

CONSIDERATIONS ON COUNTERING THE ACTIONS AIMED AT BANNING ACCESS AND RESTRICTING FREEDOM OF ACTION (A2AD)

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ABSTRACT

Each state seeks to protect its territory from external threats using a wide range of forces and means, which combine the strike power with increased possibilities of detection given by the use of modern technologies. In this regard, we can see that some states have developed complex active and passive defense systems with the purpose of banning access and controlling certain key areas and aimed at both discouraging potential aggressors and protecting vital interests. For states with regional or global ambitions, the successful conduct of access operations in the area of operations, in a permissive, semi-permissive or hostile environment must be a priority. Access operations in a semi-permissive or hostile environment involve the use of tailored capabilities to deal with the opponent's defense system and to overcome A2AD's abilities.

KEYWORDS: anti-access, area denial, entry, operations, counter

1. Introduction

Prohibiting the access of the adversary to certain objectives or to his own territory and limiting his freedom of action have been concerns for military strategies throughout history. In all conflicts, the party trying to defend itself resorted to various tactics to block or delay the opponent. This is how the city walls, the defense ditches, the earth waves and other defensive systems appeared. Their characteristics were different, but their purpose was the same: to protect the territory and the population from the access of enemy forces. The way in which these defensive systems aimed at banning access were built was conditioned by the

technology of the time and was closely related to the characteristics of weapons and combat equipment, which for millennia had a range limited to tens or hundreds of meters. After the development of the air dimension, these defense walls became useless, and the attempt to limit access gained a new face. Thus, with the advent of long-range bombers and later with the advent of missiles that could hit targets hundreds or thousands of kilometers away, we can talk about the emergence of the modern concept of Anti-access, Area Denial (A2AD), which has in foreground strategic defense and protection of vital areas by banning access and restricting freedom of action. The concept can be

explained as a set of actions that aims “to prevent the attacker from bringing its forces into the contested region (A2) or to prevent the attacker from freely operating within the region and maximizing its combat power (AD)” or as actions aimed on the one hand “to inhibit military movement into a theatre of operations”, and on the other hand “to deny freedom of action within areas under the enemy’s control” (Schmidt, 2016).

2. A2AD System Aim

A2AD means integrating modern capabilities, using threat identification technologies, assessing them and hitting the targets remotely so that the defensive system is very difficult to overcome, and overcoming it comes with very high human and material costs, difficult or impossible to

accept. No state, regardless of its economic and military potential, can cover the entire territory with modern defense systems, so it can be seen that the emphasis is on securing certain areas of interest, choke points, strategic objectives, which gives rise to almost impenetrable area, real defensive bubbles at first sight, in which target detection and engagement systems cover a certain region with several complementary defensive layers. We can see these defensive bubbles around big cities, around important industrial areas or in strategic, tense areas, such as the Black Sea area, with the Crimean peninsula, the Kaliningrad enclave, the Baltic Sea (Williams, 2017), Taiwan or the South China Sea (Missile Defence Advocacy Alliance, 2018) (Figure no. 1 and Figure no. 2).

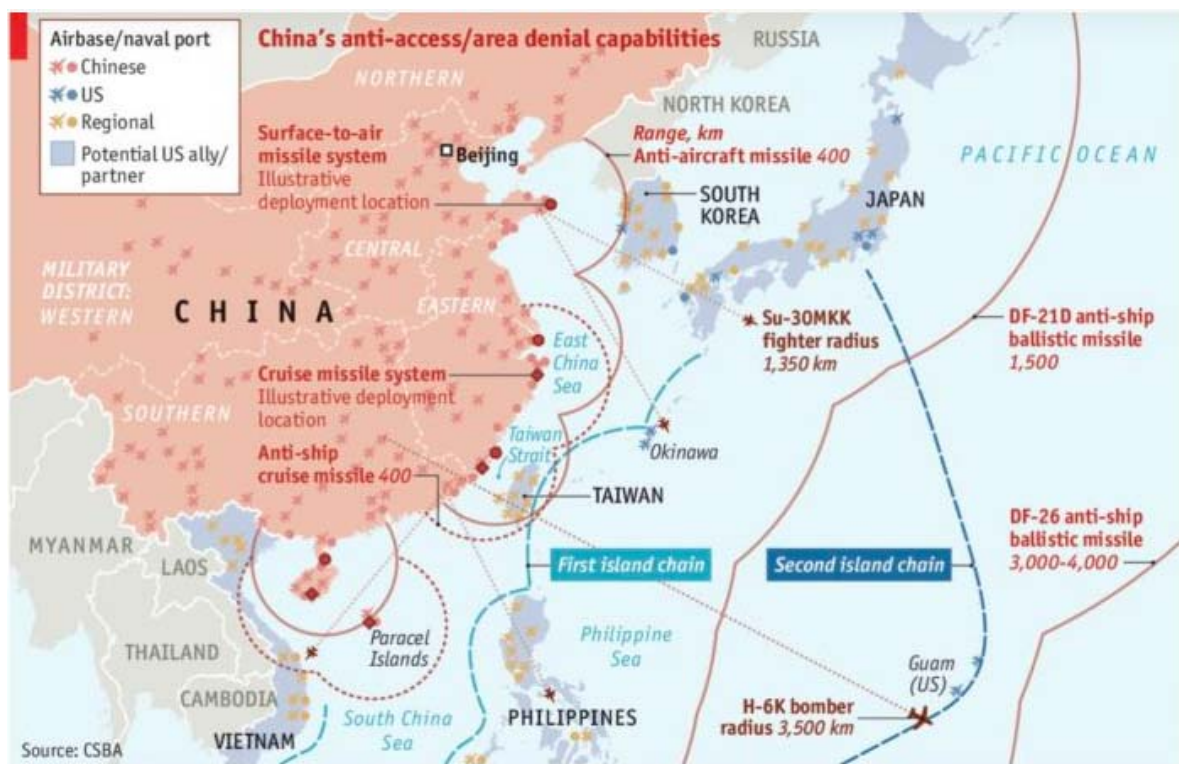


Figure no. 1: China A2AD capabilities

(Source: <https://www.c3sindia.org/defence-security/how-effective-is-chinas-a2-ad-in-the-south-china-sea-by-commodore-v-venugopal-rettd/>, accessed on 25 July 2021)

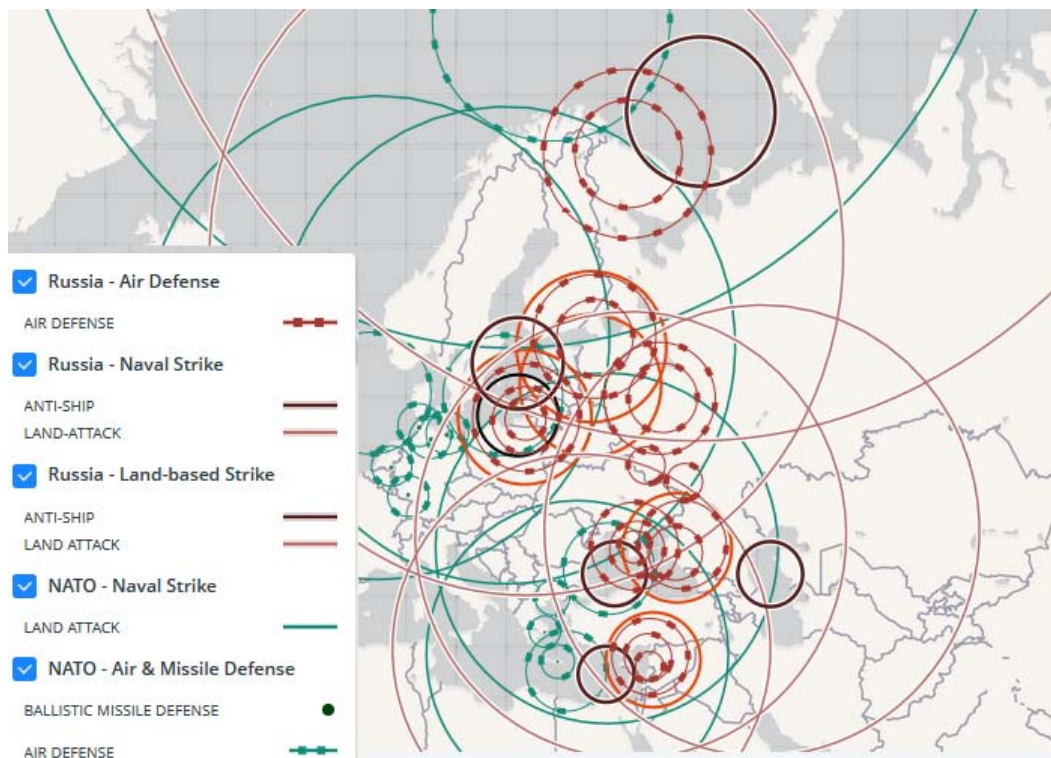


Figure no. 2: *NATO and Russia A2AD capabilities in Europe*
(Source: Williams, 2017)

These complex defensive systems have a mainly deterrent role, as a potential adversary is aware that in order to force access to a protected area they must take increased risks and oblige to the development of complex action strategies to counter them. The experience of the Second World War showed that no defensive system is impenetrable and that states are willing to even sacrifice large amounts of forces to achieve their goals, by launching successive waves of bombers to overwhelm the defensive system. With the advent of high-precision long range military systems, the risk of casualties was greatly reduced, and the war in Iraq proved that a well-planned action, beginning with the destruction of the opponent's ground and air defense system, although involves high financial costs, reduces greatly the subsequent war effort and enables the successful use of ground forces.

Each state develops its own ground and air defense system against major security threats, which also includes

elements of a basic A2AD system. States wishing to maintain their sphere of influence or prohibit the activities of other states in a given area, or which see neighboring states as a potential aggressor, will develop more complex A2AD systems to discourage any hostile action. Countries like the US, which have global interests and want to maintain their freedom of action on a global scale, will be much more interested in the possibilities of counteracting A2AD systems compared to other states, which have a purely defensive stance. For these reasons, we can identify states such as Russia, China, Iran or North Korea, which are interested in developing high-performance A2AD systems, to counter US influence and prevent them from intervening in their sphere of influence and not only for self defense and deterrence. Decreasing US influence in some areas has the potential to amplify regional instability and encourage some states to break established rules in an attempt to seize more power and influence. They can use A2AD's

capabilities to shield themselves from possible preventive or punitive attacks from the opponent or to block access to certain important areas, such as straits, canals, shipping lanes and other choke points, which can have significant regional or even global consequences.

States developing A2AD strategies consider the use of several tools, such as economic, information, political, diplomatic, and ultimately military, to reduce the possibility of other states intervening in their areas of influence because *“A2/AD crosses the span of a solely military response, overturning this challenge is complex and cannot be simply resolved”* (Lasconjarias, 2019, pp. 74-83).

These A2AD strategies are developed by states that have regional ambitions that they want to fulfill at any cost, even at the risk of entering into direct or indirect conflict with major global actors, or by “rebel” states, which thus want to protect themselves from possible punitive actions by neighbors or the international community. The development of A2AD strategies and capabilities can be aimed at

(Alcazar, 2012): strategic exclusion (eroding the trust of allies and partners in the US’s ability to meet its security commitments, by increasing the costs for the US to defend its partners in the event of a possible conflict), operational exclusion (limiting the use of capabilities in the early stages of conflict, which can have long-term effects), operational degradation (amplifying the effects by taking action in other areas, such as cyber, to affect both military and critical civilian infrastructure) and strategic exhaustion (by prolongation of military operations, lengthening of supply lines, vulnerability of supply lines, induction of human and material losses, blocking of forces to ensure the actions and protection of forces, etc.) (Figure no. 3). The means used to achieve the above objectives come from all operational areas and are used simultaneously, in a coordinated manner, to maximize effects, actions in the terrestrial, air and maritime environment being complemented by actions in the information, cybernetic, electromagnetic or space environment.

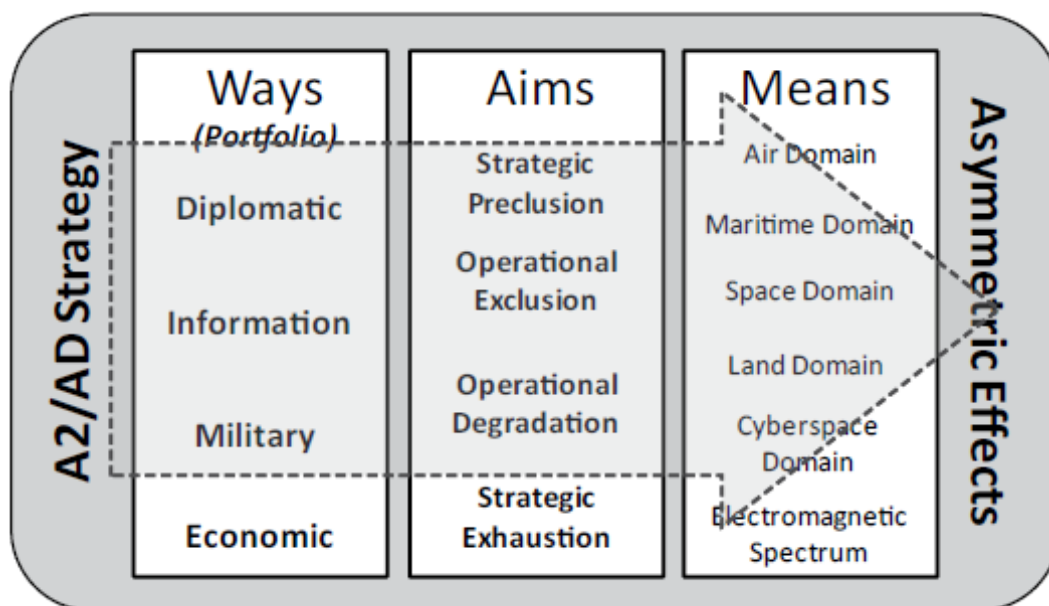


Figure no. 3: *Components of A2AD strategy*
(Source: Alcazar, 2012)

The A2AD capabilities developed by an opponent are not a guarantee that there will be no violent confrontation, but only involve taking increased risks if the situation escalates, as a possible attack will have much higher costs. The attacking state must have a well-developed plan that amplifies the advantages and reduces the efficiency of the opponent's defensive system, by neutralizing the opponent's surveillance elements, by synchronizing actions in several directions and in several plans/areas, by using attack systems with stealth capabilities, through the widespread use of electronic jamming and warfare systems, through the use of long-range precision hitting systems, through the use of prepositioned forces ready for action in a very short time or of the special forces, by using swarms of drones to carry out massive attacks, etc. Making it impossible for an army to gain access to an area means losing the ability to design its combat power and use the military instrument of power to achieve its objectives.

3. Countering A2AD Capabilities

A2AD capabilities are defensive capabilities that are developed to deter an aggression or to force the aggressor to accept high losses in the event of an attack. In order to annihilate the A2AD defense system, the attacker can resort either to massive attacks, which will overwhelm the defensive system, or to sustained actions, which aim at its gradual exhaustion. In the first case it is necessary to concentrate some impressive forces and means, in a limited space and in a short time, as well as to assume considerable losses. In the second case, it takes time to test the defensive system and to deplete the opponent's resources. In the first situation, high-performance weapons systems with high destruction capacity, high operating costs can be used, or cheap, easy-to-use and supply equipment without human crew can be used, with the possibility to act

autonomously. In this case we are talking about swarms of small drones, capable of operating synchronously, autonomously, with the possibility of transmitting and receiving data in real time via satellites and which can be replaced quickly, as they are lost in the fight (Adams, 2016).

In order to carry out entry operations into the theater of operations, it is necessary for states to make efforts to reduce the level of threat from the opponent, simultaneously with the deployment of a joint force in the theater of operations where, most likely, they will face A2AD capabilities aimed to make the operations of entering the theater difficult or expensive operations or even to ban them due to the high risks they present (Brustein, 2017).

The development of strategies to counteract the opponent's A2AD capabilities involves a sustained effort that must be carried out on several levels. Thus, action must be taken on the economic, political, diplomatic, informational and only then on the military plan. Nowadays, when we talk about A2AD we are considering a possible confrontation between NATO and Russia or between China and the USA in the Southeast Asia area. Regardless of the actors involved, the general situation is the same: a state that sees its interests endangered and its sphere of influence reduced, will take measures, especially in the military field, to discourage a possible continuation of the policy of encirclement or containment carried out by the adversary. In this sense, complex military capabilities with great destructive power and an appreciable range of action are developed, in order to make any attempt to intervene by force in a certain area impossible to conduct or to cause as high as possible potential losses to the opponent. These military means can be fixed or mobile, can be based on the ground or on air or sea platforms and also involve the use of the cyber or even space environment, in addition to the classic

confrontational environments. Countering the A2AD capabilities of these adversaries, in order to maintain freedom of action, involves, as mentioned above, sustained efforts in all domains and detailed action plans, taking into account even the conduct of forceful military actions, with important human and material costs. The military solution must, however, be the last solution considered. In order to counteract the actions in the field of A2AD, it is possible to act politically and diplomatically, by establishing partnerships with the states in the area, which will allow joint actions to be carried out, from several directions, forcing the state concerned to dissipate its forces and means. dealing with multidirectional threats. Starting from the idea that modern military capabilities are extremely expensive and that no state has unlimited possibilities, a potential deployment of military actions from several directions could quickly exhaust the possibilities of the opponent. Also, carrying out actions in the field of information, cybernetics, can reduce the power of reaction or can neutralize a part of the defensive system of the targeted state. In addition to cyber and information actions, supported by actions in the physical environment, it may also include the use of capabilities in outer space to make the opponent's weapon systems inoperable or to detect the position of weapons systems and their use. However, these actions imply the existence of a state of tension and even a state of conflict between countries, which means that there is also a risk that the situation will escalate and the threatened country will resort to all means, including weapons of mass destruction to defend itself. If this scenario, of a confrontation between states with nuclear capabilities, is unlikely also due to the consequences on a global scale, the same cannot be said about a potential conflict between a state or an alliance and an adversary with only conventional capabilities, but which has

developed possibilities for action in the field of A2AD. In the event of such a confrontation, we will see in the first phase a concentration of actions to neutralize the capabilities of detection and remote targeting of the opponent, as was the case of the Gulf War, when through aviation and missiles was neutralized the defensive system of Iraq, subsequently large-scale ground, sea or air operations may take place. This tactic involves very high costs, as each long range precision missile costs millions of euros, and their widespread use may not be an option, just as the use of attack drones may not allow the defensive system to be oversaturated. In this sense, swarming tactics can be used, involving small, relatively cheap drones, which act synchronously in certain areas and against certain targets, in order to overload the defensive system and cause the depletion of its resources. To support this idea, we can discuss the actions taken by Hamas against Israel (Roblin, 2021) in 2021, when thousands of cheap missiles were launched, with reduced accuracy and range from the Gaza Strip to exhaust and at the same time to test the Israeli defense capabilities represented mainly by the Iron Dome. The Israeli anti-missile shield, which can be considered a manifestation of A2AD capabilities, has withstood these attacks and protected Israel's territory from this threat. Starting from this situation, we can imagine a scenario in which a state or an organization with economic or military potential, develops an attack system based on autonomous drones or controlled by human operators, with medium range, which have reduced costs of acquisition and operation and are to be used in coordinated attacks against the defense systems of different states.

As the development of A2AD capabilities is not only an obstacle to states with offensive ambitions, but can also be a way to limit legitimate access to a certain area, such as the Baltic area, where Russia's

capabilities may prohibit the movement of NATO forces into the alliance maritime and air space, different ways of counteracting A2AD systems have been identified (Dalsjö, Berglund & Jonsson, 2019), such as the possibility of using direct or indirect methods of counteracting, which must be adapted to the specific situation. Indirect methods include: prepositioning forces and materials to reduce the need for reinforcement or supply in the early stages of a crisis, choosing less vulnerable transport routes outside the radar and missile range of the opponent, increasing the capacity and speed of logistical support forces, use of non-military means of deterrence, such as sanctions, embargoes, etc.

Direct methods of counteracting can be active or passive and aim to affect the A2AD system at different times of the functional cycle. Specialists identify as active methods of counteracting the camouflage of ground units and the use of stealth abilities, which makes them difficult to identify, track and hit, dispersing forces and command and control systems, frequently changing their position to make them difficult to track and to hamper the process of acquiring and hitting targets, strengthening fixed installations and critical infrastructure and redundant systems, controlling electromagnetic emissions, etc. Active countermeasures include: jamming of radars and command and control networks, use of physical or electronic baits to mislead radars and represent false targets for interception systems, penetration of computerized surveillance and control systems using cyber capabilities, the use of remote hitting systems or special forces to neutralize or disrupt certain components of the system, which are less protected or which are in the depths of the opponent's territory, to disrupt the entire system, etc. To hit the elements of the A2AD system, mainly air forces and long-range missiles are used, but depending on the characteristics of the area,

other engaging systems can also be used, such as surface or submarine ships, long-range artillery or even special forces and special reconnaissance elements located in the depth of enemy lines. In order to make these actions more efficient, operations aimed at decommissioning elements of the A2AD system, in particular fixed ones, can be prepared in advance by gathering detailed information about the target, carrying out exercises and training in similar areas or even in replicas of objectives, a list of priority targets to be engaged according to the capabilities available can be prepared, etc.

4. Conclusions

Although we have not witnessed violent confrontations between states or groups of states in recent decades, but have seen mostly low-intensity, asymmetrical confrontations against terrorism or insurgency, it is very likely that in the future we will witness large-scale military operations between regional or global actors, as a result of attempts to restore or to change regional or world order. Under these conditions, it is very likely that we will witness some *“joint forcible entry operations with the aim to seize and hold lodgments against armed opposition”* (Joint Chief of Staff, 2017, p. I-1), as a preparation for broader actions. The forces conducting these entry operations into the theatre of operations must be prepared to overcome the opponent's A2AD system by using all available capabilities, in all areas and in all confrontational environments, simultaneously and in a coordinated manner. No system that seeks to prohibit access and restrict freedom of action is impenetrable, but offensive forces must be prepared to act in a complex, risk-taking context with the utmost determination to overwhelm the opponent's defense system and to obtain and exploit the initiative and to ensure a continuous and sufficient flow of forces.

REFERENCES

Adams, E. (2016). *DARPA's Developing Tiny Drones That Swarm to and from Motherships*. Available at: <http://www.wired.com/2016/04/darpas-developing-tiny-drones-swarm-motherships/>, accessed on 27 July 2021.

Alcazar, V. (2012). Crisis Management and the Anti-Access/Area Denial Problem. *Strategic Studies Quarterly*, Vol. 6, No. 4, 42-70, available at: <https://www.jstor.org/stable/10.2307/26270566>, accessed on 15 July 2021.

Brustein, C. (2017). Entry operations and the future of strategic autonomy. *Focus strategique*, No. 70 bis, 11-22.

Dalsjö, R., Berglund, C., & Jonsson, M. (2019). *Bursting the Bubble, Russian A2/AD in the Baltic Sea Region: Capabilities, Countermeasures, and Implications*. 46-48.

How effective is China's A2/AD in the South China Sea; Commodore V. Venugopal Retd. Available at: <https://www.c3sindia.org/defence-security/how-effective-is-chinas-a2-ad-in-the-south-china-sea-by-commodore-v-venugopal-retd/>.

Joint Chief of Staff. (2017). Joint Forcible Entry Operations. *Joint Publication 3-18*, p. I-1.

Lasconjarias, G. (2019). NATO's Response to Russian A2/AD in the Baltic States: Going Beyond Conventional?. *Scandinavian Journal of Military Studies*, Vol. 2, Issue 1, 74-83.

Missile Defence Advocacy Alliance. (2018). *China Anti-Access Area Denial*. Available at: <https://missiledefenseadvocacy.org/missile-threat-and-proliferation/todays-missile-threat/china/china-anti-access-area-denial/>, accessed on 27 July 2021.

Roblin, S. (2021). *How Hamas' Arsenal shaped The Gaza War of May 2021*. Available at: <https://www.forbes.com/sites/sebastienroblin/2021/05/25/how-hamass-arsenal-shaped-the-gaza-war-of-may-2021/?sh=7d992ed479df>, accessed on 27 July 2021.

Schmidt, A. (2016). Countering Anti-Access / Area Denial. *Transforming Air Joint Power*, Edition 23, available at: <https://www.japcc.org/countering-anti-access-area-denial-future-capability-requirements-nato/>, accessed on 27 July 2021.

Williams, I. (2017). The Russia – NATO A2AD Environment. *Missile Threat*. Available at: <https://missilethreat.csis.org/russia-nato-a2ad-environment/>, accessed on 27 July 2021.