

★ Russia's S-400 Triumph Missile System

- ↳ It is a mobile, Surface-to-Air Missile system (SAM) designed by Russia
- ↳ It is the most dangerous operationally deployed Modern Long-Range SAM (MLR SAM) in the world
- ↳ It integrates a multifunction radar, autonomous detection and targeting systems, anti-aircraft missile systems, launchers, and command and control centre

Military heft

The Russian S-400 air defence missile system can track and shoot down about 80 simultaneous targets, including cruise, ballistic missiles, aircraft, UAVs, as well as ground-based targets. A look at the system

- **USP:** S-400 Triumph long-range air defence system consists of a surface-to-air missile that can attack UAVs, drones, cruise missiles

- **Range:** 400 km

- **Max. altitude:** 10,000 ft.

- **Max. speed:** 4,800 m/s

- **Deployment time:** 10 minutes

- **Specifications:** Command control system, multiple radar units, automated from acquisition to final engagement

- **A fourth-generation system in terms of its combat capabilities**



* Sanctions overreach

- US imposed sanctions on Turkey
 - for buying & activating the S-400 missile defence system from Russia
 - under CAATSA, 2017
 - ↳ Countering America's Adversaries Through Sanctions Act.
 - ↳ Aimed at discouraging countries from buying weapons from Russia.
- Earlier, US also suspended Turkey from its F-35 fighter jet programme.
- Turkish Prez Erdogan called it an attack on Turkey's sovereignty.
- US decision has implications on India
 - ↳ as India also has ordered S-400
 - ↳ & Trump administration did not provide any waiver for India.
- US → decision to suspend Turkey from F-35
 - ↳ well within its right to decide who it should sell weapons to

↳ but sanctioning for buying weapons from a third party is transborder bullying
↳ Sanctions could further drive Turkey into Russian influence

- S-400 system

- an aerial defence shield
- already deployed in Syria by Russia, Eastern Europe borders & in Arctic Circle
- China, India, Turkey also opted for it

- Turkey - US ⇒ both members of NATO, but issues within NATO

- US-Turkey tensions on S-400
- Turkey Vs France → War of words
- Greece Vs Turkey → over Eastern Mediterranean

- Despite differences with Russia on

- Syria & Libya issue
- Nagorno-Karabakh

Turkey still chose to buy Russian weapons

↳ shows paradigm shift in strategic thinking

↳ 1990s unilateralism has paved way for a new multilateralism.

Israel's Iron Dome rocket defence system

Amid the Israel-Palestine conflict, the night sky over Israel has been ablaze with interceptor missiles from Iron Dome shooting down the incoming rockets in the sky.

What is Iron Dome?

- Iron Dome is a multi-mission system capable of intercepting rockets, artillery, mortars and Precision Guided Munitions as well as aircraft, helicopters and Unmanned Aerial Vehicles (UAV) over short ranges of up to 70 km.
- It is an all-weather system and can engage multiple targets simultaneously and can be deployed over land and sea.
- Iron Dome is jointly manufactured by Rafael Advanced Systems and has been in service with Israeli Air Force since 2011.
- The radar system was developed by Elta.

Working of Iron Dome

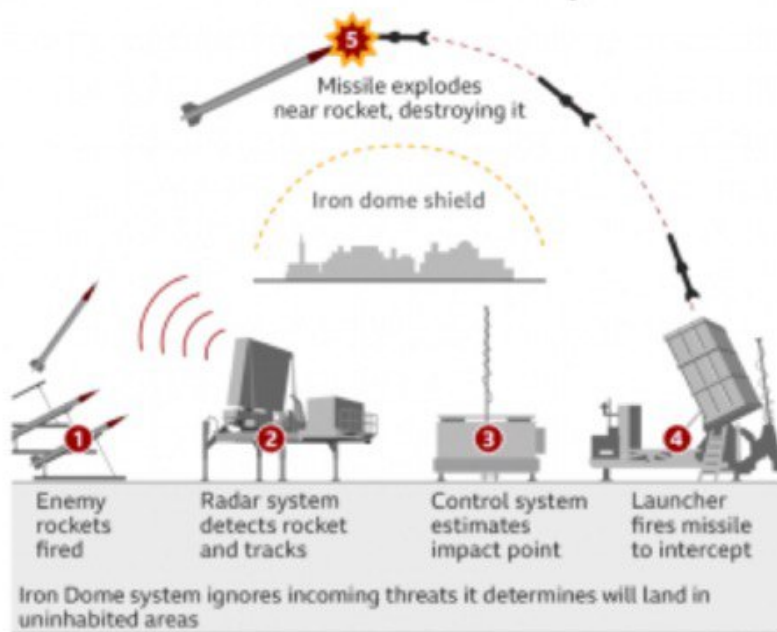
- An Iron Dome battery consists of a battle management control unit, a detection and tracking radar and a firing unit of three vertical launchers, with 20 interceptor missiles each.
- The interceptor missile uses a proximity fuse to detonate the target warhead in the air.
- One of the system's important advantages is its ability to identify the anticipated point of impact of the threatening rocket, to calculate whether it will fall in a built-up area or not, and to decide on this basis whether or not to engage it.

- This prevents unnecessary interception of rockets that will fall in open areas and thus not cause damage, the paper states.
- The system has intercepted thousands of rockets so far and, according to Rafael Advanced Systems, its success rate is over 90%.

Limitations of the system

- The system can see limitations when it is overwhelmed with a barrage of projectiles.
- The system has a 'saturation point'.
- It is capable of engaging a certain number of targets at the same time, and no more.
- One of the possible limitations is the system's inability to cope with very short range threats as estimates put the Iron Dome's minimum interception range at 5-7 kilometres.

How Israel's Iron Dome defence system works



* Key US lawmakers bat for CAATSA sanctions waiver

- S-400 missile defence system of Russia
 - India & Turkey have purchased it.
 - US can potentially activate sanctions under its CAATSA, 2017 (Countering America's Adversaries Through Sanctions Act)
- Turkey - a NATO ally
 - ↳ expelled from the US F-35 prog. after it started accepting S-400 shipments in 2019.
- But situation with India different.
 - Many lawmakers want a waiver for India
 - Relations should not become like Turkey.
- Why waiver for India?
 - India diversifying its weapons procurement but historically dependent on Russia.
 - US-India alliance necessary
 - ↳ To keep eye on Afg through India's Farkhor air base in Tajikistan
 - ↳ To keep track of China's expansion.