NATIONAL TELECOM POLICY

SYLLABUS:

GS 3 > Economic Development >> Infrastructure

REFERENCE NEWS:

The Department of Telecommunications has circulated Draft **National Telecom Policy (NTP), 2025**, for public consultation, in which it has set goals of **covering 100 per cent of the population with 4G and 90 per cent by 5G by 2030**, and ensuring accessibility of devices for all.

MAIN OBJECTIVES OF NTP 2025:

Universal and Meaningful Connectivity

o Ensure **affordable, high-quality telecom services** for all citizens.

o Expand **4G/5G coverage** to 100% population and fiberize all Gram Panchayats under BharatNet.

o Bridge the **digital divide** through satellite, fixed-line broadband, and public Wi-Fi hotspots.

Double the Telecom Sector's Contribution to GDP

o Increase telecom's share in the economy by enhancing investments, exports, and digital innovation.

o Target **₹1,00,000 crore annual investment** in telecom infrastructure by 2030.

Promote Domestic Telecom Manufacturing

o Make India a **global hub for telecom equipment manufacturing** with **50% import substitution**.

o Encourage design-led manufacturing, skill development, and R&D in telecom chipsets and equipment.

Drive Innovation & R&D in Emerging Technologies

- o Position India among the **top 10 global hubs for innovation** in **5G/6G, AI, IoT, Quantum Communications**.
- o **Double telecom startups** and create **centres of excellence** for research & commercialization.

Secure & Trusted Telecom Network

- o Strengthen **cybersecurity**, adopt **quantum-safe cryptography**, and ensure **trusted telecom supply chains**.
- o Establish a **National Telecom SafeNet** to protect critical infrastructure.

Ease of Living & Doing Business

- o Simplify telecom service access, reduce compliance burden, and improve grievance redressal.
- o Enhance **Right of Way clearances**, spectrum allocation processes, and infrastructure sharing.

Sustainable Development & Green Telecom

- o Reduce the telecom sector's **carbon footprint by 30% by 2030**.
- o Promote **renewable energy, circular economy models, and e-waste management** in telecom.

Job Creation & Skill Development

- o Create **1 million new jobs** and upskill **1 million workers** in emerging telecom technologies.
- o Establish **Indian Institute of Telecom Technology (IIT²)** and strengthen skill councils.

Strengthen India's Global Digital Leadership

- o Increase India's **share in global telecom IPRs (e.g., 6G patents)** and enhance participation in **international standardization forums**.
- o Make India a **trusted provider of telecom solutions globally** under *"Bharat – A Telecom Product Nation"*.

Inclusive Digital Growth

- o Ensure telecom/broadband services cost **less than 2% of monthly GNI per capita**, making it affordable for all socio-economic groups.

6 STRATEGIC MISSIONS OF NATIONAL TELECOM POLICY:

Universal and Meaningful Connectivity

- o **100% 4G coverage & 90% 5G coverage by 2030**.
- o Fiberisation of **80% telecom towers** and **all Gram Panchayats** with 98% uptime under BharatNet.
- o Provide **fixed-line broadband to 10 crore households**.

- Expand connectivity in **unserved/underserved areas** using **satellite, Non-Terrestrial Networks (NTN), and submarine cables**.
- Deploy **1 million public Wi-Fi hotspots**.
- Increase **fiberised towers** from **46% to 80%**.

Innovation Mission

- Make **spectrum available for R&D** with minimal compliance.
- Establish **regulatory sandboxes** for emerging technologies.
- Allow **experimentation in Terahertz bands for 6G**.
- Transform **C-DOT into a global telecom R&D hub**.
- Launch **Technology Readiness Level funding** & enable **IPRs as collateral for financing**.

Domestic Manufacturing Mission

- **Increase telecom manufacturing output by 150%**.
- Achieve **50% import substitution** for telecom products.
- Establish **Telecom Manufacturing Zones (TMZs)** with integrated infrastructure.
- Incentivise **operators to adopt indigenous equipment**.
- Harmonise **Indian telecom testing standards with global norms**.
- Develop **industry-aligned courses** in AI, 5G/6G, IoT, cybersecurity.

Secure and Trusted Telecom Network

- Create **National Telecom SafeNet** for network protection.
- **Biometric-based user identification** for telecom subscribers.
- Reduce **cyber incident response time by 50%**.
- Conduct **regular cybersecurity audits** of telecom networks.
- Establish **Satcom Monitoring Facility** to detect unauthorized interference.
- Align **NTN policy** with **Indian Space Policy 2023**.
- Enable **Ground Station-as-a-Service (GSaaS)** from India.
- Set up **Satcom use-case labs** for socio-economic applications.
- Strengthen **international engagement** (ITU) to secure **orbital slots & spectrum sustainability**.
- Introduce **mobile number validation services** for secure banking, insurance, e-governance, etc.

Ease of Living & Ease of Doing Business

- Simplify **regulatory frameworks & licensing**.
- Light-touch authorisation for **submarine cables & Satcom services**.
- Improve **Right of Way clearances** and **spectrum allocation process**.
- Promote **hybrid access** (Mobile, FWA, FTTH, Satellite, Wi-Fi).

Sustainable Telecom Mission

- Reduce **telecom sector carbon footprint by 30% by 2030**.
- Promote **renewable energy use in telecom infra**.
- Ensure **e-waste management & circular economy models** for telecom equipment.

CHALLENGES OF INDIA'S TELECOMMUNICATIONS:

- o **Digital Divide & Uneven Connectivity:** As per TRAI (2024), **rural teledensity is ~60% vs urban ~130%**, and **only 37% of villages have reliable 4G**.
- o **Low Fiberisation & Infrastructure Gaps:** India has only **46% telecom towers fiberised** compared to **80-90% in developed nations**, leading to poor backhaul for 5G/6G. BharatNet Phase II fiberisation delays caused **slow broadband penetration in 1.3 lakh Gram Panchayats**.
- o **High Spectrum Costs & Policy Uncertainty:** Spectrum pricing in India is among the **highest globally**, burdening telecom operators. In the **2022 5G auction**, spectrum rates were **7x higher than global average**, forcing operators to increase tariffs.
- o **Financial Stress on Telecom Operators:** AGR (Adjusted Gross Revenue) dues & hyper-competition led to **operator exits & consolidation**. **Vodafone-Idea faces ₹2 lakh crore debt**, leaving the sector with **only 3 major players (Jio, Airtel, Vi)**.
- o **Low Fixed Broadband Penetration:** India relies heavily on mobile data, with **limited FTTH (Fiber-to-the-Home)** access. Broadband penetration is **<10% households**, compared to **50–70% in OECD nations**.
- o **Cybersecurity & Network Trust Issues:** Rising **cyber frauds, spyware attacks, and cross-border network spillage** threaten telecom security. In 2023, **1.2 lakh cyber fraud cases** were linked to misuse of mobile numbers & telecom networks.
- o **Low Domestic Manufacturing & Import Dependence:** Heavy reliance on imported telecom equipment (esp. from China). India imports **80% of telecom gear**, causing a **$7 billion trade deficit** in 2023.
- o **Satcom & Spectrum Coordination:** Lack of **clear satellite communication policy** slows Satcom deployment for rural connectivity. Disputes over **low-earth orbit satellite spectrum (Starlink, OneWeb)** delayed approvals.
- o **Environmental & Right of Way (RoW) Issues: High RoW charges by states** delay tower installation & fiber rollout. 2024 TRAI report noted **RoW clearance delays of 6–12 months** in states like Maharashtra & UP.
- o **Affordability & Device Access:** 5G/6G devices remain expensive for low-income users, widening digital inequality. Only **18% smartphone users** have 5G-enabled devices (TRAI 2024).

WAY FORWARD:

Bridge the Digital Divide & Improve Connectivity

- o **National Digital Communications Policy (NDCP) 2018** – aimed for **50 Mbps broadband access to every citizen**.
- o **Srikrishna Committee on Data Protection (2018)** – stressed on **secure, equitable digital access**.
- o **Australia's National Broadband Network (NBN)** used **hybrid fiber, satellite, and fixed wireless** to cover remote areas.

Reduce Spectrum Costs & Policy Uncertainty

- o **TRAI (Telecom Regulatory Authority of India)** suggested **rationalized spectrum pricing** in 2022.
- o **Union of India v. Association of Unified Telecom Service Providers (2011)** – Supreme Court's 2G spectrum verdict emphasized **transparent spectrum allocation**.

Strengthen Domestic Manufacturing & R&D

- o Expand **PLI Scheme for telecom gear** and incentivize **design-led manufacturing**.
- o Establish **Telecom Manufacturing Zones (TMZ)** and align Indian testing with global standards.
- o **Satyanarayana Committee (2012)** – pushed for **domestic telecom manufacturing ecosystem**.
- o **China's "Made in China 2025"** integrated R&D, manufacturing, and state incentives for telecom self-reliance.

Improve Financial Health of Operators

- o Rationalize **Adjusted Gross Revenue (AGR)** definition.
- o **NDCP 2018** suggested a **light-touch regulatory regime** to reduce compliance costs.
- o **Vodafone Idea AGR Case (2020)** – SC ruling on AGR dues highlighted the need for **policy clarity to avoid retrospective liabilities**.

Enhance Cybersecurity & Trusted Networks

- o **Nandan Nilekani Committee on Digital Payments (2019)** – stressed **robust telecom cybersecurity frameworks**.
- o **EU's 5G Toolbox** approach restricts high-risk vendors while ensuring interoperability.

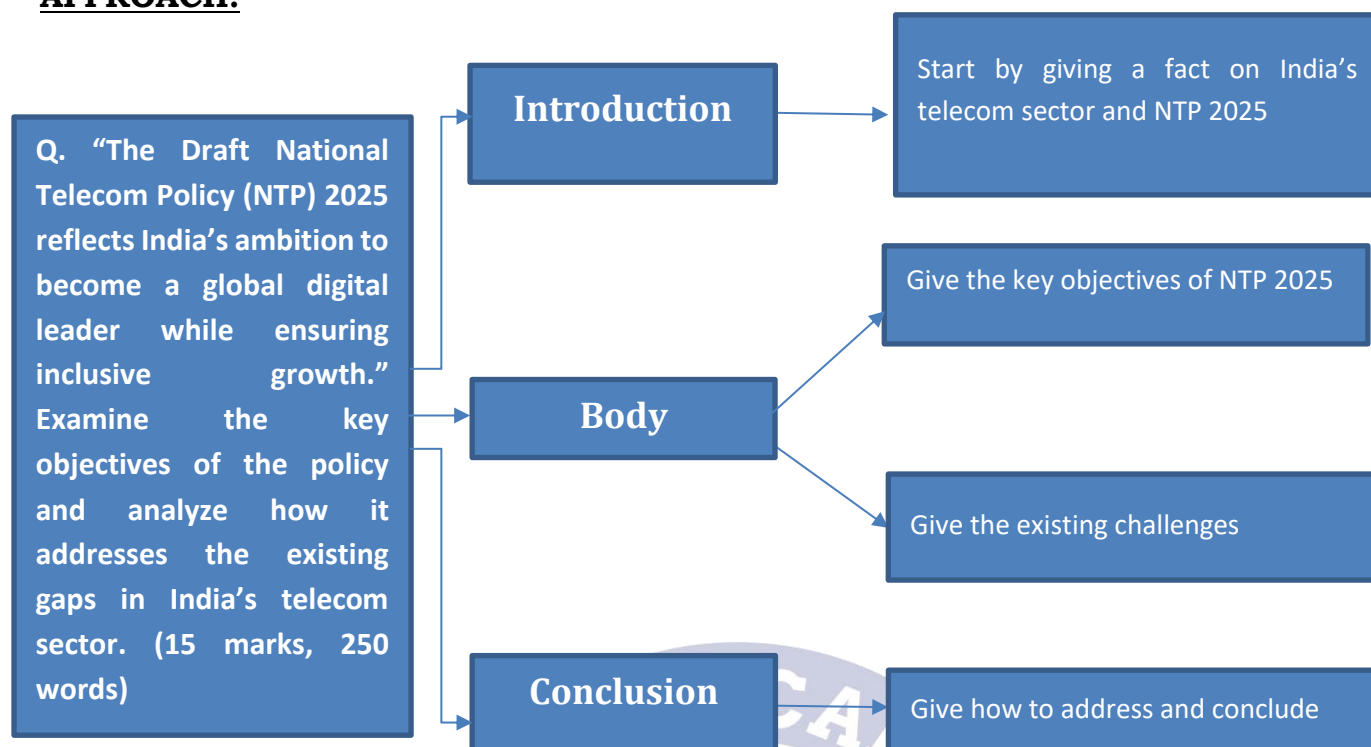## Streamline Right of Way & Regulatory Approvals

- o **B.N. Srikrishna Committee on Net Neutrality** – recommended **uniform state policies** for telecom infra rollout.
- o **Bharti Airtel Ltd. v. State of Chhattisgarh (2016)** – HC upheld **telecom infra as essential service**, urging easier clearances.

Make Telecom Sustainable & Affordable

- o Promote **green telecom** with renewable-powered towers.
- o **Germany's Green ICT initiative** focuses on **energy-efficient telecom infra & e-waste recycling**.

PRACTICE QUESTION:

Q. "The Draft National Telecom Policy (NTP) 2025 reflects India's ambition to become a global digital leader while ensuring inclusive growth." Examine the key objectives of the policy and analyze how it addresses the existing gaps in India's telecom sector. (15 marks, 250 words)

APPROACH:

Q. "The Draft National Telecom Policy (NTP) 2025 reflects India's ambition to become a global digital leader while ensuring inclusive growth." Examine the key objectives of the policy and analyze how it addresses the existing gaps in India's telecom sector. (15 marks, 250 words)

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Introduction ──────> Start by giving a fact on India's
                     telecom sector and NTP 2025

Body ──────────────> Give the key objectives of NTP 2025

             ──────> Give the existing challenges

Conclusion ────────> Give how to address and conclude
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MODEL ANSWER:

Telecommunication is the backbone of India's **Digital India Mission**, enabling economic growth, e-governance, and Industry 4.0. The **Draft National Telecom Policy (NTP) 2025** aims to transform India into a **digitally inclusive, innovation-driven, and secure telecom hub** while addressing connectivity gaps, manufacturing deficits, and cybersecurity challenges.

Key Objectives of NTP 2025

1. **Universal and Meaningful Connectivity**

   o Achieve **100% 4G coverage & 90% 5G coverage by 2030**.

   o Fiberise **80% towers** and connect **all Gram Panchayats** under BharatNet with **98% uptime**.

   o Deploy **1 million public Wi-Fi hotspots** and expand **fixed broadband to 10 crore households**.

2. **Innovation & R&D**

   o Enable **spectrum for R&D with minimal compliance**, promote **6G/terahertz experiments**.

   o Transform **C-DOT into a telecom R&D excellence hub** and launch **Technology Readiness Level funding**.

3. **Domestic Manufacturing**

- o **Increase manufacturing output by 150%**, achieve **50% import substitution**.

- o Establish **Telecom Manufacturing Zones (TMZ)** and incentivize **indigenous design-led manufacturing**.

4. **Secure & Trusted Networks**

- o Create **National Telecom SafeNet**, implement **biometric-based SIM authentication**, reduce cyber incident response time by **50%**.

- o Establish **Satcom Monitoring Facility** for satellite security.

5. **Ease of Doing Business & Sustainability**

- o Simplify **Right of Way clearances**, promote **hybrid access technologies (satellite, HAPS)**.

- o Reduce **carbon footprint by 30% by 2030** and strengthen **e-waste management**.

Existing Challenges in the Sector:

- o **Digital Divide** – Rural teledensity ~60% vs urban 130%; only 37% villages have reliable 4G (TRAI 2024).
- o **Low Fiberisation** – Just 46% towers fiberised vs 80–90% in developed nations; BharatNet Phase II delayed.
- o **Financial Stress** – AGR dues, heavy debts (Vodafone-Idea ₹2 lakh crore), leading to reduced competition.
- o **High Spectrum Costs** – 2022 5G auction prices were 7x global average, burdening operators.
- o **Import Dependence** – 80% telecom gear imported, $7B trade deficit (2023).
- o **Cybersecurity Risks** – 1.2 lakh telecom-related cyber frauds in 2023.
- o **Right of Way Bottlenecks** – State-level RoW charges cause 6–12 month delays in fiber rollout.

Addressing Existing Gaps

- o **Bridging the Digital Divide:** Enhances rural fiberisation & Satcom for underserved regions
- o **Reducing Import Dependence:** Encourages indigenous manufacturing & global-standard testing
- o **Lowering Spectrum Bottlenecks:** Prioritizes **mmWave & sub-THz bands** for 6G
- o **Strengthening Cybersecurity:** Introduces **trusted hardware/software supply chains**
- o **Regulatory Ease:** Light-touch licensing for submarine cables & Satcom, reducing delays.

NTP 2025 is a **forward-looking policy** balancing **universal digital inclusion, indigenous**

innovation, cybersecurity, and sustainability. If implemented effectively, it can position India as a **global telecom hub**, catalyze the **Digital India vision**, and bridge socio-economic inequalities through affordable, resilient connectivity.