



Iron Dome Air Defence System: Israel

 drishtiias.com/printpdf/iron-dome-air-defence-system-israel

Why in News

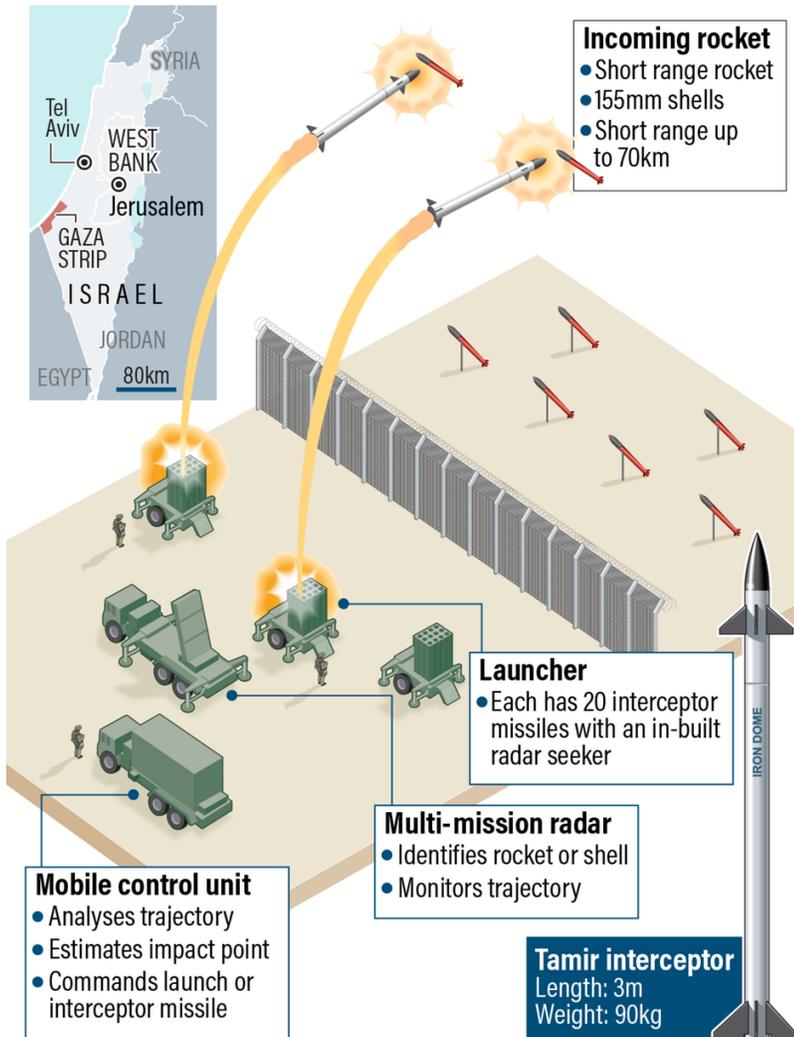
Israel used its Iron Dome air defence system in recent violent clashes over Jerusalem.

Key Points

- **About:**
 - It is a **short-range, ground-to-air, air defence system** that includes a **radar** and **Tamir interceptor missiles** that track and neutralise any rockets or missiles aimed at Israeli targets.
 - It is **used for countering** rockets, artillery & mortars as well as aircraft, helicopters and Unmanned Aerial Vehicles (UAV).
 - It is capable of being **used in all weather conditions**, including during the day and night.
 - It was **developed by the state-run Rafael Advanced Defense Systems and Israel Aerospace Industries** and was **deployed in 2011**.
 - Rafael claims a **success rate of over 90%, with more than 2,000 interceptions**, however experts agree the **success rate is over 80%**.
 - It can **protect** deployed and manoeuvring forces, as well as the **Forward Operating Base (FOB)** and urban areas, against a wide range of indirect and aerial threats.
- **Components:**
 - The Iron Dome has **three main systems that work together** to provide a shield over the area where it is deployed which are:
 - **Radar:** It has a detection and tracking radar to spot any incoming threats.
 - **Weapon Control:** It has a battle management and weapon control system (BMC),
 - **Missile Fire:** It also has a missile firing unit. The **BMC basically liaises between the radar and the interceptor missile**.

ISRAEL'S IRON DOME DEFENCE SYSTEM

Mobile system to intercept rockets with range of 4-70km



Indian Alternatives:

o S-400 TRIUMF:

▪ About:

- India has **S-400 TRIUMF**, which also caters to the three threats (rockets, missiles and cruise missiles). But they have **much longer range**.
- It has a much **larger air defence bubble** to knock off threats.
- It is a mobile, surface-to-air missile system (SAM) **designed by Russia**.

▪ Range & Effectiveness:

- The system can **engage all types of aerial targets** within the **range of 400km, at an altitude of up to 30km**.
- The system can **track 100 airborne targets and engage six of them simultaneously**.

o Prithvi Air Defence and Advance Air Defence:

▪ About:

It is a **double-tiered system consisting of two land and sea-based interceptor missiles**, namely the **Prithvi Air Defence (PAD)** missile for high altitude interception, and the **Advanced Air Defence (AAD)** Missile for lower altitude interception.

▪ Range:

It is able to **intercept any incoming missile launched 5,000 kilometres away**. The system also **includes an overlapping network of early warning and tracking radars**, as well as command and **control posts**.

o Ashwin Advanced Air Defence Interceptor Missile:

▪ About:

- It is also an indigenously produced Advanced Air Defence (AAD) interceptor missile developed by **Defence Research and Development Organisation (DRDO)**.
- It is the advanced version of the low altitude supersonic ballistic interceptor missile.
- The missile also **has its own mobile launcher, secure data link for interception, independent tracking and homing capabilities and sophisticated radars**.

▪ Range:

It uses an endo-spheric (within the Earth's atmosphere) interceptor that knocks out ballistic missiles at a maximum **altitude of 60,000 to 100,000 feet, and across a range between 90 and 125 miles**.

Source: IE