

Anti-Access Area Denial Capabilities

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In News: Indian Army is conscious of the threats manifesting along our borders and all measures deemed necessary are being taken to mitigate the same.

About Anti-Access Area Denial (A2/AD) Capability

- While Russia was the pioneer of developing the Anti-Access Area Denial (A2/AD) Capability to check the NATO forces and primarily the USA during Cold War, China in the modern days has made considerable progress in mastering the technology and development of systems to keep the US Navy away from the South China Sea and the disputed maritime claims of 9-dash line.
- India also needs to develop A2/AD capabilities to prevent any future build-up of Chinese forces in the Tibet region and neutralise any threat from Pakistan by grounding the Pakistan Airforce before it is able to be airborne as far as our land frontiers are concerned.
- Along the maritime borders the capability will enable us to prevent access of PLAN and restrict the freedom of movement of the Pakistan Navy.
- To develop the A2/AD capability, it is necessary to understand its philosophy.
 - Action intended to slow deployment of friendly forces into a theatre or cause forces to operate from distances farther from the locus of conflict than they would otherwise prefer is called Anti-Access (A2).
 - It affects movement of adversary forces into a theatre.
 - Action intended to impede friendly operations within areas where it is difficult to prevent

access of inimical forces is termed Area Denial (AD).

- A2/AD capabilities are overlapping and spread across multi-domains to include both kinetic and non-kinetic systems with the sole purpose of degrading the adversaries' war-fighting capabilities at land, sea, air, cyber, space.
- The emerging technologies representing military revolution in technologies like Artificial Intelligence (AI), Quantum Technology, Swarm Technology and hypersonic weapons form the backbone of these capabilities. A potent A2/AD capability will pose a serious threat.
- India needs to develop A2/AD capabilities not only as countermeasures to the combined threat posed by both China and Pakistan but also to pose a similar threat to them both at land and sea.
- A2/AD capabilities have to be an integration of terrestrial, air and space based sensors which can defeat stealth technology, array of long range deep penetrating cruise, surface to air and air to surface missiles, space weapons, satellites, hypersonic weapons and aerial platforms both manned and unmanned.
 - India has an arsenal of formidable missile systems and aerial platforms, it has invested in the Russian S-400 Air Defence System, Phalcon AWACS, armed drones and other Air Defence systems .

QUAD framework

- Under the QUAD framework, India has undertaken consultations with Australia, Japan and the United States of America on regional and global issues of common interest.
- The QUAD partners share a commitment towards a free, open, prosperous and inclusive Indo-Pacific region based on shared values and principles and respect for

international law.

- QUAD framework has provided a platform for exchange of views on regional and global issues of common interest.
- There is focus on practical cooperation in the areas of connectivity and infrastructure development, and counter-terrorism, cyber security, maritime security, humanitarian and disaster relief, with the objective of promoting peace, security, stability and prosperity in an increasingly inter-connected Indo-Pacific region.

North Atlantic Treaty Organisation (NATO)

- It is a military alliance established by the North Atlantic Treaty (also called the Washington Treaty) of April 4, 1949, by the United States, Canada, and several Western European nations to provide collective security against the Soviet Union.
- It is headquartered at Brussels, Belgium.
- A key provision of the treaty, the so-called Article 5, states that if one member of the alliance is attacked in Europe or North America, it is to be considered an attack on all members. That effectively put Western Europe under the “nuclear umbrella” of the US.
 - NATO has only once invoked Article 5, on September 12, 2001, following the 9/11 attacks on the World Trade Center in the US.
- NATO’s protection does not extend to members’ civil wars or internal coups.
- As of 2019, there are 29 member states, with Montenegro becoming the latest member to join the alliance in 2017.
 - France withdrew from the integrated military command of NATO in 1966 but remained a member of the organization. However, it resumed its position in NATO’s military command in 2009.