

Man-Portable Air-Defence Systems (MANPADS)

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In news– The US and NATO allies are rushing arms shipments including various types of MANPADS to Ukraine at an increased pace since the ongoing war between Russia & Ukraine.

About MANPADS-

- They are **short-range, lightweight and portable surface-to-air missiles that can be fired by individuals** or small groups **to destroy aircraft or helicopters.**
- They **help shield troops from aerial attacks** and are most effective in targeting low-flying aircrafts.
- MANPATs or Man-Portable Anti-Tank Systems work in a similar manner but are used to destroy or incapacitate military tanks.
- MANPADS **can be shoulder-fired**, launched from atop a ground-vehicle, fired from a tripod or stand, and from a helicopter or boat.
- **Weighing anywhere between 10 to 20 kilograms** and not being longer than 1.8 metres, they are fairly lightweight as compared to other elaborate weapon systems, making them easy to operate by individual soldiers.
- They have a **maximum range of 8 kilometers** and can engage targets at **altitudes of 4.5 km.**
- **Most MANPADS have passive or 'fire and forget' guidance systems**, meaning the operator is not required to guide the missile to its target, enabling them to run and relocate immediately after firing.
- The missile stays locked-on to the targeted object, not requiring active guidance from the soldier.
- The missiles are fitted with Infrared (IR) seekers that identify and target the airborne vehicle through heat

radiation being emitted by the latter.

- **MANPADs with active guidance systems or command-guided MANPADs also exist but are less common.**
- These require the operator to guide the missile till it hits the target, meaning they depend on a beam-riding-configuration, wherein the operator paints the target vehicle with a laser beam and keeps the beam on it till the missile hits.
- The passive-guidance MANPADs, which do not use a laser beam, are harder to detect by the target's crew.
- **The first MANPADs were introduced by the United States and Soviet Union in the 1960s.**
- The U.S. supplied MANPADs to the Mujahideen in Afghanistan in the 1980s, which the latter used against the Soviet forces.
- **Countries such as India, Pakistan, Germany, U.K., Turkey and Israel have also used MANPADs in their defence efforts.**
- Russia is by far the biggest exporter of MANPADs.
- The most common make of MANPADs is the U.S.-made Stinger missiles.
- Stinger's Russian or Soviet-made counterparts are the Iгла MANPADs, which also employ Infrared technology.
- They have also been used by India, for instance, as part of the Operation Trishul Shakti of 1992, during the Siachen conflict.
- **Starstreak, the British army's** equivalent of the Stinger missiles, **Sweden makes the RBS-70 MANPADs series**, while **China's version, FN-6**, is akin to their Stinger.

About NATO-

- The North Atlantic Treaty Organization, also called the North Atlantic Alliance, is an intergovernmental **military alliance between 30 North American and European countries.**

- The organization implements the North Atlantic Treaty that was signed on 4 April 1949.
- NATO's purpose is to guarantee the freedom and security of its members through political and military means.
- POLITICAL – NATO promotes democratic values.
- MILITARY – NATO is committed to the peaceful resolution of disputes. If diplomatic efforts fail, it has the military power to undertake crisis-management operations.
- NATO's Headquarters are located in Evere, Brussels, Belgium, while the headquarters of Allied Command Operations is near Mons, Belgium.
- The **most recent member state to be added to NATO was North Macedonia** on 27 March 2020.
- All decisions of NATO are taken by consensus.

What is Next Generation Light Antitank Weapon or NLAW missiles ?

- As for anti-tank missiles, NATO countries and the U.S. have also sent Next Generation Light Antitank Weapon or NLAW missiles and Javelin missiles to Ukraine, to help target Russian attacks on land.
- These missiles are also shoulder-fired and equipped with the 'fire and forget' technology.
- While the NLAW uses a 'predictive line of sight' guidance method where it calculates the distance and speed of the target on its own, the Javelins use infrared technology which sense the heat emitted from the target.