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## IRNSS: Part of World Wide Radio Navigation System

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### Why in News

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The **Maritime Safety Committee** (MSC) of the **International Maritime Organisation** (IMO) has recognised the **Indian Regional Navigation Satellite System** (IRNSS) as a component of the **World Wide Radio Navigation System** (WWRNS) during its 102<sup>nd</sup> session held virtually.

The IMO is the **United Nations specialised agency** responsible for the safety and security of shipping and the **prevention** of marine and atmospheric **pollution** by ships.

### Key Points

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- India has become the **fourth country** in the world to have its independent regional navigation satellite system recognised by the IMO as a part of the **World Wide Radio Navigation System** (WWRNS).
- The other three countries that have its navigation systems recognised by the IMO are the **USA, Russia and China**.

- **Significance:**
  - The IMO has accepted IRNSS as an **alternative navigation module in Indian waters**. It was in use only on a pilot basis earlier but **now all merchant vessels are authorised to use it, even small fishing vessels**.
  - The navigation system **can now replace GPS in the Indian Ocean waters upto 1500 km** from the Indian boundary.
    - IRNSS is a **regional and not a global navigation** system.
    - With the recognition as a component of the WWRNS, the Indian navigation system is similarly placed as **Global Positioning System** (GPS - USA), most commonly used by marine shipping vessels across the world or the Russian Global Navigation Satellite System (**GLONASS**).
  - It is being considered as a significant achievement towards the '**Atmanirbhar Bharat**' initiative.

Apart from navigational benefits it has strategic importance as it reduces overdependence on the global navigation system.
- **Important Navigation Systems:**
  - **USA navigation system:** The **Global Positioning System** (GPS) is a satellite-based navigation system that consists of 24 orbiting satellites.
  - **Glomass is Russian** Satellite Navigation System considered as a counterpart to GPS of the USA.
  - **BeiDou Navigation Satellite System** of **China:** A hybrid constellation consisting of around 30 satellites in three kinds of orbits.
  - **Galileo** is **Europe's** Global Navigation Satellite System.

### **Indian Regional Navigation Satellite System**

- IRNSS is an independent regional navigation satellite system developed by the **Indian Space Research Organization** (ISRO).
- The main objective is to provide reliable position, navigation and timing services over India and its neighbourhood.
- The IRNSS constellation **was named as “NavIC”** (Navigation with Indian Constellation) by the Prime Minister.
- NavIC provides **two types of services:**
  - **Standard Positioning Service** (SPS) is meant for the general public.
  - **Restricted Service** (RS) is an encrypted service meant for authorised users and agencies.
- Unlike the widely used GPS which includes 24 satellites, NavIC has **8 satellites** and their range is within India and its adjoining regions extending up to **1,500 km** from the **country's border**.

- Technically satellite systems with more satellites provide more accurate positioning information. However, compared to GPS which has a position **accuracy of 20-30 metres**, the NavIC is able to pinpoint location to an estimated accuracy of **under 20 metres**.

**Source:IE**