1. From economic and strategic point of view, port development is a vital component of India's infrastructure priorities. Elucidate.

Approach

Introduce with statistics on importance of ports in Indian scenario.In next part focus on elucidating with help of different points on importance of ports from strategic and economic perspective as part of Infrastructure.While doing this you need to make use of examples to make it more specific.In conclusion you can write a future direction needed in ports development.

Introduction

According to the Ministry of Shipping, around 95 per cent of India's trading by volume and 70 per cent by value is done through maritime transport. India is the sixteenth largest maritime country in the world, with a coastline of about 7,517 km. The Indian ports and shipping industry plays a vital role in sustaining growth in the country's trade and commerce.Thus ports development have both strategic and economic implications for India.

Body

India has 12 Major Ports, administered by the Central Government, and around 200 notified Non-Major Ports, administered by the State Governments. In 2014-15, out of the 200 Non-Major Ports, 69 ports were reported to have handled cargo traffic. The infrastructure sector, particularly the Maritime Sector, is expected to grow significantly with the increase in international and domestic trade volumes.

Considering the objective on US $5 trillion economy, ports have an instrumental role to play. They constitute both strategic as well as economic significance.

Economic Significance

- Port development and modernization: New port infrastructure like better handling capacity, modernization etc will help improve the turnaround time of ships (From 2015-16 to 2017-18, it got reduced by 25%).
- Infrastructure : Development new infrastructure like new ports, road connectivity to ports, coastal economic zones (CEZs), multi-modal logistics parks etc will provide new infrastructure to handle more cargo which will be needed in future.
- Reduced logistics cost- At present, logistics cost in the country is in the range of 14-16 per cent against 8-10 per cent in other countries. Ex: The project Sagarmala can help reduce these costs.This will help in improving exports and increasing the speed of trade.
- Inter-connectivity: It leads to inter-connection between roadways, railways, water ways and airways, thus reducing the overall cost of transportation as well as improving connectivity.

- Employment: Provides employment opportunity to coastal area people and increase their standard of living. It is estimated to create an estimated 10 million new jobs (four million in direct employment).
- Development: Will help in development of regions around ports by increase in investment, new sectors presence like manufacturing, services etc.The cities like Kolkata, Chennai, Mumbai owe a great deal to the presence of large ports.Similarly new ports can lead to new cities being developed.
- Efficiency: Will reduce the cost of transportation and make India a new transit hub. Developing rivers as inland waterways can also help save domestic logistics costs too.India is investing in inland transportation over the last 7 years.This will help in reducing load on railways and increase profits as it's a cheaper mode of transportation.Project Unnanti is focused on increasing the efficacy of existing ports.
- Export competitiveness- Ports could help the country and industries to gain competitive advantage compared to its neighbours. It is expected to boost India's merchandise exports to $110 billion by 2025
- Power sector- The project aims to shift the movement of coal to the coastal route, which would cut down electricity costs by up to 35 percent, especially for coastal power plants in Andhra Pradesh and Karnataka, which receive coal by rail networks.
- Blue economy: Developed coastal infrastructure, livelihood development of coastal communities, exploitation of ocean resources will help improve India's Blue economy.
- FDI: It will also help in attracting foreign container companies to set up their facilities.

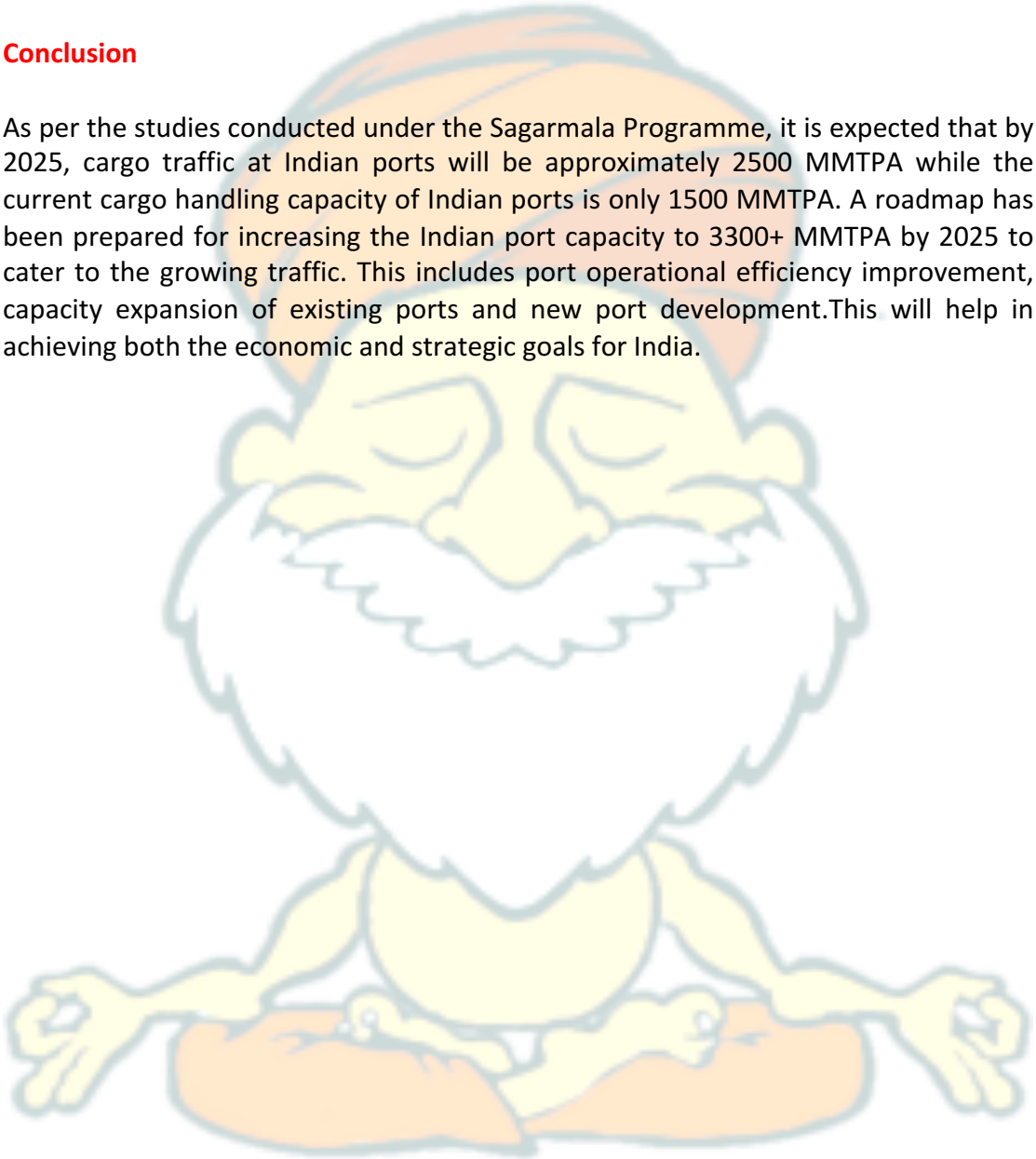
Strategic Significance

- Strong port infrastructure is necessary for securing India's strategic policy objective of Security and Growth for All in the Region(SAGAR).India recently provided Covid relief materials to the Seychelles, Comoros, Maldives and Madagascar under mission Sagar trough INS Kesari.
- Role on securing objective of Net Security Provider for Indo-Pacific region.India have provided security to countries in Indian ocean in past.The operation Cactus which thwarted the efforts of rebels to capture Maldives in 1990s was one such mission.
- Ensuring influencing naval presence to enable free sea lines of communication(SLoC).The growing dominance of China in Indian ocean needs to be countered trough strong infrastructure in the region.Development of strategic command centre at Andaman and Nicobar is part of the initiative.
- Vital role in safeguarding maritime border.India has played an important role in curbing the piracy in West Indian ocean.Also the attack in 2008 was from sea front therefore better investment in security is needed.
- Coastal security: It also enhances coastal security along with economic development.

- Check Chinese intrusion- The project is an effective way to counter China's Belt and Road Initiative (BRI) in the Indian Ocean region (IOR).India has tied with Singapore, UAE and Maldives for better monitoring of Chinese activities.
- ASEAN- With increasing ties with ASEAN countries, the importance of ports and port infrastructure further increases and Sagarmala can help address it.
- Relief measures : Ports can also use these capabilities to support emergency relief activities.

Conclusion

As per the studies conducted under the Sagarmala Programme, it is expected that by 2025, cargo traffic at Indian ports will be approximately 2500 MMTPA while the current cargo handling capacity of Indian ports is only 1500 MMTPA. A roadmap has been prepared for increasing the Indian port capacity to 3300+ MMTPA by 2025 to cater to the growing traffic. This includes port operational efficiency improvement, capacity expansion of existing ports and new port development.This will help in achieving both the economic and strategic goals for India.



2. How does highway development lead to positive spillover effects? Is it happening in India also? Critically analyse.

Approach

Introduce with importance of Highways in an economy.In next part write what are the positive spillovers of Highways with giving different dimensions.In next part write specific positive effects with respect to India.In next part write some drawbacks of highways development with examples.In conclusion balance both the positive effects and limitations discussed in body part.

Introduction

Highways are the arteries through which the economy pulses. By linking producers to markets, workers to jobs, students to school, and the sick to hospitals, roads are vital to any development agenda.Across the world, highways are seen as drivers of economic growth. They connect cities, transport goods and help bring people together.The roads such as national expressway, golden quadrilateral in India have had enormous positive spillover effect on the regional and national development.

Body

A highway is the main public road that connects different cities, towns and at times, villages etc. together. It is a major and significant public road that is able and fit to carry fairly heavy traffic. Substantial investments on road infrastructure developments by government at the different levels e.g. federal, state and local government are also frantic efforts to attracting investors that will promote the economy.

Positive effects of highways:

- Reduced costs- Highway network enhances transport system that reduces transportation costs and this, in turn, reduces the production costs while it increases productivity and profitability of organisations.
- Promote industrialisation- Industries and highways often exist in pair. Industries can avail better logistic facilities through good highway network.
- Connectivity- Network of highways interlinked with state and district roads connect the distant and remote locations with each other.
- Enhance trade- Highways can relatively reduce travel time to villages, cities and towns thereby encourage people to travel for business and trade.
- Reliability- Highways make transportation schedules and deliveries more reliable and timely.
- Increase exports- Better connectivity to ports through highways increases economic activity and exports of a country.
- Employment generation- Highway constriction and associated ancillary industries create employment opportunities in the area.

- Regional growth- It has been observed that a greater economic activity is found near highways and thus results in the growth of the respective region.
- Social capital- Highways also contribute immensely to social growth, relatives are able to visit their loved ones more often and it enhances good relationship between family and friends.

India has implemented two major schemes to improve highways, they are Pradhan Mantri Gram Sadak Yojana and Golden Quadrilateral. India also witnessed the above mention positive spillover impacts like:

- Small and large towns have crop up on the major routes, not just along the national highway but also along other major roads i.e. State highways and rural roads. Rise of cities such as Ankleshwar , Pali, Khopoli is mainly due to national highways.
- The 1% increase in density in a region close to the highway road, and also leads to about a 0.8% increase in its neighbouring region's density.For example the creation of Mumbai- Pune expressway led to development of satellite towns such as Pimpri Chinchwad, Aundh etc.
- There are spillovers in activity from one region to its neighbour.The development in commercial hubs such as Pune, Bangalore gives rise to MSME industries in neighbouring areas.
- In the two decades, since the early 1990s, regions along the transit networks are the first to develop, after which activity spreads to their neighbours, and then their neighbours' neighbours. Thus, the path taken by the road determines the geographic spread of economic activity across the country.
- As early as 1992, one can see areas along the national highway seem to be more developed than those further away. This is especially true for regions closer to Mumbai, and then the portion between Bangalore and Chennai. By 1997, the region on the road between Mumbai and Bangalore develops, and activity spreads to regions adjacent to the places that were rich in 1992, highlighting the pattern of spillovers.
- Access to better infrastructure, therefore, can have significantly large impacts on the overall development of the region.It improves health care, education, migration and cultural exchanges as well.

However, there are various negative consequences of highway development too:

- Destruction of habitats this has been seen in highways being carved out of mountains in tunnel forms.It makes the terrain fragile especially in landslide prone regions of Western ghats and Himalayas
- Loss of Natural Resources due to road development.
- Loss of Access to Common Property.Many farmers lose some of he most productive lands to highways development.This affects their livelihood.Also many landless labourers who were dependent upon the agriculture gets uprooted.

- Displacement: Tribal displacements due to highways and Dams has been a consanguinity theme in Indian development history.For example:Bhil tribe was displaced due to Jaipur Ajmer highway.

Conclusion

Development of Highways brings multiple socio-economic benefits to the urban and rural areas which form a strong base of the National economy and it is a powerful instrument for the socio-economic transformation of the cities and villages.Further to avoid negative externalities such as displacement and loss of productive land there is need for better Impact assessment studies.

3. What in your opinion are the key priorities for India's power sector? Discuss.

Approach

Introduce with giving brief points on Indian power sector.In next part focus on what are the issues plaguing Indian power sector.In complementary to the issues write what are key priorities for Indian power sector.In conclusion summarise India's progress and future targets.

Introduction

Power is one of the most critical components of infrastructure crucial for the economic growth and welfare of nations. India's power sector is one of the most diversified in the world. Sources of power generation range from conventional sources such as coal, lignite, natural gas, oil, hydro and nuclear power to viable non-conventional sources such as wind, solar, and agricultural and domestic waste

Body

Problems in Indian Energy sector

- Dependence of fossil fuel: Around 60 per cent of the generated power comes from thermal power plants. Despite the fact that India has the third largest coal reserves in the world, most of the domestic requirements are met through imports due to poor quality of coal, which is of low Gross Calorific Value, inefficient mining processing, environment problems in creating new mines.
- Transmission and distribution problems: Around 25 per cent of the generated power is lost in transmission in India. This is very high when compared to a maximum of 5 % to other Asian giants like China and South Korea. The primary reason behind this is mainly due to lack of proper infrastructure.
- Free electricity to farmer and political giveaways: Apart from the power theft, other biggest problem in India's power sector is giveaways. In several states, it is considered impossible to charge farmers for power consumption.
- Investment scenario in power sector: Though Foreign Direct Investment (FDI), is around USD 12.97 billion (between April 2000 and December 2017), investment is very low when compared to other sectors

India's Next Generation Priorities in Power Sector :

- Take advantage of falling prices for renewable energy: As prices rapidly drop, RE will increasingly provide an alternative source of clean and low-cost electricity. India can meet a large part of its future electricity demand at competitive costs while limiting further environmental damage
- Assertive planning for the energy transition by promoting markets: Coal currently provides significant base load power supply. Replacing this with

intermittent wind and solar will require a more flexible electricity system that can buy and sell power on a far greater scale. An immediate priority is the promotion of a national scale electricity market, establishing linkage between wholesale and retail levels, and fostering flexibility to address future uncertainties.

- Fixing the financing mechanisms to attract private investment: Meeting the projected future demand will require addition of massive electricity infrastructure for generation, transmission and distribution, which is beyond the limits of public funding.
- An active role for the federal and state governments
    - The central government and each state will need to ensure appropriate regulations and market incentives are in place, while coordinating across a complex web of state-specific political-economy
    - The government will need to develop mechanisms to unwind the lock-ins, absorb transaction costs, and mitigate the costs to and resistance of market losers.
    - Given continued need for state-subsidized electricity to low-income households and distressed farmers, the government will necessarily play an active role even in a market-centric electricity system.
- Enhancing diplomacy: With India dependent on other countries for its oil needs, it becomes pertinent for the government to foster international diplomatic relations. For one, the government must look to recruit cadre with relevant domain and international expertise. Also, the government must establish strong personal relations with the leaders of oil exporting states.
- Handing major oil, gas fields to international players: Mumbai High and other major oil and gas fields should be given to international players who have better oil recovery strategy than the Indian players.
- Clubbing Energy and Environment ministries: Currently, energy and environment are two different ministries and the merger of the same will perforate the siloed approach to energy policy and enable the new government to view the sector through an integrated and holistic lens. The government can also look to pass the “Energy and Environment Security Act” which will bring these sectors to the national narrative. This will also lead to mitigation of citizens in adopt ing a non-fossil fuel based energy system, he added.
- Decarbonisation, renewable energy sources: Harnessing solar and wind power to generate electricity, incentivising the usage of electric vehicles, and restructuring factories and buildings to make them carbon neutral should be on the agenda of the government.
- Tapping the potential of natural gas: Reforms in Gas Authority of India Limited (GAIL) can further the need to exploit the potential posed by natural gas. First, GAIL should unbundle into a monopoly gas pipeline company. Moreover, every player, despite public or private, must have fair access to gas pipelines. Also, the prices of gas should be grounded in market and competitive principles.
- Green Hydrogen and Biofuel policy: Future technologies such as green hydrogen should be emphasised for better head start on electric vehicle

infrastructure.Biofuel policy which was recently formulated will help in prioritising a sustainable economy.

- Nuclear neglect: Nuclear energy has been long been neglected.This needs to be focused to diversify from coal and not been too dependent on solar and wind which have limitations of continued supply.

Conclusion

India has come a long way from power deficit country to power surplus nation.From here the target for Indian power sector should be to increase the load of green energy in the energy mixture for sustainable development.Further there needs to be focus on increasing the efficacy and efficiency of per unit of production with help of technology such as smart meter, smart grids and better monitoring of transmission lines to avoid theft.