India's Transition to Green Transport

This editorial is based on **"Green Transport: Keep all options on the table"** which was published in The Hindu Business Line on 18/09/2022. It talks about the need to harness the potential of Green Transportation in India.

For Prelims: Climate Change, Green Transport, Electricity, Biomass, Intelligent transport system, Biofuels, Electric Vehicles, Gati Shakti Mission, Atal Mission for Rejuvenation and Urban Transformation

For Mains: Current State of Transport Infrastructure in India, Key Issues Related to Transportation in India, National Urban Transport Policy

An efficient **Transport Sector** is important for economic development of the country and for the well-being of its people. The transport sector makes up **30% of the** global energy consumption. Its energy use is expected to grow 1% every year till 2030.

In India, the transport sector has grown extensively, both in terms of physical spread as well as capacity to meet the mobility demands for both **passengers** as well as **freight.** Despite its impressive growth, it is seen that the existing transport infrastructure in India is **far from meeting the growing mobility needs** in terms of **coverage, capacity as well as service quality.**

Unsustainable transport activities can produce widespread negative impacts like **degradation of air quality**, **greenhouse gas emissions**, increased threat of global **climate change** and habitat loss of animals and fragmentation.

Therefore, there is a need to pay greater attention to **sustainable (green) transport** at city, state and national level as the way forward for **India's mobility sector.**

What is Green Transport?

- **Green transport (Sustainable transport)**, refers to modes of transportation that do not negatively impact the environment and **ecological balance** as well as human health.
- **Components** for evaluating sustainability include:
  - **Vehicles** (car, bus, aeroplane, ships etc.)
  - **Source of energy** (wind **and** solar energy**,** electricity**, and** biomass etc)
  - **Infrastructure** (roads, railways, airways, waterways)

What is the Current State of Transport Infrastructure in India?

- **Roads: Roads** are the dominant mode of transportation in India today. They carry almost **85% of the country's passenger traffic.**
  - Road transport also helps the **industrial sector** by moving raw materials to industries and

finished goods to market.

- **Ports and Shipping:** India has **13 major** ports along its more than **7500 km** long coastline. Ports play a very significant role in improving **foreign trade** in a growing **Indian economy**, with its seaborne foreign trade being **95% by volume** and **67% by value.**
- **Railway:** Indian Railways is the main artery of the country, it is also called as lifeline of India which provides both freight and passenger mode of transportation.
    - India's railway network is the **4th largest railway network** in the world and **2nd largest in Asia**, under single management. It is also the single largest employer in India.
- **Civil Aviation:** The **civil aviation industry in India** has emerged as one of the fastest growing industries in the country. India has become the **3rd largest domestic aviation market** in the world and is expected to overtake the **United Kingdom** to become the **3rd largest air passenger** market by 2024.

What are the Recent Government Initiatives Regarding Sustainable Transport Development?

- **Onboard Driver Assistance and Warning System (ODAWS)**
- Sagarmala **and** Parvatmala Project
- **Gati Shakti Mission**
- **Atal Mission for Rejuvenation and Urban Transformation**
- **National Electric Mobility Mission Plan**

What are the Key Challenges Related to Transportation in India?

- **Challenges in Railways:**
    - **Slow Expansion of Rail network:** In view of the country's size and requirements of a growing economy, the **growth in railways has been extremely slow** and inadequate.
        - There is also **little presence of railways in hilly regions and North Eastern (NE)** states in India, making access to railways a major concern in these areas.
    - **Higher Freight Transportation Cost:** Freight transportation costs by Railways in India are much higher than in most countries as **freight tariffs** have been kept high **to subsidise passenger traffic.**
    - **Social v/s Commercial Objective:** Private contracts are driving Indian Railways towards **commercialization**. However, privatising railways will result in better infrastructure, which in turn will enhance travel facilities.
        - But, the private players would be more concerned with **making a profit** which will result in a **rise in prices**, resulting in **poor reach to all segments of society.** This will undermine the very social objective of railways.
- **Challenges in Road Transportation:**
    - **Catalyst in Water Stress:** Unsustainable road construction and maintenance, including the creation of impervious surfaces adversely affect **water quality due to faster rates of runoff, lower** groundwater recharge **rates,** and **increased erosion.**
    - **Poor Accessibility in Rural Areas:** Rural areas home to almost 70% of India's population. Still, **33% of India's villages do not have access to** all-weather roads and remain cut off during the monsoon season.
        - The problem is more acute in India's **northeastern states** which are **poorly linked to the country's major economic centres.**
    - **Rising Road Accident:** India has **1% of the world's vehicles but accounts for 11% of all** road crash deaths.
        - According to the **Ministry of Road Transport and Highways' 2020**
            - Speeding accounted for **69.3%** of deaths.
            - Non-wearing of helmets resulted in **30.1%** deaths.
            - Non-use of seatbelts caused **11.5%** of deaths.
    - **Inadequate Traffic Calming Infrastructure:** There is a lack of traffic calming measures and manpower in highly congested cities of India. Despite the fact that more than 60% of road accidents result from over-speeding, **speed limit signs are rarely seen even on**

state highways and major roads.

- **Challenges in Airways Transportation:**
  - **Accessibility and Affordability Constraints:** Poor regional connectivity, inadequate hangar space, and **lack of land for airport expansions** are some of the key constraints of India's aviation sector.
    - Also, because of **high central and state taxes**, aviation fuel in India is approximately **60% more expensive** than it is in **ASEAN** and the **Middle East countries.**
      - This makes the **profitability of the civil aviation industry vulnerable to volatility in** global oil prices.
- **Challenges in Ports and Shipping:**
  - **Inefficiency and High Turnaround Time: In India**, Inefficiencies in port operations have resulted in **high dwell times and high turnaround times,** due to a wide range of issues, including insufficient port infrastructure and **lengthy custom clearance procedures.**
    - Also, poor hinterland connectivity and inefficient modal transfers lead to problems of **slow evacuation of cargo.**
- **Other Challenges:**
  - **Gaps in Urban Transport Management:**
    - There is a **gap between the demand and supply of public transportation primarily due to rapid** urbanisation.
      - The growing number of vehicles in Indian cities is **viewed as the essential driver of climate change** due to high dependence on combustible fuel.
    - **Urban transportation is the second leading source of** carbon dioxide (CO_2) emissions **due to its dependency on fossil fuels.**
  - **Threat to Biodiversity:**
    - Transport sector has been recognized as a primary cause of habitat loss and a subsequent decline in **biodiversity.**
    - Expansion of road, railways, airways network creates **fragmentation and degradation of habitat.**

What Should be the Way Forward?

- **Intelligent Transportation System (ITS):**
  - There is a need to shift towards an **intelligent transport system** to enable users to be better informed and make safer, more coordinated, and **'smarter' use of transport networks.**
  - **Example:** Intelligent traffic management, V2X communication, **Electronic toll collection.**
- **Awareness Towards Green Travel Habits:**
  - It is necessary to launch intensive awareness campaigns that **educate people on the ill effects of the growing transport problems.** Promoting greater use of **non-motorized vehicles**, proper maintenance of their vehicles, **safer driving practices**, etc.
  - Such campaigns will encourage individuals, families and communities to adopt **"Green Travel Habits"** that would make travel less polluting and damaging.
- **Resilience, Equity, and Sustainability in Transport (REST):**
  - **Resilience:** There is a need to **rethink and restore confidence in public transport,** including the procurement of more buses, the adoption of **e-buses, bus corridors and bus rapid transit systems** with **digitization of public transport.**
  - **Equity**: Last mile **road and railway connectivity** should be at priority with **special attention to the north east region.**
  - **Sustainability**: Emission norms should be tightened and **electric vehicles** should be promoted, as well as biofuels should replace fossil fuels.
    - The development of several **electric freight corridors** to promote electrification is also crucial to reaping the benefits of electric vehicles.
- **Manufacturing Hub in Green Mobility:**
  - With **proper policy support, industry action, market generation, increased investor interest and acceptance**, India can position itself as a **low-cost, zero-carbon manufacturing hub in green mobility**, at the same time fulfilling its goal of **economic development, job creation, and improved public health.**

Drishti Mains Question

Despite India's significant infrastructural growth, the mobility sector in India is still far from meeting the growing demands. Explain.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. In the context of proposals to the use of hydrogen enriched CNG (H-CNG) as fuel for buses in public transport, consider the following statements: (2019)

1. The main advantage of the use of H-CNG is the elimination of carbon monoxide emissions.
2. H-CNG as fuel reduces carbon dioxide and hydrocarbon emissions.
3. Hydrogen up to one-fifth by volume can be blended with CNG as fuel for buses.
4. H-CNG makes the fuel less expensive than CNG.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 4 only
(d) 1, 2, 3 and 4

Ans: (b)

Mains

Q. National urban transport policy emphasises on moving people instead of moving vehicles. Discuss critically the success of various strategies of the government in this regard. **(2014)**
