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ENVIRONMENT AND HEALTH

**Science
Reporter**



MK Yadav Sir

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Fiscal slippage in FY23 likely as govt seeks to spend ₹1.5 trn more

ASIT RANJAN MISHRA
New Delhi, 13 March

The government may be staring at a modest slippage in fiscal deficit for 2022-23 (FY23), with the Ministry of Finance seeking parliamentary approval for additional spending through a second and final tranche of supplementary demands for grants.

On Monday, as the Budget session of Parliament resumed, Finance Minister Nirmala Sitharaman sought Parliament approval for additional gross spending of ₹2.7 trillion in FY23 (which ends on March 31). While net cash outgo is pegged at ₹1.48 trillion, the rest will be matched by savings or enhanced receipts, the finance ministry said.

In December last year, the finance ministry got parliamentary approval to spend an additional ₹3.26 trillion (net cash outgo) under the first tranche of supplementary demands for grants for FY23.

The additional spending demands are dominated by fertiliser subsidies, defence pensions, the allocation for universal service obligation fund (USOF), and the goods and services tax (GST) compensation to states and Union Territories (UTs).

Aditi Nayar, chief economist at ICRA, said although a portion of the net cash



Finance Minister Nirmala Sitharaman on Monday sought Parliament approval for additional gross spending of ₹2.7 trillion in FY23

outgo may be offset by savings under other heads, it has raised the likelihood of a modest slippage relative to the Revised Estimates of FY23 fiscal deficit of ₹17.6 trillion.

"Regardless, bond yields are likely to take cues from global yields and the expectations of monetary tightening at the upcoming policy review," she added.

With the National Statistical Office revising down the nominal gross domestic product (GDP) estimate for FY23 by

more than ₹1 trillion to ₹272 trillion, the fiscal deficit was already expected to be a little over the budgeted 6.44 per cent of GDP. The additional expenditure commitment may take the fiscal deficit close to 7 per cent unless matched by internal savings or higher-than-estimated revenue collections.

Of the total ₹36,325 crore sought for fertiliser subsidy, ₹21,000 crore has been allocated for phosphatic and potassic and ₹15,325 crore for urea. This is over and above ₹2.1 trillion allocated for fertiliser subsidy for FY23.

The additional allocation is meant to help insulate farmers from the impact of a steep increase in the cost of fertilisers due to sharp rise in international prices of fertilisers.

The government has sought ₹25,000 crore for additional transfers to USOF for providing telecommunication services in rural and remote areas.

For meeting an additional expenditure for provision for payment of regular pension due to enhanced One Rank, One Pension, ₹33,718 crore has been sought.

For the additional release of GST compensation to states and UTs, the finance ministry has allocated ₹36,325 crore, while for clearing the pending liability of election-related expenditure towards states/UTs, ₹3,166 crore has been granted.

Context: The government may be staring at a modest **slippage in fiscal deficit** for 2022-23 (FY23), with the Ministry of Finance seeking parliamentary approval for additional spending through a second and final tranche of supplementary demands for grants.

- The additional spending demands are dominated by fertiliser subsidies, defence pensions, the allocation for **universal service obligation fund (USOF)**, and the goods and services tax (GST) compensation to states and Union Territories (UTs).

Fiscal slippage

- **About:** If the actual **fiscal deficit** is more than what **was expected** it is called a fiscal slippage.
 - For example in the budget, the estimated fiscal deficit was 4.5% but the actual deficit at the end of the financial year is 7% then it is called fiscal slippage.
 - The **Indian economy** always has **fiscal slippage** because government budget target of fiscal deficit every time exceeds its limits as total expenditure is more than its total receipts.
- **Fiscal Deficit:** It the difference between the **total expenditure** and **total receipts** of the government.
 - Indian economy **always** has a **fiscal deficit** and **fiscal slippage**.

Kamalam (Dragon Fruit) cultivation area in India expected to expand to 50,000 hectares in five years under MIDH scheme from the present 3,000 ha.

Context: Under **Mission for Integrated Development of Horticulture (MIDH)**, the Ministry of Agriculture & Farmers Welfare has approved a **Centre of Excellence (CoE) for Kamalam Fruit** to be established by Indian Institute of Horticultural Research (IIHR), Bengaluru, Karnataka at Hirehalli, Bengaluru, Karnataka on 09-03-2023 to focus on production, post-harvest and value addition of Kamalam.

- The Centre will **aim to achieve self-sustenance in Kamalam fruit production**, value addition and enhancing economic development of the farming community.
- MIDH is a **Centrally Sponsored Scheme** implemented from 2014-15 for holistic development of horticulture in the country, covering fruits, vegetables, root and tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew and cocoa.

Key Points

- Kamalam or Dragon Fruit, a **herbaceous perennial climbing cactus** widely known as Pitaya, has its **origin in Southern Mexico, Central America and South America**.
- Currently it is being **cultivated in at least 22 countries** of tropics.
 - It is widely **cultivated in South-East Asia, India, USA, The Caribbean Islands, Australia** throughout the tropical and sub-tropical world.
- Pitaya, called as Dragon fruit in English, is **popular by different names** such as Pithaya in Mexico, Pitaya Roja in Central and Northern America, Pithajah in Thailand and Kamalam after the Sanskrit name lotus in India.
- The skin of the fruit is covered with bracts or scales which may have attributed the fruits resembling the **mythical creature "dragon", hence the name dragon fruit**.
- It is also known as **"Wondrous Fruit of the 21st century"**.
- In India, the cultivation of Kamalam Fruit is fast picking up and farmers of **Karnataka, Kerala, Tamil Nadu, Maharashtra, Gujarat, Chhattisgarh, Odisha, West Bengal, Andhra Pradesh, Andaman & Nicobar Islands, Mizoram and Nagaland** have taken up its cultivation.
- Presently, the total area under cultivation of Dragon Fruit in India is **more than 3,000 ha**. which is not able to meet the domestic demand, hence majority of the dragon fruits available in Indian market is imported from Thailand, Malaysia, Vietnam and Sri Lanka.
- In India, Kamalam import started during 2017 with a quantity of 327 tonnes, which has increased sharply to 9,162 tonnes in 2019 and the estimated import for 2020 and 2021 is about 11,916 and 15,491 tonnes, respectively.

India to Host Mega Buddhism Meet This Week for SCO Nations

Scholars from China, Russia, Central Asia, Belarus & Myanmar to present papers

Dipanjan Roy Chaudhury
@timesgroup.com

New Delhi: India is organising an international conference on 'shared Buddhist heritage' here on March 14-15, as it seeks to focus on the country's civilisational connect with the Shanghai Cooperation Organization (SCO) nations.

A first of its kind event, being held under India's SCO presidency, will bring together Central Asian, East Asian, South Asian and Arab countries on a common platform to discuss shared Buddhist heritage, according to persons familiar with the issue. The aim is to reaffirm the role played by India in the spread of Buddhism to Central Asia and Eurasia and from there to East Asia.

More than 15 scholars-delegates will be presenting research papers on the topic. These experts are from Dunhuang Research Academy, China; Institute of History, Archaeology and Ethnology, Kyrgyzstan; State Museum of the History of Religion, Russia; National Museum

of Antiquities of Tajikistan; Belarusian State University and International Theravada Buddhist Missionary University, Myanmar, among others.

The two-day programme is being organised by the ministry of culture, the ministry of external affairs and the International Buddhist Confederation (as a grantee body of the ministry of culture). A number of Indian scholars of Buddhism will also participate in the event. Participants will also have the opportunity to tour some of the historical sites of Delhi.

The aim of the conference is to re-establish trans-cultural links, seek out commonalities



The aim is to reaffirm the role played by India in the spread of Buddhism to Central Asia and Eurasia and further

spread of ideas, since times immemorial. Crossing effortlessly, formidable mountains, vast oceans and national boundaries; ideas that find a home in distant lands; getting enriched with the existing cultures," an official said.

Context: India is organising an international conference on 'shared Buddhist heritage' here on March 14-15, as it seeks to focus on the country's civilisational connect with the Shanghai Cooperation Organization (SCO) nations.

Conference on Shared Buddhist Heritage

- **About:** An international conference on Shared Buddhist Heritage is being held in New Delhi with a focus on India's civilisational connect with the Shanghai Cooperation Organisation (SCO) nations.
- **Objectives:** The aim of the conference is to re-establish trans-cultural links and seek out commonalities, between Buddhist art of Central Asia, art styles, archaeological sites and antiquity in various museum collections of the SCO countries.
 - The event, under India's leadership of SCO, bring together Central Asian, East Asian, South Asian and Arab countries on a common platform to discuss Shared Buddhist Heritage.
 - A number of Indian scholars of Buddhism is also participating in the event. Participants will also have the opportunity to tour some of the historical sites of Delhi.
- **Nodal Ministry:** The two-day programme is being organised by the Ministry of Culture, the Ministry of External Affairs and the International Buddhist Confederation.

Shanghai Cooperation Organisation (SCO)

- **About:** The SCO is an economic and security grouping and has emerged as one of the largest transregional international organisations. The SCO is a multilateral organization, established on 15 June 2001.
- **SCO Member States:** The SCO currently comprises eight Member States: China, India, Kazakhstan, Kyrgyzstan, Russia, Pakistan, Tajikistan and Uzbekistan.
- **SCO Observer States:** SCO has three Observer States: Belarus, Iran, and Mongolia.
- **SCO Dialogue Partners:** SCO has fourteen Dialogue Partners: Armenia, Azerbaijan, Cambodia, Nepal, Sri Lanka, Egypt, Saudi Arabia, Qatar, Bahrain, Kuwait, Maldives, Myanmar, UAE and Turkey.

EXERCISE LA PEROUSE – 2023

Context: The third edition of the **multilateral exercise La Perouse** is scheduled to be conducted in the Indian Ocean Region from 13 to 14 March 2023.

Key Points

- This edition will witness participation of personnel, ships and integral helicopters of **Royal Australian Navy, French Navy, Indian Navy, Japanese Maritime Self Defence Force, Royal Navy and the United States Navy.**
- The **biennial** exercise La Perouse is conducted by the French Navy.
- It is aimed at **enhancing maritime domain awareness** and optimising maritime coordination amongst the participating navies in the Indo-Pacific Region.
- The **two day exercise** provides an opportunity for like minded navies to develop closer links in planning, coordination and information sharing for seamless maritime operations.
- The exercise will **witness complex and advanced naval operations** including surface warfare, anti-air warfare, air defence exercises, cross deck landings and tactical manoeuvres.
- Indigenously built guided missile frigate **INS Sahyadri** and **fleet tanker INS Jyoti** will be participating in this edition of the exercise.
- Participation of Indian Navy in the exercise **showcases the high levels of synergy, coordination and interoperability** between the friendly navies, and their commitment to a rules-based international order in the Indo-Pacific region.

Other Indo-French Joint Exercises

- **Desert Knight-21 and Garuda** (Air exercise)
- **Varuna** (Naval exercise)
- **Shakti** (Army exercise)

DOHA POLITICAL DECLARATION

(Syllabus: GS Paper 2 - International Organisations)

Doha Political Declaration adopted by world leaders to fast-track progress in least developed countries

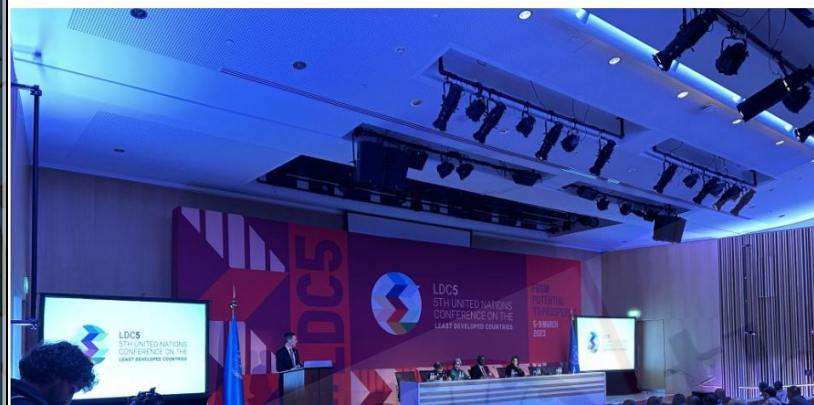
The declaration is significant since it comes amid simultaneous global risks of rising cost of living and inflation as well as climate change



NEXT NEWS >

By Kiran Pandey

Published: Monday 13 March 2023



- It must perform **poorly on a composite human assets** index based on indicators including nutrition, health and education.
- The country must **demonstrate economic vulnerability** such as being prone to natural disasters and possessing structural economic constraints.
- Countries must meet a selection from all three criteria simultaneously and are **reviewed on a three-year basis by the UN**.
- Currently, the UN lists 46 countries that qualify as LDCs. Of those, 33 are from **Africa, nine from Asia, three from the Pacific and one from the Caribbean**.

Context: The Fifth **United Nations Conference on the Least Developed Countries (LDC5)** concluded with adoption of the 'Doha Political Declaration' by the world leaders.

Key Points

- The declaration focuses on implementing the **Doha Programme of Action (DPoA) - the 10-year plan** to put the world's 46 most vulnerable countries back on track to achieving the UN-mandated Sustainable Development Goals (SDG).
- DPoA (2022-2031) consisted of **six key focus areas** including Eradicating poverty, leveraging the potential of science and technology to fight against multidimensional vulnerabilities and to achieve the SDGs, addressing climate change, environmental degradation, recovering from COVID-19 pandemic and building resilience against future shocks for risk-informed sustainable development.

Least Developed Country (LDC)

- They are developing countries **listed by the UN** that exhibit the lowest indicators of socioeconomic development.
- The concept **first originated in the late 1960s** and was codified under **UN resolution 2768** passed in November 1971.
- According to the **UN, an LDC is defined** as "a country that exhibits the lowest indicators of socioeconomic development, with low levels of income, human capital and economic diversification, high levels of economic vulnerability, and a population that is disproportionately reliant on agriculture, natural resources, and primary commodities."
- The **UN identifies three criteria for a country to be classified as an LDC**:
 - It must have a **gross national income (GNI)** per capita below the threshold of USD 1,230 over a three-year average.

CJI refers petitions on same-sex marriage to Constitution Bench

Court lists case for final arguments on April 18; hearing will be livestreamed in public interest; adopted child of a lesbian or gay couple does not necessarily have to be lesbian or gay, says Chief Justice in response to concerns raised by the govt.

Krishnadas Rajagopal
NEW DELHI

Growing up with lesbian or gay parents will not necessarily make a child lesbian or gay, the Supreme Court observed on Monday, as it confronted the government's concern about the "psychological" impact same-sex marriages may have on children.

Chief Justice D.Y. Chandrachud referred petitions

seeking legal recognition of same-sex marriages to a Constitution Bench, but took the time on Monday to soothe the government's anxiety about how such a move would affect Indian "social ethos".

"Parliament will have to examine... Parliament will have to see what would be the psychology of a child who has seen either two men or only two women as parents... What would be the psychology of a child

Parliament will have to see what would be the psychology of a child who has seen either two men or only two women as parents
TUSHAR MEHTA
Solicitor-General

who was not reared by a father and a mother... Parliament will have to debate whether we would like this institution to be recog-

nised in view of our social ethos..." Solicitor-General Tushar Mehta, for the Union, objected to the court's intervention.

"But, Mr. Solicitor, the adopted child of a lesbian couple or a gay couple does not necessarily have to be lesbian or gay..." CJI Chandrachud said.

At one point, Mr. Mehta said, "Your Lordships are shouldering a very heavy burden of how society will develop henceforth."

The Bench listed the case for final arguments on April 18 and said the hearing would be livestreamed in public interest.

The Centre denied any stigma attached to same-sex relationships. "The question here is whether this relationship, as part of right to dignity, can be given recognition by the state," Mr. Mehta said.

CONTINUED ON
» PAGE 10

Context: A 3-Judge Bench of the SC led by CJI heard a batch of petitions seeking the recognition of **same-sex marriages under the law.**

- The Bench has referred the plea to be heard by a 5-Judge Constitution Bench from April 18th, 2023.

Same-sex Marriage

- About:** Same-sex marriage, also known as gay marriage, is the **marriage of two people of the same legal sex.**
 - As of 2023, marriage between same-sex couples is **legally performed and recognized in 34 countries**, constituting some 1.35 billion people (17% of the world's population), with the most recent being Andorra.
- Recognition in India:** Same-sex marriage is **not legalized in India**, though same-sex couples can attain equal rights and benefits as a live-in couple (analogous to cohabitation) as per a **Supreme Court of India judgement in August 2022.**
 - While it does not recognise same-sex marriage or civil unions, the **vast majority of heterosexual marriages are not registered with government and common law marriage based on traditional customs remains the dominant form of marriage.**
 - Hindu priests have been conducting **same-sex marriage ceremonies in India and overseas**, and hundreds of same-sex marriages among Hindus in India have been reported since at least the late 1980s through common law marriage.

Marital rights same-sex couples do not enjoy in India



BENEFITS



- Government pensions and medical benefits
- Claiming leave travel allowance for partner
- Right to property or inheritance
- Joint adoption
- In case of separation, there is no provision to seek maintenance by the economically weaker partner
- Right to take emergency medical decisions

India remains world's largest arms importer

New Delhi: India continues to languish in the strategically-vulnerable as well as embarrassing position of being the world's largest arms importer, accounting for 11% of the total global imports in 2018-22, despite the government's continuing thrust on 'Make in India' in defence production, reports **Rajat Pandit**.

The latest data on international arms transfers released by Stockholm International Peace Research Institute (SIPRI) on Monday shows Russia remains the largest weapons supplier to India with 45% of total imports in 2018-22, though its share is declining. France accounts for 29%, displacing the US from the second position by riding on deals like the Rs 59,000-crore one for 36 Rafales. The US, in turn, notched

RUSSIA TOP SUPPLIER

► India accounts for 11% of the total global imports in 2018-22, despite govt's thrust on 'Make in India' in defence production

► Latest SIPRI data shows Russia remains largest arms supplier to India with 45% of total imports in 2018-22

► France accounts for 29%, displacing US from the 2nd position after deals like Rafale

up 11% of the total weapon sales to India. India is followed by S Arabia (9.6%), Qatar (6.4%), Australia (4.7%), China (4.6%), Egypt (4.5%), S Korea (3.7%) and Pakistan (3.7%) among the top 10 arms importers.

► Big importer since '93, P 14

GLOBAL ARMS TRADE

(Syllabus: GS Paper 3 - Internal Security)

Context: India was the world's largest arms importer between 2018 and 2022, accounting for 11 per cent of global imports, according to fresh data released by the Sweden-based **Stockholm International Peace Research Institute (SIPRI)**.

- The SIPRI is an **independent international institute** dedicated to research into conflict, armaments, arms control and disarmament.
- It was established in 1966 in Stockholm (Sweden).

Key Points

- **India was the biggest market for Russian arms exports** from 2018 to 2022. India received 31 per cent of the total arms exported by Russia during this period.
- However, Russian arms exports to India **dipped by 37 per cent** compared to the 2013-17 period.
- SIPRI identified **India, Saudi Arabia, Qatar, Australia and China as the top five arms importers** in 2018-22, accounting for 36 per cent of global arms imports during this period.
- **India's share globally was 11 per cent** followed by Saudi Arabia with 9.6 percent and Qatar with 6.4 per cent.
- Data also identified the **US, Russia, France, China, and Germany as the five biggest arms exporters**.
- The five countries alone accounted for 76 percent of global arms transfers between 2018 and 2022.
- Of this, the **US had a lion's share (40 per cent)** with countries in the middle east receiving 41 per cent of the arms exported by it in the said period.
- **Arms transfers to China** accounted for 23 percent of Russian arms exports between 2018 and 2022 - a 37 per cent increase from the 2013-17 period.
- China **accounted for 77 percent of Pakistan's arms imports** in the 2018-2022 period, reflecting the extent to which Islamabad is dependent on Beijing for its military needs.
- As a consequence of the Russian invasion of Ukraine in February 2022, **Ukraine emerged as the third largest importer of arms** in 2022.

IPCC REPORTS

(Syllabus: GS Paper 3 - Env & Eco)

Climate action: Meet to approve IPCC Synthesis Report begins in Switzerland

Synthesis Report last of the Sixth Assessment reports; first IPCC assessment since Paris Agreement

By Rohini Krishnamurthy
Published: Monday 13 March 2023



- The Assessment Reports - by three working groups of scientists.
 - **Working Group-I** - Deals with the scientific basis for climate change.
 - **Working Group-II** - Looks at the likely impacts, vulnerabilities and adaptation issues.
 - **Working Group-III** - Deals with actions that can be taken to combat climate change.
- The **Paris Agreement**, negotiated on the basis of the Fifth Assessment Report.

Context: A crucial global meeting to approve the **Synthesis Report of the Intergovernmental Panel on Climate Change (IPCC)** has begun in Switzerland from March 13 and will end March 17, 2023.

- The report provides an overview of the **state of knowledge on the science of climate change**.
- The Synthesis Report is the **last of the Sixth Assessment reports** and will summarise three special and three Working Groups' papers.

Intergovernmental Panel on Climate Change (IPCC)

- **About:** It is an **intergovernmental body of the United Nations** charged with advancing scientific knowledge about anthropogenic climate change.
 - It has a **secretariat in Geneva, Switzerland**, hosted by the WMO, and is governed by 195 member states.
- **Origin:** It was established in 1988 by the **World Meteorological Organization (WMO)** and the United Nations Environment Programme (UNEP) and endorsed by the UN later that year.
- **Functions:** The IPCC informs governments about the **state of knowledge on climate change**, including possible response options and the natural, economic, and social impacts and risks.
- **Assessment Reports:** It **does not conduct original research** but undertakes periodic and systematic reviews of all relevant scientific publications by enlisting thousands of volunteer scientists and experts; observers have described this work as the biggest peer review process in the scientific community.
 - Key findings are compiled into periodic **"Assessment Reports"** for policymakers and the general public.
 - The Assessment Reports, the first of which had come out in 1990, are the **most comprehensive evaluations of the state of the earth's climate**.

And the Oscars go two India

Song *Naatu Naatu* (RRR); Documentary *The Elephant Whisperers*



Reuters



PTI

The Elephant Whisperers director Kartiki Gonsalves and producer Guneet Monga; (right) *Naatu Naatu* music composer M M Keeravani and lyricist Chandrabose at the Oscars.

SHUBHRA GUPTA
NEW DELHI, MARCH 13

INDIA SHONE bright at the 95th Academy awards. As an ecstatic M M Keeravani sang out his thanks in tune with that Carpenters' immortal cheesy ditty, the auditorium exploded in hoots, whistles and loud cheers. His namaste, a delightful little tailpiece to his acceptance speech, echoed the sentiments of a billion Indians on top of the world after 'Naatu Naatu' won the Best Original Song at the

Academy awards.

It's not just the song which had had the globe dancing to its tune from SS Rajamouli's blockbuster 'RRR' that made history at this edition of the Oscars. It was also the Best Documentary Short award for the 'The Elephant Whisperers', a heartwarming film on the deep bond between a pair of elephants and their humans, directed by Kartiki Gonsalves and produced by Guneet Monga.

If you haven't seen the 40-minute film on Netflix, featuring the charming Raghu and Ammu,

and Bomman and Bellie, get right to it: it truly is a testament to, as Gonsalves said, the "sacred bond between us and the natural world and respect for indigenous communities."

'Naatu Naatu' was the first Indian win in the Best Original Song category, and Gonsalves the first Indian to win in the short documentary category. India's cup would have brimmed over if Shaunak Sen had

CONTINUED ON PAGE 4

INSIDE PAGES 14, 15

Context: Indian cinema witnessed one of its biggest moments of glory on a global stage when *The Elephant Whisperers* won the **Academy Award** for Best Documentary Short and RRR's song 'Naatu Naatu' won for Best Original Song.

- "Naatu Naatu" is the first song from an Indian film to get nominated and win in the category of the best original song.

Oscar Awards

- **About:** The **Academy Awards, or Oscars** recognize excellence in cinematic achievements in the United States film industry as assessed by the Academy's voting membership.
 - Colloquially known as **Oscars, the Academy Awards**, given out by the **Academy of Motion Picture Arts and Sciences**, are the top-tier awards when it comes to films.
 - Although there is **no monetary reward**, winning the most sought-after Oscar statuette gives the winner what is called Oscar's Bump.
- **Eligibility:** In order to be eligible, a film has to be **exhibited in a theatre for at least a week in Los Angeles**.
 - The **exceptions to this are foreign-language movies**, which are submitted by their country of origin and need not be featured in the US.
 - The documentaries and short films are officially submitted by their producers, whereas the music category needs the artiste to submit a form to participate.
- **Nominations:** Oscar nominations, **conducted using both paper and online ballots**, are selected by members of a particular branch voting for artistes from their own category. For instance, only directors can nominate directors, actors can nominate actors, and so on.
 - However, there is an **exception: Best Picture**. When it comes to this category, every Academy member gets to choose nominees.

Marching towards identifying Earth's twin beyond the Solar System

Context: Scientists have presented detailed **numerical models of the spectrum of an Earth-like exoplanet** carrying bio-signature such as oxygen and ozone molecules along with water molecules.

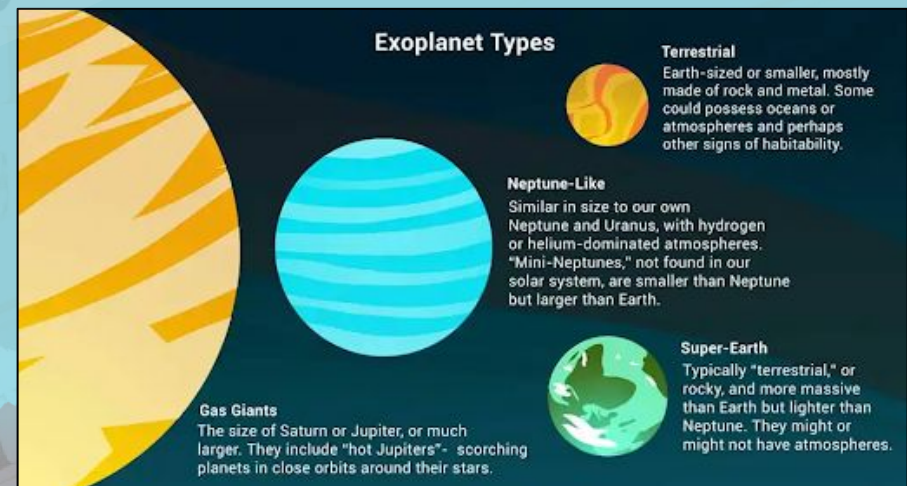
- Since the Nobel prize-winning discovery of the **first exoplanet, 51 Pegasi b, in 1995**, more than five thousand planets orbiting stars other than the Sun have been discovered through various astronomical methods by using several ground- as well as space-bound telescopes.

Key Points

- The study may help in identifying inhabited exoplanets in the near future when big-budget missions like **James Webb Space Telescope (JWST) (already operational)**, **Roman Space Telescope**, **Habitable Exoplanet Observatory (HabEx)**, **Large UV/Optical/IR Surveyor (LUVOR)**, **Thirty Meter Telescope (TMT)**, **Extremely Large Telescope (ELT)**, and so on have the capacity to obtain the transmission spectra, phase-dependent albedo and polarization of rocky planets in the habitable zone of Sun-like stars.
- Scientists have presented a **quantitative analysis and estimation of all the known physical properties** of an Earth-size rocky exoplanet in the habitable zone of its parent star that can serve to identify any inhabited exoplanet.

Exoplanet

- An exoplanet or extrasolar planet is a **planet outside the Solar System**.
- Exoplanets are **very hard to see** directly with telescopes.
- They are **hidden by the bright glare of the stars they orbit**.
 - Astronomers use other ways to detect and study exoplanets such as looking at the effects these planets have on the stars they orbit.



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