

UPSC CURRENT AFFAIRS NOTES 04-03-2024

Lahore Resolution



Pakistan has decided to hold its National Day celebrations in New Delhi again this year, which is observed on March 23, the day the Lahore Resolution was adopted in 1940 by the Muslim League.

About Lahore Resolution

It was adopted by the All-India Muslim League during its general session in Lahore from March 22 to March 24, 1940, formally called for an independent state for India's Muslims.

The resolution does not include the word 'Pakistan' anywhere.

The Lahore Resolution was criticised by many Indian Muslims, like Abul Kalam Azad and the Deoband ulema led by Husain Ahmad Madani, who advocated for a united India.

Geographically contiguous units are demarcated into regions which should be so constituted, with such territorial readjustments as may be necessary, that the areas in which the Muslims are numerically in a majority as in the North-Western and Eastern Zones of India, should be grouped to constitute "Independent States" in which the constituent units shall be autonomous and sovereign."

In other parts of India where the Mussalmans are in a minority, adequate, effective and mandatory safeguards shall be specially provided in the constitution for them and other minorities for the protection of their religious, cultural, economic, political, administrative and other rights and interests in consultation with them.”

What was the lead-up to the Lahore Resolution?

Till the early 1930s, many Muslims had been agitating for better representation and safeguarding of their rights within the Indian Union, and the separate electorate granted to them in the Government of India Act, 1935, was a step towards that.

The Muslim League session was held days after the Khaksar tragedy, when members of a Muslim group called the Khaksars, fighting for India’s independence, were shot at by the British on March 19 in Lahore, killing many.

It was a political party established in Dhaka in 1906 when some well-known Muslim politicians met the Viceroy of British India, Lord Minto, with the goal of securing Muslim interests on the Indian subcontinent.

OPEC+

OPEC+ members led by Saudi Arabia and Russia recently agreed to extend voluntary oil output cuts first announced in 2023 as part of an agreement among oil producers to boost prices following economic uncertainty.

About OPEC+





It is a group of oil-exporting countries which meets regularly to decide how much crude oil to sell on the world market.

Origin: These nations came to an accord towards the end of 2016 “to institutionalize a framework for cooperation between OPEC and non-OPEC producing countries on a regular and sustainable basis.”

These nations aim to work together on adjusting crude oil production to bring stability to the oil market.

OPEC+ controls about 40% of global oil supplies and more than 80% of proven oil reserves.

At the core of this group are the members of OPEC (the Organization of the Oil Exporting Countries), which are mainly Middle Eastern and African countries.

Members: It comprises OPEC countries plus Azerbaijan, Bahrain, Brunei, Kazakhstan, Russia, Mexico, Malaysia, South Sudan, Sudan, and Oman.

What is the Organization of the Petroleum Exporting Countries (OPEC)?

It is a permanent intergovernmental organization of oil-exporting countries.

Mission:

To coordinate and unify the petroleum policies of its member countries.

Ensure the stabilization of oil prices in the international oil markets, with a view to eliminating harmful and unnecessary fluctuations.

Formation: It was founded **in Baghdad, Iraq**, with the signing of an agreement in September 1960 by five countries, namely the Islamic Republic of Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.

Currently, it has **12 members, including Algeria, Congo, Equatorial Guinea, Gabon, Libya, Nigeria, and the United Arab Emirates.**

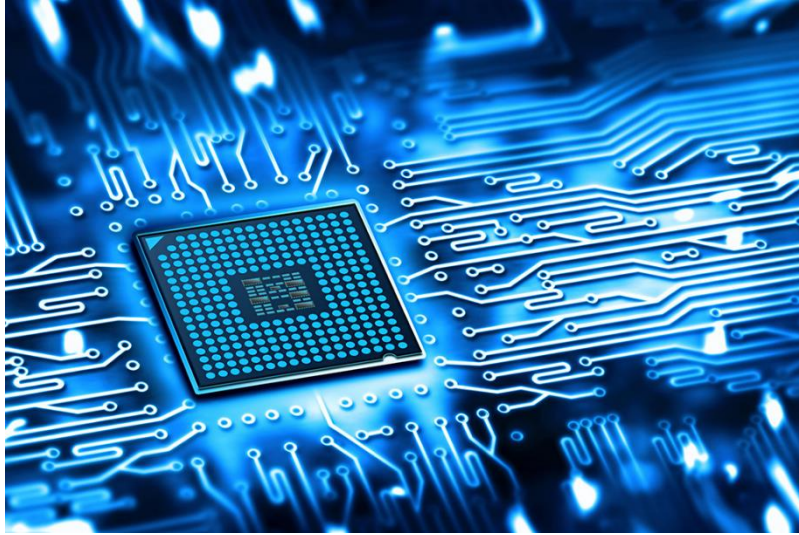
Headquarters: Vienna, Austria.

Crude Oil

Crude oil is a naturally occurring liquid petroleum product composed of hydrocarbon deposits and other organic materials formed from the remains of animals and plants that lived millions of years ago. These organisms were covered by layers of sand, silt, and rock, subject to heat and pressure, and eventually turned into a type of fossil fuel that is refined into usable products,

including gasoline, diesel, liquefied petroleum gases, and feedstock for the petrochemical industry.

CABINET APPROVAL FOR SEMICONDUCTOR PLANTS IN INDIA



The Union Cabinet approved three semiconductor plant proposals, aiming to bolster India's semiconductor manufacturing ecosystem.

The projects entail an estimated investment of Rs 1.26 lakh crore and are expected to significantly contribute to India's electronics manufacturing sector.

Details

Semiconductor Fab in Gujarat

Tata Electronics and Taiwan's Power chip Semiconductor Manufacturing Corp. (PSMC) will establish India's first semiconductor fabrication plant (fab) in Dholera, Gujarat.

Projected Cost: Rs 91,000 crore.

Capacity: 50,000 wafers per month.

Focus Areas: High-performance compute chips with 28 nm technology, power management chips for various sectors including electric vehicles, telecom, and consumer electronics.



Semiconductor ATMP Unit in Assam

Tata Semiconductor Assembly and Test Pvt Ltd (TSAT) will set up a semiconductor unit in Morigaon, Assam.

Projected Cost: Rs 27,000 crore.

Capacity: 48 million chips per day.

Segments Covered: Automotive, electric vehicles, consumer electronics, telecom, mobile phones, etc.

Semiconductor ATMP Unit in Gujarat

CG Power, in partnership with Renesas Electronics Corp., Japan, and Stars Microelectronics, Thailand, will establish a semiconductor unit in Sanand, Gujarat.

Projected Cost: Rs 7,600 crore.

Capacity: 15 million chips per day.

Segments Covered: Consumer, industrial, automotive, and power applications.

Employment and Economic Impact

The chip fab scheme is expected to employ 26,000 people directly and nearly 1 lakh indirectly.

These units will generate direct employment of 20 thousand advanced technology jobs and about 60 thousand indirect jobs, accelerating employment creation in downstream industries.

Semiconductor Industry Landscape in India

Current Status and Growth Potential:

According to the India Electronics and Semiconductor Association (IESA), semiconductor consumption in India reached US\$21 billion in 2019, growing at a rate of 15.1%.

India's semiconductor consumption is projected to exceed USD 80 billion by 2026 and USD 110 billion by 2030.



Global Dominance and Key Players:

Major semiconductor manufacturing countries include the United States of America, Taiwan, South Korea, Japan, the Netherlands, and emerging producers like Germany.

Challenges Faced by India:

India lags in establishing semiconductor wafer fabrication (FAB) units due to a weak ecosystem and resource shortages compared to more competitive bases like China and Vietnam.

Semiconductor FAB units require significant investments, water for production, uninterrupted electricity supply, high operating costs, and frequent technology upgrades.

India's Strategic Focus:

India's contribution to the semiconductor industry focuses on leveraging its technical competencies in research and development (R&D) and design.

The country benefits from a skilled talent pool in IT design and R&D engineers, allowing it to excel in areas such as R&D, design, and innovation.

India Semiconductor Mission (ISM)

Launched in 2021 with a financial outlay of Rs76,000 crore under the Ministry of Electronics and IT (MeitY).

ISM operates as an Independent Business Division within Digital India Corporation, tasked with catalyzing the India Semiconductor ecosystem.

Objectives of ISM:

Formulate a comprehensive long-term strategy for developing sustainable semiconductor and display manufacturing facilities.

Facilitate the adoption of secure microelectronics and develop a trusted semiconductor supply chain.

Enable growth of Indian semiconductor design industry through support mechanisms for startups.

Promote indigenous Intellectual Property (IP) generation and facilitate Transfer of Technologies (ToT).



Establish mechanisms to harness economies of scale and enable cutting-edge research in semiconductors.

Foster collaborations and partnership programs with national and international agencies, industries, and institutions.

Implementation and Initiatives:

ISM serves as the nodal agency for efficient implementation of semiconductor development programs.

Advisory board consisting of leading global experts provides guidance and expertise.

Engages stakeholders and attracts investments to the semiconductor and display ecosystem in India.

Financial Support and Schemes:

INR 13 crore released to ISM to date.

Modified schemes introduced to attract investments in semiconductor fabs and display fabs in India.

Scheme for setting up Semiconductor Fabs offers fiscal support of 50% of project cost.

Scheme for setting up Display Fabs extends fiscal support of 50% of project cost.

Scheme for Compound Semiconductors, Silicon Photonics, Sensors Fab, and Semiconductor ATMP facilities offers fiscal support of 50% of capital expenditure.

Semicon India Future Design (DLI) Scheme provides financial incentives and infrastructure support for semiconductor design.

Modernization of Semi-Conductor Laboratory, Mohali approved as a brownfield Fab to enhance semiconductor manufacturing capabilities.

About Semiconductors

Semiconductors are materials with electrical conductivity between conductors (metals) and insulators (non-metals). They have a bandgap that lies between the valence and conduction bands, allowing them to conduct electricity under certain conditions.

Silicon (Si) is the most commonly used semiconductor material due to its abundance, stability, and well-understood properties. Other semiconductor materials include germanium (Ge), gallium arsenide (GaAs), and silicon carbide (SiC).

Semiconductor Physics:

Band Theory: Semiconductors exhibit a bandgap, which is the energy difference between the valence band (filled with electrons) and the conduction band (empty of electrons). Electrons can move from the valence band to the conduction band when provided with sufficient energy.

Doping: Semiconductors can be doped with impurities to alter their electrical properties. N-type doping introduces donor atoms (e.g., phosphorus) that provide extra electrons, while P-type doping introduces acceptor atoms (e.g., boron) that create electron deficiencies or "holes."

Semiconductor Devices:

Diodes: Semiconductor diodes are two-terminal devices that allow current to flow in one direction while blocking it in the opposite direction. They are used in rectifiers, voltage regulators, and signal demodulators.

Transistors: Transistors are three-terminal devices that amplify or switch electronic signals. Common types include bipolar junction transistors (BJTs) and field-effect transistors (FETs), which include metal-oxide-semiconductor FETs (MOSFETs) and junction FETs (JFETs).

Integrated Circuits (ICs): ICs are semiconductor devices that contain thousands to billions of electronic components, such as transistors, diodes, and resistors, fabricated on a single chip. They are the building blocks of modern electronic systems.

Semiconductor Fabrication:

Semiconductor fabrication, also known as semiconductor manufacturing or lithography, involves multiple steps to create integrated circuits on semiconductor wafers. These steps include wafer preparation, deposition, lithography, etching, doping, and metallization.

Advanced techniques such as extreme ultraviolet lithography (EUV), FinFET technology, and multi-patterning are used to achieve smaller feature sizes and higher device densities.

Applications of Semiconductors:

Electronics: Semiconductors are essential components in electronic devices such as computers, smartphones, televisions, and digital cameras. They enable the processing, storage, and transmission of information.

Power Electronics: Power semiconductor devices, including diodes, thyristors, and insulated gate bipolar transistors (IGBTs), are used in power conversion, motor control, and renewable energy systems.

Optoelectronics: Optoelectronic devices, such as light-emitting diodes (LEDs), laser diodes, and photovoltaic cells, utilize semiconductors to generate, detect, or control light.

Emerging Trends in Semiconductors:

Internet of Things (IoT): The proliferation of IoT devices is driving demand for low-power, high-performance semiconductors suitable for wireless communication, sensing, and data processing.

Artificial Intelligence (AI): AI applications, including machine learning and deep learning, require specialized semiconductor chips optimized for parallel processing and neural network acceleration.

Quantum Computing: Quantum computing relies on quantum bits (qubits) implemented using semiconductor-based quantum devices. Research in this field aims to develop quantum processors with exponentially higher computational power than classical computers.

CYPRUS





Cyprus has remained divided since the 1974 Turkish invasion, leading to a tense situation between the Greek Cypriot south and the Turkish Cypriot north. UN peacekeepers (UNFICYP) have been deployed for 60 years to uphold the ceasefire and manage the buffer zone that separates the two sides.

Key Points

Background

- Cyprus gained independence from Britain in 1960 with a constitution aiming for peace between the Greek Cypriot majority and the Turkish Cypriot minority.
- Inter-communal tensions escalated in 1963, leading to violence and the division of the capital, Nicosia, along the "Green Line."
- A 1974 Turkish invasion further divided the island, with the northern part declaring independence as Northern Cyprus (recognized only by Turkey).

UN Peacekeeping

- The United Nations Peacekeeping Force in Cyprus (UNFICYP) was established in 1964 to maintain peace and has been present ever since, with the UK as a key contributor.
- Peacekeepers patrol the buffer zone, a 180km strip separating the two sides, and monitor for unauthorized activity.
- Despite their presence, the buffer zone remains tense with frequent infringements like unauthorized crossings and illegal activities.

Challenges and Uncertainties

- The long-lasting division and failed reunification efforts raise questions about the effectiveness of the peacekeeping mission.
- Previous US pressure to review UN peacekeeping missions and the lack of progress raises concerns about the mission's future.
- The potential involvement of Greece and Turkey, both NATO members, adds another layer of complexity.



UN Peacekeeper

- United Nations peacekeeping is a unique and crucial aspect of the organization's efforts to maintain international peace and security. The concept of UN peacekeeping emerged in the aftermath of World War II and the establishment of the United Nations in 1945.
- The UN Charter grants the Security Council the authority to deploy peacekeeping missions to address conflicts and help countries transition to peace.

Key aspects of UN peacekeeping

Mandate: UN peacekeeping missions operate under a specific mandate authorized by the UN Security Council. The mandate outlines the mission's objectives, scope of operations, and rules of engagement. It is crucial for the success of a peacekeeping mission and is subject to periodic review and renewal by the Security Council.

Principles: UN peacekeeping is guided by several fundamental principles, including the consent of the parties involved, impartiality, and the non-use of force except in self-defence and defence of the mandate. The peacekeepers operate with the consent of the host country's government and any other parties involved in the conflict.

Troop-contributing countries (TCCs): Member states of the United Nations contribute military and civilian personnel to serve as peacekeepers. These countries voluntarily offer their personnel and resources, and the contributions can include troops, police, and civilian experts. The TCCs play a crucial role in the effectiveness and success of a peacekeeping mission.

Deployment: Once the mandate is established and troop-contributing countries identified, the peacekeeping mission is deployed to the conflict zone. The deployment involves a comprehensive planning process, considering logistics, security, and the specific requirements of the mission.

Civilian and military components: UN peacekeeping missions usually include both civilian and military components. The civilian aspect may involve political affairs, human rights monitoring, humanitarian aid, and development efforts. The military component provides security, monitors ceasefires, and supports the political process.

Peacebuilding and development: Beyond traditional peacekeeping, modern UN peacekeeping missions often involve elements of peacebuilding and development. This includes supporting institutions, fostering the rule of law, and promoting economic and social development to address the root causes of conflict.

Cyprus: An Island Nation

Cyprus, officially the Republic of Cyprus, is an island country in the eastern Mediterranean Sea. While geographically located in Western Asia, its cultural and political ties are more closely linked to Southeastern Europe.

As the third-largest island in the Mediterranean, Cyprus covers an area of roughly 9,251 square kilometres.

Two mountain ranges dominate the island's landscape: Troodos Mountains occupying the central and southwestern parts, and the Kyrenia Range stretching along the northern coast. Mount Olympus, the highest point in Cyprus, sits within the Troodos Mountains at 1,952 meters.

A vast central plain, known as the Mesaoria, separates the two mountain ranges.

Since 1974, the island has been divided into two main parts:

The southern part, the Republic of Cyprus, is internationally recognized.

The northern part, the Turkish Republic of Northern Cyprus, is recognized only by Turkey.

The Republic of Cyprus is a presidential republic, where the president serves as both head of state and head of government.

Tourism is a major pillar of the Cypriot economy, the manufacturing sector is focused on products like food processing, chemicals, and pharmaceuticals.

Cyprus produces a variety of agricultural products, including citrus fruits, olives, grapes, and vegetables.





Grey Zone Warfare

In commentaries on China and Taiwan, 'grey zone warfare' crops up in descriptions of Chinese actions around the island that it claims as its own.

About Grey Zone Warfare

Grey zone warfare generally means a middle, unclear space that exists between direct conflict and peace in international relations.

It can be broadly defined as the exploitation of operational space between peace and war to change the status quo through the use of coercive actions which remain below a threshold that, in most cases, would prompt a conventional military response.

Activities characterised as grey zone warfare methods range from the use of proxies for kinetic action or change of territorial status quo through coercion to non-kinetic subversive actions such as cyberattacks, economic coercion, disinformation campaign, election meddling, and more recently, weaponisation of migrants.

There are typical aspects that tend to be present in most grey zone warfare activities.

The first is that grey zone elements remain below the threshold that would justify a military response, often through the use of non-military tools.

The second common characteristic of grey zone activities is that they unfold gradually over time rather than involving bold, all-encompassing actions to achieve objectives in one step.

The third characteristic, which applies to some but not all the activities in this sphere, is a lack of attributability. Most grey zone campaigns involve actions, whereby the aggressor aims for plausible deniability of its action.

In cases where grey zone actions are open and attributable, they are justified using extensive legal and political arguments. In addition, aggressors also recruit other countries to their point of view.

Grey zone campaigns target specific vulnerabilities in the targeted countries.



Deterrence

Deterrence simply means dissuading bad behavior with the threat of significant punishment. In foreign policy, deterrence serves a similar purpose: maintaining peace by persuading enemies that any attack will be met with a significant response. For deterrence to work, two conditions should be present: severity and credibility. Severity entails threatening a prospective opponent with a retaliation that would outweigh any potential benefits they could hope to gain from attacking. Credibility means making an opponent believe that further aggression on their part will provoke retaliation.