

OVERVIEW

As the new century dawns, the Taiwan Strait is the locus of one of the world's most dangerous flashpoints. Two entities share the name of "China": one, the most populous country in the world, is a gargantuan and unique hybrid of Communist ideology and capitalist appetite, while the other is a tiny island republic of great wealth and uncertain international status. And across the narrow barrier of the Taiwan Strait, these two powers—the People's Republic of China (PRC) and the Republic of China (ROC)—stare at each other.

The United States plays an interesting role in this *pas de deux*, part observer and part participant. For 30 years after 1949, it was Taiwan's principal patron, maintaining a mutual defense treaty with the ROC. When the 1970s brought a "normalization" of relations between Washington and Beijing, this era of close cooperation ended. Since 1979, the U.S. government has maintained a calculated ambiguity in its policy toward the deadlock over Taiwan's status. This balancing act has been complicated recently by such events as China's 1995 and 1996 missile tests, in the wake of which Taiwan's security situation has gained new visibility in Washington, where concerns have been raised about

whether the United States is doing enough to ensure the island's self-defense capabilities.

This monograph reports the results of a project that examined the military dimensions of the confrontation between China and Taiwan.¹ Using a mixture of qualitative and quantitative analysis, we have done two things:

- Identified a handful of issues that appear crucial in helping Taiwan maintain an adequate defensive posture vis à vis the PRC, and
- Developed a set of recommendations for steps the United States might take to assist Taipei in dealing with those issues.

SCENARIO AND APPROACH

Although coercive scenarios (e.g., limited missile strikes) are usually regarded as the more likely form of Chinese use of force against Taiwan, we assessed the more extreme case of an outright air and amphibious invasion of the island. We chose to focus on this challenging contingency for six reasons.

- Some analysts argue—in contrast to the conventional wisdom—that “immediate and full-scale invasion” is the most likely form of conflict between the two sides.

¹That this report focuses on military issues should not be interpreted as suggesting that the crux of the China-Taiwan issue is military; neither do the authors believe that military means are the only or even the most likely way of resolving the dispute. Our given task has been to examine the balance of power across the strait, not to document, explicate, or predict the complex political dynamics at the heart of the differences between Taipei and Beijing. We recognize that a strongly deterrent Taiwanese posture is only one part—albeit a vital one—of the equation for maintaining peace and stability on the strait and in East Asia.

- As the “worst-case” scenario, it is of interest to military planners whose responsibility it is to deter potential adversaries from dangerous courses of action.
- The possibility of a direct Chinese invasion of Taiwan—and expectations regarding the outcome of such an attack—is important in shaping overall perceptions of the balance between the two sides.
- The seizure and holding of the island is the only alternative that guarantees Beijing’s control when hostilities end. So, in some sense, the credibility of the invasion threat underwrites the other, lower-level options, such as limited missile strikes or maritime harassment.
- While it seems unlikely that China would undertake such a desperate gamble, it is important to think through the manner in which the People’s Liberation Army (PLA) might essay the operation and what steps would be needed to defeat it. After all, it was always terribly unlikely that the Soviet Union would launch a massive nuclear attack on the United States. Still, hundreds if not thousands of war games, exercises, and analyses were invested in exploring the “what-ifs” of that contingency.
- An invasion scenario incorporates a number of elements that could be components of other coercive strategies directed against Taiwan. Perhaps most significant is the employment of conventionally armed surface-to-surface missiles (SSMs) against targets in Taiwan.

Analytically, an invasion campaign can be divided into four segments:

- In the first phase, the two sides would fight for air superiority.

- The second phase, which could begin simultaneously with the first, would be a struggle for maritime control of the strait.
- Followup air strikes would focus on “softening up” the island’s defenses.
- The fourth phase would involve actual landing operations and could include amphibious landings, paratroop assaults, and heliborne attacks.

Our attention is focused mainly on the battle for air superiority and, secondarily, on the contest for control of the seas. Control of the air and control of the sea are absolute prerequisites for a successful amphibious and/or airborne assault. This may be particularly true in the context of a PRC attack on Taiwan. The People’s Liberation Army Navy (PLAN) owns enough amphibious lift to move about a division of troops at a time, hardly enough to establish and sustain a firm foothold in the face of determined Taiwanese resistance. Therefore, many analyses picture a kind of “Dunkirk in reverse,” with China employing numerous commercial vessels to transport troops, equipment, and supplies across the strait. Such an operation, involving unarmed merchant shipping, would be sheer folly unless China had secured almost uncontested dominance of the air and sea. Similarly, the kind of large-scale airborne and air assault operations often suggested as part of a PRC attack would be virtually suicidal unless the ROC’s air defenses had been thoroughly suppressed. Finally, the surface forces of the two navies consist of warships with very limited air defense capabilities. In the absence of air superiority, the PLAN’s warships would be very vulnerable to air attack in the confined waters of the strait. We therefore conclude that the battle for air superiority in particular is the linchpin of the campaign.

We chose RAND’s Joint Integrated Contingency Model (JICM) as the primary modeling tool for this study; developed for the U.S. Department of Defense, JICM is a theater combat model designed to support the kind of

exploratory analysis that we emphasized in this project. After preparing a database from open-source materials and making an initial set of runs to identify the factors that seemed likely to play a determining role in the outcome of the war over the strait, we conducted more than 1,700 model runs to examine the impact of seven key variables:

- The size and composition of the air forces committed to the attack by the PRC.
- Each side's possession of beyond-visual-range (BVR), "fire-and-forget" medium-range air-to-air missiles (AAMs).
- The number and quality of short- and medium-range ballistic missiles (SRBMs and MRBMs) used by the Chinese.
- The number of advanced precision-guided munitions (PGMs), such as laser-guided bombs (LGBs) and Global Positioning System (GPS)-guided weapons, in the Chinese inventory.
- The ability of the Republic of China Air Force (ROCAF) to generate combat sorties.
- The quality of the ROCAF's aircrew.
- The extent, if any, of U.S. air forces, both land and sea based, committed to Taiwan's defense.

Our more-limited analysis of the naval war was undertaken using the JICM and *Harpoon*, a computer-based simulation of maritime warfare. *Harpoon* is widely considered the best commercially available depiction of modern maritime combat. It includes representations of submarine, surface, and air warfare.

This work explores only a very limited region of what is often referred to as the "scenario space." We concentrated on one specific scenario involving one particular Chinese offensive strategy, and we selected the factors to vary based on our reading of the extant

literature on the China-Taiwan balance as well as discussions with experts in the United States and elsewhere. We also focused our attention on what might be thought of as “reasonable” cases: those reflecting current capabilities, linear projections of current capabilities, and capabilities conceivably attainable within our limited time frame. As such, we present these results as *illustrative* and *indicative*, meant to highlight and illuminate certain key points that emerged from our overall analysis.

Because our notional war is set in 2005, the two sides’ orders of battle consist largely of systems already present in their arsenals. We varied the size and composition of the PRC air and missile forces committed to the campaign to reflect uncertainties regarding the pace and scale of China’s military modernization programs.

The analysis required many assumptions, and the problem frequently arose as to how much credit to give the protagonists for various capabilities. We decided to credit both sides with taking measures to increase their competence in critical areas. In particular, we credited the Chinese with more capability than they have actually demonstrated in conducting complex offensive operations. And we assumed that Taiwan would be able to maintain the basic functionality of its command and control (C²) system, even under the stress of a concerted PRC attack.² Because of these assumptions, our analysis is less a current net assessment of actual capabilities on the two sides than it is an assessment of reasonable *potential* capabilities with given orders of battle.

²Including possible, but unmodeled, information warfare operations.

RESULTS, IMPLICATIONS, AND RECOMMENDATIONS

Our analysis suggests that any near-term Chinese attempt to invade Taiwan would likely be a very bloody affair with a significant probability of failure. Leaving aside potentially crippling shortcomings that we assumed away—such as logistics and C² deficiencies that could derail an operation as complex as a “triphibious” (amphibious, airborne, and air assault) attack on Taiwan—the PLA cannot be confident of its ability to win the air-to-air war, and its ships lack adequate anti-air and antimissile defenses. Provided the ROC can keep its air bases operating under attack—a key proviso that we will discuss at length in the next chapter—it stands a relatively good chance of denying Beijing the air and sea superiority needed to transport a significant number of ground troops safely across the strait. Overall, the ROC achieved “good” outcomes in almost 90 percent of the cases against our best-estimate “base” PRC threat. Both in the air and at sea, attrition was extremely high on both sides.³

We identified seven key findings from our analysis:

- *Taiwan’s air bases must remain operable so that the ROCAF’s fighter force can keep up the fight against the superior numbers of the PLA Air Force (PLAAF).* We recommend increased attention to passive defense and rapid-reconstitution measures; Taiwan could learn much from NATO’s response to the threat posed to its rear area by Warsaw Pact air and missile attacks in the 1970s and 1980s.
- *The ROC must maintain at least parity in advanced air-to-air weaponry.* Ideally, Taiwan would enjoy a

³For a variety of reasons, the attrition we calculated may be higher than would occur in an actual clash between China and Taiwan. Nonetheless, we believe that such a conflict would feature loss rates that would be extremely high by historical standards.

unilateral advantage in this area. At the very least, however, the PLAAF cannot be permitted to field significant quantities of “fire-and-forget” AA-12-class weapons without Taiwan being similarly endowed with AIM-120 Advanced Medium-Range Air-to-Air Missiles (AMRAAMs). The recent decision by the U.S. government to provide AMRAAMs to the ROCAF if China acquires the AA-12/R-77 is an important and welcome hedge.

- *Pilot quality may be Taiwan’s ace in the hole.* PLAAF training is notoriously poor. This makes it even more important for Taiwan to ensure that their aircrews are of the highest possible caliber. Our analysis suggests that improved pilot quality may contribute more to favorable air superiority outcomes than would even sizable additions to the ROCAF’s fighter force structure.
- *U.S. involvement is important now and will likely grow increasingly vital.* Even in the near term, U.S. carrier- and land-based fighters could make a combination crucial to Taiwan’s defense. As the PLAAF’s inventory becomes more sophisticated and capable, Taiwan’s need for U.S. assistance will likewise increase.
- *Antisubmarine Warfare is a critical Taiwanese weakness.* Absent an unexpected acquisition of numerous modern attack submarines, the ROC Navy (ROCN) will have tremendous difficulty coping with China’s modernizing submarine fleet. We suggest that Taiwan’s navy consider keeping its main battle forces out of the strait during the initial phase of a war with the mainland.
- *Fast, stealthy missile boats and highly mobile land-based antiship missile launchers can help Taiwan exploit its inherent defensive advantages.* If adequate detection and targeting information can be provided, these weapons could prove highly lethal

and relatively survivable even in the chaotic opening hours of a China-Taiwan clash.

- *Again, the U.S. role in the naval campaign could be crucial.* U.S. nuclear-powered attack submarines (SSNs) could help counter the Chinese submarine threat, U.S. surveillance capabilities could provide vital support to Taiwanese forces, and Harpoon-equipped bombers could provide early firepower key to the naval battle.

Given that it seems unlikely that Beijing will renounce its “right” to use force to compel unification, a strong Taiwanese deterrent appears to be a necessary component of continued peace on the strait. As Taiwan’s most reliable friend and in keeping with the requirements of the 1979 Taiwan Relations Act, the United States will necessarily play a major role in helping the ROC maintain and enhance its defensive capabilities even as the PLA modernizes. Should deterrence fail, Taiwan may find itself in a position where its survival is dependent on some degree of direct U.S. military intervention.

Our analysis, however, suggests five key insights regarding U.S. support for Taiwan—in both peace and war—that indicate ways of enhancing deterrence across the strait. By pursuing initiatives along these lines, Taiwan’s defense posture vis à vis China could be significantly enhanced with, we believe, minimal risk of destabilizing the situation.

First, *the amount of force needed to support Taiwan in the near term appears to fall considerably short of what is usually thought of in the Pentagon as that needed to prosecute a major theater war (MTW).* In our analysis, we never committed more than a single wing of land-based fighters, two carrier battle groups (CVBGs), and a dozen or so heavy bombers to the campaign—a far smaller force than the 10 fighter wing equivalents and six CVBGs that were engaged in *Desert Storm*.

In terms of arms sales and military assistance, our second recommendation is that *attention should focus on helping Taiwan get the most out of its existing inventory of advanced platforms rather than selling the ROC entirely new weapon systems.* Providing key advanced weapons, such as AMRAAM, improved sensors, and enhanced training, would be important elements of such a strategy.

Third, Taiwan's air defense C² network, which has been upgraded substantially in the past decade, continues to suffer from limitations in intelligence fusion and data transmission. *These shortcomings should be an important priority for rectification.* The U.S. side can encourage Taiwan to make the investments needed to ensure that the ROC's C² system is fully modernized and robust in the face of the kinds of threats it would likely face in a conflict with China.

Fourth, the United States is obviously and properly sensitive and selective in choosing how and when to share what kinds of information and intelligence with its friends and allies. At the same time, however, *there would appear to be enormous leverage to be gained by helping Taiwan's government and military leadership maintain an accurate picture of the strategic and tactical situation* day to day and, especially, during a crisis. A shared picture of the evolving threat would also likely make it easier for the two sides to reach agreement on arms sales and other modes of U.S.-Taiwan defense cooperation.

Finally, we wish to call attention to the *critical problem of interoperability*, should Taiwanese and U.S. forces ever find themselves required to fight side by side. This analysis assumed that the United States and Taiwan had achieved only a minimum level of interoperability, but even this may overstate the degree of cooperation that would be possible if war were to break out today. Enhancing the ease of cooperation between Taiwanese and U.S. forces—even to the extent of ensuring that the

two countries' forces can merely stay out of one another's way in a crisis—is in the interests of both sides, and even small and discreet steps could be valuable.

In addition to working with Taiwan to improve the ROC's deterrent posture, the United States could begin to think through some of the operational-strategic issues that would be raised by the need to support Taiwan actively in a conflict against China. As demonstrated in Iraq and again in the Balkans, contemporary U.S. warfighting strategy typically includes large-scale strikes against command, control, and communications (C³) facilities, air defenses, air bases, and an array of other targets in the adversary's territory. Whether or not the United States would initiate such a campaign against a nuclear-armed opponent, such as China—and, if so, what sorts of limitations would be imposed on targeting and collateral damage—is a deeply vexing question.

The need to suppress the PLA's long-range air defenses could provide the most compelling rationale for at least limited attacks on military targets in China. Neutralizing long-range “double-digit” surface-to-air missiles (SAMs) is widely regarded as a difficult tactical problem; adding the risks associated with attacking even strictly military targets within China compounds the complexity.

LOOKING BEYOND 2005

This study was exclusively focused on the near term and included only capabilities that could conceivably be fielded by 2005. Nonetheless, our work suggests four developments on the Chinese side that appear particularly troublesome:

- Advances in information warfare capabilities that enable China to shut down Taiwan's C² networks more rapidly and completely.

- The deployment of hundreds or thousands of conventionally armed and highly accurate ballistic and cruise missiles that could greatly endanger the operability of Taiwan's air bases.
- Fielding of a standoff munition similar to the U.S. Joint Standoff Weapon (JSOW) that would enable the PLAAF to accurately deliver ordnance onto many Taiwanese targets from within or just outside the coverage umbrella provided by China's long-range SAMs.
- Large numbers of GPS-guided free-fall munitions (akin to the U.S. Joint Direct Attack Munitions [JDAM]) that might turn older aircraft with poorly trained pilots into reasonably effective attack platforms.

Looking toward this uncertain future, we recommend that the United States work to help Taipei improve its ability to defend key military and commercial information systems from attack. Also, with the Chinese likely to exploit GPS and Russian Global Navigation Satellite System (GLONASS) navigation satellites in the guidance modes for many future weapons, Taiwan may want to acquire the ability to jam these signals effectively over both its own territory and the strait.