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## New Hub Under National Mission on Interdisciplinary Cyber Physical Systems

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### Why in News

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The **Indian Institute of Technology (IIT) Ropar, Punjab** is setting up a **Sectoral Application Hub in Technologies for Agriculture and Water**.

### Key Points

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- The hub is being set up under the **National Mission on Interdisciplinary Cyber Physical Systems (NMICPS)** and is granted by Union Government's **Science and Engineering Research Board**.
- The application hub will bring solutions for **stubble management, water quality improvement** and **mapping of hazardous substances in water**.
- The hub **aims** at carrying out translational research and work with concerned departments to develop prototypes, products and implementations.

### National Mission on Interdisciplinary Cyber Physical Systems

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- It was **launched in 2018** and is implemented by the **Department of Science & Technology** for a period of five years.
- NMICPS covers entire India which includes Central Ministries, State Governments, Industry and Academia.

- **Objectives:**

- It is a **comprehensive mission** which would address technology development, application development, human resource development & skill enhancement, entrepreneurship and start-up development in **Cyber-Physical System (CPS)** and associated technologies.
- The mission **aims** at establishing 15 Technology Innovation Hubs (TIH), six Application Innovation Hubs (AIH) and four Technology Translation Research Parks (TTRP).
- These Hubs & TTRPs will connect to Academics, Industry, Central Ministries and State Government in developing solutions at reputed academic, R&D and other organizations across the country in a hub and spoke model.
- The Hubs & TTRPs have **four focused areas** namely:
  - Technology Development.
  - HRD & Skill Development.
  - Innovation, Entrepreneurship & Start-ups Ecosystem Development.
  - International Collaborations.

## Cyber-Physical Systems

- These systems **integrate** sensing, computation, control and networking into physical objects and infrastructure, connecting them to the Internet and to each other.
- **Few Potential applications:**
  - **Driverless cars** that communicate securely with each other on smart roads.
  - **Sensors** in the home to detect changing health conditions.
  - **Improving agricultural practices.**
  - **Enabling scientists** to address issues arising out of climate change.
- Advances in cyber-physical systems will enable capability, adaptability, scalability, resiliency, safety, security and usability that will far exceed the simple embedded systems of today.