheme.

Turn to Page 6

E2W MAKERS GEAR UP FOR SCALE P17
STATSGURU: ROAD AHEAD FOR EVs

Context: The central government is planning to tweak the allocation of funds under its electric vehicle subsidy scheme towards electric buses (ebuses),

- Under the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India **(FAME) II scheme,** ₹ 2,500 crore was earmarked to support half a million electric three wheelers (E3Ws).
- The proposed plan is to divert unutilised funds for electric three wheelers (E3Ws) towards sponsoring about 3,000 additional e-buses.

FAME India

- **About**: **FAME (Faster Adoption and Manufacturing of Electric Vehicles)** India is a part of the National Electric Mobility Mission Plan.
  - Main thrust of FAME is to **encourage electric vehicles** by providing subsidies.
- **Implementing agency:** The **Department of Heavy Industry** is administering the scheme "Faster Adoption and Manufacturing of Electric and Hybrid Vehicles in India", popularly known as FAME India scheme since **01st April 2015..**
- **Objective**: Promotion of Electric and hybrid vehicle in the country by offering upfront **Incentive on purchase of Electric vehicles** and by establishing charging Infrastructure for electric vehicles.
- **Salient features of the FAME scheme - 2:**
  - The scheme with total outlay of Rs 10,000 Crores over the period of three years (2019-20 to 2021-22) will be implemented with effect from 1st April 2019.
  - This scheme is the expanded version of the present scheme titled **'FAME India-1** which was launched on 1st April 2015, with total outlay of Rs. 895 crores.
  - **Target** is to support 10 Lakhs e-2Wheeler, 5 Lakhs e-3 Wheelers, 55000 4Wheelers and 7000 Buses.
  - Under the scheme of FAME-II, the **demand incentive** for e-2W has been increased to Rs. 15,000/KWh from Rs. 10,000/KWh with an increase in cap from 20% to almost 40% of the cost of the vehicle to increase the adoption of e-2W.
  - The phase II of FAME-India Scheme has been **extended for a period of two years after 31st March 2022.**
- **Benefits**: The scheme will help in **addressing the issue of environmental pollution** and fuel security.

TIMES OF INDIA

Page 5

RAPIDX RRTS

(Syllabus: GS Paper 3 - Infrastructure)

Fast, Frequent: RAPIDX Trains To Be Available Every 5-10 Minutes

Six Air-Conditioned Coaches To Begin With, May Be Increased To Nine Later

Priyangi.Agarwal
@timesgroup.com

New Delhi: RAPIDX, the country's first regional rapid transit system (RRTS), will be available at a gap of 5-10 minutes on the Delhi-Ghaziabad-Meerut corridor. Although the airconditioned trains will initially have six coaches, the stations are designed to accommodate nine, if needed. A six-coach train will have 450 passenger seats.

One coach will be a premium coach and another will be reserved for women. Though the entire corridor, the first in the plan, will be open for the public in 2025, a 17km priority section from Sahibabad to Duhai will be made operational soon. However, the train frequency for it is yet to be decided, said officials.

"RRTS is a first-of-its-kind, rail-based, high-speed, high-frequency regional transit system with design speed of 180kmph and an average speed of 100kmph, which will be more than three times of metro rail," said an official of National Capital Region Transport Corporation (NCRTC), which is executing the project. "Being implemented for the first time in India, RAPIDX will be the fastest, most comfortable and the safest mode of commuter transport in NCR," he claimed.

On the priority section, commuters will be able to complete their journey in 12 minutes. After commissioning of the entire corridor from Delhi to Meerut, the travel time will reduce to 50 minutes from three hours.

"With the construction of priority sections, the RRTS corridor in Delhi, Ghaziabad and Meerut has been raised from the ground and is clearly visible. Viaducts built at many places and rows of standing pillars give an impression of this changing transport service. There are 25 stations on the corridor from Delhi to Meerut and most of them have taken shape," said an NCRTC official.

Considering safety and security of the commuters, the trains and the RRTS stations will be monitored through CCTV cameras 24x7. Three entry-exit gates are provided on each side for easy flow of commuters. The trains have ergonomically designed 2x2 transverse seating, wide standing space, luggage racks, dynamic route maps, auto control ambient lighting system, heating ventilation and airconditioning system and other amenities. "Under the Make in India guidelines, 100% of trainsets for RRTS are being manufactured in India at a plant in Savli, Gujarat," said an official.

The Delhi-Ghaziabad-Meerut corridor is expected to have a daily ridership of around 8 lakh and is estimated to reduce 2,50,000 tonnes of carbon dioxide emission per year.

UP TO SPEED WITH RAPIDX

Corridor Details

Corridor Length 82 km

Stretch in Delhi Around 14 km | Stretch in UP Around 68 km

Elevated length 70 km
Delhi: 10 km | UP 60 km

Underground Length 12 km
Delhi: 4 km | UP: 8 km

TWO maintenance depots at Duhai & Modipuram

- Priority Section of 17 km between Sahibabad and Duhai - Commissioning target by 2023
- Commissioning of the full corridor from Delhi to Meerut by 2025
- RAPIDX will be available at every 5-10 minutes

Modipuram Depot, Modipuram, Begumpul, Shatabdi Nagar, Meerut South, Modi Nagar North, Duhai Depot, Modi Nagar South, Duhai Depot Station, Murad Nagar, Duhai, Guldhar, Ghaziabad, Anand Vihar, Sahibabad, New Ashok Nagar, Sarai Kale Khan, Jangpura

At grade | Elevated | Underground

RAPIDX- Capacity

No. of trains 30

Coaches 6

Number of coaches can be accommodated at a metro station 9

Number of passenger seats in 6-coach train 450 X20

Ridership

- Delhi-Ghaziabad-Meerut RRTS corridor is expected to have a daily ridership of around 8 lakh passengers
- It is estimated to reduce 2,50,000 tonnes of carbon dioxide emissions per year

AN OFFICIAL SAYS

RAPIDX will be the fastest, most comfortable and the safest mode of commuter transport in NCR

Context: RAPIDX, the country's first regional rapid transit system (RRTS), will be available at a gap of 5-10 minutes on the Delhi-Ghaziabad Meerut corridor.

- NCRTC is the implementing agency of India's first RRTS corridor between Delhi-Ghaziabad-Meerut.
- **National Capital Region Transport Corporation** is a joint venture company of the Government of India and the states of Haryana, Rajasthan, Uttar Pradesh, and Delhi.

Regional rapid transit system (RRTS)

- **About**: It is a **new, dedicated, high speed, high capacity, comfortable commuter service** connecting regional nodes in NCR.
  - It is **different from conventional Railway** as it will provide reliable, high frequency, point to point regional travel at high speed along dedicated path way.
  - It is **different from metro** as it caters to passengers looking to travel a relatively longer distance with fewer stops and at higher speed.
- **Key features:**
  - **Speed**: Design speed - 180 km/h, Operational speed - 160 km/h, Average speed of 100 km/h.
    - Three times the speed of Metro.
  - **Aerodynamic trains with airline-like transverse seating arrangements**: In general, the train aerodynamics are related to aerodynamic drag, pressure variations inside train, train-induced flows, cross-wind effects, ground effects, pressure waves inside tunnel, impulse waves at the exit of tunnel, noise and vibration, etc.
  - **Interoperability**: Trains will **move from one corridor to another,** facilitating commuter travel from one corridor station to another without train changes.
  - **Multimodal integration**: It will be integrated with various modes of public transport systems like airports, Indian Railway stations, inter-state bus terminals, and Delhi Metro stations, wherever possible.

DTE

MAY 8

FARMER PRODUCER ORGANISATIONS

(Syllabus: GS Paper 3 - Agriculture)

Here is how producer organisations evolved in India

Farmer producer companies (FPCs) and cluster based business organisations (CBBOs) have been formed and are functioning in India for over 20 years now

NEXT NEWS >

By DTE Staff
Published: Saturday 06 May 2023





Context: As of February 2023, there are a total of 16,000 **FPCs** in the country, according the Union Ministry of Corporate Affairs.

- The **largest increase in the number** has happened in the last three years: 2020-21, 2021-22, 2022-23, when 65 per cent of the FPCs were registered.
- In 2020-2021, even as the country faced an unprecedented pandemic and many companies were closing down, a whopping 6,000 FPCs were registered.

Farmer producer organisations (FPO)

- India developed the concept of **farmer producer organisations (FPO)** in early 2000s to help small farmers gain economies of scale and improve their market standing by negotiating collectively.
- A **Producer Organisation (PO) is a legal entity** formed by primary producers that are farmers, milk producers, fishermen, weavers, rural artisans, craftsmen, etc.. PO is a generic name for an organization of producers of any produce, e.g., agricultural, non-farm products, artisan products, etc.
- The **Companies Act was amended by incorporating Section-IX A** in it to allow creation and registration of FPOs under it.
- To facilitate the process, the **Small Farmers Agribusiness Consortium (SFAC)** was mandated by the Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, to support the State Government in the formation of the Farmer Producer Organizations (FPOs).
- The FPOs are **voluntary** organizations controlled by farmer-members who actively participate in making decisions and setting policies.
- The FPOs are **open to persons who are willing to accept the responsibilities of membership** without social, gender, political, racial, or religious discrimination.
- In 2019, the Government of India launched a scheme, **Formation and Promotion of 10,000 Farmer Producer Organisations,** to form and promote 10,000 new FPOs in the country by 2024, with a budgetary provision of Rs 6,865 crore.
- Under this scheme, the formation and Promotion of FPOs is to be done through nine implementing agencies, such as Small Farmers Agri-Business Consortium (SFAC), National Cooperative Development Corporation (NCDC) and National Bank for Agriculture and Rural Development (NABARD).
- Any legal entity registered in India and in existence for past three years is eligible to be a **Cluster Based Business Organization (CBBO) .**
- In 2021, The Government approved and launched the Central Sector Scheme of **"Formation and Promotion of 10,000 Farmer Producer Organizations(FPOs)**" to form and promote 10,000 new FPOs till 2027-28.

INDIAN EXPRESS

Page 9

BEST PRACTICES IN SOCIAL SECTOR

(Syllabus: GS Paper 2 - Govt. Policies & Interventions)

Centre's UMANG, Delhi's EV policy in NITI Aayog list of 'best practices'

BEST SCHEMES IN SOCIAL SECTOR

NUMBER OF PRACTICES

Centre	14
Karnataka	6
Assam, MP	5 each
Delhi, UP	4 each
Jharkhand, Odisha, Rajasthan	3 each
Centre & State jointly	2
Andaman and Nicobar, Chhattisgarh, Gujarat, Maharashtra, Manipur, Punjab, Telangana & Uttarakhand	2 each
Andhra Pradesh, Arunachal Pradesh, Bihar, Chandigarh, Haryana, J&K, Kerala, Nagaland, TN & Tripura,	1 each

HARIKISHAN SHARMA
NEW DELHI, MAY 7

FROM FIGHTING malnutrition to promoting black rice to integration of students' skills and experiences into a credit-based system: these are among 75 initiatives of the Centre and the states/ UTs in the social sector to be commended by the Niti Aayog as "best practices".

According to the Niti Aayog, the government's apex public policy think-tank tasked with catalysing economic development and fostering cooperative federalism, these 75 initiatives have benefitted a large segment of the society and are replicable.

Of these "best practices", 14 are those that have been launched by Central ministries, two are joint initiatives by the Centre and the state governments, while the rest are from 26 states and UTs. Twelve of the states are ruled by BJP or its allies, while 11 are ruled by the opposition (see chart).

These 75 initiatives have been to ensure that the stories identified are replicable, have benefited a large segment of the society and are spread over diverse themes," he wrote. A look at some of the initiatives:

CENTRAL GOVT (14)

Direct benefit Transfer; Academic Bank of Credits (integration of students' skills, experiences into a Credit Based system); National Academic Depository; Ganga Prahari initiative; National Artificial Intelligence Portal; Innovations for Defence excellence; Nasha Mukt Bharat; Prayatna project for Transgenders; Financial inclusion for street vendors under PM SVANidhi; Projecton Ethanol; One Nation One Ration Card; UMANG; DigiLocker;Crash course for Covid Warriors.

DELHI (4) Home based education to children with multiple/ severe disabilities; Electric Vehicle policy for clean air; Bio Decomposer Solution and Spray Programme to combat stubble burning; Sustainable power eco-system.

Context: From fighting malnutrition to promoting black rice to integration of students' skills and experiences into a credit-based system: these are among **75 initiatives of the Centre and the states/ UTs in the social sector** to be commended by the Niti Aayog as "best practices".

- According to the **Niti Aayog**, the government's apex public policy think-tank tasked with catalysing economic development and fostering cooperative federalism, these 75 initiatives have benefitted a large segment of the society and are replicable.
- These 75 initiatives have been documented in a book - **Best practices in social sector: A compendium 2023** - released by NITI Aayog

Key initiatives

- **Central govt (14)**: Direct benefit Transfer; Academic Bank of Credits (integration of students' skills, experiences into a Credit Based system); National Academic Depository; Ganga Prahari initiative; National Artificial Intelligence Portal; Innovations for Defence excellence; Nasha Mukt Bharat; Prayatna project for Transgenders; Financial inclusion for street vendors under PM SVANidhi; Project on Ethanol; One Nation One Ration Card; UMANG; DigiLocker;Crash course for Covid Warriors.
- **Delhi (4)**: Home based education to children with multiple/ severe disabilities; Electric Vehicle policy for clean air; Bio Decomposer Solution and Spray Programme to combat stubble burning; Sustainable power eco-system.
- **Karnataka (6)**: Kalika Chetarike - Activity based learning; Solving dry waste handling; Santhe Kaushalkar - Self Help Group and Artisan Profiling Platform; Farmer Registration and Unified beneficiary, Information System; Kutumba: Social Protection cum Entitlement Management System; Platform for SDG, CSR alignment
- **Uttar Pradesh (4)**: Black Rice Initiative in Chandauli; Reducing Maternal, Newborn Deaths (ReMiND), through mobile application; SARTHI & SAKHI - Mental Health Helpline; Disaster Risk Reduction.

LIVE MINT

Page 9

ARAB LEAGUE

(Syllabus: GS Paper 2 - International Organisations)

Arab League agrees to readmit Syria

Reuters
feedback@livemint.com

The Arab League on Sunday welcomed back Syria's government, ending a more than decade-long suspension and securing President Bashar al-Assad's return to the Arab fold after years of isolation.

In November 2011, the 22-member body suspended Damascus over its crackdown on peaceful protests which began earlier that year and which spiralled into a civil conflict that has killed more than 500,000 people, displaced millions and battered the country's infrastructure and industry.

While the front lines have mostly quietened, large parts of the country's north remain outside government control, and no political solution has yet been reached to the 12-year-old conflict.

"Government delegations from the Syrian Arab Republic will resume their participation in Arab League meetings" starting Sunday, said a unanimous decision by the group's foreign ministers.



Assad has been politically isolated since the war began. AP

Assad has been politically isolated since the war began, but recent weeks have seen a flurry of diplomatic activity ahead of an Arab League summit in the Saudi city of Jeddah on 19 May.

The ministers in a statement emphasised their "keenness to launch a leading Arab role in efforts to resolve" the Syria crisis and its "humanitarian, security and political consequences", noting that humanitarian aid must reach "all those in need".

They also agreed to form a ministerial committee to continue "direct dialogue with the Syrian government in order to reach a comprehensive solution".

Several Arab countries cut ties with Damascus early in the conflict, betting on Assad's demise, while some including Qatar and Saudi Arabia provided support to the Syrian opposition.

In November 2011, the 22-member body suspended Damascus over its crackdown on peaceful protests

The last Arab League summit Assad attended was in 2010, while the opposition attended the pan-Arab group's summit in Doha in 2013, sparking a furious reaction from Damascus.

Regional capitals have gradually been warming to Assad as he has stubbornly held onto power and clawed back territory lost earlier in the conflict with crucial support from Iran and Russia.

The United Arab Emirates, which re-established ties in late 2018, has been leading the recent charge to reintegrate Damascus into the Arab fold.

A February 6 earthquake that wreaked devastation in Turkey and Syria sparked Arab outreach to Assad's government, while intensified diplomatic activity has been underway in the region since a March decision by rivals Saudi Arabia and Iran to resume ties.

In March, Saudi state media said Riyadh and Damascus were in talks on resuming consular services, and in April, Saudi foreign minister Prince Faisal bin Farhan made the first visit to Damascus by a official from the kingdom since the start of the war.



Context: Arab League foreign ministers meet have agreed to restore Syria's membership in the League after a suspension of over 10 years due to the country's civil war.

- The decision to **restore Syria's membership** in the body was reportedly not unanimous but was made in a majority vote taken during a closed session.
- The move comes days before a scheduled **Arab League summit** in the Saudi capital, Riyadh.

Arab League

- **About**: It is a **regional organization of Arab countries** in and around North Africa, the Horn of Africa and Arabia.
- **Origin**: Formed in Cairo on 22 March 1945 with six members: Kingdom of Egypt, Kingdom of Iraq, Jordan, Lebanon, Saudi Arabia, and Syria.
- **Objectives**: Main goal is to "**draw closer the relations between member States** and coordinate collaboration between them, to safeguard their independence and sovereignty, and to consider in a general way the affairs and interests of the Arab countries ".
- **Members**: Currently, the **League has 22 members,** but **Syria's participation has been suspended since November 2011**, as a consequence of government repression during the Syrian Civil War.

THE HINDU

Page 12

ISRO to start online training programme for college students

The Hindu Bureau
BENGALURU

The Indian Space Research Organisation (ISRO) has announced a new introductory-level online training programme called space science and technology awareness training (START).

START is aimed at postgraduate and final-year undergraduate students of physical sciences and technology.

Academic institutions can submit applications for the programme through the Jigyasa portal by May 20.

The programme will cover various domains of space science, including astronomy and astrophysics, heliophysics and sun-earth interaction, instrumentation and aeronomy. It will be delivered by scientists from Indian academia and ISRO centres.

"The START programme is part of the ISRO's efforts to enable Indian students to become professionals in space science and technology, as the organisation's space science exploration programme continues to expand into new domains," the ISRO said.

The programme is intended to give them an overview of the different facets of the field, research opportunities and career options, it said.

Remote sensing courses

The ISRO's National Remote Sensing Centre (NRSC) has also announced two short courses – remote sensing data acquisition and remote sensing data processing.

The courses are scheduled to be held from August 21 to September 1 and October 9 to 20 respectively, at NRSC's Earth Station at Shadnagar near Hyderabad.

START PROGRAM

(Syllabus: GS Paper 3 - Sci & Tech)

Context: The Indian Space Research Organisation (ISRO) has announced a new introductory-level online training programme called **Space Science and Technology Awareness Training (START).**

Key Points

- START is **aimed at postgraduate and final-year undergraduate** students of Physical Sciences and Technology.
- Academic institutions can submit applications for the programme through the **Jigyasa portal** by May 20.
- The programme will **cover various domains of Space Science**, including Astronomy and Astrophysics, Heliophysics and Sun-Earth interaction, Instrumentation, and Aeronomy. It will be delivered by scientists from Indian academia and ISRO centres.
- The START programme is **part of the ISRO's efforts** to enable Indian students to become professionals in Space Science and Technology, as the organisation's Space Science exploration programme continues to expand into new domains.
- The programme is **intended to provide students with an introductory-level training in Space Science and Technology,** giving them an overview of different facets of the field, research opportunities, and career options.
- The **ISRO's National Remote Sensing Centre (NRSC)** has also announced two short courses- Remote Sensing Data Acquisition and Remote Sensing Data Processing.
- The courses are conducted through the **Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP)** and are scheduled from August 21 to September 1 and October 9 to 20, respectively, at NRSC's Earth Station at Shadnagar near Hyderabad. The CSSTEAP is an educational institution affiliated with the United Nations.

DTE

MAY 8

SNAKE ANTIVENOMS

(Syllabus: GS Paper 3 - Sci & tech)



Context: Alerts have been sounded in a number of countries since last year against cough syrups manufactured by Indian firms. Now, **snake antivenoms** made in India are also under scanner in Kenya for poor quality.

Key Points

- The **Kenya Medical Supplies Authority (KEMSA)** recently issued an advisory to health practitioners across the country, calling for a mop-up exercise to rid the market of the ineffective snake antivenom.
- Health experts and studies in India and by **World Health Organization (WHO)** indicated the serums had become ineffective.
- For decades, the Government of Kenya has been relying on antivenom serums from India and Mexico, namely **VINS Snake Venom Antiserum and Inoserp Pan-Africa injection**, respectively.
- Globally, venomous snake bites kill at least 200 people daily, according to WHO.
- The snakebite envenoming (poisoning from snake bites) was classified by the World Health Organisation (WHO) as a high-priority neglected tropical disease.

Snakebite Envenoming

- Snakebite envenoming is a **potentially life-threatening disease caused by toxins** in the bite of a venomous snake.
- Envenoming can also be **caused by having venom sprayed into the eyes** by certain species of snakes that have the ability to spit venom as a defence measure.
- Snake venom **contains a number of enzymes or proteinaceous substances,** present in varying amounts according to the species of snake, which attack the blood, the nervous system, or other tissues.

Snakebites in India

- A report by the Kerala Forest department stated that **Snakebites results in the highest number of human deaths** nearly double that of wild elephants.
- As per ICMR study India has seen an estimated 1.2 million (12 lakh) snakebite deaths from 2000 to 2019, an average of 58,000.
- India accounts for **almost 50% of global snakebite deaths.**
- In India, around 90% of snake bites are caused by the **'big four': Russell's viper, saw-scaled viper, spectacled cobra, and the common krait**

Treatment

- **Antivenoms**: Antivenoms are **purified antibodies** against venoms or venom components. Antivenoms are produced from antibodies made by animals to injected venoms.
  - Antivenom is the **only definitive treatment** for effective bites by venomous snakes.
  - Snake antivenoms are included in the WHO Essential Medicines List.
- **Antivenoms making process:** To make life-saving antivenoms, scientists enlist the help of horses that live on specialized ranches.
  - The **scientists inject the animals with a tiny, harmless dose of venom**, which causes their immune systems to produce antibodies proteins that attack and disable the venom toxins.
  - Then the scientists can **collect the antibodies** and use them to treat people who have been bitten or stung.

DST

MAY 8

OPTICAL TWEEZERS

(Syllabus: GS Paper 3 - Sci & Tech)

New way to track particles in soft colloids using optical tweezers can be applied in targeted drug delivery

Context: Scientists have found a way to track minute clay particle movements within **soft clay colloids using optical tweezers** - the application of which in biological systems brought the Nobel Prize in Physics in 2018.

This new way to track particles and manipulate them as desired can be applied in areas like targeted drug delivery.

- The **2018 Nobel prize** was awarded "for groundbreaking inventions in the field of laser physics" with one half to Arthur Ashkin "for the optical tweezers and their application to biological systems", the other half jointly to Gérard Mourou and Donna Strickland "for their method of generating high-intensity, ultrashort optical pulses."

Optical Tweezers

- **About**: It use light to **manipulate microscopic objects** as small as a single atom.
  - Optical tweezers are **built by modifying a standard optical microscope.**
- **Working principle**: The basic principle behind optical tweezers is the **momentum transfer.**
  - **Light carries momentum** that is proportional to its energy and in the direction of propagation.
  - Any **change in the direction of light**, by reflection or refraction, will result in a change of the momentum of the light.
  - If an object bends the light, **changing its momentum**, conservation of momentum requires that the object must undergo an equal and opposite momentum change.
  - This gives **rise to a force acting on the object.**
- **Applications:**
  - Optical tweezers have been used to **trap dielectric spheres, viruses, bacteria, living cells, organelles, small metal particles, and even strands of DNA**, without damaging them.
  - Other Applications include: **confinement and organization** (e.g. for cell sorting).
    - tracking of movement (e.g. of bacteria).
    - application and measurement of small forces.
    - altering of larger structures (such as cell membranes).
  - Two of the main uses for optical traps have been the **study of molecular motors and the physical properties of DNA.**
  - However, optical tweezers are only able to manipulate very small objects and only at very short distances.

PIB

MAY 8

DIAMOND LEAGUE

(Syllabus: GS Paper 1 - Sports)

PM congratulates Neeraj Chopra for first position in Doha Diamond League

Context: The Prime Minister has congratulated Neeraj Chopra for the first position in **Doha Diamond League.**

- Olympic gold medal winner Neeraj Chopra has secured victory with 88.67 m throw at Doha Diamond League 2023.
- **Neeraj Chopra is the first Indian** to win the Diamond Trophy in 2022.

Diamond League

- **About**: The Diamond League is one of the **top athletic championships,** formerly known as World Athletics.
- **Origin**: It was founded in the year 2010 and has 32 events associated with it.
- **Objectives**: The purpose behind creating this league is to **replace the IAAF Golden League,** which came into effect after an agreement was signed with the Wanda Group.
  - The Diamond League gives **exposure to athletes** throughout the world by boosting their spirits.
- **Participants**: It **includes the members from the Golden league** except for Berlin and all the traditional European competitions that consider a series of events, like China, Qatar, Morocco and the United States.
  - **Russia was excluded** at the beginning of March 2022 due to its involvement in the invasion of Ukraine.

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