



# National Metrology Conclave 2021

## Why in News

Recently, the Prime Minister has inaugurated the **National Metrology Conclave 2021** and also laid the foundation stone of **National Environmental Standards Laboratory** through a video conference.

- The Conclave was organised by [Council of Scientific and Industrial Research-National Physical Laboratory](#) (CSIR-NPL), New Delhi, on its **75<sup>th</sup> year of inception**.
- **National Atomic Time Scale** and **Bhartiya Nirdeshak Dravya Pranali** were dedicated to the nation on the occasion.
- Metrology is defined by the International Bureau of Weights and Measures (BIPM) as "**the science of measurement, embracing both experimental and theoretical determinations at any level of uncertainty in any field of science and technology**".

## Key Points

- **National Atomic Time Scale:**
  - The National Atomic Time Scale generates **Indian Standard Time** with an accuracy of **2.8 nanoseconds**.
    - The **longitude of 82°30' E** has been selected as the 'standard meridian' of India against which the Indian Standard Time is set.
  - Now **Indian Standard Time** is matching the **International Standard Time** with the accuracy range of less than **3 nanoseconds**.
  - **CSIR-NPL** is the **National Measurement Institute of India** and authorized (by an act of Parliament) to realize and **maintain the Indian Standard Time (IST)**.
  - IST is realized at CSIR-NPL through the **National Primary Time Scale** consisting of a bank of **ultra-stable atomic clocks**.
  - CSIR-NPL is on a **mission to synchronize all the clocks in the nation to IST for securing digital infrastructure and reducing cyber crime**.
  - CSIR-NPL is strengthening the **national timing infrastructure of India**, where a very rough estimate shows an economic impact of more than **10% of GDP**.
  - **Benefits:**
    - This will be a big help for organizations like [Indian Space Research Organisation](#) who are working with cutting edge technology. **Banking, railways, defense, health, telecom, weather forecast, disaster management, Industry4.0** and many similar sectors will be benefited greatly from this achievement.
- **Bhartiya Nirdeshak Dravya Pranali (BND):**
  - These are Indian reference materials developed by CSIR-NPL. It is committed to ensure the **quality of products in every manufacturing and consumer sector** by providing **SI traceable measurements** and enhancing quality life of citizens through metrology.
    - SI system is used to describe units of measurement in the International System

(from French 'Système International').

- Reference materials (RM) play a pivotal role in maintaining the **quality infrastructure** of any economy through **testing and calibration** with precise measurements traceable to SI units. NPLI has recently released two very important certified RMs as Bharatiya Nirdeshak Dravyas (BNDs) **for purity of gold and for Bituminous coal**.
- Recently, the Govt of India (GoI) has supported NPLI to strengthen its BND program by developing BNDs in the area of [AYUSH](#), **Materials**, [Nanotechnology](#), **Medicine, Food & Agriculture and Biologics**.
- The availability of SI traceable BNDs are poised to **boost the “[Make in India](#)” program** and harmonize the **quality infrastructure of the country**.

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