5G Leap For Tomorrow

This editorial is based on the article **India's 5G leap is about powering tomorrow** which was published in The Hindu on 05/11/2021. It talks about the potential of 5G technology and suggests a way forward to deal with the challenges associated with the deployment of the technology.

The fifth generation mobile network, or 5G, is the next level of mobile network that will shape the **Fourth Industrial Revolution**, or Industrial 4.0, quality of service delivery, innovation, etc. by facilitating smarter and developing societies.

Commercial 5G networks began to be deployed in 2020 and are expected to reach 12% of world mobile connections (1.1 billion) and generate revenues up to U.S.$1.3 trillion by 2025 for operators.

The technology that 5G uses will improve data transfer speed at unexpected higher levels — almost 100 times more — and reduce latency times helping mission-critical services. Thus, 5G is essential but India needs to look if it is ready for the deployment of the technology.

Potential

- The new generation mobile network has the transformative potential to provide a wide range of benefits to the Indian economy, which when enhanced with artificial intelligence provides a new dimension to connected and autonomous systems.
- Its use is a chance for Indian policy-makers to **educate and empower citizens and businesses, and transform existing cities** into smart and innovative cities.
- **Socio-economic Benefits:** This may allow citizens and communities to get socio-economic benefits and comforts delivered by a well-advanced, more data-intensive, digital economy.
    - Broadly speaking, the uses of 5G in India may encompass enhanced outdoor and indoor broadband, the **Internet of things**, **smart cities**, **smart agriculture**, energy monitoring, remote monitoring, smart grids, telehealth, industrial automation, remote patient monitoring and industrial automation to name some of the areas.
    - There is great potential for India to move to an advanced digital revolution.

Issues Associated

- **India as a Late Adopter:** Countries in the Asia-Pacific region, including India, Bangladesh and Indonesia are late in adopting 5G technology, hence, will get insignificant revenue from the service.
    - For the late adopters the 5G mobile service revenues are not expected over the next 12-18 months.
- **Lesser Government Subsidies**: A low likelihood of government subsidies is expected, given the history of high reserve prices set by the governments for spectrum auctions amid **ongoing fiscal deficits.**
- **Digital Divide:** 5G will not bridge the **digital divide among the rural and urban areas** in the short term, rather increase it as the business case of 5G even in urban areas does not have maximum accessibility.
    - Therefore, it will not be easily available in rural areas too.

- **5G, A Niche Service:** 5G will be a niche service unlike 3g and 4g which were pervasive services. It will get intensified over a comparatively longer period of time.
    - The rollout of 5G technology will be different from the one seen in 4g; it will be introduced in specific sectors and areas.
- **Inadequate Accessibility of Previous Technology**: The consumers are still grappling with basic network issues like call drops and interrupted data services.
    - There are still areas where 4G networks have not stabilised causing frequent disruptions in internet services.
    - It is important to meet the quality of service parameters of existing 4G networks before embarking on a new 5G platform.
- **Enabling Critical Infrastructures:** 5G will require a fundamental change to the core architecture of the communication system. The major flaw of data transfer using 5G is that it can't carry data over longer distances. Hence, even 5G technology needs to be augmented to enable infrastructure.
- **Financial Liability on Consumers**: For transition from 4G to 5G technology, one has to upgrade to the latest cellular technology, thereby creating financial liability on consumers.

Way Forward

- **Analysis of Existing Infrastructure and Capacity**: The immediate priority for India will be in identifying end users and population to be covered, analysis of the existing network and operators, identification of cities for the 5G roll out, working out an investment model, and minimisation of the digital risk and pricing based on the externalities and usage of various sectors.
    - The deployment of 5G in India needs to be carefully planned after a **cost benefit analysis** by independent experts which will create a level-playing field through market mechanisms such as facilitating, simulating, auctioning, ensuring competition, functioning markets, etc.
- **Sector-friendly Steps:** As the deployment of 5G network is expensive, both the Central and State governments may need to consider measures which stimulate fibre investment, attract investment through public private partnerships (PPPs) and facilitate investment funds on a nominal interest basis.
    - Allowing 100% **foreign direct investment** in the telecom sector under the automatic route along with other policy reforms augurs well for the sector to attract investment. Implementation of 5G requires huge investment and the relief package is a welcome step.
- **Tax issues too**: The Government needs to address information asymmetry and negative externalities through laws and regulations/taxes and subsidies.
    - The deployment of 5G technology will also need the right of access to government infrastructure such as traffic lights, lamp posts, etc. where wireless operators can deploy electronic small cell apparatus.
    - At the same time, reasonable fees may be charged by State and local governments to operators for affordable deployment of 5G equipment.
    - Further, removing the tax burden for deploying fibre networks reduces associated costs, thereby promoting investment as was done by the Singapore government, could help in the smooth deployment of fibre in India.
- **Bridging the Rural-urban Gap:** 5G can be deployed at different band spectrums and at the low band spectrum, the range is much longer which is helpful for the rural areas.
- **Government’s Assistance:** The government has complete control over the inputs. One of the key inputs of 5G is the band spectrum.
    - By managing the design of the spectrums, the government can control the price to be paid by the people.
    - The government shall support the telecom companies to roll out networks which are sustainable and affordable for the public.
- **Tackling the Spectrum Pricing Issue**: The government in recent times, has had two failed auctions. The latter failed to attract any bids in the 5G spectrum.
    - The current proposals for the reserve price clearly suggest the need to change the prices in order to conduct a successful auction.
    - The pricing will have to be worked out keeping in mind the financial stress in the sector and affordability of services.
- **Enabling the Manufacturing Sector in India:** As 5G starts taking shape in India, it is important to strengthen its domestic telecommunication manufacturing market so that it is not only the users

of 5G in India, but also the manufacturers and providers of these technologies who will be able to make a mark in the global arena
- **Viable Technology from Consumers' Perspective**: For widespread 5G deployment, it needs to become financially viable otherwise rural integration will remain a pipe dream.
- Also, the **5G technology** has to be viable to the telecom operators too.

Conclusion

As India has already witnessed digital revolution even in its remotest areas due to cost-effective 4G technology, the use of 5G can play a vital role in enhancing this sector and also facilitating India's goal to emerge as a manufacturing and innovation hub. The negative implication of 5G is furthering the 'digital divide'. Therefore, Government policies should also focus on affordable coverage too.

Drishti Mains Question

The new generation mobile network has the transformative potential to provide a wide range of benefits to the Indian economy. In the light of the statement discuss the challenges confronting the 5G technology deployment.
