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TRANSFORMING AIR AND SPACE POWER

In recent decades, states in the Indian Ocean Region (IOR) have been sharpening their defense strategies and capabilities to effectively deal with their national and regional security uncertainties. Significant participation of the Indian Ocean Region (IOR) in international trade is one of the reasons for the heightened presence in world affairs. It is the locus of important international Sea Lines of Communication.

Nearly half of the world's seaborne trade is through the Indian Ocean.The Indian Ocean has long been the hub of power rivalry and the struggle for its domination has been a feature of global politics. In the Indian Ocean Region, the drug-infested "Golden Crescent" (overlaps three nations- Afghanistan, Iran, and Pakistan) and the "Golden Triangle" are notorious for its illegal drug production. The linkage between drug trafficking and proliferation of weapons is a threat to the region.

Another non-military challenge to regional security is maritime pollution. Smaller Air Forces in the Indian Ocean Region face challenges in long distance "force projection" (even the navy has this challenge given our massive ocean EEZ- Exclusive Economic Zone). Long range maritime patrolling with high endurance aircraft and heavy lift aircraft is another shortcoming. As an island nation Sri Lanka must develop its defense, security and forthcoming challenges through the lens of its maritime identity.

Air dominance

Among the various capabilities being modernised, there has been particular emphasis on airpower in the domain of air power and tactical superiority in the air domain. Against this backdrop, airpower along with sea power will continue to further grow in their importance for the Asian states. While force modernisation should be seen in defense, security from the state-centric viewpoint, there are numerous concerns in the regional stability context.

Airpower has made, and continues to make significant developments in the contests of technology, warfare and warfighting concepts. The growing tensions fueled by geopolitical and territorial issues have consequently led to states strengthening their air and naval presence in contentious areas.

The immediate realm of air power also depends on control in other contested domains, making its geostrategic and political implications serious. For example, space isn't merely supporting air power anymore; it has become its nervous system. Modern air operations depend on satellites for everything from navigation to weapons guidance: disable the space segment, and you might neutralise an air force without ever engaging its aircraft? Modern combat aircraft are no longer machines of metal and fuel. They are flying data centers, dependent on the electromagnetic spectrum and cyberspace.

The electromagnetic spectrum has become the invisible battleground where future air wars may be won or lost. Modern air defense systems rely not just on radar — they use complex networks of sensors operating across multiple frequencies. Counter-air operations increasingly focus on electronic attack rather than kinetic engagement. In this new reality, electromagnetic spectrum superiority may matter more than traditional air superiority.The line between conventional and nuclear conflict blurs dangerously, potentially creating situations where every military engagement could be seen as a nuclear escalation.

Airpower has played a dominant role in generating and successfully enforcing favorable asymmetry for nearly a century. Its ability to achieve decisive results in the shortest period with minimal casualties has made it the preferred choice in many nations' security apparatus. Airpower's flexibility and operation's "capacity to impose its will through the medium of air and includes the employment of all its aviation resources, civil and military- potential and existing.

In War and Peace, Leo Tolstoy famously insisted that chance determines events, but people make history. Situations in the war are not premeditated, but when they are, nobody would have suffered shortfalls in their plans. In a difficult environment, people with experience and knowledge always have a greater probability of success.In today's geopolitical milieu, it is difficult to claim that any nation possesses self-sufficiency in dealing with its threats. The security challenges of conflict in the twenty-first century are evolving rapidly, which places strain on time, space, and force structure.

Even in military operations other than war (MOOTW), aircraft play pivotal roles in Humanitarian Assistance and Disaster Relief (HADR) particularly in the transportation of goods to needed areas and evacuation of affected persons. The attributes of airpower allows militaries to utilise and execute particular capabilities that are otherwise unavailable in other domains. Airpower capabilities are costly due to the capital-intensive platforms and infrastructures, but also the high operations and maintenance costs that are recurring in nature. While it is the security concerns and political agendas that legitimise military modernisation, it is the economic aspect that enables the actual developments in capabilities.

In East Asia, China has been most proactive in expanding and modernising their air power inventory. China's airpower modernization not only owes to the state's efforts to qualitatively develop its military leverage, but to expand its Anti-access and Areadenial (A2AD) coverage over its expanding territorial claims and lines of communication in the Asia-Pacific. The motives to attain tactical air superiority have driven the Asian states to not only acquire next-generation aircraft, but also the indigenous production of AAM and SAM missiles with longer range and stronger lethality.

In the midst of a complex and competitive global landscape, the IOR has evolved into a dynamic platform that caters to diverse global interests. The result has been the emergence of expanded organisations, both geographically and cooperatively, such as the IOR Association. This association eagerly explores the myriad dynamic opportunities within the region. This evidence underscores the critical role played by the Air forces of IOR countries. Their responsibility extends beyond ensuring regional security to safeguarding the national security of individual states through the strategic application of Air and Space Power. The demands on these Air Forces include maintaining profound vigilance, readiness, and swift response capabilities.

HADR

Humanitarian assistance is aid to an affected population that seeks, as its primary purpose, to save lives and alleviate suffering of a crisis-affected population. In an ever-changing world marked by unpredictable natural disasters, aftermath of fatal conflicts, and humanitarian crises, the need for effective and efficient responses in HADR operations has become paramount. Air power stands out as a critical asset among the various tools available to respond swiftly and provide aid in such situations. Air power utilisation, including both fixed-wing aircraft and helicopters, has proven to be instrumental in overcoming geographical barriers.

In the aftermath of a disaster, time is of the essence in saving lives and mitigating further damage. Air assets, such as transport aircraft and helicopters, enable the rapid transportation of essential personnel, equipment, and relief supplies to the affected areas.

Air Forces in the IOR can coordinate HADR (Humanitarian Assistance and Disaster Relief) operations by establishing clear communication channels, conducting joint training exercises, utilising advanced technology for situational awareness, maintaining a dedicated fleet of aircraft suitable for relief efforts- along with the support of naval vessels, and coordinating closely with civilian authorities.

AI and Drones

Artificial intelligence is making drones deadlier, efficient and more accurate. Militaries around the world are racing to utilise artificial intelligence to boost military capabilities and improve the efficiency of technologies. The military drone market is expected to surpass $100 billion by 2032, while international demand for these relatively cheap and increasingly effective weapons is increasing. New drones like Ghost Bat are already dominating the new spectrum of aerial combat. The Australian made Ghost Bat has a range of 3,700 kilometers and has been designed to fly as a partner with crewed Air Force platforms.

Drones have been a force multiplier and auxiliary support to air and missile warfare. Besides the military applications, drones are being increasingly used for logistics and cargo transportation, agriculture, security and surveillance and exploration. Some arms control advocates arguing that A.I. - controlled lethal weapons that do not have humans authorising individual strikes will transform the nature of warfighting by eliminating the direct moral role that humans play in decisions about taking a life.

Today advanced drones with a series of multi-sensor, multi-spectral, electro-optic and infrared (EO/IR) surveillance and targeting systems -support intelligence, surveillance, reconnaissance and target acquisition missions from platforms across the air, land and maritime domains. Intelligence is absolutely central to weapons, to policies, to strategic and tactical decisions and to overall military posture. Therefore intelligence is a pre requisite of any kind of offensive operation.

MR factor

Mixed Reality (MR) is an emerging technology that has the potential to change how we interact with the world around us. This technology, which combines aspects of both Augmented reality (AR) and virtual reality (VR), can be used for training purposes as well as actual operations on the battlefield. In combat operations, mixed reality (MR) technology can be used to significantly enhance a soldier's/pilots situational awareness by overlaying crucial information like enemy positions, terrain details, and friendly unit locations directly into their real-world view.

For the Air Forces in the IOR, a training session using mixed reality technology is more cost-effective than a conventional training session featuring real aircraft disassembly, and with this improved training, real maintenance is sure to be more accurate and reliable. High quality and fast aircraft maintenance contributes to warplanes' mission capable rate, which plays a significant role in combat capability.

Space frontier

Today, militaries all over the world rely on satellites for command and control, communication, monitoring, early warning, and navigation with the Global Positioning System. In the evolution of space power, satellite reconnaissance missions have evolved and expanded from strategic reconnaissance to the US military employing a range -space- based sensors to provide intelligence, surveillance, and reconnaissance (ISR) in support of operational and tactical military operations. Outer space is becoming a contest for supremacy. Co-orbital space weapons are satellites that are placed into orbit and then maneuvered to attack other satellites.

Governments and militaries worldwide have created institutions and programs specifically for air and space domains. Therefore, "peaceful uses" of outer space include military uses, even those which are not at all peaceful—such as using satellites to direct bombing raids or to orchestrate a "prompt global strike" capability. Missile defence allows countries to develop offensive technologies under the pretense of defense. Kinetic Energy Interceptors are missiles that are launched into space to take out enemy missiles by smashing into them.The weaponisation of space will destroy strategic balance and stability, undermine international and national security.

Forward march

Sri Lanka's strategic location along the East-West trade route is undeniable, making this island nation's geographical position it's most valuable natural asset. The evolving geopolitical landscape further positions the country as a potential flashpoint in the region. The IOR has emerged as a vital conduit for global connectivity.The IOR has emerged as the focal point of great-power competition.Fostering a network of regional partnerships and relationships is vital for Sri Lanka to maintain relevance in the global discourse on peace and shared prosperity.

Air Forces in the IOR must work together to enhance their effectiveness, which can manifest in joint combat and HADR training exercises. This must happen more frequently. Diplomacy also influences friendly nation's air power and maritime security doctrines- with the greater interest of the IOR states at heart. SLAF has been dedicated and effective as the nation's guardian of the skies. Finally the effectiveness of any Air Forces airpower comes directly from the power and zeal of its Officers, Airmen and Airwomen.