

Anti Radiation Missile Rudram-1

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In News

India's **first indigenous anti-radiation missile, Rudram**, developed for the Indian Air Force, was successfully flight-tested from a Sukhoi-30 MKI jet off the east coast. Anti-radiation missiles are designed to **detect, track and neutralise the adversary's radar, communication assets and other radio frequency sources, which are generally part of their air defence systems.**

Features of the Anti Radiation Missile

- Rudram is an **air-to-surface missile**, designed and developed by the **Defence Research and Development Organisation (DRDO)**.
- The integration with fighter jets has been a collaborative effort of various DRDO facilities and formations of the IAF and Hindustan Aeronautics Ltd.
- While the system has been **tested from a Sukhoi-30 MKI**, it can be adapted for launch from other fighter jets too.
- Rudram has been developed for the IAF's requirement to enhance its **Suppression of Enemy Air Defence (SEAD) capability**.
- As one of the many aspects of SEAD tactics, anti-radiation missiles are used mainly in the **initial part of air conflict to strike at the air defence assets of the enemy, and also in later parts, leading to higher survivability of a country's own aircraft.**
- **Neutralising or disrupting** the operations of the adversary's early warning radars, command and control systems, surveillance systems that use radio frequencies

and give inputs for anti-aircraft weaponry, can be very crucial.

- The **missile's navigation mechanism** comprises an **inertial navigation system**-a computerised mechanism that uses changes in the object's own position, **coupled with GPS**, which is satellite-based.
- For **guidance**, it has a **passive homing head**-a system that can detect, classify and engage targets (radio frequency sources in this case) over a wide band of frequencies as programmed.
- Once the Rudram missile locks on the target, it is **capable of striking accurately even if the radiation source switches off in between**. Further, it can lock into a target not only before launch but also after it has been launched.
- The missile has a **launch speed of up to 2 Mach**. Its range depends on the height at which the fighter jet is flying. It can be launched from a height ranging from 500 metres to 15 km and can **hit radiation emitting targets within a range of 250 km**.