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For the 5th Week

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1. Geography

1.1. Net Present Value+ Green Credit Scheme

- The Net Present Value (NPV), as it is called, is a monetary approximation of the value that is lost when a piece of forest land has been razed.

Basis

- This is on the basis of the services and ecological value and there are prescribed formulae for calculating this amount .
- This depends on :
 - ✓ location and nature of the forest and
 - ✓ type of industrial enterprise that will replace a particular parcel of forest.

Significance

- NPV payments are used for conservation efforts like mitigating wildlife loss and biodiversity projects, through the Compensatory Afforestation Fund.

Authority

- The Forest Advisory Committee [statutory body constituted by the Forest (Conservation) Act 1980] constituted by the Ministry of Environment, Forest and Climate Change (MoEF&CC) decides on whether forests can be diverted for projects and the NPV to be charged.

Developed By

- The NPV came into being after a committee led by Professor Kanchan Gupta, of the Institute of Economic Growth, developed it based on a mandate from the Supreme Court.

Case Law

- The Supreme Court mandates - - N. Godavarman Thirumulpad v. Union of India case
 - ✓ this must be paid by those who use forest land for non-forestry purposes and
 - ✓ only limited exemptions are permitted.

Exemptions

- Some projects have been provided exemption from paying NPV like construction of Schools, Hospitals, village tanks, laying down of optical fibre etc.
- Projects like underground mining and wind energy plants have been given a 50% exemption from NPV.

Current System

- In the current system, industry needs to make good the loss of forest by finding appropriate non-forest land — equal to that which would be razed.
- It also must pay the State Forest Department the current economic equivalent — called Net Present Value — of the forest land.

- It's then the Forest Department's responsibility to grow appropriate vegetation that, over time, would grow into forests.

Issues

- Industries have often complained that they find it hard to acquire appropriate non-forest land, which has to be contiguous to existing forest.
- Nearly ₹50,000 crore had been collected by the Centre over decades, but the funds were lying unspent because States were not spending the money on regrowing forests.

Green Credit Scheme

- It allows agencies — they could be private companies, village forest communities — to identify land and begin growing plantations.
- After three years, they would be eligible to be considered as compensatory forest land if they met the Forest Department's criteria.
- An industry needing forest land could then approach the agency and pay it for parcels of such forested land, and this would then be transferred to the Forest Department and be recorded as forest land.

Significance

- The FAC believes that such a scheme will encourage plantation by individuals outside the traditional forest area and will help in meeting international commitments such as sustainable development goals and nationally determined contributions

2. History

2.1. Mimamsa School of Indian Philosophy

- Founder - Jamini
- Source - Mimamsa Sutra
- Literal Meaning - In Sanskrit, it means Reflection or critical investigation
- Also refers to examination of the Vedas.
- All known as Purva Mimamsa because of its focus on the earlier Vedic texts dealing with ritual actions, and similarly as Karma- Mīmāṃsā due to its focus on ritual action (karma).
- The Mīmāṃsā school was foundational and influential for the vedāntic schools, which were also known as Uttara-Mīmāṃsā (Jnana Mimamsa) for their focus on the "later" (uttara) portions of the Vedas, the Upaniṣads.
- While both "earlier" and "later" Mīmāṃsā investigate the aim of human action, they do so with different attitudes towards the necessity of ritual praxis.
- Mīmāṃsā has several sub-schools, each defined by its epistemology.
 - ✓ The Prābhākara sub-school, which takes its name from the seventh-century philosopher Prabhākara, described the five epistemically reliable means to gaining knowledge:
 - ❖ Pratyakṣa or perception;
 - ❖ Anumāna or inference;
 - ❖ Upamāṇa, by comparison and analogy
 - ❖ Arthāpatti, the use of postulation and derivation from circumstances;
 - ❖ Sabda, the word or testimony of past or present reliable experts.
- Mīmāṃsā has several sub-schools, each defined by its epistemology.
 - ✓ The Bhāṭṭa sub-school, from philosopher Kumārila Bhaṭṭa, added a sixth means to its canon;
 - ❖ Anupalabdhi meant non-perception, or proof by the absence of cognition (e.g., the lack of gunpowder on a suspect's hand)
- The school of Mīmāṃsā consists of both atheistic and theistic doctrines, but the school showed little interest in systematic examination of the existence of Gods.
- Rather, it held that the soul is an eternal, omnipresent, inherently active spiritual essence, and focused on the epistemology and metaphysics of dharma.
- For the Mīmāṃsā school, dharma meant rituals and social duties, not devas, or gods, because gods existed only in name.
- The Mīmāṃsakas also held that Vedas are "eternal, author-less, infallible", that Vedic vidhi, or injunctions and mantras in rituals are prescriptive kārya or actions, and the rituals are of primary importance and merit.



- They considered the Upaniṣads and other texts related to self- knowledge and spirituality as subsidiary, a philosophical view that Vedānta disagreed with.
- Mīmāṃsakas considered the purpose and power of language was to clearly prescribe the proper, correct and right. In contrast, Vedāntins extended the scope and value of language as a tool to also describe, develop and derive.
- Mīmāṃsakas considered orderly, law driven, procedural life as central purpose and noblest necessity of dharma and society, and divine (theistic) sustenance means to that end.

3. Polity & Governance

3.1. Breach of Privilege Motion

- Context: A CPI Member of Parliament, Binoy Viswam, has filed a breach of privilege motion against the Lakshadweep Administrator for denying him permission to visit the islands, preventing him from meeting his cadre and people of the island amidst growing resentment about the policies of the new administrator.

What is a breach of privilege motion?

- Members of Legislatures, both central and state, enjoy certain rights and immunities, individually and collectively, so that they can “effectively discharge their functions”.
- Article 105 of the Constitution expressly mentions some of privileges, that is, freedom of speech in Parliament, immunity to a member from any proceedings in any court in respect of anything said or any vote given by him in Parliament or any committee thereof, immunity to a person from proceedings in any court in respect of the publication by or under the authority of either House of Parliament of any report, paper, votes or proceedings.
- Further, Courts are prohibited from inquiring into the validity of any proceedings in Parliament on the ground of an alleged irregularity of procedure.
- No officer or Member of Parliament empowered to regulate procedure or the conduct of business or to maintain order in Parliament can be subject to a court’s jurisdiction in respect of exercise by him of those powers.
- Apart from these, Constitution states that the powers, privileges and immunities of Parliament and MPs are to be defined by Parliament. No law has so far been enacted in this respect. In the absence of any such law, it continues to be governed by British Parliamentary conventions.
- However, reference to the House of Commons in Clause (3) of Article 105 was omitted by the Constitution (Forty-fourth Amendment) Act, 1978.
- Apart from the privileges as specified in the Constitution, the Code of Civil Procedure, 1908, provides for freedom from arrest and detention of members under civil process during the continuance of the meeting of the House or of a committee thereof and forty days before its commencement and forty days after its conclusion.
- The Constitution also extends the parliamentary privileges to those persons who are entitled to speak and take part in the proceedings of a House of Parliament or any of its committees.
- These include the Attorney General of India. The parliamentary privileges do not extend to the President who is also an integral part of the Parliament. Article 361 of the Constitution provides for privileges for the President.

Penal powers of the House

- If any individual or authority violates or disregards any of the privileges, powers and immunities of the House or members or committees thereof, he may be punished for “breach of privilege” or “contempt of the House”.

- The House has the power to determine as to what constitutes breach of privilege and contempt. The penal jurisdiction of the House in this regard covers its members as well as strangers and every act of violation of privileges, whether committed in the immediate presence of the House or outside of it.
- A person found guilty of breach of privilege or contempt of the House may be punished either by imprisonment, or by admonition (warning) or reprimand. Two other punishments may also be awarded to the members for contempt, namely, 'suspension' and 'expulsion' from the House.

Process of breach of privilege motion

- A notice is moved in the form of a motion by any member of either
- House against those being held guilty of breach of privilege.
- The LS Speaker/RS chairperson is the first level of scrutiny of a privilege motion.
- The Speaker/Chair can decide on the privilege motion himself or herself or refer it to the privileges committee of Parliament.
- If the Speaker/Chair gives consent under relevant rules, the member concerned is given an opportunity to make a short statement.

4. Economy

4.1. Rules Of Origin

- Rules of origin are laws, regulations and procedures that identify where an imported product originally came from.
- The rules vary from country to country, and are often specified in free trade agreements.
- The rules often refer to a certain quantity of inputs, processing, transformation, etc. that needs to be done in the country.
- Identifying a product's country of origin helps customs agencies know what regulations and fees apply to a given product.
- Tariffs may be reduced or increased depending on where a product comes from.
- Rules of origin (ROO) are the criteria needed to determine the country of origin of a product for purposes of international trade. Their importance is derived from the fact that duties and restrictions in several cases depend upon the source of imports.

Rules of origin are used

- to implement measures and instruments of commercial policy such as antidumping duties and safeguard measures;
- to determine whether imported products shall receive most-favoured-nation(MFN) treatment or preferential treatment;
 - ✓ for the purpose of trade statistics;
 - ✓ for the application of labelling and marking requirements; and
 - ✓ for government procurement.

5. Environment

5.1. New Species of Semi Slug

Introduction

- The Western Ghats have yielded a genus and species of nocturnal semi slug new to science.
- The newly described glossy grey or greyish-white *Varadia amboliensis* with irregular dark mottling measures 6.9 cm long at most, but scientists are enthused by its sensitivity to the slightest of climatic fluctuation.
- The genus of the new land species has been named after Varad Giri in recognition of his transformative contribution to the study and conservation of the Indian herpetofauna while the species name 'amboliensis' refers to the Amboli area of Maharashtra's Sindhudurg district.
- It is in reference to the location where it was first discovered in 2017.



Semi Slugs

- Semi-slugs are so-called because their shells are relatively small in comparison to the body, with the shell often partly or almost entirely covered by extensions of the snail's 'skin', the mantle.
- In the new semi-slug, the parts of the mantle covering the shell lobes are retractable, so that the shell can be completely covered by the mantle or largely exposed.
- The new species can be told apart from other Indian semi slugs largely based on external appearance, the morphology of its shell, and its unique reproductive system.
- The semi-slug is endemic to the northern and central Western Ghats and primarily found in natural forests.
- It is most active at night and is known from only a handful of localities in Maharashtra, Goa and Karnataka.

Semi Slugs As Ecological Indicators

- As land snails are ecological indicators, they are susceptible to slight climatic fluctuations.
- They feed on leaf litter present on the forest floor and dead insects.
- They are the natural source of calcium to the wild animals as they recycle nutrients such as potassium, manganese and magnesium.

Amboli

- The *Varadia amboliensis* is among 21 new species that have been discovered in Amboli since 2005, including snakes, amphibians, crabs, spiders and scorpions.
- Amboli village is home to Shistura Hiranyakeshi biodiversity heritage site and falls under the Amboli-Dodamarg Conservation Reserve.

Conclusion

- There are still many undescribed species of land snails which are facing threat.
- The discovery of this large and striking snail emphasizes the urgent need for detailed and geographically wide-ranging surveys of the snails and slugs of the Western Ghats.
- This group, which has long been neglected, is at a high risk of extinction due to habitat loss and degradation
- The new semi-slug will help us apply conservation strategies in future.

6. Science & Technology

6.1. Carbon Nanotubes

Graphene (Strongest material)

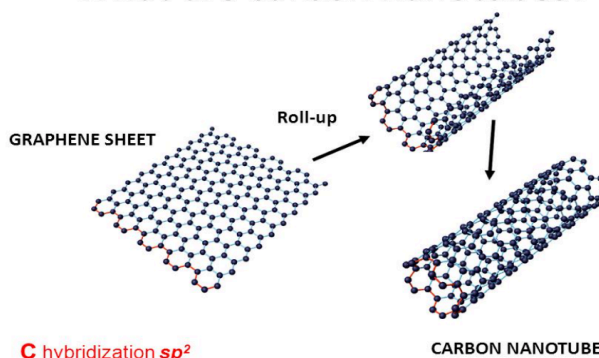
- Single layer of carbon atoms.
- It is harder than diamond yet more elastic than rubber
- Tougher than steel yet lighter than aluminium.
- Lowest resistivity substance known at room temperature.
- High thermal stability.
- High elasticity.
- High electrical conductivity.
- Electron mobility is high at room temperature.



What are carbon nanotubes?

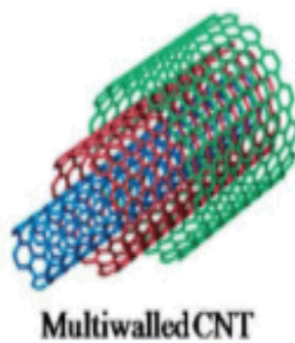
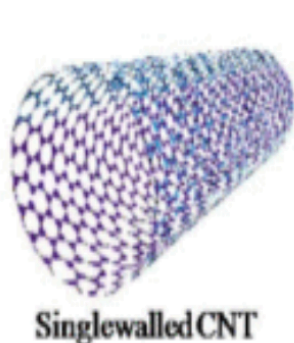
What are carbon nanotubes?

- are cylindrical molecules that consist of rolled-up sheets of single-layer carbon atoms (graphene)



Types

- They can be single-walled (SWCNT) with a diameter of less than 1 nanometer (nm)
- Multi-walled (MWCNT), consisting of several concentrically interlinked nanotubes, with diameters reaching more than 100 nm.



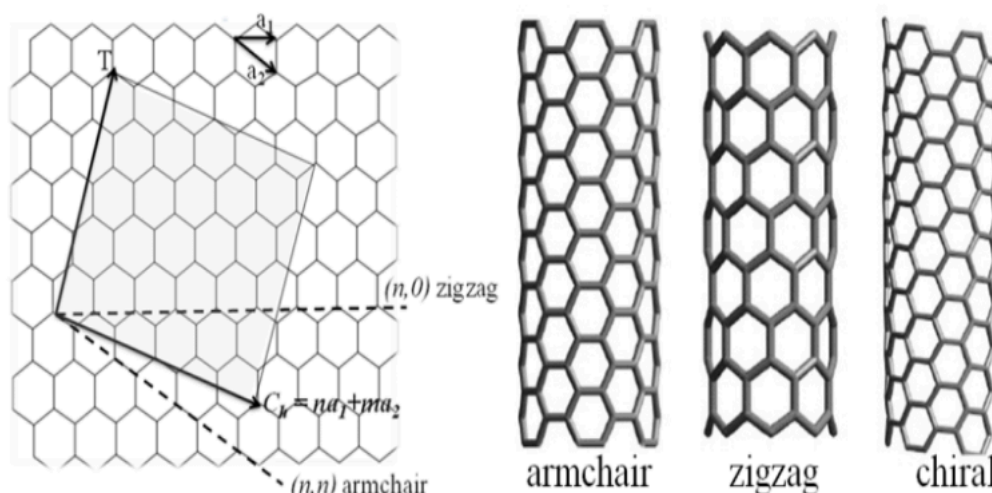
Properties

- Mechanical tensile strength can be 400 times that of steel;
- very light-weight;
- Thermal conductivity is better than that of diamond;

- Highly chemically stable and resist virtually any chemical impact unless they are simultaneously exposed to high temperatures and oxygen - a property that makes them extremely resistant to corrosion;
- Hollow interior can be filled with various nano-materials.

Electrical properties

- The rolling-up direction of the graphene layers determines the electrical properties of the nanotubes

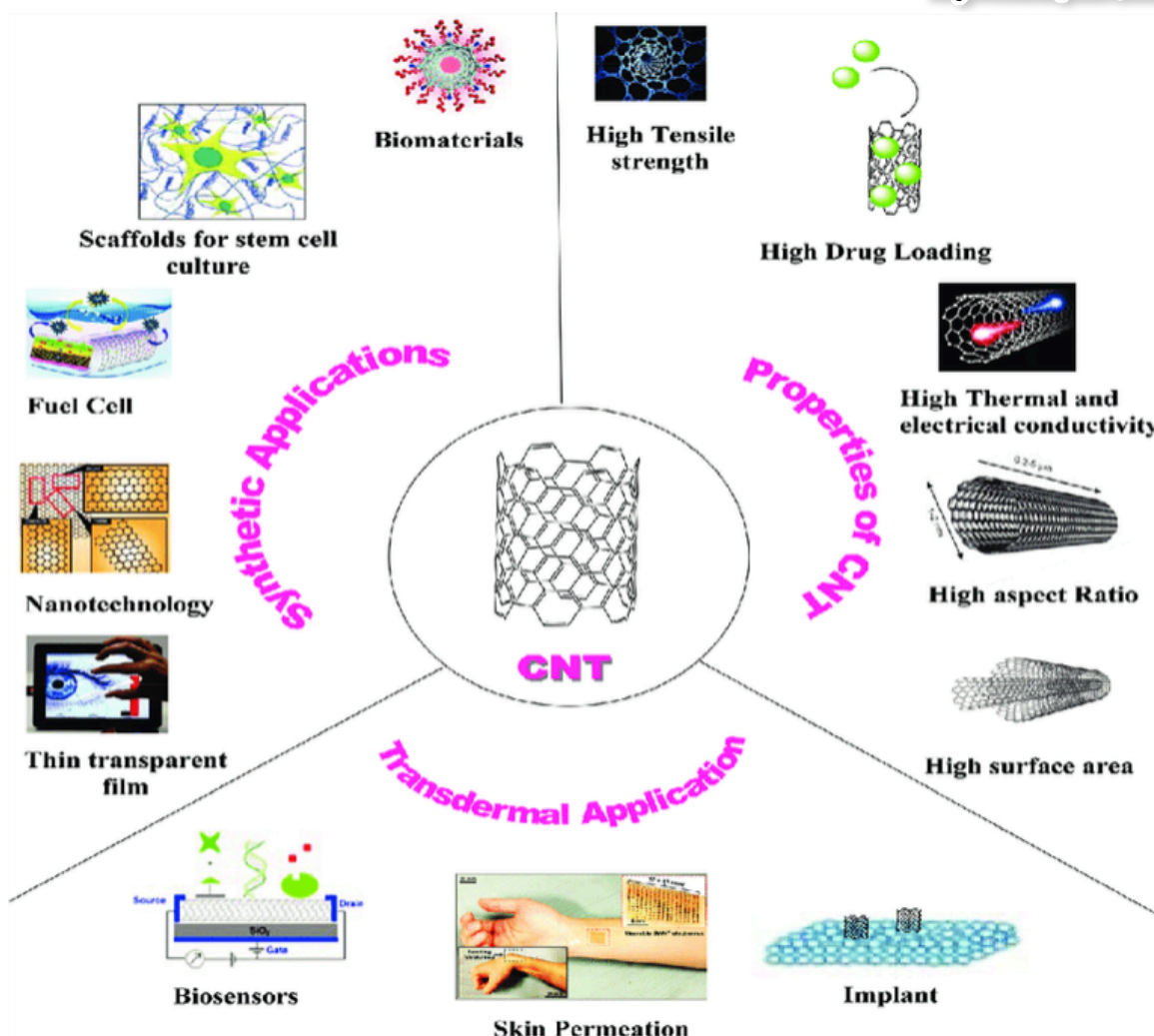


Application

- CNTs are well-suited for virtually any application requiring high strength, durability, electrical conductivity, thermal conductivity and lightweight properties compared to conventional materials.
- Currently, CNTs are mainly used as additives to synthetics.
- CNTs are commercially available as a powder, i.e. in a highly tangled-up and agglomerated form.
- Carbon nanotubes can also be spun into fibers.
- Sporting goods(bicycle frames, tennis rackets, hockey sticks, golf clubs and balls, skis, kayaks; sports arrows).
- Other-Textile, automotive etc

Biodegradable

- CNTs are extremely physically and chemically stable, and therefore may not be biodegradable.
- However, novel approaches for degrading CNTs have been developed.
- These methods, which use peroxidases, neutrophils, and macrophages have yielded some encouraging results.



Other properties

- Catalysis
 - ✓ High surface area combined with the ability to attach essentially any chemical species to their sidewalls
- Sensors
 - ✓ Electrical properties are extremely sensitive to the effects of charge transfer and chemical doping by various molecules.
- Filtration
 - ✓ Efficient water transport in carbon nanotubes with openings of less than one nanometer