

Repelling the Dragon

Prioritizing Taiwan's Capabilities to Repel a PRC Invasion Force

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Abstract

The People's Republic of China has consistently claimed sovereignty over Taiwan and desires reunification. Until recently, however, the PRC did not have the means or the will to force reunification. The rejuvenation and strengthening of the People's Liberation Army in the twenty-first century increase the possibility of forced reunification after a military invasion. This article investigates capabilities Taiwan should prioritize to repel such an invasion. Based on an analysis of three stages of a hypothetical PRC invasion (blockade and bombing, amphibious invasion, and island combat operations), Taiwan should maximize its ability to withstand and repel the amphibious invasion phase of any operation by prioritizing mines and minelayers, antiship missiles, and mobile long-range artillery systems.

Introduction

At the end of 1949, Chiang Kai-shek led the remnants of the Republic of China (ROC) to the island of Taiwan. Still claiming legitimacy over all of mainland China, the Republic in reality occupied one island measuring approximately 235 miles by 85 miles, plus a few island groups closer to the mainland. The People's Republic of China (PRC) now ruled the mainland and has since claimed authority over Taiwan. For 70 years, the PRC has dreamed of "reuniting" Taiwan to the Chinese homeland. Until recently, however, the PRC lacked the means and the will to force reunification. Since 2000, there has been a rejuvenation and strengthening of the People's Liberation Army (PLA), especially since 2016 with President Xi Jinping's reorganization and modernization efforts.

Today, Taiwan has grown into a prosperous, free society yet remains under threat of a PRC invasion. This analysis investigates capabilities Taiwan should prioritize to repel such an invasion. Background information summarizes the likelihood of a future conflict by reviewing PRC policies and a brief history of crises occurring since 1949. Policies of the United States follow a review of recent Taiwan government actions concerning independence. A *hypothetical* PRC inva-

sion unfolding over three stages (blockade and bombing, amphibious invasion, and island combat operations) provides a framework for analysis.

The main section of this article provides an analysis of different aspects of each phase of the invasion. After providing assumptions that bound the scenario, a phase-by-phase analysis includes the following: challenges the PLA must overcome; Taiwan's preparations; PLA strengths and weaknesses; and prospects for a Taiwan victory. Finally, this article provides recommendations for capabilities Taiwan should prioritize to avoid PLA strengths and to take advantage of PLA weaknesses or vulnerabilities. Through this investigation, I assert that, to prepare for a future conflict with the People's Republic of China, Taiwan should maximize its ability to withstand and repel the amphibious invasion phase of any operation by prioritizing mines and minelayers, antiship missiles, and mobile long-range artillery systems.

Background

Possibility of a Taiwan Invasion

Understanding the possibility of a PRC invasion of Taiwan requires an understanding of the history between the two actors as well as their policies toward reunification or independence. The possibility of a PRC invasion of Taiwan is not a twenty-first century issue. Congressional Research Service Asian specialists Susan Lawrence and Wayne Morrison state: "The PRC views the issue of Taiwan as unfinished business from the 1945–1949 civil war."¹ On October 1, 1949, the Chinese communists viewed themselves as victors over all of the Republic of China "with no change in territory, meaning that the PRC includes Taiwan."² The PRC planned an invasion of Taiwan and other pockets of resistance but were limited by lack of amphibious transport and air superiority.³ Continual PRC invasion planning and frequent delays due to preparedness followed, along with interruptions by a series of crises with the Republic of China on Taiwan and the United States.

The first of these crises occurred in late 1954, when the PRC began bombing the Dachen Islands, a group of Taiwan-held islands approximately 200 miles north of Taiwan. After a PRC occupation of the northernmost island in early 1955, Chiang Kai-shek unsuccessfully appealed to US president Harry Truman for support against the PRC, but the United States assisted only in the ROC's eventual evacuation and surrender of the islands to the PRC. Amid this crisis, the United States and Taiwan signed a mutual defense treaty ratified by the US Senate in February 1955. The partners tested this mutual defense treaty during a second crisis in August 1958 when the PRC began an artillery bombardment of Kinmen Island, only a few miles from the Chinese coast near Xiamen. Although

the United States did not directly engage Chinese forces, Taiwan was materially supported with artillery, air-to-air missiles, and naval escort of supply convoys to Kinmen. Under heavy losses in the air and on the ground, Mao Tse-tung ordered a cease-fire on October 6, 1958.⁴

It would be almost fifty years before the third (and nominally last) “Taiwan Crisis.” In 1992, the newly elected Taiwan president, Lee Teng-hui, a member of the Chinese Nationalist Party (KMT), announced that the Republic of China would no longer claim sovereignty over mainland China. The PRC saw this as “an indirect declaration of independence.” After Lee visited his alma mater, Cornell University, in 1995, the PRC conducted a series of ballistic missile “tests” near Taiwan territories, as well as amphibious exercises through March 1996. Then-President Bill Clinton responded by sending two carrier strike groups near Taiwan as a show of support. Once again, the PRC backed down. Although resolved successfully, this crisis is important in that China, afterward, “began to sharply ramp up military spending on equipment and training.”⁵ This steady increase in military spending—to include modernization and increased focus on amphibious operations—has continued to the present time.

PRC policy throughout these events remained remarkably consistent. The PRC published the July 2019 PRC Defense White Paper, *China’s National Defense in the New Era*, specifically to help “the international community better understand China’s national defense.”⁶ A blunt warning is contained in the section titled “China’s Security Risks and Challenges Should Not Be Overlooked.” The first security threat discussed is Taiwanese independence, characterized as “the gravest immediate threat to peace and stability.”⁷ The PRC identifies complete reunification of the country as a fundamental interest necessary for Chinese national rejuvenation. To reinforce the warning, the paper explicitly states: “China resolutely opposes any attempts or actions to split the country and any foreign interference to this end. China must be and will be reunited.”⁸ The “6 Any” statement follows: China “will never allow the secession of *any* part of its territory by *anyone*, *any* organization or *any* political party by *any* means at *any* time” (emphasis added).⁹ Finally, the PRC inserts a specific statement that China will not “renounce the use of force” and reserves “the option of taking all necessary measures.”¹⁰ The 2019 white paper leaves no doubt that China intends to reunify Taiwan with the mainland.

Reunification is not a recent policy change accompanying the rise of Xi Jinping. For example, in 1979 Deng Xiaoping emphasized a policy of “peaceful reunification” under the “one country, two systems” concept.¹¹ The 2005 PRC Anti--Secession Law states that Taiwan secession will result in the employment of “non-peaceful means and other necessary measures to protect China’s sovereignty and territorial integrity.”¹² The link to “territorial integrity” is important in under-

standing the importance of Taiwan to China's future plans.¹³ China sees Taiwan in the same manner as the United States views Hawaii or Alaska—a geographically separate but intrinsically connected part of the nation.

As stated above, the PRC views Taiwan independence as an existential threat to its territorial integrity; it represents a tripwire to the use of force to compel reunification. Has Taiwan increasingly moved toward or away from a declaration of independence? A review of the two most recent Taiwanese administrations shows that Taiwan is very aware of China's tripwire and has remained disciplined in avoiding any declarations or actions interpreted as declarations of independence.

Taiwanese voters elected the KMT's Ma Ying-jeou president in 2008. Although PRC-Taiwan relations under the Ma administration were complex, they were a general détente with the PRC and a move away from declaring independence. Ma's administration focused on "liberalizing cross-Strait relations."¹⁴ In 2010, his administration's efforts resulted in the Economic Cooperation Framework Agreement (ECFA) with the PRC. Ma felt that "reducing restrictions would not only bring more opportunity to Taiwan's economy but also persuade China to allow Taiwan to participate in additional regional agreements and become a fuller member of the global economy."¹⁵ The United States generally supported both the ECFA and President Ma while welcoming a reduction in cross-strait tensions.¹⁶

The Democratic Progressive Party's Tsai Ing-wen's election in 2016 resulted in increased tensions. Following her election, the PRC broke off formal communications until she accepts the 1992 Consensus with which China justifies its "One-China" policy.¹⁷ Tsai has "called for China to respect Taiwan's democracy" without preconditions for negotiations.¹⁸ She has "embraced the cross-strait status quo" but refuses to acknowledge the One-China principle.¹⁹ The PRC has responded with soft-power initiatives and hard-power threats.²⁰ The PRC has increased the number of aircraft flying near Taiwan, as well as naval vessels circumnavigating the island. When added to events in Hong Kong, this pressure likely swayed Taiwanese public opinion contributing to Tsai's reelection as president in January 2020. The terms "centrist" and "pragmatic" characterize the Tsai administration as she stands firm against the PRC without crossing the tripwire.²¹

The United States also stands firm but strives not to cross the tripwire or cause Taiwan itself to cross it. According to the US Department of State, the official US-Taiwan relationship remains "unofficial."²² The United States "insists on the peaceful resolution of cross-Strait differences, opposes unilateral changes to the status quo by either side, and encourages both sides to continue their constructive dialogue on the basis of dignity and respect."²³ More explicitly, the United States does not support Taiwan independence.²⁴ Policy toward Taiwan is defined in the 1972, 1979, and 1982 US-PRC joint communiqués, the 1979 Taiwan Relations

Act, and President Ronald Reagan's 1982 "Six Assurances" to Taiwan.²⁵ The specific wording of these documents leaves much room for political maneuver, however.

The United States' policy toward Taiwan is best known as "strategic ambiguity."²⁶ Since 1979, the United States no longer has a mutual defense treaty with Taiwan, and policy is not definitive whether the United States will come to Taiwan's defense.²⁷ The Taiwan Relations Act declares the United States military will "maintain the capacity of the United States to resist any resort to force."²⁸ In addition, the United States retains the authority to conduct foreign military sales to Taiwan.²⁹ In summary, the United States supports the status quo between China and Taiwan; encourages cross-strait, peaceful resolution of issues; maintains a program of supporting Taiwan military forces through the provision of defense equipment; but stops short of categorically stating it will engage in a military confrontation in the Taiwan Strait.

Stages of Hypothetical PRC Invasion

To best formulate recommended Taiwanese preparations for a future conflict with the PRC, the following invasion scenario provides a framework for discussion. The potential conflict could range from actions short of an invasion of Taiwan proper (e.g., an extended air and maritime blockade), to the use of limited force against Taiwan-occupied islands, or to a limited air and missile campaign to coerce change or reunification.³⁰ This article assumes, however, the PRC deciding to execute an all-out invasion of the island to force reunification. The People's Liberation Army's own writings label this the "Joint Island Attack Campaign."³¹ But what would be the objectives, and what form would this conflict take?

In his work *The Chinese Invasion Threat*, Ian Easton states there would be three main objectives of a Taiwan invasion. The first and most important objective is to "rapidly capture Taipei and destroy the government."³² Second, the PLA would need to "capture other major cities and clear out the surviving defenders."³³ Lastly, the PLA would need to "occupy the entire country."³⁴ A campaign to accomplish these objectives would need to be short enough to prevent the United States and other allies from coordinating and deploying a force to the area. More specifically, his research of PLA writings envisions three major phases: blockade and bombing, amphibious landing, and island combat operations.³⁵ The following leverages Easton's framework and analyzes the assumptions, challenges, strengths, and weaknesses of each side during each of these phases before making any recommendations.

Blockade and Bombing. The first phase of a PRC invasion operation aims to "cut the island off from the rest of the world."³⁶ This blockade and bombing phase will see significant cyber and information operations in addition to physical

means. An air and sea blockade are enacted to prevent the resupply of Taiwanese essential needs such as fuel, food, and energy.³⁷ Air superiority and sea control are necessary to enforce the blockades.³⁸ Taiwan will likely resist the imposition of these blockades via similar kinetic and nonkinetic means. Therefore, a bombing campaign to nullify Taiwan's air and sea power is necessary.³⁹

Kinetic strikes in this bombing campaign would likely start with ballistic missile attacks from the PLA Rocket Force. Initially, early-warning radars and infrastructure plus air bases and air defense systems will be targeted.⁴⁰ In addition, cruise missiles, antiship missiles, PLA Air Force-launched air-to-ground missiles, and mainland rocket launchers will join the strikes.⁴¹ Command and control facilities, communications nodes, and supply depots will be targeted.⁴² Government buildings such as the Presidential Office Building and key cabinet and ministry structures will also be targeted. The bombing campaign will continue to "soften up" Taiwan's defenses and "erode political resolve."⁴³

Officials in Beijing will decide if, and when, to proceed with the amphibious phase, so the duration of a blockade and bombing phase would be unknown. The PRC must weigh the chance of Taiwan surrendering to their demands without an invasion against the likelihood of American and other allied intervention.⁴⁴ The likelihood of Taiwan surrendering its sovereignty is low.⁴⁵ The odds of American intervention are unknown but likely to increase with time.⁴⁶ Therefore, this phase is expected to be as short and as intense as possible. Intensive bombing and blockades will continue until an amphibious invasion requires those forces.

Amphibious Invasion. The overall objective of the amphibious invasion phase is to establish multiple bridgeheads on the west coast of Taiwan, then hold them until follow-on reinforcements arrive.⁴⁷ The PRC must reinforce those bridgeheads faster than Taiwanese forces can converge.⁴⁸ Assault formations will assemble at multiple ports along the eastern Chinese mainland and board numerous amphibious assault ships. These ships will then assemble into flotillas for crossing the Taiwan Strait.⁴⁹ Meanwhile, the PRC continues to bombard the Taiwanese coastline while mines and obstacles are cleared near the invasion sites. Finally, the flotillas must approach and anchor near the shore to offload the assault units on the bridgeheads and any captured ports.⁵⁰ An estimated 20,000 troops will be landed the first day followed by 15,000 additional troops the next day.⁵¹ This is the critical phase of the operation for the PRC and Taiwan. The analysis section explores in greater detail many nuances and critical vulnerabilities inherent in the short description above.

Island Combat Operations. The overall objective of island combat operations is occupation of Taipei and final capitulation of the government. This final phase of a PRC invasion begins when one or more landing zones have been secured, Tai-

wan's initial counterattacks have been repelled, and the near continuous stream of supplies begins arriving.⁵² From these bridgeheads, PLA forces would need to break out and capture key targets, such as airfields and ports, and march to and occupy Taipei and, ultimately, the entire island.⁵³ Estimates of the number of PLA troops ferried to Taiwan for this phase range from as few as 300,000 to as many as one million. Once Taipei and the government falls, the PLA can anticipate extensive operations to clear Taiwanese "nests and dens" of holdout resistance in residential districts. Finally, resistance would continue in the central mountain range until supplies are exhausted.⁵⁴

Analysis

A specific scenario bounded by a basic set of assumptions enables an effective analysis of a PRC invasion of Taiwan. Within this bounded scenario, I will analyze each phase of the operation with respect to four main points: (1) the challenges the PLA must overcome; (2) existing Taiwan preparations; (3) PLA strengths; and (4) PLA weaknesses. Based on this analysis, the next section will recommend how the Taiwanese armed forces can best prepare to mitigate PLA strengths while capitalizing on PLA weaknesses.

Scenario Assumptions

The first assumption is the PRC actually decides to execute its Joint Island Attack Campaign to, once and for all, forcibly reunite Taiwan to communist China. The particular events that could cause Beijing's decision to invade is outside the scope of this analysis. The assumption is that China has decided all peaceful means of reunification have been exhausted, it has the means to conduct the operation, and there is a reasonable chance the United States remains out of the conflict.⁵⁵ In this scenario, the PRC believes that other coercive means will not be successful.

The second assumption is the United States does not confront the PRC through direct military intervention. Again, the reason for and likelihood of this decision are outside the scope of this analysis. It could be the United States decides to employ diplomatic, economic, and information pressure to coerce the PRC to stop military action. The United States may use these soft powers to buy time to mobilize its own forces. Conversely, US leaders may gamble that the invasion would ultimately fail even without US military invention. This assumption also implies the PRC does not attack US or allied forces (naval or air bases) on Guam, Japan, or elsewhere. Without a direct attack, US leaders could find it difficult to make the decision to intervene.⁵⁶ Regardless, the United States does not directly confront the PRC militarily.

The third assumption is the United States does support Taiwan with information and intelligence sharing. This is reasonable given the substantial US support in the past for Taiwan. This assumption allows some measure of situational awareness by Taiwanese forces (i.e., the PRC does not completely deny communications, early warning, and targeting information).

Finally, and based on the above assumptions, the conflict does not involve tactical or strategic nuclear attack. In this scenario, the United States does not use any military force and, therefore, does not introduce nuclear weapons. The PRC has consistently stated a policy of no first use of nuclear weapons or use against non-nuclear states.⁵⁷ A newly conquered Taiwan experiencing the aftereffects of nuclear attack would negatively impact the PRC's economy and global legitimacy. Therefore, the scenario rejects this option. Based on these assumptions, the analysis now addresses the PLA challenges, strengths, and weaknesses, in addition to Taiwanese preparations.

Phase 1—Blockade and Bombing

Taiwan is likely to hold out in this phase by preserving its military for follow-on phases and buying time for a hoped-for US intervention.⁵⁸ The main challenges the PLA must overcome during the blockade and bombing phase are to achieve air superiority and sea control.⁵⁹ Air superiority is necessary to enable sea control, as well as to enable adding fighter and bomber aircraft to the bombing effort. Sea control is necessary to prevent resupply of Taiwan and clearing the strait for the invasion phase.⁶⁰

Taiwan's capabilities to contest PRC air superiority lie in its fleet of fighter aircraft and surface-to-air missile (SAM) systems. Taiwan operates approximately 400 combat-capable fighter aircraft.⁶¹ The fleet is a mix of F-16, Mirage 2000-5, and indigenous F-CK types.⁶² The fleet of 144 F-16s are older F-16A/B models but are currently being upgraded with advanced avionics to the F-16V configuration. This upgrade program was expected to complete by 2022.⁶³ In addition, the United States has approved the sale of 66 F-16 Block 70 aircraft with similar avionics to the F-16V via foreign military sales.⁶⁴ Taiwan's SAM systems include approximately nine Patriot batteries and upwards of 12 indigenous Tian Kung (TK II/III) batteries. These systems have the capability to intercept short-range ballistic missiles.⁶⁵ The United States has also approved the sale of 250 Stinger Block I missiles via foreign military sales, giving Taiwan a short-range defense against low-flying aircraft and helicopters.⁶⁶

Taiwan centers its preparations to contest sea control in the Taiwan Strait around a small fleet armed with antiship cruise missiles. Taiwan possesses four destroyers, twenty-two frigates, forty-four coastal patrol ships, and two diesel

submarines.⁶⁷ These ships can employ Hsiung Feng 2 and 3 antiship missiles. Shore-based launchers also fire these missiles.⁶⁸ This current fleet of naval assets is not capable of opposing PRC control of the sea, however.

To support gaining air superiority and achieving sea control, the PRC has strengths in virtually every area compared to Taiwan. China has developed a true *antiaccess, area denial* (the oft-quoted “A2/AD”) environment around Taiwan consisting of precision cruise missiles and rockets and “advanced sensor-shooter networks employing large satellite arrays.”⁶⁹ Counting both PLA Air Force and PLA Navy, the PRC stations approximately 600 fighter aircraft and 250 bombers in the Eastern and Southern Theaters alone. Another 900 fighters and 200 bombers are available from other PLA theaters.⁷⁰ These aircraft could operate from about 40 air bases along the east coast of China and not require aerial refueling.⁷¹ Aircraft types include the J-10, J-11, and Su-30MKK, each equipped with advanced avionics and weapons.⁷² Lastly, the PLA Air Force assigned the first fifth-generation J-20 squadron to the Eastern Theater in March 2019. The PLA Rocket Force can bring to bear more than 1,000 ballistic missiles and more than 300 ground-launched cruise missiles.⁷³

The PLA Navy can similarly put to sea a large armada of warships. Stationed in the Eastern and Southern Theaters are 23 destroyers, 37 frigates, 39 corvettes, 32 diesel attack submarines, and 68 coastal patrol ships. These PLA Navy ships employ a variety of antiship cruise and ballistic missiles as well as surface-to-air missiles.⁷⁴

The PRC does not have major weaknesses concerning the blockade and bombing phase of a Taiwan invasion void of US intervention. Historically, weaknesses in training and joint operations were cited. However, since the reforms initiated by Chairman Xi began in 2016, the PLA has conducted significantly more training, including increasing realism and conducting large-scale joint operations.⁷⁵ The PLA is aware there is still room to improve, especially in the areas of the “Five Incapables” problem: “that some commanders cannot (1) judge situations; (2) understand higher authorities’ intentions; (3) make operational decisions; (4) deploy forces; and, (5) manage unexpected situations.”⁷⁶ Complexity of joint training exercises have also increased. For example, the PLA conducted a large-scale joint coordination exercise in 2019 that involved all five theater commands with all four services plus the Strategic Support Force and the Joint Logistics Support Force.⁷⁷ PRC training and joint employment, while possibly important against the United States, is not a major weakness in a conflict with Taiwan.

At best, Taiwan’s prospects for any measure of victory in the blockade and bombing phase are bleak. Taiwan’s approach to its defense as outlined in the Overall Defense Concept (ODC, akin to the US National Defense Strategy) in essence admits this. The first tenet of the ODC is *force protection* (or often trans-

lated as “force preservation”).⁷⁸ The ODC contains an ominous explanation for force protection: “[S]wift and effective damage control, to contain the initial destruction caused by the enemies, and ensure the integrity of military power, so as to effectively support the follow-on operations.”⁷⁹ It is likely that all of Taiwan’s air bases will be destroyed, or at least rendered inoperable. Taiwan could preserve some of its fighter aircraft by relocating them to mountain shelters at Hualien and Taitung. Relocation would allow these aircraft to survive and participate in following phases but would prevent them from conducting combat operations in this phase. These fighters could be used against PRC fighters and bombers but would be fighting without a technological advantage, and the PRC could be willing to lose aircraft. Defending air bases and other fixed sites also decreases the survivability of Taiwan’s SAM systems while not providing effective protection for the defended sites.⁸⁰ These SAMs should be preserved for use in the next, most critical phase.

Taiwan’s naval forces will fare no better. The fleet will likely put to sea before kinetic strikes trap them in Taiwanese ports.⁸¹ Facing a quantitatively superior PRC fleet, with equal or better antisurface capabilities, the Taiwan navy may achieve individual victories, but this would not cause China to cease attacks. Based on the ODC, Taiwan may choose to preserve these assets to take part in thwarting the amphibious invasion phase.

China would welcome capitulation and reunification at this point, but that is not likely to happen. The anger and passion of the Taiwanese people are likely to “be strengthened by a bloody war of siege and starvation.”⁸² Unfortunately, their resistance will likely spur the PRC to initiate the second phase, amphibious invasion.

Phase 2—Amphibious Invasion

Challenges for the PLA abound in the amphibious invasion phase of a Taiwan conflict. A PRC invasion would be “extremely complex and difficult, especially for a military with limited experience.”⁸³ Michael Beckley notes the flotillas transporting troops across the strait will “be operating within [approximately] 100 miles from Taiwan from the moment they left Chinese ports and would spend substantial time within the range of Taiwan’s artillery.”⁸⁴ He further states that, “unless China destroyed all of Taiwan’s anti-ship missile launchers, Taiwan could ‘thin the herd’ of PLA amphibious ships as they load in Chinese ports or transit the Taiwan Strait.”⁸⁵ Once PRC operations to clear minefields and obstacles begin, they signal to Taiwanese forces those locations vulnerable for landings.⁸⁶ The challenge is to storm those landing areas before Taiwan can reinforce them. Assuming successful landings, the PLA must hold these zones against counterattacks until they can surge reinforcements to relieve the exhausted assault troops.⁸⁷

Taiwan has placed much emphasis on preparing to repel an amphibious invasion. The second and third aspects of Taiwan's ODC are "decisive battle in [the] littoral zone" and "destruction of enemy at [the] landing beach."⁸⁸ Taiwan surveys possible landing zones on a yearly basis. These sites are not unlimited. In fact, the "ideal" landing zone (one that includes enough space to land substantial forces, which is located near a port and airfield, but that is far enough away from Taiwan forces to gain a tactical advantage) does *not* exist. Locations with some of these attributes number only fourteen. Taiwan conducts "coastal engineering" to transform these possible locations into a "planning nightmare" of obstacles and defensive preparations. These coastal defenses are "considered the foremost targeting challenge facing the PLA."⁸⁹

Taiwan has also been making improvements in the armed forces to fight in the littoral zone and on the landing beaches. Taiwan plans to engage in the littoral zone with fighters, precision strike weapons, ship- and shore-based antiship missiles, submarines, and naval mines, all supported with unmanned aerial vehicles (UAVs) providing intelligence, surveillance, and reconnaissance. Similarly, for "destroying the enemy" at the landing beaches, Taiwan plans to acquire combat UAVs, or UCAVs, advanced tanks and attack aviation helicopters, "mobile precision strike firepower" of various types, and improved air defense systems. Although this list is aspirational, Taiwan has increased defense spending from Taiwan \$7.7 billion in 2017 to \$12.2 billion in 2019.⁹⁰

The need for air superiority and sea control remains throughout the operation. Therefore, all of the PLA strengths previously mentioned apply to the amphibious invasion phase. Between the PLA Army and PLA Navy Marine Corps, there are 12 units capable of conducting amphibious operations. These units have been upgraded with the ZBD-05 amphibious infantry fighting vehicle and the PLZ-07B amphibious self-propelled howitzer. The PLA has also made organizational changes to the Airborne Corps and created army air assault units to "seize key terrain and interdict Taiwan counterattacks."⁹¹ The PLA has increased training of these units in amphibious assault to include joint training environments.⁹² These exercises include the new Type 022 stealth missile boats capable of high speed and employing jamming and smoke to protect troop carriers.⁹³

The main challenges facing the PRC involve intelligence, transport, and the nature of the amphibious battlefield. Although the PRC possesses substantial intelligence capabilities, Chinese officers are concerned it is not enough.⁹⁴ Accurately finding effective targets poses a challenge, as even the PRC's considerable munitions stockpiles are limited. The PLA is concerned with Taiwan's investment in camouflage, concealment, and deception techniques that waste munitions while hiding critical assets. The difficulties of moving an enormous invasion force rap-

idly through contested waters requires an “enormous infusion of amphibious vessels.”⁹⁵ Surprisingly, the PRC has underinvested in troop transport vessels,⁹⁶ choosing instead amphibious transport docks and helicopter transports over amphibious landing craft.⁹⁷ Lastly, PLA troops attempting to go ashore will face the “savage nature” of amphibious warfare.⁹⁸ After transiting the Taiwan Strait under attack from Taiwan air, coastal, and naval forces (with some chance of seasickness), these troops will encounter “the life and death test of ferocious bombing, excessive explosions, and bloody killing . . . from start to finish, every moment and throughout the entire landing operations.”⁹⁹ PLA medical professionals are concerned these conditions could create “widespread nervous breakdowns,” causing the troops to become ineffective.¹⁰⁰

Given the seemingly insurmountable odds facing the Taiwanese armed forces, Taiwan still has the potential to stop the operation in this phase. Even more, this is Taiwan’s *best* chance at stopping the operation on favorable terms. The key to victory is to attrit as many transport and assault vessels as possible to prevent significant troops from making it ashore to establish a bridgehead. The ODC established a change in Taiwan’s strategy from contesting the entire Taiwan Strait to focusing on the littoral zone, which extends to approximately 100 kilometers (62 miles). The ODC allows Taiwan to maximize air-, sea-, and shore-launched antiship missiles against massed flotillas closer to Taiwan’s shore.¹⁰¹ This is the essence of the ODC’s “Decisive Battle in Littoral Zone” discussion.¹⁰² Heavy losses at this stage could cause the PRC to reconsider the entire operation. If the PLA continues the operation, the remaining assault force must evade extensive layers of sea mines and additional antiship attacks from smaller Kuang Hwa fast-attack vessels and then survive the harrowing assault of the beaches.¹⁰³ This is the essence of the ODC’s “Destruction of Enemy at Landing Beach” discussion.¹⁰⁴

During the amphibious invasion phase, the ODC realizes advantages from employing an “asymmetric defense strategy, where Taiwan maximizes its defense advantages, and targets an invading force when it is at its weakest.”¹⁰⁵ The “beauty” of the ODC, in the words of Drew Thompson, former director for China, Taiwan, and Mongolia in the Office of the Secretary of Defense, is that Taiwan “does not seek to compete with China’s larger military head-on” but instead “takes a page from guerilla warfare and envisions large numbers of small, affordable, highly mobile units taking advantage of the terrain to defeat a larger enemy.”¹⁰⁶ The ODC’s emphasis on preservation is the key for success in this stage. Air-, sea-, and ground-based assets need to survive the blockade and bombing phase to be available during the “all-or-nothing” amphibious invasion phase. At least some of these assets will survive the initial bombing.¹⁰⁷ Taiwan has the opportunity to stop the operation completely in the amphibious invasion phase. If this fails and one

or more landing zones survive the initial opposition and counterattacks, then the operation transitions to the island combat operations phase. Hope remains, but it is surely diminished.

Phase 3—Island Combat Operations

As stated above, the overall objective of the Island Combat Operations phase is the occupation of Taipei and final capitulation of the government.¹⁰⁸ Ian Easton provides a useful outline to the stages in the Island Combat Operations phase:¹⁰⁹

- Secure footholds on Taiwan
- Build up major landing zones and offload massive army
- Capture strategic terrain and military bases inland
- Capture Taipei and other major cities
- Institute martial law
- Clear defenders out of mountains

The “secure footholds on Taiwan” stage is where the PLA “surges reinforcements to the landing zone faster than the defender.”¹¹⁰ The PLA will begin ferrying as quickly as possible between 300,000 and a million troops to the island. Only troops needed for border defense and internal security are likely to be held back.¹¹¹ The PLA will seek to draw Taiwanese units out of the cities whenever possible. Ground commanders will use artillery to “soften targets” while armor and mechanized infantry attempt to “blitz” into urban centers.¹¹² Helicopter gunships would provide covering fire. The challenge of urban fighting is anticipated to be extremely intense as PLA units “encircle and clear out their ‘nests and dens’ one at a time, slowly and methodically annihilating them.”¹¹³ Last to fall will be holdout units in the central mountain range and along the far eastern coast. Finally, Taiwan will be turned into a “garrison state” with an extensive campaign of “purges.”¹¹⁴

To defend against this onslaught, Taiwan will utilize what remains of its 175,000 active-duty personnel. These are divided mainly among armor, mechanized infantry, motorized infantry, and artillery brigades.¹¹⁵ In addition, once an invasion was certain, Taiwanese leaders will issue an emergency order to mobilize the civilian population. The active-duty units contain mostly older, US-purchased equipment such as the M60 tank, M113 personnel carrier, and 155mm and 203mm artillery. These units are supported by AH-1 and AH-64 attack helicopters.¹¹⁶ The United States has approved sale of 108 M1A2 tanks, which will be a welcome replacement for the M60s.¹¹⁷

Once the PLA successfully executes a breakout of the bridgeheads, the PLA has virtually no weaknesses compared to Taiwanese forces. PLA strengths are numerous during the island combat operations phase. In the Eastern and Southern Theaters alone, the PLA can transport up to 30 Combined Arms Brigades supported by an additional 17 air assault/army aviation, airborne, and artillery brigades.¹¹⁸

Assuming the United States still does not intervene, there remains one last opportunity for Taiwan victory. During what Easton titles the “secure footholds on Taiwan” stage, Taiwan forces must “drive them [PRC] into the sea.”¹¹⁹ This essentially resets the operation to the end of the amphibious phase, in which Taiwan has the greatest chance of stopping the operation. Again, preservation is the key. Theater-level command bunkers and mobile brigade command posts must survive to organize counterattacks. Taiwan forces must clear roads quickly to allow remaining units to converge on the landing sites before Chinese reinforcements arrive.¹²⁰ If unable to converge, remaining units could “fall back onto prepared defensive lines running across cities and mountains.”¹²¹ From there, mobile attack operations could be conducted in a “grueling war of attrition,” but Taiwan would have essentially lost the war.¹²²

Brian Dunn puts forth another possibility worthy of consideration. Dunn states: “To defeat Taiwan and avoid war with America, all China needs to do is get ashore in force and impose a cease-fire prior to significant American intervention.”¹²³ Dunn notes that “much of the world—perhaps America especially—would be relieved to have a cease-fire before American and Chinese forces are openly shooting at each other.”¹²⁴ Dunn claims that China could use the cease-fire to further fortify and supply its bridgeheads, followed by an “overrunning or simply overawing Taiwan into submission . . . at a time of China’s choosing.”¹²⁵ This option may be preferable to China, as reconstruction of Taiwan postcapitulation would be lessened and China’s surely plummeting stock on the world stage halted. Dunn rightly cautions Taiwan to “reject calls for a cease-fire, contain Chinese bridgeheads and airheads into as small a perimeter as possible, and then drive the invaders into the sea.”¹²⁶

Ultimately, if Taiwan does not stop the PLA on the beaches or fails to drive them back into the sea, “the lights of freedom, democracy, and social justice would be extinguished.”¹²⁷ If the PLA breaks out from their bridgeheads, the “long night of terror” would begin. Multiple advances in technology in the near future, such as artificial intelligence, autonomous air, surface, or subsurface systems, and swarm or mesh networks, could help Taiwan avoid this fate. Taiwan does not have time on its side, however. Its very existence is at stake. With so much on the line, Taiwan should leverage three capabilities available today.

Recommendations

Taiwan should prioritize capabilities that give an asymmetric advantage during the phase of the conflict with the highest chance of stopping the operation—the amphibious invasion phase. Taiwan does not have the luxury of an unlimited defense budget. A nominal New Taiwan \$12 billion (about US\$425 million)¹²⁸ will limit the amount of new equipment or upgrades to existing systems. The ODC is correct in focusing on asymmetric capabilities.¹²⁹

As previously shown, the PLA does not have major weaknesses in the blockade and bombing phase of the conflict. During that phase, the large quantitative/qualitative advantage rests with the PLA. Taiwan should avoid confronting PLA strengths directly by following the ODC's tenet of force protection/preservation. Taiwan should relocate fighter assets to mountain shelters while large naval assets sortie away from indefensible ports. The Patriot and Tian Kung air defense batteries should likewise shelter during the rocket and cruise missile attacks to ensure survival until needed against PLA Air Force air-to-ground attacks directly supporting the amphibious assault.¹³⁰ Attempting to protect fixed air bases and ports during this bombardment may have limited success, but the PLA will target these air defense systems in turn.¹³¹ Taiwan should not prioritize capabilities that directly confront the PLA in this phase.

During the final phase, island combat operations, the PLA also has many strengths. Assuming PLA forces have broken out of the bridgeheads, Taiwan is essentially in a land war with China. This is a losing prospect if no intervention takes place. Taiwan should not prioritize capabilities to support protracted combat operations on the Taiwanese mainland. Taiwan should, however, invest in capabilities that enable it to contain and push PLA units into the sea immediately after a breakout.

Taiwan's best hope of survival is victory in the amphibious invasion phase of a conflict with the PRC. In that phase, Taiwan can maximize its strengths against the PLA as it undertakes the most challenging part of the operation. This is the crux of the ODC's asymmetric defense strategy.¹³² Taiwan should prioritize capabilities to withstand and repel the amphibious invasion phase of the operation. Taiwan should prioritize mines and minelayers, antiship missiles, and mobile long-range artillery systems. These capabilities endanger transits across the Taiwan Strait, where the PLA is most vulnerable. These systems provide Taiwan with the "large number of small things" as opposed to "low quantity of high-quality platforms" such as aircraft and large warships.¹³³ The following prioritized recommendations are based on effectiveness in stopping the amphibious fleet.

Mines and minelayers are the top priority. RAND senior engineer Scott Savitz states that “naval mines are consummate disruptors.”¹³⁴ In the ODC, Taiwan already plans to incorporate minefields.¹³⁵ It will create an “interlocking series of minefields and obstacles,” concentrating on likely anchorage sites and avenues of approach to the landing beaches.¹³⁶ Their goal is to “create kill boxes, trapping and sinking landing ships and their escorts,” as well as to create psychological stress on the invaders.¹³⁷ To mitigate this threat, the PLA Navy must employ mine-countermeasure operations to clear safe lanes through these minefields. These clearing operations are conducted in slow, methodical patterns while highlighting where the landings are likely to occur. This places the minesweepers at risk of antiship attack while funneling assault forces into limited lanes where they are vulnerable to antiship missiles. A final benefit is that it slows down the invasion forces, buying Taiwan time for forces to converge on the landing zones.¹³⁸ Of the many shipbuilding programs Taiwan has initiated, development and procurement of high-speed minelayers should be the priority.¹³⁹ Since minefields cannot be put in place during peacetime, Taiwan should procure a relatively large quantity of minelayers with high-speed capability for survivability.

The second priority for Taiwan is antiship missiles, which would attack the PLA transport ships in transit across the Taiwan Strait. The ODC rightly names this the “decisive battle in [the] littoral zone.”¹⁴⁰ This stage holds the highest chance for Taiwan to stop the invasion operation completely. Taiwan is taking decisive action in procuring antiship missiles. The domestically built Hsiung Feng 3 missile should take the highest priority. Being mobile, these systems are easier to disperse and hide during the blockade and bombing phase.¹⁴¹ In addition to domestic missiles, the United States recently approved sale of up to 100 RGM-84L-4 Harpoon Coastal Defense Systems. This system is also mobile, increasing survivability.¹⁴² Although costing a substantial US\$2.37 billion, this is a prudent investment, giving Taiwan a redundant antiship capability.

The third priority is mobile long-range artillery systems such as the US Paladin and High Mobility Artillery Rocket Systems (HIMARS). Paladins placed on Kinmen and HIMARS operating from Taiwan can attack transport ships in Chinese ports while assault troops and equipment are loading. Taiwan can also use Paladins on its own territory to attack the landing beaches. Both systems are mobile, increasing survivability. Both the US Army and US Marine Corps are developing HIMARS with an antiship capability, which Taiwan could possibly procure in the future.¹⁴³ With this last piece to the anti-amphibious invasion defense, Taiwan can range transport shipping in Chinese ports of embarkation, as they transit the Taiwan Strait, and as the flotilla approaches the landing zones.

Taiwan will also be inducing psychological stress on the invaders during every part of their journey. This is Taiwan's best chance at stopping a PRC invasion.

Taiwan should not prioritize investment in expensive conventional capabilities such as fighter aircraft and capital ships. These capabilities should not be retired completely but kept as a "low quantity of high-quality platforms."¹⁴⁴ To fight asymmetrically, Taiwan needs a "large number of small things."¹⁴⁵ Taiwan is currently upgrading or increasing its fleet of 400 fighter aircraft.¹⁴⁶ These aircraft are expensive¹⁴⁷ and will not play a major role in any phase of the operation.¹⁴⁸ Taiwan should reduce this fleet to only the newer F-16 Block 70 and indigenous F-CK squadrons. Taiwan should also curtail its seven shipbuilding programs currently in the prototyping phase.¹⁴⁹ The Indigenous Defense Submarine, large amphibious transport vessels, and advanced defense destroyer are vessels that are realistically not survivable.¹⁵⁰ Taiwan should consider redirecting the funding from canceling these programs to capabilities Taiwan *should* be prioritizing.

Conclusion

If the People's Republic of China decides to force Taiwan's reunification at some time in the future, the conflict will be horrific and devastating regardless of the outcome. The Taiwan people will suffer tremendous casualties, severe psychological scarring, and the loss of their burgeoning Taiwanese identity. Taiwan's economy will also be devastated and take years or decades to rebuild depending on the largesse of their new overlords in the case of defeat or the international community in the case of victory. Globally, the future would be uncertain. Would the new regional hegemon endure due to a weak international response? Would it choose a path of becoming a global hegemon? Future researchers should address these questions.

Even given the tremendous growth and modernization of China's military in equipment, organization, and training, hope for Taiwan remains. Taiwan must prioritize three capabilities consisting of mines and minelayers, antiship missiles, and mobile long-range artillery systems. These are achievable in the near term, and Taiwan is indeed investing in those areas. However, Taiwan continues to pursue expensive, low-quantity systems that are not survivable and merely deplete the limited funding needed for priority systems. Taiwan should remain focused on the *large quantity of small things* and not pursue expensive technology development.

Taiwan has greatly improved its military vision through the ODC. It rightly identifies force protection/preservation for forces to survive until a decisive battle in the littoral zone commences. The ODC also smartly addresses defeating invasion forces at the landing zones. This article does not address all aspects of the ODC, however; such is not the purpose. Many areas of research remain such as

cyberwarfare, electronic warfare, training, logistics, and readiness. Moreover, the ODC addresses only the military instrument of power. Future research into efforts in diplomacy, in spreading positive information to counter China's soft pressure, and in improving the resiliency of the Taiwanese economy are all rich areas for consideration.

Taiwan has blossomed in spite of 70 years of intense PRC animosity, enduring numerous military confrontations and constant soft power pressure. Yet, Taiwan has developed its own identity among a vibrant people. Unfortunately, Taiwan lives in interesting times . . . yet, it survives. The hard choices for preparing for a PRC amphibious invasion will determine if Taiwan continues to do so freely. 🌟

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