

DAILY CURRENT AFFAIRS (DCA)

Time: 45 Min

Date: 04-07-2024

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RELEVANCE OF NATO AFTER 75 YEARS

Context

- Russia's aggression has revitalized NATO, reaffirming its relevance as it celebrates 75 years of establishment in 2024.

About NATO

- NATO, or the North Atlantic Treaty Organization, is a military alliance of countries.
- **Establishment:** It was founded in 1949 with the signing of the North Atlantic Treaty, more popularly known as the Washington Treaty.
- **Aim:** To ensure the security and defense of its member countries through collective defense.
- **Founding Members:** The original members of NATO were Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom, and the United States.
- **Collective Defense:** The cornerstone of NATO is Article 5 of the North Atlantic Treaty, which states that an armed attack against one or more of its members is considered an attack against all members.
- **Decision-Making:** Decisions within NATO are made on the basis of consensus among member countries.
 - ♦ The North Atlantic Council, which includes the ambassadors of all member countries, is the principal political decision-making body.
- **Members:** It has 32 member countries, Finland and Sweden became the 31st and 32nd members respectively.
 - ♦ On signing the Treaty, countries voluntarily commit themselves to participating in the political consultations and military activities of the Organization.

Expansion of NATO

- NATO now has 32 members across Europe and North America, including the UK, US, Canada, France, Germany, Italy, Spain and Turkey.
- **After the Soviet Union's collapse in 1991, many Eastern European countries joined:** Albania, Bulgaria, Hungary, Poland, the Czech Republic, Slovakia, Romania, Lithuania, Latvia and Estonia.
- Sweden and Finland applied to join in 2022, following Russia's invasion of Ukraine. They had been neutral for decades.
- Finland - which has a 1,340km (832 mile) land border with Russia - joined in 2023. Sweden became a member in March 2024.

- With Sweden and Finland joining Nato, it is seeing its biggest expansion since the 1990s. They will add nearly 300,000 active and reserve troops to the alliance's ranks.
- Ukraine, Bosnia and Herzegovina, and Georgia also hope to join Nato.

Nato's European expansion since 1949



Relevance of NATO

- **Counterbalancing Russian Influence:** It serves as a counterbalance to Russian influence in Eastern Europe and the former Soviet space.
- **Benefits for Eastern Europe:** The enlargement of NATO will help to promote democratic reform and peaceful coexistence between the nations of Europe.
- **Enhanced Collective Defense:** NATO strengthens the collective defense capabilities of member states.
- **Addressing New Security Concerns:** NATO allows it to adapt to new security threats such as terrorism, cyber attacks, and hybrid warfare, which require a coordinated and collective response from member states.

Concerns of NATO Expansion

- **Geopolitical Tensions:** Expanding NATO's borders potentially provokes tensions with neighboring countries, especially those with close ties to Russia.
 - ♦ The immediate reason for the Russian - Ukraine war can be associated with the fact that Russia wanted to prevent Ukraine from joining NATO.

- **Security Dilemma:** NATO expansion can trigger a security dilemma wherein one country's effort to enhance its security is seen as a threat by another, leading to an arms race or increased military tensions.
- **Strategic Interests:** Expanding NATO's membership raises questions about the strategic interests of the alliance and its commitment to collective defense.
 - ♦ Some argue that NATO should focus on consolidating its existing members rather than taking on new ones.
- **European Security Architecture:** NATO expansion could undermine efforts to develop a broader European security architecture, including initiatives such as the Organization for Security and Co-operation in Europe (OSCE).
- **Promoting such new alliances:** Countries who see NATO as a security threat can come up with a counter alliance such as the Warsaw Treaty Organization by Russia. These alliances can further accelerate the geopolitical tensions.
- **Potential for Conflict:** NATO expansion raises the risk of conflict, particularly if it involves regions with existing territorial disputes or unresolved conflicts.
 - ♦ This could escalate tensions and increase the likelihood of military confrontation.

Way Ahead

- Overall, while NATO expansion can enhance the

security of new member states and contribute to the stability of the Euro-Atlantic region, it also poses various challenges and concerns that need to be carefully considered by all parties involved.

- Diplomacy, dialogue, and a nuanced understanding of each other's security concerns are essential for addressing these concerns and maintaining peace and stability in the region.

Source: TH

SMART CITIES MISSION EXTENDED TILL 2025

Context

- The Union government has extended the Smart Cities Mission (SCM) till March 31, 2025.

Smart Cities Mission

- It is an initiative of the Union Housing and Urban Affairs Ministry, launched in 2015. The Mission is operated as a Centrally Sponsored Scheme.
- **Objective:** To promote cities that provide core infrastructure, clean and sustainable environment and give a decent quality of life to their citizens through the application of 'smart solutions'.
- 100 cities have been selected to be developed as Smart Cities through a two-stage competition for five years.
- **The six fundamental principles on which the concept of Smart Cities is based are:**



Key Features

- **The SCM had two main aspects:** area-based development consisting of three components — redevelopment (city renewal), retrofitting (city improvement), and green field projects (city extension); and pan-city solutions based on ICT.
- These further comprised some six categories that would include e-governance, waste management, water management, energy management, urban mobility, and skill development.
- **Four pillars:** Social Infrastructure, Physical Infrastructure, Institutional Infrastructure, Economic Infrastructure.

- **Integrated Command and Control Centre:** These ICCCs are designed to enable authorities to monitor the status of various amenities in real time.
 - ♦ The ICCC acts as a smart city and acts as a "nerve center" for operations management.
- Other steps taken under the SCM for digital infrastructure are;
 - ♦ Adaptive Traffic Control System (ATCS), Red Light Violation Detection (RLVD), and Automatic Number Plate Recognition System (ANPR),

- ◆ Digital assets for solid waste and wastewater management and water distribution management,
- ◆ CCTV surveillance systems, smart education and smart health systems.

Status of the SCM

- The 100 cities have completed 7,188 projects (90% of total projects) as part of the mission.
- The mission has an allocated budget of 48,000 crore for the 100 cities. As on date, 97% of the allocated budget has been released.

Challenges

- **Diversity in Urban India:** The selection of 100 cities on a competitive basis was flawed due to the diversity in existing urban realities.
 - ◆ The scheme was divorced from the ground realities of urban India — the urbanization here is dynamic and not static like the West.
- **Financial Constraints:** Keeping the funds and finances flowing in for the smart cities mission is a challenge. Most Urban Local Bodies are not even financially self-sustainable.
 - ◆ According to McKinsey, to make Indian cities liveable, a capital expenditure of \$1.2 trillion is required by 2030. In this context, 1,67,875 crore is less than \$20 billion in nine years.
- **Displacement:** Urban India, according to the World Bank has more than 49% of the population living in slums.
 - ◆ There was displacement of people living in poorer localities. Street vendors, for example, were displaced and urban commons were disrupted.
- **Infrastructure Development:** Many Indian cities lack basic infrastructure, such as efficient public transportation, waste management systems, and reliable water and electricity supply.
 - ◆ Implementing smart solutions requires significant upgrades to existing infrastructure.

Way Ahead

- **Data protection:** A robust system is required to protect digital platforms from cyber attack and safeguarding sensitive public and private data adequately.
- **Pan city projects:** SCM should emphasize more on pan city projects to ensure comprehensive and holistic development.
- **Strengthening ULBs:** A plan should be made to strengthen ULBs' capabilities in small cities.
- **Public Private Partnerships:** The government should analyze the reasons behind low private investments and take remedial steps towards the same.

- **Completion of Projects:** The Committee recommended that the ministry's role should not be confined to transfer of share and asked them to remain watchful to ensure execution and completion of the projects by intervening to facilitate with inputs and expertise.
- **Data protection:** A robust system is required to protect digital platforms from cyber attack and safeguarding sensitive public and private data adequately.

Source: TH

AIR POLLUTION SPIKES MAY RAISE DEATH RATES IN CITIES WITH CLEANER AIR: STUDY

In News

- A first-of-its kind multi-city analysis in India that studied the health effects of short-term exposure to air pollution published in the peer-reviewed Lancet Planet Health .

Air pollution

- It is contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere.
- Household combustion devices, motor vehicles, industrial facilities and forest fires are common sources of air pollution.
- Pollutants of major public health concern include particulate matter, carbon monoxide, ozone, nitrogen dioxide and sulphur dioxide.
- WHO data show that almost all of the global population (99%) breathe air that exceeds WHO guideline limits and contains high levels of pollutants, with low- and middle-income countries suffering from the highest exposures.

Overview of study

- It was conducted across 10 Indian cities, analyzing short-term exposure to PM2.5 and its impact on mortality rates.
 - ◆ The scientists analysed pollution and death registry data from Ahmedabad, Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Mumbai, Pune, Shimla, and Varanasi.
- It used weather-related parameters as instrumental variables to accurately attribute mortality effects to locally generated air pollution.

Key Highlights

- **Mortality:** Delhi had the highest annual deaths attributable to air pollution (11.5% of total deaths), despite already high pollution levels.
 - ♦ Bengaluru had 4.8% of its annual deaths attributable to air pollution, with lower exposure levels compared to Delhi.
- **Short-Term PM2.5 Exposure:** Short-term exposure to PM2.5 was linked to increased daily deaths across all cities.
- A 1.42% rise in daily deaths was observed for every 10 µg/m³ increase in PM2.5 over a two-day period.
- **Risk and Pollution Levels:** Mortality risk increased more sharply at lower PM2.5 levels and plateaued as levels increased.
 - ♦ Even PM2.5 levels below the Indian national air quality standard of 60 µg/m³ posed significant mortality risks (2.65%).
- **Comparison with International Studies:** Similar studies in other countries (China, Greece, Japan, Spain) showed varying mortality impacts per 10 µg/m³ increase in PM2.5, reflecting different baseline pollution levels.
- **Epidemiological Insights:** They Identified a 'harvesting effect' where cities with lower pollution levels experienced a sharper spike in mortality rates due to air pollution compared to highly polluted cities.
 - ♦ Emphasised that vulnerable individuals may succumb to air pollution even at lower exposure levels.

Strategies to control the rising pollution in the country

- The National Clean Air Programme (NCAP) has been launched by the Ministry of Environment, Forest and Climate Change (MoEFCC) in January 2019 with an aim to improve air quality in 131 cities (non-attainment cities and Million Plus Cities) in 24 States by engaging all stakeholders.
- Leapfrogging from BS-IV to BS-VI fuel standards from 1st April, 2018 in NCT of Delhi and from 1st April, 2020 for the rest of the country.
- Sustainable Alternative Towards Affordable Transportation (SATAT) has been launched as an initiative to set up Compressed Biogas (CBG) production plants and make CBG available in the market for use in automotive fuels.

- Notification regarding SO₂ and NO_x emission standards have been issued for Thermal Power Plants.
- **Measures for control of emissions from Stubble Burning:** Government in 2018 launched a scheme for providing subsidy for purchase of crop residue management machinery and establishment of custom hiring centres (CHCs) in NCT of Delhi and the States of Punjab, Haryana and Uttar Pradesh.
- National Air Quality Index (AQI) was launched in 2015. Information is being disseminated to the public through daily air quality bulletins.
- **Government notifies industry specific discharge standards under Schedule-I:** 'Standards for Emission or Discharge of Environmental Pollutants from various Industries' of Environment Protection Act, 1986.
- The Central Pollution Control Board has been continuously deploying dedicated CPCB's teams on the field during the winter season from 2017 onwards to check on-ground scenarios of air pollution related activities and refer these to implementing agencies for necessary action.
- Graded Response Action Plan (GRAP) was prepared for implementation under different Air Quality Index (AQI) categories in pursuant to the Hon'ble Supreme Court's Order dated December 02, 2016.

Suggestions

- The air pollution levels in India are among the highest in the world, posing a heavy threat to the country's health and economy.
- Air quality management is an ongoing process. It needs to be integrated into the capabilities of the government, as well as incorporated into the behavior of businesses and individuals.
 - ♦ This requires sufficient funding and a sustained focus on building capacity.
- There is a need for robust air pollution action plans at local and regional levels to address both fixed and mobile sources of pollution.
- There is also the urgency to address dispersed sources of air pollution alongside traditional sources.
- There is a need for continuous improvement in air quality standards and pollution control measures to mitigate health risks.

Source:TH

ADITYA-L1 SPACECRAFT COMPLETED FIRST HALO ORBIT

Context

- India's first solar mission, the Aditya-L1 spacecraft, has completed its first halo orbit around the Sun-Earth L1 point.

About

- The Aditya-L1 mission was launched in 2023, and was inserted in its targeted halo orbit on January 6, 2024.
- The Aditya-L1 spacecraft in the halo orbit takes 178 days to complete a revolution around the L1 point.

What is the Aditya-L1 mission?

- Aditya-L1 is the first space-based Indian observatory to study the Sun. It was launched on September 2, 2023 by the PSLV-C57.
- Solar observatory is placed at Lagrangian point L1 for "Observing and understanding the chromospheric and coronal dynamics of the Sun" in a continuous manner.
- Placing the Aditya-L1 in a halo orbit around L1 point has advantages as compared to placing in a Low Earth Orbit (LEO):**
 - It provides a smooth Sun-spacecraft velocity change throughout the orbit, appropriate for helioseismology.
 - It is outside of the magnetosphere of Earth, thus suitable for the "in situ" sampling of the solar wind and particles.
 - It allows unobstructed, continuous observation of the Sun, and view of earth for enabling continuous communication to ground stations.
- It is equipped with seven payloads (instruments) on board with four of them carrying out remote sensing of the Sun and three of them carrying in-situ observation.

What are the seven payloads?

- The Visible Emission Line Coronagraph (VELC) will study the Corona, imaging and spectroscopy, and Coronal mass ejections.
- The Solar Ultraviolet Imaging Telescope (SUIT) will focus upon the Photosphere and Chromosphere imaging- narrow and broadband. It will also measure the solar irradiance variations.
- The Solar Low Energy X-ray Spectrometer (SoLEXS) and High Energy L1 Orbiting X-ray

Spectrometer (HEL1OS) will study the soft and hard X-ray flares from the Sun over a wide X-ray energy range.

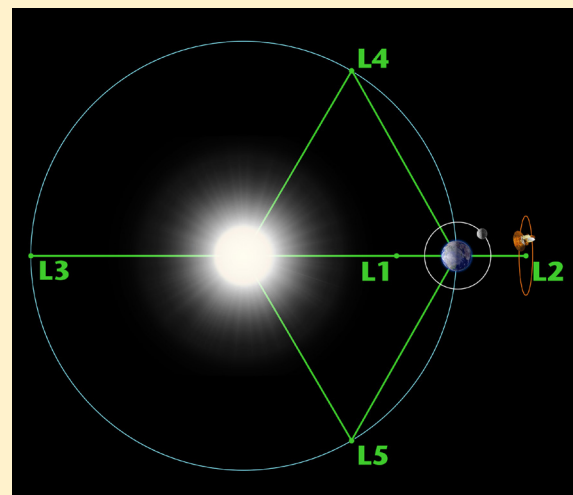
- The Aditya Solar wind Particle Experiment (ASPEX) and Plasma Analyser Package For Aditya (PAPA) will analyze the electrons and protons in the Solar wind or particles. It will also study the energetic ions.
- The Advanced Tri-axial High Resolution Digital Magnetometers will study the interplanetary magnetic field at L1 point.

Other missions to Sun

- NASA's Parker Solar Probe, launched in 2018, has already gone far closer — but it will be looking away from the Sun.
- Helios 2 solar probe, a joint venture between NASA and the space agency of erstwhile West Germany, was launched to investigate solar processes of the Sun's surface in 1976.

What is a Lagrange Point?

- Lagrange points are positions in space where objects sent there tend to stay put. At Lagrange points, the gravitational pull of two large masses precisely equals the centripetal force required for a small object to move with them.
- There are five Lagrange points, three are unstable and two are stable. The unstable Lagrange points are labeled L1, L2 and L3. The stable Lagrange points are labeled L4 and L5.
- The L1 point of the Earth-Sun system affords an uninterrupted view of the sun and is currently home to the Solar and Heliospheric Observatory Satellite SOHO.



Source: AIR

NEWS IN SHORT

SAMPOORNATA ABHIYAN

Context

- Recently, NITI Aayog has launched the 'Sampoornata Abhiyan' with the aim of achieving saturation in key indicators across Aspirational Districts and Blocks.

About the Sampoornata Abhiyan

- It is a three-month campaign, running from July to September 2024, seeking to uplift the relatively backward and remote areas of the country.
- It focuses on six critical Key Performance Indicators (KPIs) in both Aspirational Districts and Aspirational Blocks.

Key Indicators

Aspirational Blocks	Aspirational Districts
<ul style="list-style-type: none"> Percentage of pregnant women registered for Antenatal Care (ANC) within the first trimester; Percentage of persons screened for Diabetes and Hypertension; Percentage of pregnant women receiving Supplementary Nutrition under the ICDS Programme regularly; Percentage of Soil Health Cards generated; Percentage of Self-Help Groups (SHGs) with a Revolving Fund; Percentage of schools with functional electricity at the secondary level and providing textbooks promptly; 	<ul style="list-style-type: none"> Percentage of pregnant women registered for Antenatal Care (ANC) within the first trimester Percentage of pregnant women taking Supplementary Nutrition under the ICDS Programme regularly Percentage of children fully immunised (9-11 months) (BCG + DPT3 + OPV3 + Measles 1) Number of Soil Health Cards distributed Percentage of schools with functional electricity at the secondary level, and providing textbooks to children within 1 month of the start of the academic session.

Source: News On AIR

RECONSTITUTION OF EIGHT CABINET COMMITTEES

Context

- The Government has re-constituted 8 Cabinet Committees with the Prime Minister heading six of them.

About

- The Eight Cabinet Committees are;
 - Appointments Committee of the Cabinet
 - Cabinet Committee on Accommodation-Home Minister
 - Cabinet Committee on Economic Affairs
 - Cabinet Committee on Parliamentary Affairs-Defence Minister.
 - Cabinet Committee on Political Affairs
 - Cabinet Committee on Security
 - Cabinet Committee on Investment and Growth
 - Cabinet Committee on Skill, Employment and Livelihood
- Six Committees are headed by Prime Minister of India, Except Cabinet Committee on Parliamentary Affairs (by Defence Minister) and Cabinet Committee on Accommodation (Home Minister).

Cabinet Committees

- **Mandate:** They are an organizational device to reduce the enormous workload of the Cabinet. They also facilitate in-depth examination of policy issues and effective coordination.
- **Membership:** They usually include only Cabinet Ministers. However, the non-cabinet Ministers are not debarred from their membership.

Source: BL

CODEX ALIMENTARIUS COMMISSION

Context

- Recently, India has been unanimously elected as a member representing the Asian region in the Executive Committee of Codex Alimentarius Commission (CAC) during its 46th meeting being held at FAO Headquarters at Rome.

About the Codex Alimentarius

- The Codex Alimentarius, often referred to as the 'Food Code', is a vital collection of international standards, guidelines, and codes of practice.
- These standards play a crucial role in ensuring food safety and facilitating fair practices in global food trade.
- It is a comprehensive set of standards, guidelines, and codes of practice related to food safety, quality, and trade.
- It covers various aspects, including food additives, contaminants, labelling, nutrition, pesticides, and more.

Origins and Purpose

- **Establishment:** The Codex Alimentarius Commission (CAC) was jointly established by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) in 1963.
- **Objective:** The primary objective of the CAC is to protect consumer health and promote equitable practices in food trade by developing science-based standards.

Why Do We Need Codex Standards?

- **Safety Assurance:** Codex standards ensure that food is safe for consumption.
- **Trade Facilitation:** They provide a common reference for international trade negotiations.
- **Science-Based Recommendations:** The 188 Codex member countries negotiate science-based recommendations related to food safety and quality.

Source: PIB

SPIRAL GALAXIES

Context

- A team has found evidence of spiral galaxies only half a billion years after the Big Bang.
 - ♦ The new observation shows the number of spiral galaxies is high as well as that they increased in number as the universe evolved.

About

- The universe is about 13.8 billion years old and is home to different kinds of galaxies, from spiral to elliptical and those with or without bulges.
- Astronomers previously believed spiral galaxies formed about 6 billion years ago, but a new study has called this belief into question.
- **Formation of Spiral galaxies:** As the universe cooled down from a dense plasma state, it contained more and more hot gas.
 - ♦ They formed clumps of matter that eventually gravitated to become galaxies. These early galaxies had irregular shapes and lacked disks.
 - ♦ But as they cooled as well, they formed hot, thick disks that later became thinner and finally spiral 'arms' — a process that took billions of years.
 - ♦ While the universe's younger galaxies have tended to be spiral, the older ones have a variety of shapes.

- **Galaxy:** Galaxies consist of stars, planets, and vast clouds of gas and dust, all bound together by gravity.
 - ♦ The largest contain trillions of stars and can be more than a million light-years across.
 - ♦ The smallest can contain a few thousand stars and span just a few hundred light-years.
 - ♦ Galaxies come in a variety of shapes, mostly spirals and ellipticals, as well as those with less orderly appearances, usually dubbed irregular.
- **Milky Way:** Earth is a part of the Milky way Galaxy.
 - ♦ It's a spiral galaxy with a disk of stars spanning more than 100,000 light-years.
 - ♦ Solar system takes about 240 million years to orbit the Milky Way just once.

Source: TH

PALM TREE PLANTING IN ORISSA

Context

- Odisha resorts to palm tree planting to combat lightning deaths this year.

About

- Palm trees are part of the tropical forest ecosystem.
- Palm trees act as natural lightning conductors and have distinct male and female trees, with males producing only flowers and females producing flowers and fruits.
- Lightning was declared a state-specific disaster in Odisha in 2015.

Source: DTE

SYNTRICHIA CANINERVIS

In News

- Scientists have identified a species of desert moss called 'Syntrichia caninervis' capable of surviving Mars-like conditions.

About Syntrichia caninervis

- It is a globally distributed moss species that thrive in severe desert environments like Tibet, Antarctica and circumpolar regions, forming part of the resilient biological soil crust.
- The researchers conducted rigorous tests in controlled laboratory settings to assess the moss' tolerance to extreme cold, gamma radiation and simulated Martian conditions.
- **Research Findings:** The moss demonstrated resilience against extreme conditions such as drought, high radiation levels, and very cold temperatures similar to those on Mars.
- The moss can recover from dehydration, extreme cold (down to -196°C), and exposure to gamma rays.
 - ♦ It surpasses even highly stress-tolerant microorganisms and tardigrades in its environmental resilience.
- **Importance :** It is a promising candidate for pioneering plant colonisation beyond Earth, potentially paving the way for sustainable human habitats in extraterrestrial environments.
- This resilient moss is raising hopes for its potential use in establishing sustainable habitats beyond Earth.

TDF SCHEME

In News

- Technology Development Fund (TDF) scheme playing a crucial role in promoting 'Atma Nirbharta' in defence

About Technology Development Fund (TDF) scheme

- The TDF scheme is a flagship programme of the Ministry of Defence executed by Defence Research and Development Organisation (DRDO) under the 'Make in India' initiative.
- **The main objectives:** To provide Grant in Aid to Indian industries, including MSMEs & start-ups, as well as academic and scientific institutions for the development of defence and dual use technologies that are currently not available with the Indian defence Industry.
 - ♦ To engage with the private industries, especially MSMEs and start-ups, to bring in the culture of Design & Development of Military Technology and support them with Grant in Aid.
 - ♦ To focus on Research, Design & Development of Niche technologies which are being developed for the first time in the country.
 - ♦ To create a bridge amongst the Armed Forces, research organisations, academia and qualifying/certifying agencies with private sector entities.

Source: PIB

GLOBAL PLANETARY DEFENSE EFFORTS

Context

- Indian Space Research Organization (ISRO) is keen to be part of global planetary defense efforts ahead of Earth's 2029 close encounter with asteroid Apophis.

About

- Planetary defense, the detection of asteroids and comets whose impact with Earth could significantly affect the planet and the prevention or mitigation of any such impacts.
- **Asteroid Day:** Asteroid Day is observed every year by the space community on June 30 on account of a huge air blast from an asteroid flattening 2,200 sq km of forest in Siberia, Russia, on June 30, 1908.

Source: IE