The Significance of Unmanned Ariel Vehicle (UAV) in Maritime Surveillance and Reconnaissance

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'Drone' has become a 'buzzword' in public discourse. The term has been popularized in mainstream media because of its extensive use in anti-terror operations in high-risk conflict zones worldwide. While colloquially the term drone is used more often, the technical term for such aircraft is 'Unmanned Ariel Vehicle' or UAV. Historically, UAVs have been deployed on battlefields for more than a century. UAVs' first known use for military purposes occurred in 1849 when Austria attacked Venice with an Unmanned Ariel balloon. Several types of UAVs were also in operation during the cold war. However, the UAVs became a regular element in warfare in the first Gulf War- a total of 522 drones were launched during the conflict over 1600 flying hours. Today, a third of the total aircraft are UAVs of different types. With the modernization of technologies, UAVs are rapidly replacing conventional aircraft. The implication of UAV deployment on the battlefield has become quite evident in the 2020 Nagorno-Karabakh war when Azerbaijani forces equipped with Turkish and Israeli drones secured a decisive victory over the strategically positioned Armenian forces in rugged mountainous terrain. It is quite possible that drones would be the primary weapon of warfare in the complex battlefields of future.

However, UAVs can serve multiple military purposes in both war and peacetime. One of the significant functions of UAVs is maritime surveillance and reconnaissance. There are specific types of drones that are designed to conduct extensive maritime

surveillance and mapping. The UAVS can gather critical data about security, IUU fishing, illegal activities and marine biodiversity in oceans. More importantly, these data can be collected using UAVs in a single mission. Maritime agencies globally are already using UAVS in large numbers. The European Maritime Safety Agency (EMSA) has deployed drones to support border control, pollution monitoring and the detection of illegal activities such as fishing and drug trafficking. Maritime industries are also utilizing drones for various security and surveillance purposes. Martek marine, for example, has established its own marine aviation division to detect and monitor marine pollution, illegal drug trafficking and illegal fishing activities.

In the military sector, the usage of UAVs has become extensive. The US military has built over the years the largest UAV infrastructure globally with weapon systems, datalink and advanced ground control. Currently, more than 9000 different types of UAVS are in operation with the US military. In particular, the US navy and marine forces employ UAVs for several military functions such as electronic attack, drone strikes, suppression or destruction of enemy air defence, network node or communications relay, combat search and rescue and intelligence gathering.

The US navy is already developing a next-generation fighter-sized Unmanned Combat Aerial Vehicle (UCAV) as part of the US Navy carrier demonstration (UCAS-D) programme. Other countries such as the UK, France, and China are also increasingly using their drone fleets for maritime operations. Even countries that previously lacked a sophisticated defence industry are significantly investing in UAVs. The Turkish drone program is a clear example. Within just a few years, the Turkish defence industries have developed a wide range of military drones. Their deployment in conflict zones of Syria, Libya and Caucasus have elevated Turkey's status as a 'drone superpower".

Three particular reasons can be identified for the recent fixation over drones: Firstly, the UAV are cost-effective means for surveillance and reconnaissance. An average military drone can cost about 4 million USD compared to an average fighter jet or maritime patrol aircraft, which may cost somewhere from USD 20 million to USD 400 million. For many cash strapped countries, UAVs thus provide an alternative to high-end hardware.

Secondly, UAVs' technology is relatively easy to obtain or can be developed domestically using indigenous technology. The necessary engineering know-how behind UAVs has become more available globally. Hence, any country with minimal industrial and scientific capability can build and maintain a sizeable drone fleet.

Thirdly, UAV deployment has drastically decreased the possibility of casualties in critical missions. During the Cold War era, reconnaissance flights were reasonably common but were dangerous nonetheless. From 1946-1990, 23 aircraft were lost, and 179 servicemen were killed during this kind of operations. However, with the advent of the drone age, the number of service members killed in those complex operations has been reduced considerably, thanks to drone warfare's remote nature.

Bangladesh has many potentials in using UAVs in military and non-military

sectors. We have a vast maritime territory of 1,18,813 sq. km. However, it is difficult for a developing country to monitor vast areas without adequate surveillance and reconnaissance systems. The lack of monitoring and surveillance can also precipitate a significant economic loss. Bangladesh is 47th on the list of countries prone to IUU fishing. Foreign fishing vessels are regularly poaching fish in Bangladesh's EEZ illegally.

Despite stern actions taken by Bangladesh Navy and Coast guard, it has been challenging to curb down illegal fishing activities. UAVs can resolve this issue for Bangladesh in a very cost-effective manner. Bangladesh has the technical and industrial capabilities to establish an indigenous UAV program. These UAVs can be used for both military and non-military purposes. These can be used to support surveillance and monitoring missions and scientific missions such as mapping the Bay of Bengal, gathering data to preserve bio-diversity and track the impacts of climate change.

Bangladesh has already drafted a law to regulate drone usage in the country. The draft Drone Registration and Flying Act 2020 has categorized the drones into four types. The military drones are placed in the fourth category, while drones under 5Kg are placed under category one. While the law is an excellent step to shape drone usage in Bangladesh, it has banned drones for commercial purposes. Such regulations for security purposes are warranted. Nevertheless, commercial actors should be allowed to use drones in a limited manner provided that they register their vehicles with relevant authorities and notify them about their flying hours. The commercial usage of drones by fishers, shipping companies and scientific organizations are economically beneficial, and it would encourage Bangladeshi entrepreneurs to develop a domestic drone manufacturing industry.

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