



# Conquer Mains Challenge - Day 14

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## GS 2

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Appointment to various Constitutional posts, powers, functions and responsibilities of various Constitutional Bodies.

### **What is the role of a governor of a state? Is he merely a rubber stamp?**

#### **Why in News?**

Constitution has envisaged a limited role for the office of governor in the functioning of state Government. They merely possessed the formal authority of state and could act as a safety valve in case of a constitutional machinery break down. In normal circumstances governor is bound by the aid and advice of council of ministers.

But many times Governors have overstepped their role and it has led to misuse of Art 356 and consequentially governors office came under scrutiny as the agent of centre. This was evident in the recent event of Karnataka wherein the leader of largest party was appointed as the Chief Minister ignoring the majority seats of the coalition.

#### **Who is a governor in a state?**

- The governor is *the chief executive head of the state*. But, like the president, he is also *a nominal executive head*.
- The governor also acts as *an agent of the central government*. Therefore, the office of the governor has dual role.
- Usually, there is a governor for each state, but *the 7th constitutional amendment act of 1956 facilitated the appointment of the same person as*

*a governor for two or more states.*

### **Constitutional provisions:**

**Article 153:** It says that there shall be governor for each state. But, 7th constitutional amendment act, 1956 facilitated appointment of the same person as a governor for two or more states.

**Article 156:** Governor is appointed by president for terms of 5 years but usually holds office during pleasure of president. There is no provision for impeachment.

### **How the post of governor differs from that of a president?**

President is **indirectly elected head** of Centre while the governor is the nominated head of state.

While both of them are nominal heads and most of their functions are analogues to each other there exist some differences between their powers:

#### **1. Legislative powers.**

Ordinance making power:

While both president and governor have ordinance making powers under Article 123 and 213 respectively, the ordinance making power of president is wider owing to wider range of subjects in the Union list.

Veto power:

President has wider powers in this respect as he can also veto over certain state legislations reserved by governor for his consideration under Article 201.

#### **2. Executive powers:**

Clemency power: Both president and governor have pardoning powers by Article 72 and 161 respectively. Though they have equal powers with respect to suspension, remission and commutation, the clemency power of president is wider as only president can pardon court martial and death sentences.

President can also appoint Inter- State council, setup commission for examining condition of SC, ST and backward classes as well as reserve areas under state as schedule areas to be administered by him. The governor does not have these powers.

### 3. *Emergency power:*

The governor can only recommend imposition of state emergency, while the president can impose national, state and financial emergencies under Article 352, 356 and 360 respectively.

### 4. *Diplomatic and military powers:*

The president also has diplomatic and military powers which the governor does not have.

### 5. *Financial powers:*

The president has additional powers the governor wrt formation of a finance commission to recommend distribution of revenues between center and states.

### **The Constitutional position of governor differs from president in two respects:**

- The governor enjoys constitutional discretion while the president has situational discretion only.
- The Advice of state COM is not binding on governor while advice of Union COM was made binding on president by the 42nd amendment act.

Thus, ***though the powers of president are wider than governor due to a quasi-federal structure of the Indian polity the governor enjoys more discretionary powers.***

### **Why is that the post of governor losing its dignity in recent years?**

While the President of India is "elected", the governor is "selected" by the incumbent central government. That is why there have been many instances when governors appointed by a previous government are removed by an incoming government.

- The reasons are more political. The Supreme Court has ruled that governors should be given security of term but this is generally not adhered to.
- Political observers have described ***governorship as "plush old age homes"*** wherein the governor does not stay impartial and act against popular state leaders.

**For eg:**

- In 1984, Congressman Ram Lal dismissed the N. T. Rama Rao government and allowed Nandamuri Venkatarao as chief minister of Andhra Pradesh for 31 days.
- Arunachal Pradesh governor, who is also appointed by the ruling party at the centre, has been sacked by the president after the Supreme Court has quashed his unconstitutional acts.

### **Appointment of governors- a solution:**

A possible solution would be not to nominate career politicians and choose “eminent persons” from other walks of life. Both the Sarkaria and M.M. Punchhi Commissions seem to hint at this.

### **Why a fixed tenure for governor is necessary?**

Besides the normal functions which Governor exercises as a constitutional head, he exercises certain discretionary powers. Some of them have been particularly conferred on him while some others flow by necessary implication.

These are significant particularly in the following cases:

***One is with regard to the appointment of Chief Minister when neither a single party nor a combination of parties emerges from the election with a clear majority.*** In this situation, there is a question of dismissal of Chief Minister on the loss of majority support or otherwise.

***The second is with regard to making a report to President under Article 356*** about this satisfaction that a situation has arisen in which the Government of the State cannot be carried according to the provisions of the Constitution. Thereby recommending the imposition of President's rule, the issue of declaration of President's rule itself has become a matter of serious tension between union and state governments.

### **The Supreme Court's interpretation:**

In 2010, a constitutional bench of the Supreme Court interpreted these provisions and laid down some binding principles (B.P. Singh v. Union of India). In this case, the newly elected central government had removed the Governors of Uttar Pradesh, Gujarat, Haryana and Goa in July, 2004 after the 14th Lok Sabha election. When these removals were challenged, the Supreme Court held:

- The President, in effect the central government, has the power to remove a

Governor at any time without giving him or her any reason, and without granting an opportunity to be heard.

- However, this power cannot be exercised in an arbitrary, capricious or unreasonable manner. The power of removing Governors should only be exercised in rare and exceptional circumstances for valid and compelling reasons.
- The mere reason that a Governor is at variance with the policies and ideologies of the central government, or that the central government has lost confidence in him or her, is not sufficient to remove a Governor. Thus, a change in central government cannot be a ground for removal of Governors, or to appoint more favourable persons to this post.
- A decision to remove a Governor can be challenged in a court of law. In such cases, first the petitioner will have to make a prima facie case of arbitrariness or bad faith on part of the central government. If a prima facie case is established, the court can require the central government to produce the materials on the basis of which the decision was made in order to verify the presence of compelling reasons.
- In summary, *this means that the central government enjoys the power to remove Governors* of the different states, as long as it does not act arbitrarily, without reason, or in bad faith.

### **Recommendations of Various Commissions-Three important commissions have examined this issue:**

**The Sarkaria Commission (1988)** recommended that Governors must not be removed before completion of their five year tenure, except in rare and compelling circumstances. This was meant to provide Governors with a measure of security of tenure, so that they could carry out their duties without fear or favour. If such rare and compelling circumstances did exist, the Commission said that the procedure of removal must allow the Governors an opportunity to explain their conduct, and the central government must give fair consideration to such explanation. It was further recommended that Governors should be informed of the grounds of their removal.

**The Venkatachaliah Commission (2002)** similarly recommended that ordinarily Governors should be allowed to complete their five year term. If they have to be removed before completion of their term, the central government should do so only after consultation with the Chief Minister.

**The Punchhi Commission (2010)** suggested that the phrase “during the pleasure of the President” should be deleted from the Constitution, because a Governor should not be removed at the will of the central government; instead he or she should be removed only by a resolution of the state legislature.

The above recommendations however were never made into law by Parliament. Therefore, they are not binding on the central government.

### **Significance of Governor's position:**

- Under the constitutional scheme, the Governor's mandate is substantial. From being tasked with overseeing government formation, to reporting on the breakdown of constitutional machinery in a State.
- To maintaining the chain of command between the Centre and the State, he can also reserve his assent to Bills passed by the State Legislature and promulgate ordinances if the need arises.
- Further, under Article 355, the Governor, being the Central authority in a State, acts as an overseer in this regard.
- The Governor has the task of inviting the leader of the largest party/alliance, post-election, to form the government; overseeing the dismissal of the government in case of a breakdown of the Constitution in the State; and, through his report, recommending the imposition of President's rule.

### **Is governor merely a rubber stamp?**

Governor has ***the right to be kept informed of the decisions of the state ministry***. He appoints the chief minister and on his advice, other ministers and several important state officials such as the advocate general, the chairman and members of the State Public Service Commission.

One very important function assigned to him is that ***it is only after his assent a bill becomes a law in the state***. This unique and pragmatic feature prevents the existence of an authoritarian and despotic state.

He is the ***de jure or nominal executive*** in the state. He enjoys prestige and holds responsibility endowed upon him by the Constitution of India. Therefore, he is more than just a rubber stamp in diverse forms.

### **The Way Forward:**

In India, the balance in power is tilted towards the Union. The importance of the Governor's position arises not from the exceptional circumstances that necessitate the use of his discretion, but as a crucial link within this federal structure in maintaining effective communication between the Centre and a State.

As a figurehead who ensures the continuance of governance in the State, even in times of constitutional crises, his role is often that of a neutral arbiter in disputes settled informally within the various strata of government, and as the conscience keeper of the community.



There is need to ensure proper checks and balances to streamline the functioning of this office. However, misuse of a position of power should not serve as a justification for removing the office altogether, unless such a position has totally lost its relevance.

### **Flow of Thoughts:**

- The role of governor- constitutional provisions.
- Similarities and differences in powers of President and governor.
- Recent controversies over the removal and appointment of governors.
- Solutions in this context.

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GS 2

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Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

### **Nuclear prohibition:**

#### **Why in News?**

In 2017, nations without nuclear weapons came together to negotiate a ***“legally binding instrument to prohibit nuclear weapons, leading towards their total elimination”***. Also, NPT has completed 50 years of its existence.

#### **Why small nations should team up against nuclear weapon states?**

This coming- together **was a direct result of decreasing faith in the nuclear non-proliferation treaty (NPT) process, the conference on disarmament, and the nuclear-centred world order even after the end of the Cold War.**

#### **The NPT:**

The nuclear Nonproliferation Treaty (NPT), which entered into force in March 1970, seeks to inhibit the spread of nuclear weapons. Its 190 states-parties are classified in two categories: nuclear-weapon states (NWS)—consisting of the United States, Russia, China, France, and the United Kingdom—and non-nuclear-weapon states (NNWS).

- Under the treaty, the five NWS commit to pursue general and complete disarmament, while the NNWS agree to forgo developing or acquiring nuclear weapons.
- With its near-universal membership, the NPT has the widest adherence of any arms control agreement, with only South Sudan, India, Israel, and Pakistan remaining outside the treaty.
- In order to accede to the treaty, these states must do so as NNWS, since the treaty restricts NWS status to nations that "manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967." For India, Israel, and Pakistan, all known to possess or suspected of having nuclear weapons, joining the treaty as NNWS would require that they dismantle their nuclear weapons and place their nuclear materials under international safeguards. South Africa followed this path to accession in 1991.

### **Has NPT failed in its mandate?**

Yes, to a certain extent. **NPT, launched in 1995**, has failed on two counts.

- One, **failure to keep commitments** by nuclear- weapon states made in NPT review conferences, primarily on disarmament. This has resulted in alienating even the most loyal non-nuclear adherent.
- Two, even with the discontent, the **nuclear weapon states have failed to accommodate aspirant powers and establish a new world order that was not based on nuclear weapons.**

### **Achievements of NPT:**

***Decrease in nuclear stockpiles:*** From 1968 to now nuclear stockpiles in general have decreased significantly. Before the NPT, both the superpowers — the US and the then Soviet Union — had nuclear stockpiles running into tens of thousands. In the last 50 years, a series of bilateral arms control agreements and initiatives have limited and reduced the size of nuclear arsenals of these countries.

***Voluntary disarmament:*** States, which at one point had nuclear weapons, have voluntarily given them up. This included countries like South Africa which completely dismantled its nuclear stockpiles and signed the NPT in 1991 while states like Ukraine, Kazakhstan and Belarus, which inherited the nuclear weapons from the Soviet Union following its dissolution, returned them to Russia.



### **Where has it failed?**

- Even after the treaty came into force in 1970, three states which include India, Pakistan and North Korea have gone on to become nuclear power states. On its side, India believes the NPT to be “discriminatory” in nature as it calls upon countries to give up plans to build future nuclear weapons. It has thus refused to sign it.
- It has failed to prevent non-signatories from nuclear proliferation. Once a signatory to the NPT, North Korea announced its withdrawal from the treaty in 2003 and started developing its nuclear capabilities. Currently, it's a nuclear power state.

### **Who are Nuclear-Weapon States?**

The **nuclear-weapon states (NWS) are the five states—China, France, Russia, United Kingdom, and the United States—officially recognized as possessing nuclear weapons by the NPT.**

NPT legitimizes these states' nuclear arsenals, but establishes they are not supposed to build and maintain such weapons in perpetuity. In 2000, the NWS committed themselves to an “unequivocal undertaking to accomplish the total elimination of their nuclear arsenals.”

### **Why are small nations worried?**

Some of the countries spearheading the negotiation process—Austria, Cuba, Ireland, Mexico, Mongolia and Sweden—are **likely to face the brunt of nuclear fallout if weapons are used in their region by the heavily-armed nuclear nations.**

To put this in context, the fallout from **the single biggest nuclear test conducted by the US on Bikini Atoll in the Pacific on 1 March 1954 with a yield of 15 megatons—five times more than all the firepower used in World War II—spread over 18,000 sq. km** and showered radioactive material as far as Australia, India, Japan and the US. It was this one test that prompted Jawaharlal Nehru to propose a nuclear test ban treaty.

### **Need for nuclear abolition:**

***Because of its disastrous effects:*** It is an urgent humanitarian necessity. Nuclear weapons would have catastrophic consequences. No effective humanitarian response

would be possible, and the effects of radiation on human beings would cause suffering and death many years after the initial explosion. Therefore, eliminating nuclear weapons – via a comprehensive treaty – is the only guarantee against their use.

**Worldwide threat:** They pose a direct and constant threat to people everywhere. They breed fear and mistrust among nations. These ultimate instruments of terror and mass destruction have no legitimate military or strategic utility, and are useless in addressing any of today's real security threats, such as terrorism, climate change, extreme poverty, overpopulation and disease.

**Diversion of public funds and catastrophes:** It would take less than 0.1% of the explosive yield of the current global nuclear arsenal to bring about devastating agricultural collapse and widespread famine. The smoke and dust from fewer than 100 Hiroshima-sized nuclear explosions would cause an abrupt drop in global temperatures and rainfall. Also, nuclear weapons programmes divert public funds from health care, education, disaster relief and other vital services.

#### **Other efforts in this regard:**

**What is New Agenda for Coalition?** The New Agenda Coalition (NAC) is a geographically dispersed group of middle power countries seeking to build an international consensus to make progress on nuclear disarmament, as legally called for in the nuclear NPT. It was formed in 1998.

**Composition:** It is composed of Brazil, Egypt, Ireland, Mexico, New Zealand and South Africa. All current members of the New Agenda Coalition have joined the Humanitarian Initiative, which was founded in 2013 also in the context of the NPT.

**Its significance:** The group was formed in response to the North-South divide that stymied talks on nuclear disarmament and non-proliferation within the framework of the NPT. Non-nuclear weapon states believed that not enough progress was being made on disarmament to have warranted the Indefinite Extension of the treaty in 1995, and that the nuclear weapons states were not fulfilling their legal responsibilities towards disarmament, as outlined by Article VI of the NPT.

#### **International Campaign to Abolish Nuclear Weapons (ICAN):**

The ICAN, a coalition of NGOs from almost 100 countries, has been tirelessly working on a global campaign to mobilise people to inspire, persuade and pressure their governments to initiate and support negotiations for a treaty banning nuclear weapons

(the Treaty on the Prohibition of Nuclear Weapons at the United Nations).

This treaty is the ***first legally binding international agreement to comprehensively prohibit nuclear weapons***, reflects the ambition of many states to rid the world of nuclear weapons.

### **Problems with the treaty:**

The nuclear weapon ban is a landmark treaty, of great political and historical importance. The prohibition treaty creates a legal basis for banning nuclear weapons among adhering states; however it hasn't actually banned such weapons. Nuclear arsenals exist and will continue to exist for years to come.

The treaty establishes no new mechanisms to encourage states with nuclear weapons to dismantle them. Instead, it seeks to delegitimise nuclear weapons as tools of statecraft on the grounds of indiscriminate humanitarian effects.

A state that joins the treaty while still possessing nuclear weapons is not required to accept any safeguards until after it has eliminated its weapons. This is a major weakness – elimination could take years, during which time the state could be producing new weapons to replace those it is eliminating.

### **Emphasising non-proliferation:**

- NPT enthusiasts have been disappointed of late that out of the three pillars of the treaty, non-proliferation, disarmament and nuclear energy for peaceful purposes, the first, non-proliferation, has got watered down and disarmament has become the priority.
- They also worry that dangerous technologies like enrichment are within the reach of the non-weapon states. In the context of Japan and South Korea debating acquisition of nuclear weapons, they feel that non-proliferation should be brought back to be the first priority of the NPT.
- In 1995, the NPT was made a perpetual treaty with no possibility of amendment, but its votaries now advocate that non-proliferation should be emphasised to the exclusion of disarmament and nuclear energy promotion.

### **Why a total ban is being demanded?**

Disarmament and deterrence are usually advocated by the nuclear weapons states. But, the failure of this policy is never discussed. If a nuclear-armed nation was attacked, either by intention or error, the expected response would be retaliation with a bevy of nuclear weapons. These weapons are indiscriminate and would invariably kill

and wound millions. There is unimaginable suffering among the survivors. Operational infrastructure is gone. The North Korea crisis is a prime example of why these weapons do not belong in human hands. The only fail-safe way to prevent a catastrophe is to eliminate the existence of nuclear weapons; any number above zero should be unacceptable.

### **What next?**

For international civil society actors who support the objective of disarmament, this international situation presents an uncomfortable choice. In reality the prohibition and nuclear disarmament camps are so divided that it is difficult to find credible middle ground.

- But there are useful means to push both sides towards a safer world. In states possessing nuclear weapons, civil society actors can challenge the most expansive and dangerous ideas that extend nuclear deterrence objectives to absurd ends.
- Sharp analysis can highlight the negative outcomes of nuclear deterrence policy. It is useful to foster debate that forces policymakers to justify their investment in nuclear weapons. In states desiring to prohibit nuclear weapons, civil society actors can encourage actions and policies that aim to mitigate security threats that drive demand for nuclear weapons.
- Strengthening international institutions and mechanisms that prevent proliferation and enhance the credible peaceful uses of nuclear technology is a critical enabler of disarmament.

### **Ethical imperatives for nuclear disarmament:**

Nuclear weapons obliterate the distinction between combatants and civilians that is central to every moral code in all cultures and civilizations. Most countries have chosen nuclear abstinence because people overwhelmingly abhor the bomb as deeply immoral. It is the most indiscriminately inhumane weapon ever invented. Its primary intended deterrent effect relies on the threat to kill millions of innocent civilians. Accurately called the balance of terror, deterrence is a euphemism for state-sanctioned nuclear terrorism.

The preamble of the NWPT explicitly acknowledges “the ethical imperatives for nuclear disarmament” and describes a nuclear weapon-free world as “a global public good of the highest order, serving both national and collective security interests.”

### **Conclusion:**

The new treaty by small states prohibiting nuclear weapons will strengthen the global norms against using and possessing these weapons. And it will spur long-overdue progress towards disarmament. Experience shows that the prohibition of a particular type of weapon provides a solid legal and political foundation for advancing its progressive elimination.

### **Flow of Thoughts:**

- What is NPT- achievements and failures?
- Treaty by small nations- need, significance and its impact.
- Need for nuclear non- proliferation and disarmament.
- Why there is a need for complete ban?
- Other treaties on nuclear prohibition.

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## GS 3

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Awareness in space and Achievements of Indians in science & technology.

### **Lunar Missions:**

#### **Why in News?**

The launch of mission Chandrayaan- 2 has been delayed again.

#### **India's tryst with Moon:**

Prime Minister Atal Bihari Vajpayee announced the Chandrayaan project on course in his Independence Day speech on 15 August 2003.

#### **Chandrayaan 1:**

It was India's first lunar probe launched by the Indian Space Research Organization in October 2008. The mission included a lunar orbiter and an impactor. India launched

the spacecraft using a PSLV-XL rocket.

### **Objectives of chandrayaan 1:**

The mission had the following stated scientific objectives:

- To design, develop, launch and orbit a spacecraft around the Moon using an Indian-made launch-vehicle.
- To conduct scientific experiments using instruments on the spacecraft which would yield data: for the preparation of a three-dimensional atlas (with high spatial and altitude resolution of 5-10 m or 16-33 ft) of both the near and far sides of the Moon; for chemical and mineralogical mapping of the entire lunar surface at high spatial resolution, mapping particularly the chemical elements magnesium, aluminum, silicon, calcium, iron, titanium, radon, uranium, and thorium.
- To increase scientific knowledge.
- To test the impact of a sub-satellite (Moon Impact Probe - MIP) on the surface of the Moon as a fore-runner for future soft-landing missions.

### **Achievements:**

- The mission was *a major boost to India's space program as India researched and developed its own technology* in order to explore the Moon. The vehicle was inserted into lunar orbit on 8 November 2008.
- On 14 November 2008, the Moon Impact Probe separated from the Chandrayaan orbiter and struck the South Pole in a controlled manner, making *India the fourth country to place its flag on the Moon*.
- The probe hit near the crater *Shackleton* ejecting sub-surface soil that could be analysed for the presence of lunar water ice.
- On 24 September 2009 Science journal reported that the *Moon Mineralogy Mapper (M3) on Chandrayaan-1 had detected water ice on the Moon*.
- *It discovered a tunnel*. The tunnel, which was discovered near the lunar equator, is an empty volcanic tube, measuring about 2 km in length and 360 m in width. This could be a potential site for human settlement on the Moon.
- Data from the microwave sensor (Mini-SAR) of Chandrayaan-1 processed using the image analysis software ENVI, has revealed *a good amount of past tectonic activity on the lunar surface*. The researchers think that the faults and fractures discovered could be features of past interior tectonic activity coupled with meteorite impacts.

Although the mission was less than 10 months in duration and less than half the intended 2 years in length, a review by scientists termed the mission successful as it had completed 95% of its primary objective.



### **International recognition:**

- The American Institute of Aeronautics and Astronautics (AIAA) has selected ISRO's Chandrayaan-1 mission as one of the recipients of its **annual AIAA SPACE 2009 awards**, which recognizes key contributions to space science and technology.
- The International Lunar Exploration Working Group awarded the Chandrayaan-1 team the **International Co-operation Award in 2008** for accommodation and tests of the most international lunar payload ever (from 20 countries, including India, the European Space Agency of 17 countries, USA, and Bulgaria).
- US-based National Space Society awarded ISRO **the 2009 Space Pioneer Award** in the science and engineering category, for the Chandrayaan-1 mission.

### **Mission Lost and the connection re-established:**

The mission was launched on 22 October 2008 and expected to operate for 2 years. However, on 28 August 2009 communication with the spacecraft was suddenly lost.

The probe had operated for 312 days. The craft had been expected to remain in orbit for approximately another 1000 days and to crash into the lunar surface in late 2012 although in 2016 it was found to still be in orbit.

### **How was it found?**

- According to a recent NASA report, "A new technological application of interplanetary radar pioneered by scientists at NASA's Jet Propulsion Laboratory in Pasadena, California, has successfully located spacecraft orbiting the moon - one active, and one dormant. This new technique could assist planners of future moon missions."
- To find a spacecraft 380,000 km away, scientists used the 70-metre antenna at NASA's Goldstone Deep Space Communications Complex in California to send out a powerful beam of microwaves towards the moon. Then the radar echoes bounced back from lunar orbit were received by the 100-metre Green Bank Telescope in West Virginia.
- JPL's orbital calculations indicated that Chandrayaan-1 is still circling some 200 km above the lunar surface.

### **About Chandrayaan-2:**

- Chandrayaan-2 includes soft-landing on Moon and moving a rover on its surface.

It is an advanced version of the previous Chandrayaan-1 mission. It consists of an orbiter, lander and rover configuration.

- The Orbiter spacecraft when launched from Sriharikota will travel to the Moon and release the Lander, which will in turn deploy a tiny Rover to roam the lunar surface — all three sending data and pictures to Earth.
- It is planned to be launched as a composite stack into the earth parking orbit (EPO) of 170 X 18,500 km by GSLV-Mk II.

### **Lunar explorations by other countries:**

Missions to the Moon have been conducted by ***the Soviet Union, United States, European Space Agency, Japan, India and the People's Republic of China.***

- The Moon has also been visited by five spacecraft not dedicated to studying it; four spacecraft have flown past it to gain gravity assistance, and a radio telescope, Explorer 49, was placed into selenocentric orbit in order to use the Moon to block interference from terrestrial radio sources.
- Luna 2 or Lunik 2 was the second of the Soviet Union's Luna programme spacecraft launched to the Moon. It was the first spacecraft to reach the surface of the Moon, and the first man-made object to land on another celestial body on September 13, 1959.
- Luna 9 was an unmanned space mission of the Soviet Union's Luna programme. On 3 February 1966 the Luna 9 spacecraft became ***the first spacecraft to achieve a soft landing on the Moon*** or any planetary body other than Earth and to transmit photographic data to Earth from the surface of another planetary body.

### **Know about Moon:**

- The fifth largest moon in the solar system, Earth's moon is the only place beyond Earth where humans have set foot.
- The brightest and largest object in our night sky, the moon makes Earth a more livable planet by moderating our home planet's wobble on its axis, leading to a relatively stable climate.
- It also causes tides, creating a rhythm that has guided humans for thousands of years. The moon was likely formed after a Mars-sized body collided with Earth.
- Earth's only natural satellite is simply called "the moon" because people didn't know other moons existed until Galileo Galilei discovered four moons orbiting Jupiter in 1610.
- The Moon is Earth's satellite and orbits the Earth at a distance of about 384 thousand km. The Moon makes a complete orbit around Earth in 27 Earth days. The Moon keeps the same side, or face, towards Earth during its orbit.
- The Moon has a very thin and tenuous atmosphere called an exosphere. It is not

breathable.

**Way ahead:**

Lunar exploration technologies that seemed fantasies in the past are now becoming imminent possibilities. The rush to acquire them is resulting in a space race in Asia that is additionally yielding scientific research and techno-economic growth. It is, therefore, important for India to take a step ahead and make its position firm in Asia.

**Flow of Thoughts:**

- Brief overview of Chandrayaana1 & 2.
  - Significance of these missions.
  - Lunar missions by various countries.
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