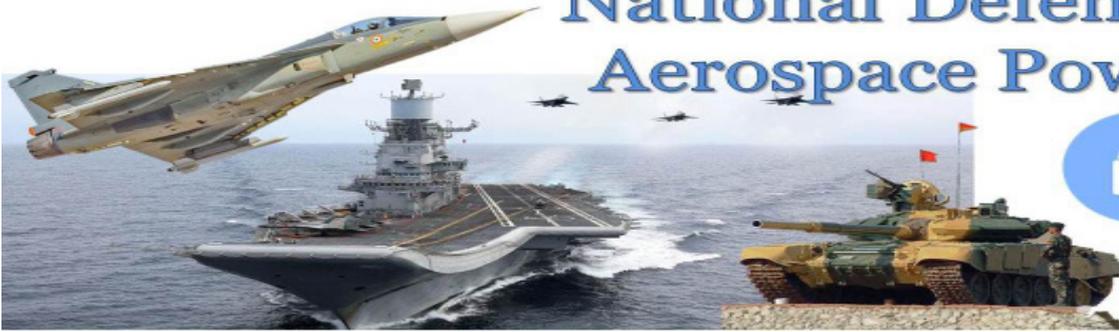




National Defence & Aerospace Power



DEFENCE OF TAIWAN – COMPLEXITIES AND CHALLENGES

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With Russia invading Ukraine and the attention of the West on Europe, there is an increased speculation if the People’s Republic of China (China) could invade the Republic of China (Taiwan).¹ Any invasion would mean crossing the Taiwan Strait, which is 128 km wide at its narrowest point. The invasion would involve an amphibious task force landing and transport of soldiers, armoured vehicles, artillery, ammunition, fuel, food, and medical supplies. Before all this could be done, China would have to run an air and surface campaign to suppress enemy air defences (SEAD). The island would have to be pulverized by a heavy attack.² After securing some parts of the island, airlifts would follow. The invasion would require a significant amount of preparation and training. The most important activity for Taiwan would have to be air defence against such an invasion.³

With Russia invading Ukraine and the attention of the West on Europe, there is increased speculation if the People’s Republic of China (China) could invade the Republic of China (Taiwan).

Chinese aircrafts have been making repeated incursions into Taiwanese territory, which have become a common occurrence over the past two years. On May 6, 2022, China sent 18 warplanes,⁴ including fighters and bombers, into Taiwan’s air defence zone. This was the second-largest incursion this year. Earlier, 39 warplanes entered Taiwan’s air defence identification zone (ADIZ) on January 23, 2022.⁵ China has unilaterally extended its ADIZ and now overlaps with parts of Japanese and Taiwanese ADIZs. Taiwan scrambled aircraft to intercept and activated the air defence missile systems to track the intruders.

Airspace Sovereignty

Airspace sovereignty is a nation’s exercise of absolute control and authority over the airspace above its territory. This is done through surveillance and control. Airspace

sovereignty and regulatory aspects are covered by the International Civil Aviation Organization.⁶ It covers an area up to 12 nautical miles into territorial waters. Notwithstanding the fact that China claims Taiwan as its territory under the ‘One China’ claim, Taiwan does exercise airspace sovereignty over its territory.

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Early Warning

For any air defence system to be able to react, early warning is crucial. This can be provided through human or electronic intelligence, or from surface and space-based sensors. In the region around Taiwan, the U.S. military shares alerts with its allies, including Taiwan. On an average, 100 U.S. officials, including military personnel, visit Taiwan each week.⁷ Taiwan also has a network of ground-based and ship-based radars and airborne radars. The military radars are coordinated with civil air traffic radars. Some long-range radars can track PLA flight activity from hundreds of kilometres away. Taiwan has some of the highest elevations in the Indo-Pacific region, going up to 3,952 m.⁸ It is thus able to position its radars and get greater detection ranges. Sufficient early warning allows time for various air defence elements, including fighter aircrafts, to react and thwart the adversary threat. Taiwan has also had the U.S. PAVE PAWS radar⁹ since 2013 that can detect PLA ballistic missile launches from thousands of kilometres away. The U.S. Taiwan Relations Act (TRA) states that “the United States shall provide Taiwan with arms of a defensive character and shall maintain the capacity of the United States to resist any resort to force or other forms of coercion that would jeopardize the security, or social or economic system, of the people of Taiwan.”¹⁰ Nevertheless, how much physical support the U.S. will actually provide to Taiwan in case of an attack by China will have to be seen.

PLA’s Coercive Actions

For the last few years, China has been making aggressive air and maritime forays into Taiwanese territory and creating conditions and preparing grounds for a smooth transition from peace to war. Such coercive ‘gray-zone’ operations would make it difficult to assess the intensions and timing of the actual assault. This graduated form of escalation not only keeps Taiwan on tenterhooks with fear of uncertainty but also raises risk. The PLA’s show of force also sends signals to Taiwan’s backers that China could soon indulge in an air and/or maritime blockade and annexation.¹¹ Knowing Western sensitivities and military deployments, China has maintained its actions below the threshold of irking the USA. Yet, irritating the Taiwanese people and their friends in the U.S. and neighbourhood are part of the coercive action.

Blockade – The First Military Action

Any military action would begin with a maritime blockade that could physically cut off Taiwan from the world.¹² An air blockade could mean establishing air supremacy and a no-

fly zone over Taiwan. It would require a multi-domain attack through electromagnetic spectrum control and cyberspace to cripple Taiwan's command and control system. Next, it would attack strategic-level targets by hitting critical infrastructure to weaken the will of the people and leadership, and forcing a political solution. This would require huge mobilization and is easier said than done. Another option with China could be a pre-emptive surface missile attack to test the reaction.

For the last few years, China has been making aggressive air and maritime forays into Taiwanese territory and creating conditions and preparing grounds for a smooth transition from peace to war.

But it would be tantamount to a full-scale conflict and would face a military response. Regularly crossing the Taiwan Strait's maritime centerline, conducting show-of-force 'island encirclement air patrols,' and deliberate infringements into Taiwan's ADIZ are being resorted to for the time being.¹³ The aim currently is to follow Sun Tzu's Art of War dictum, "The supreme art of war is to subdue the enemy without fighting."

One China Policy Restrictions on Taiwan

Under this policy, the US recognises formal ties with China instead of Taiwan.¹⁴ China sees Taiwan as a breakaway province to be reunified with the mainland one day. By committing most countries of the world to a "One China" commitment, Taiwan has been isolated from many global agencies. Taiwan is not a member of the United Nations (UN) or its sub-organizations.¹⁵ It also means it does not qualify for many protections. China, being part of the P5, has the veto power in the UN Security Council and hence refuses any cross-strait negotiations. China has also prevented foreign military bases in Taiwan and the deployment of nuclear weapons.

The PLARF Threat

The PLA Rocket Force (PLARF) is one of the most significant threats to Taiwan. The PLARF operates both nuclear and conventional ballistic and cruise missiles. For long, the Intermediate-Range Nuclear Force Treaty¹⁶ had put restrictions on the deployments of U.S. and Soviet ballistic and land-attack cruise missiles up to a range of 5,500 kilometres. China was not part of the treaty, but with the discontinuation of the treaty, the dynamics in the region have changed. China has responded by qualitatively and quantitatively upgrading its PLARF conventional and nuclear forces. The PLARF's conventional missile forces cover all ranges between 700 to 3,000 kilometres. The numbers are significant and are going up. Moreover, hypersonic weapon systems have also been tested and are being made operational, which complicates the defence of Taiwan.

PLA's Significant Military Assets

China has built a great defensive missile force for anti-access/area denial (A2/AD).¹⁷ They have indigenous anti-ship ballistic missiles. They have also erected a mock-up of a US aircraft carrier at a field firing range for test attacks.¹⁸ Increasingly sophisticated

weapons, such as anti-ship missiles with longer ranges, can now take on offensive roles, bringing the fight to China's enemies. The assault and transport ship capacities are going up. The fusion of civil and military assets will bring in inter-island ferries as troop transports.¹⁹

Conscious of Chinese incursions, Taiwan regularly exercises its early warning system. Taiwan also tries to enforce monitoring and control in its ADIZ.

Airpower would be very important for the invasion.

The PLA Air Force (PLAAF) has now inducted China's own stealth fighter, the J-20. Unmanned Aerial Vehicles (UAV) are engaged in sea surveillance and reconnaissance, and act as communication relays. The PLAAF now also has airbases closer to Taiwan, giving it significant strike capability. It will participate in the suppression of Taiwan's defences so that it can operate with impunity. This would be an important pre-condition for the maritime blockade and any amphibious invasion. PLAAF and PLA Naval Aviation can field over 2,000 aircraft. New aircraft carriers are being built, of which two are already operational. They are working on nuclear powered ones and target to have six carrier strike groups by 2035.²⁰ PLA is already working to enlarge amphibious capability from 20,000 to 100,000 troops²¹ and many transportation and landing ships.

PLA's Non-Kinetic Threat to Early Warning

For some time now, the PLA has been working for electromagnetic spectrum superiority to support military dominance in all domains. Attacking and disrupting the adversary's early warning and control systems is a priority area. Simultaneous cyber and electromagnetic attacks would reduce Taiwan's warning and reaction time. China is creating unmanned systems to take on Taiwan's air defences and U.S. carriers.²²

Taiwan's Early Warning System

Early warning is critical to threat assessment and appropriate response. It also reduces the impact of airstrikes through passive and active air defence measures. Conscious of Chinese incursions, Taiwan regularly exercises its early warning system. Taiwan also tries to enforce monitoring and control in its ADIZ. The Sino-American Mutual Defense Treaty²³ is a defence pact between the United States and the Republic of China (Taiwan) effective from 1955 and later carried over to the Taiwan Relations Act of 1979. The Republic of China Air Force (ROCAF) radars and other sensors track all aircraft within Taiwan's ADIZ. Interception actions are initiated against any unidentified aircraft. The western boundary of the ADIZ is the centerline of the Taiwan Strait. Taiwan is also a beneficiary of the U.S. Space Command's shared Early Warning system. In addition to the surface radars, including many installed on high mountain peaks, Taiwan has six Airborne Early Warning (AEW) platforms, each with a 500 km detection range which gives greater detection reach into Chinese territory. Taiwan's early warning and control system is depicted in Figure 1.

Figure 1: Areas of Russian military control in Ukraine

Source: Project 2049 Institute.

The U.S. Military Assistance

Prior to 1979, the U.S. Military Assistance Advisory Group-Taiwan²⁴ was the central hub for planning, coordinating, and executing defense cooperation initiatives. Of late, the U.S. Congress has been pushing for more support for Taiwan's defensive preparedness. The newly introduced Taiwan Deterrence Act and Arm Taiwan Act²⁵ would authorize US \$2 billion and US \$3 billion a year, respectively, in foreign military financing for Taiwan. Taiwan can now procure secure communications, coastal defense cruise missiles, missile boats, loitering munitions, and mobile air defences. Taiwan is also increasing indigenous defence production. Unlike Japan and South Korea, there are no U.S. military personnel stationed in Taiwan. Maybe the USA needs to arrange for Taiwanese armed forces training at allied bases in the region. Also, funnelling the resources, advice, and training would be important. The Taiwan Relations Act makes it incumbent on the United States to maintain the military capacity to defend the island. Some are suggesting having a U.S. Taiwan Defense Command headquartered elsewhere and some forward elements in Taiwan. This can be done by maintaining strategic ambiguity, yet giving a level of assurance. All actions would have to be kept sensitive to the U.S. 'One China Policy'.

The Biden Administration has revealed its security assistance policy for a new era of great power competition²⁶ and underscores how the United States was "working with Taiwan to strengthen the island's defence and deterrence." Since 2017, the United States has provided US \$18 billion in security assistance that includes arms, equipment, and training.²⁷

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Strengthening Taiwan's Military

The U.S. and its allies have to strengthen Taiwan's military for effective resistance, defence, and retaliation. The Taiwanese Air Force has over 400 fighter aircraft, of which nearly half are 4th generation plus upgraded F-16s and French Mirage 2000 fighter jets. A credible defence strategy and concepts have to be put in place. The U.S. must support Taiwanese war planning and build tacit links with the U.S. Indo-Pacific forces. The U.S. and Taiwan should work towards a common operational situational awareness picture of all domains. Building resolve and resiliency, in addition to military defensive strength against Chinese aggression, are most important to save Taiwan. Taiwanese people must know that they are not alone. They must have the capability and military strength to absorb the initial missile barrage. There is a need to rebuild credible deterrence so that China knows that there is no 'winning without a costly fight'.

Japanese military planners have been factoring that any military action against Taiwan would draw in Japan, because if Taiwan goes, some Japanese islands will be the next target.

Cyber-attack Defence

Defence of military and civil networks from cyber-attacks will be critical. Taiwan faces nearly 20 to 40 million cyberattacks every month.²⁸ Taiwan says it has been able to defend against the overwhelming majority of attacks. Taiwan's cyber force, though very small compared to China's, is well prepared. Taiwan cannot let the PLA overwhelm its communications, banking, and power grids or penetrate the air defence network. Taiwan now has a new cybersecurity agency, especially prepared to take on Chinese cyber-attacks.

Support by Japan

As China continues to intrude into the Japanese and Taiwan ADIZ, Japan has beefed up its military presence and is coordinating with Taiwan. Japan pledges to defend Taiwan if China attacks.²⁹ It is trying to fortify its southernmost islands. Japanese military planners have been factoring that any military action against Taiwan would draw in Japan, because if Taiwan goes, some Japanese islands would be the next target. Japan has significant armed forces and their defence budgets are going up, as are investments in more offensive weapons.

Make it Prohibitive for China to Invade

Ukraine has shown that any invading force would still have huge challenges to overcome. Team Xi Jinping must have been drawing lessons from there. Like Ukraine, Taiwan will not be a walk-over. Yet, fast modernizing and growing PLA must not be taken lightly. This, combined with the resolve of the ambitious Xi Jinping, makes a dangerous cocktail. The aggressive air and maritime patrolling and incursions into Taiwanese territory are also of concern. The standalone military asymmetry between the two sides is huge. Any invasion would require a huge preparation and build up.

Any invasion of this scale will require a lot of training and dummy runs. A huge sea fleet would have to be assembled, which cannot be hidden. Such a fleet would move slowly and

would be very vulnerable to airstrikes and submarines. Some suggest that nearly 400,000 troops may have to be transported. Chinese troops would be vulnerable during both embarkation and disembarkation. China would have to seize Taiwanese airfields for air-land forces. Before that, the air defences would need to be suppressed. A highly urbanized country will pose operational hurdles and will require a totally different fighting approach. If China decides to take over some of the many smaller islands before the actual assault, it will expose its plans and will invoke global wrath. In any case, some of the larger islands have strong defences. Since the entire Taiwanese defence budget goes towards defensive systems, that is where their strength lies. The defence of ports and airports would be important. Taiwan's defence budget is focused on China. The Taiwanese Air Force has logistics and maintenance backup for high-tempo operations.³⁰ The air force aircrafts are well defended in hardened shelters. In some cases, aircrafts take off and land from wide tunnels cut into the mountainside. They also have good runway repair capability and can recover one in less than three hours. Taiwanese command and control centres are also underground and well protected with backup centres. The military carries out regular training exercises, including take-offs and landings from highways. The Taiwanese air defence network is also linked with the US Indo-Pacific Command for early warning purposes.

Early warning and military surveillance are crucial for Taiwan. Airfields will be important initial targets, and the same must be defended. Strong air defence capability is the next most important aspect.

The U.S. has significant assets nearby on the Japanese island of Okinawa and in other parts of the region. The US Air Force fighters are less than an hour away. The US Seventh Fleet is also based in Japan. The U.S. normally has an aircraft carrier group in the region. Two additional carriers would move closer if a conflict is imminent. There are also many cruise missile-carrying ships.

Despite the great advantage of military numbers and modern equipment, the PLA would still struggle to take the island.

Way Ahead

China poses an existential threat to Taiwan. A full-scale amphibious invasion is very much a possibility. However, timing would be an issue. The PLA's show of force will continue until then. Aerospace and maritime power will be the main coercive instruments. The graduated blockade could be the next level of coercion. Physical destruction of Taiwan's early warning command and control systems using air and missile strikes will be the next stage of escalation. The final step would be an amphibious assault and invasion.

Early warning and military surveillance are crucial for Taiwan. Airfields will be important initial targets, and the same must be defended. Strong air defence capability is the next most important aspect. Taiwan has what they call a 'porcupine' strategy,³¹ wherein, the island is punctuated with defensive systems.

Clearly, Xi Jinping and China's military have Taiwan's reunification as priority number one. Any invasion would be colossal in scale. The massive preparation for it cannot be concealed. Finally, there would have to be boots on the ground, requiring a huge logistical chain. Even in Ukraine, where a land offensive could be launched from three sides, the Russians have got severely bogged down. It will be much more complex for an island assault. Also, the U.S. is much more committed to Taiwan's defence. It is hoped that Taiwan will not be left to fight alone, and that the U.S. will intervene with full intent and robust force.

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