

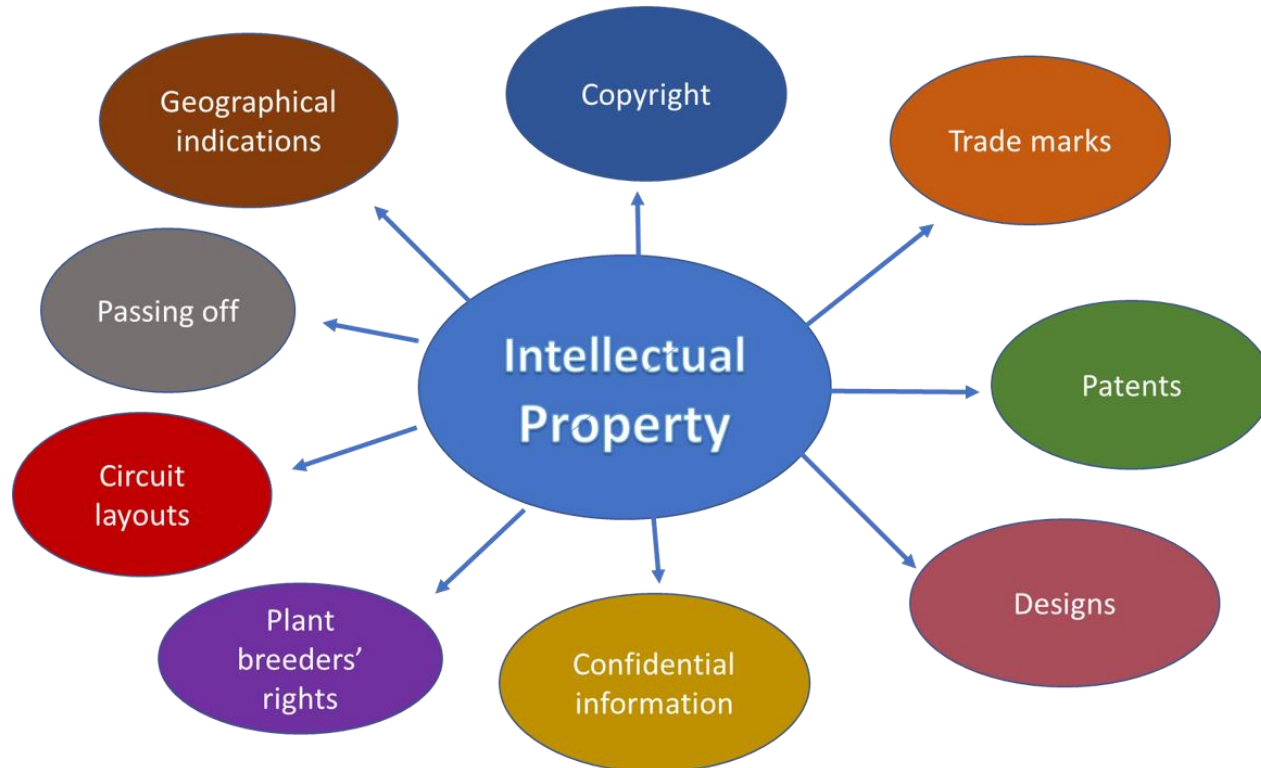


UPSC MAINS 2024

General Studies Paper-3 Analysis

BAJIRAO IAS ACADEMY

Q) What is the present world scenario of intellectual property rights with respect to life materials? Although, India is second in the world to file patents, still only a few have been commercialized. Explain the reasons behind this less commercialization. (Answer in 150 words)



Approach

- Define intellectual property rights in the introduction.
- Discuss what is the present world scenario of IPR with respect to life materials.
- Write why there has been less commercialization of patents in India .
- Conclude the answer with appropriate suggestions on improving IPR regime in India along with commercialization of patents.

Intellectual property rights (IPR) are legal rights that give individuals or businesses the exclusive right to use their creations for a set period of time. These rights are granted through patents, copyrights, trademarks, and other means.

The rights granted to individuals over their original creative works such as inventions, literary and artistic work, designs and symbols, names, and images in commerce

The present world scenario of IPR with respect to life materials.

The current world scenario of intellectual property rights (IPRs) for life materials is **complex and evolving**.

- The US and Japan are leading the way in patenting biotech innovations, such as biopharmaceuticals and GMOs. In 2022, the US accounted for more than 45% of global biotech patents.
- Agreements like the Nagoya Protocol aim to balance IPRs with biodiversity conservation by emphasizing fair access and benefit-sharing from genetic resources.
- Issues like biopiracy and exploitation of indigenous knowledge are becoming more of a concern globally and are influencing IPR policies.

- ❑ Gene editing and synthetic biology innovations are creating new challenges for patent enforcement and compliance.

why there has been less commercialization of patents in India .

- ❑ Research institutions in India tend to prioritize filing patents over commercialization.
- ❑ India lacks the infrastructure to support patent commercialization, such as technology incubators and accelerators.
- ❑ Indian patent holders face competition from foreign companies that are better funded and have more established market access.
- ❑ India's focus on protecting traditional knowledge can complicate patent commercialization, especially in biotechnology and pharmaceuticals.

Patent application processing time

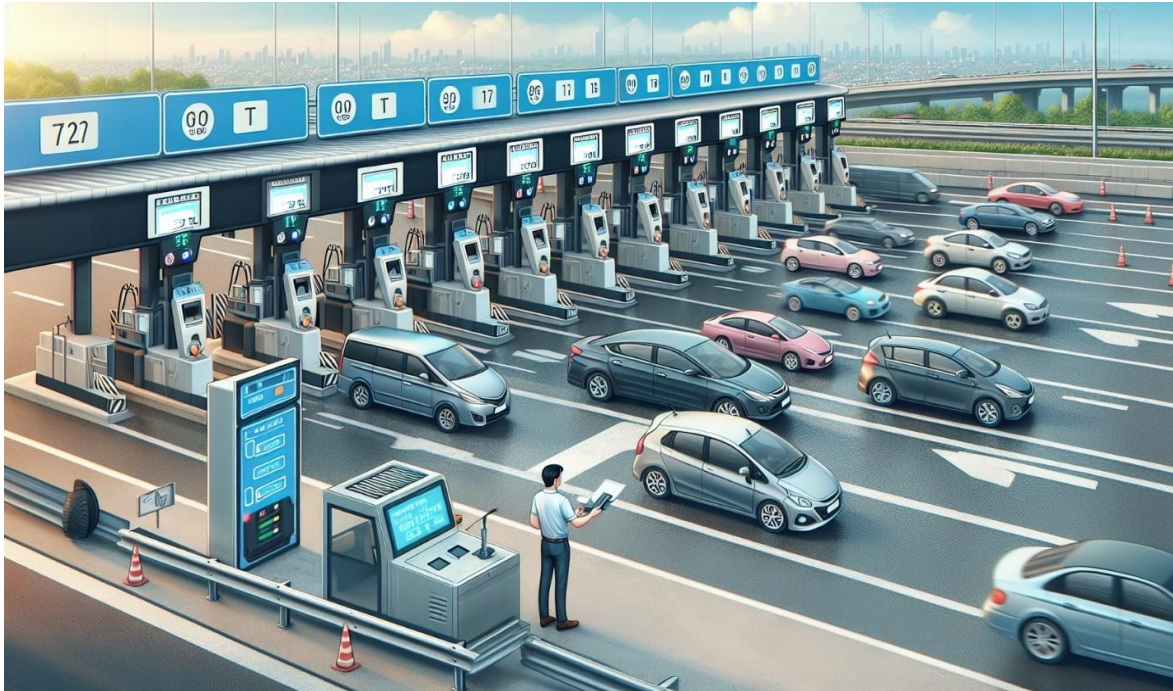
- ❑ The average time taken to process a patent application in India is just under 5 years, and can be up to 9 years in some categories.**

India will be unable to take full advantage of the transformative benefits of a strong IP system unless and until it addresses gaps in its IP laws and regulations.

Success of India's flagship programmes - Make in India and Start up India - depends on the boost of innovation ecosystem with better IPR safeguardings.

More awareness is needed about the creation, protection and enforcement of IPRs to encourage the Indian industry not only to innovate but also to protect and enforce their innovations.

Q) What is the technology being employed for electronic toll collection on highways? What are its advantages and limitations? What are the proposed changes that will make this process seamless? Would this transition carry any potential hazards?



Approach

- Briefly describe what is electronic toll collection .mention which technology is employed for ETC on highways.
- Discuss limitations and advantages of electronic toll collection on highways. .
- Mention proposed changes which will make ETC on highways would be more seamless.
- Conclude the answer with appropriate way forward for effective implementation of the same.

Electronic toll collection (ETC) is a wireless system to automatically collect the usage fee or toll charged to vehicles using toll roads, HOV lanes, toll bridges, and toll tunnels.

Radio Frequency Identification (RFID): A transponder is attached to the vehicle's windshield, and the toll is automatically debited from a linked prepaid account or savings account. India's FASTag system uses RFID technology.

Limitations and advantages of electronic toll collection on highways. .

Electronic toll collection (ETC) systems on highways can have several limitations

Technical issues


Technical glitches like malfunctioning FASTags, poor signal reception, or unresponsive sensors can cause delays.

Limited coverage

Not all highways have ETC systems, which can lead to inconsistent user experiences.

Infrastructure gaps

Rural and remote areas may not have the infrastructure to support ETC.

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- ❑ ETC systems collect and store user data, which can raise privacy and security risks.
 - ❑ The infrastructure for ETC systems can be expensive to implement and maintain.

Electronic toll collection (ETC) has many advantages

- ❑ ETC eliminates the need for vehicles to stop at toll booths, which reduces traffic congestion.
- ❑ ETC automatically charges the toll, which reduces transaction time compared to manual toll collection.
- ❑ ETC reduces emissions from idling vehicles at toll booths.
- ❑ Better revenue collection: ETC reduces human error and the risk of cash leakage or fraud.
- ❑ Cost efficiency: ETC reduces operational costs associated with maintaining toll booths and manual toll collections

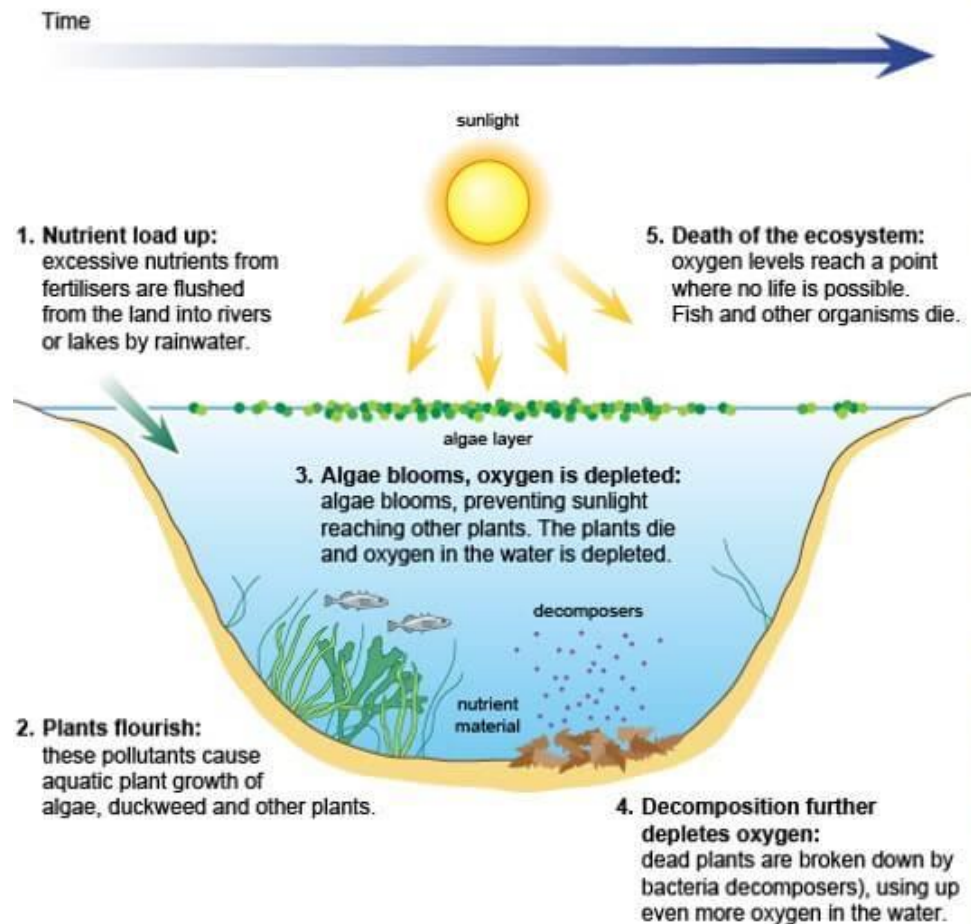
Proposed changes which will make ETC on highways would be more seamless.

- ❑ **Nationwide Standardization:** Introducing uniform ETC technology across all highways in the country ensures seamless travel and toll collection.
- ❑ **Interoperability:** Creating a system where RFID tags work across different toll plazas managed by various agencies allows smoother transitions between toll zones.
- ❑ **Improved Infrastructure:** Modernizing toll plazas with better sensors, faster processing units, and more efficient power backup systems can reduce downtime and enhance user experience.

Central ETC System (CES)

Create a virtual hub that acts as a web application for all stakeholders to interact with. The CES can manage accounts, issue tags, process transactions, and more.

Q) Industrial pollution of river water is a significant environmental issue in India. Discuss the various mitigation measures to deal with this problem and also the government's initiatives in this regard.



Approach

- Describe how industrial pollution effects river water in India.
- Discuss mitigation measures to deal with this problem.
- Government initiatives to overcome the issue.
- Conclusion.

Industrial pollution can harm river water in India in several ways, including Toxic chemicals ,Heavy metals ,Eutrophication ,Biodegradation ,Untreated sewage adversely affects the water quality, causing existential problems for aquatic life and health risks to those living near rivers.

Eg: Industrial cities like Allahabad, Kanpur, and Varanasi are located on the banks of rivers and contain many factories, including chemical plants, tanneries, distilleries, hospitals, and slaughterhouses.

mitigation measures to deal with this problem.

- Green chemistry is the design of chemical products and processes that reduce or eliminate the use and generation of hazardous substances. By applying green chemistry principles, such as using renewable resources, minimizing waste, and avoiding toxic chemicals, industries can reduce their environmental impact and save costs.**

Eg: some industries have switched to using biodegradable or recyclable materials, such as plant-based plastics, instead of petroleum-based ones.

- Water treatment systems are essential for removing pollutants from industrial wastewater before discharging it into the environment. There are different types of water treatment systems, such as physical, chemical, biological, and membrane processes, that can remove solids, organic matter, nutrients, metals, and pathogens from wastewater.**

- ❑ **Water conservation practices are actions that reduce the amount of water used or wasted by industries. By adopting water conservation practices, industries can not only save water and money, but also reduce the volume and concentration of pollutants in their wastewater**


Eg: Installing water-efficient devices, such as low-flow faucets and showerheads, repairing leaks, recycling water, and using alternative water sources, such as rainwater or greywater.

- ❑ **Environmental audits are systematic assessments of the environmental performance and compliance of an industry. By conducting environmental audits, industries can identify the sources and impacts of water pollution, evaluate the effectiveness of their water management practices, and find opportunities for improvement.**

Government initiatives to overcome the issue.

Namami Gange Program

- ❑ **Launched in 2014, this flagship program allocated ₹20,000 crore to clean the Ganga. Under this, 11 Common Effluent Treatment Plants (CETPs) were installed across major industrial zones. As of 2023, industrial discharge into the Ganga has reduced by 70% according to NMCG (National Mission for Clean Ganga).**

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- ❑ **CPCB, through its real-time monitoring systems, tracks industrial effluents from 3,000 major industries. Their efforts, combined with the "Continuous Emission Monitoring System (CEMS)", have increased compliance by 30% since 2020.**
 - ❑ **Initiated in 1986, GAP is the precursor to Namami Gange. Despite its limitations, it laid the foundation for river-cleaning projects. Under GAP-II, pollution from industries decreased by 20-25%, though the need for further improvements led to newer initiatives like Namami Gange.**

Addressing industrial pollution of river water requires a holistic approach, combining strict enforcement with technology and incentives for industries. Collaborative action between industries, the government, and local communities will be key to achieving cleaner rivers and a more sustainable future.

Q) What role do Environmental NGOs and activists play in influencing Environmental Impact Assessment (DIA) outcomes for major projects in India? Cite Four examples with all important details.



Approach

- ❑ Define what is environmental impact assessment in the introduction,
- ❑ Discuss how EIA helps in environmental sustainability of projects by minimizing ecological damage.
- ❑ Write the role of environmental NGOs and activists in influencing EIA outcomes discuss this with relevant examples
- ❑ Conclude the answer with appropriate suggestions on better implementation .

Environmental Impact Assessment or EIA is the process through which an environmental impact of a proposed development is evaluated. It takes into consideration the socio-economic, cultural, and human health impacts.

How EIA helps in environmental sustainability of projects by minimizing ecological damage.

- EIAs assess potential risks and predict impacts on the environment early in the project planning process.**
- EIAs suggest ways to minimize harm to the environment, such as adapting mitigation strategies into the developmental plan.**
- EIAs allow affected communities and stakeholders to contribute to the decision-making process, which can enhance public trust and accountability.**
- EIAs assess viable alternatives for a development project, such as combinations that use natural resources more efficiently.**


- ❑ EIAs help avoid costly and environmentally damaging modifications that might be required later in the project lifecycle.

Role of environmental NGOs and activists in influencing EIA outcomes

- ❑ Environmental NGOs and activists in India play a significant role in advocating for the protection of the environment. They raise awareness about the ecological impact of projects, often informing the public and government about the potential harm caused by major industrial or infrastructural projects.
- ❑ After the EIA, NGOs play a crucial role in monitoring the implementation of environmental safeguards promised during the assessment phase. They report on deviations and ensure compliance with environmental standards.

Relevant examples

- ❑ Narmada Bachao Andolan (NBA): NBA's activism led to fresh EIAs for the Sardar Sarovar Dam, focusing on displacement issues.

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- ❑ **Save Western Ghats Movement: NGOs influenced the Kasturirangan Report, restricting industrial projects in eco-sensitive zones.**
 - ❑ **Vedanta Mining Project – Niyamgiri Hills: Activists, supported by NGOs like Survival International, fought the Vedanta bauxite mining project in Odisha. The project was on the sacred land of the Dongria Kondh tribe and threatened their way of life and the local ecosystem.**

Strengthen the legal and institutional framework for Environmental Impact Assessment EIA, ensuring clear and comprehensive guidelines, effective enforcement, and robust grievance redressal mechanisms.

Enhance public participation and access to information, by improving the transparency of the Environmental Impact Assessment EIA process and incorporating more meaningful engagement with local communities and other stakeholders.

Q) Explain how narco-terrorism has emerged as a serious threat across the country. Suggest suitable measures to counter narco-terrorism. (Answer in 150 words)




Approach

- Define what is narco-terrorism in introduction.
- Explain how narco-terrorism has emerged as a serious threat across the country.
- Suggest suitable measures to counter narco-terrorism.
- Conclusion.

Narco-Terrorism is defined as the 'use of organised terror to secure control over a state by another state or organise criminal network/s by the insurgents or by a combination of any or all of them to achieve fixed political, economic or social objectives based on organisational and financial empowerment through drug trafficking.


narco-terrorism has emerged as a serious threat across the country.

- ❑ In regions like Jammu & Kashmir, Punjab and Northeast India, insurgent groups are involved in drug trafficking to sustain their movements. For example, the proceeds from heroin smuggling are used to fund separatist activities in Kashmir.**
- ❑ The war against illegal drugs would be completely justified on environmental grounds alone.” Firstly, the poppy growers clear the land in the mountains. The poppy and coca growers, further, do not allow any other plants to grow near the poppy and coca plants, since the narcotics plants will not produce to their maximum, if other plants nearby are competing for nutrients.”**
- ❑ Adverse health outcomes in illicit drug users can cause mental disorders, psychosis, road traffic accidents, violence, drug overdose, suicides and even death. WHO estimated that 0.7 percent of the global burden of disease in 2014 was due to cocaine and opioid use, with the social cost of illicit substance use nearly two percent of Gross Domestic Product in those countries that have measured it**

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- ❑ School children who use drugs often suffer from impairment of short-term memory and other intellectual faculties thus generally impaired classroom performance.
 - ❑ Drugs increase the likelihood of many kinds of criminal activity. Drug-related crime occurs primarily in the form of trafficking, including violent conflicts among trafficking groups. It also results from the need of drug consumers to finance their addiction through theft and prostitution.

suitable measures to counter narco-terrorism.

- ❑ Narcotic Drugs and Psychotropic Substances Act, 1985 criminalizes the possession of illicit drugs.
- ❑ India has entered into various arrangements like bilateral agreements, Memorandum of Understandings, Joint Working Groups on Counter-Terrorism and Judicial Cooperation with the countries in the South Asian region.
- ❑ Deploying advanced technologies such as drones and radar systems along borders, particularly with Pakistan and Myanmar, to prevent drug inflows.
- ❑ Fencing and Patrols: Enhancing fencing along sensitive borders and increasing the deployment of security forces like the Border Security Force (BSF) and Assam Rifles.

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- ❑ Develop an information base for national and international planning on the costs of drug abuse, prepare estimates of costs of drug abuse and its impact.**
 - ❑ Increase knowledge of drug abuse problems and effective interventions**
 - ❑ Increase international collaboration on drug abuse**

Narco-terrorism poses a serious threat to national security and public safety, with its combination of drug trafficking and terrorism activities. Addressing this complex issue requires coordinated efforts from law enforcement agencies, governments, and international partners to combat the root causes and dismantle the networks involved in narco-terrorism.



Thank you

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