

National Atomic Timescale

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In news

Recently, the Prime Minister of India dedicated National Atomic Timescale to the Nation

What is the Atomic Timescale?

- Atomic time, timescale generated by atomic clocks, which furnish time more accurately than was possible with previous astronomical means (measurements of the rotation of the Earth and its revolution about the Sun).
- For instance International Atomic Time (TAI) is based on a system consisting of about 270 laboratory-constructed atomic clocks.
- Signals from these atomic clocks are transmitted to the International Bureau of Weights and Measures in Sèvres just outside Paris, which uses them to form TAI.
- Atomic clocks measure the actual length of a second, which is the base unit we use to calculate time. According to the International System of Units (SI), the time unit “second” is calculated by the time an atom in a defined state – comprised of the element caesium-133 – takes to oscillate 9,192,631,770 times.

Advantages of National Atomic Timescale

- With this launch, India has become self-reliant in measuring the time within the range of a nano second.
- Achieving the accuracy level of 2.8 Nano Second is a huge capability in itself.
- Now Indian Standard Time is matching the International Standard Time with the accuracy range of less than 3 nano second.
- This will be a big help for organizations like ISRO who

are working with cutting edge technology.

- Modern technology related Banking, railways, defense, health, telecom, weather forecast, disaster management and many similar sectors will be benefited greatly from this achievement.
- This timescale would strengthen India's role in Industry 4.0
- **With respect to the environment,** India is dependent on others for technology and tools for measuring air quality and emission.
- This achievement will lead to self-reliance in the field and will lead to creation of more effective and cheaper tools for pollution control.
- This will also enhance India's share in the global market for technologies related to air quality and emission technology.