



Bharat 6G Project

For Prelims: Bharat 6G Project, Call Before You Dig, Atmanirbhar Bharat, e-Governance, Optical Fibre.

For Mains: Bharat 6G Project, 6G.

Why in News?

Recently, the Prime Minister has unveiled a Vision Document to roll out high-speed [6G Communication Services by 2030](#) and also launched **Bharat 6G Project** to identify and fund research and deployment of the next-generation technology in India.

- The Government has also launched the '**Call Before You Dig (CBuD)**' app to facilitate coordination between excavation agencies and underground utility owners to prevent damage to utilities due to digging.

What is Bharat 6G Project

▪ About:

- India's 6G project will be implemented in two phases, the first one from 2023 to 2025 and the second one from 2025 to 2030.
- The government has also appointed an **apex council to oversee the project and focus on issues such as standardization, identification of the spectrum for 6G usage**, create an ecosystem for devices and systems, and figure out finances for research and development, among other things.
 - A key focus of the council will be on new technologies such as **Terahertz communication, radio interfaces, tactile internet, artificial intelligence for connected intelligence**, new encoding methods and waveforms chipsets for 6G devices.

▪ Phases:

- In phase one, **support will be provided to explorative ideas**, risky pathways and proof-of-concept tests.
- Ideas and concepts that show promise and potential for acceptance by the global peer community will be adequately supported to develop them to completion, establish their use cases and benefits, and **create implementational IPs and testbeds leading to commercialisation** as part of phase two.

▪ Objective:

- It aims to enable India to **become a leading global supplier of intellectual property**, products and solutions of affordable 6G telecom solutions and identify priority areas for 6G research based on India's competitive advantages.

▪ Significance:

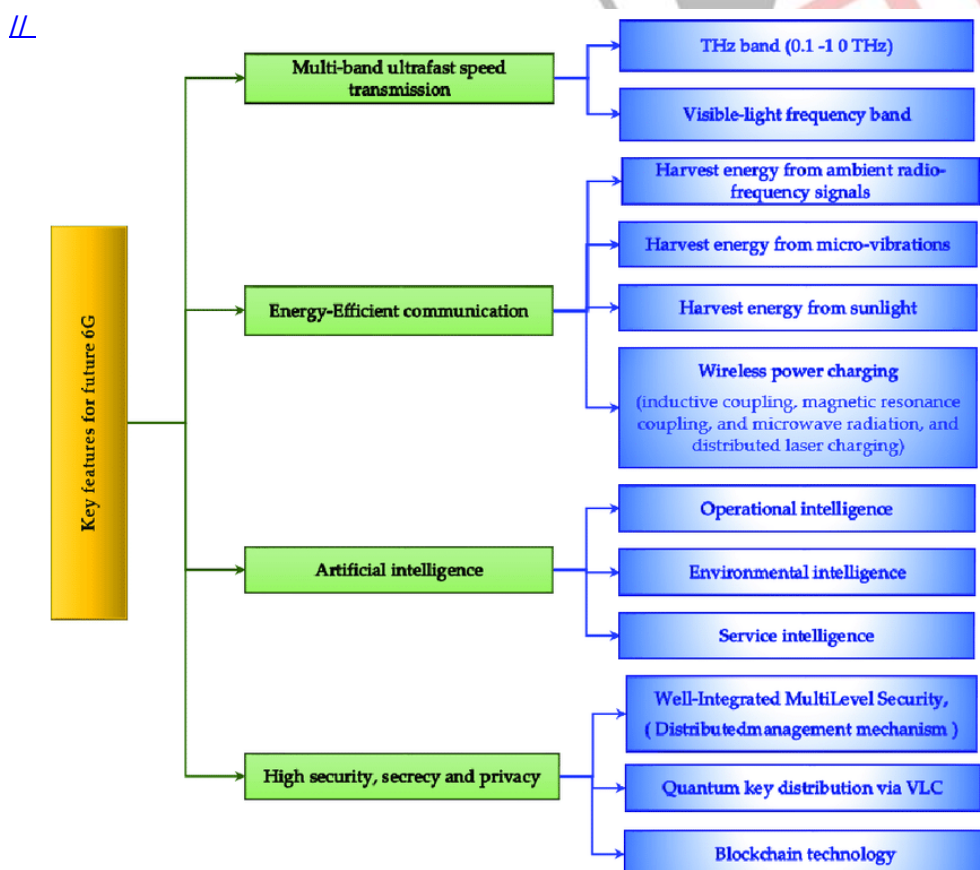
- The project will provide an R&D platform to start-ups, researchers, industry and other broadband wireless applications in India like e-Governance, smart cities, rural Broadband or other Digital India initiatives under [Atmanirbhar Bharat](#).

How is India's Digital Ecosystem Scenario?

- India is the **2nd-largest telecom market** globally with 1.2 billion digital subscribers.
- The past nine years witnessed an unprecedented digital leap, whereby **India's digital economy grew 2.5 times faster** than the national economy.
 - Over this period, the number of broadband users rose to 800 million, from 60 million, and the number of internet connections rose to 850 million from 250 million. The government and private sector together have laid over 2.5 million km of [Optical Fiber](#).
- India is the most connected democracy in the world, where **70 million e-authentications are done every day**, and 8 billion [UPI \(Unified Payment Interface\)](#) transactions are made every month.
- India has sent upwards of ~28 lakh crore directly to its citizens through direct benefit transfers.

What is 6G Technology?

- **6G (Sixth-Generation Wireless)** is the successor to **5G cellular technology**.
- It will be able to use **higher frequencies than 5G networks** and provide substantially higher capacity and much lower latency (delay).
- One of the goals of 6G internet will be to support one **microsecond-latency communication (delay of one-microsecond in communication)**.
 - This is 1,000 times faster - or 1/1000th the latency - than one millisecond throughput.
- It seeks to utilize the **terahertz band** of frequency which is currently unutilized.
 - Terahertz waves fall between infrared waves and microwaves on the electromagnetic [spectrum](#).
 - These waves are extremely tiny and fragile, but there's a huge amount of free spectrum up there that would allow for spectacular data rates.



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