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Deterring a Taiwan Contingency — A Study of Japan’s Approach —

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Introduction

The purpose of this study is to examine possible approaches that Japan can undertake to deter a Taiwan contingency.

After Russia’s invasion of Ukraine in February 2022, Taiwan is being eyed as a potential region for the next major conflict. A number of Japanese and U.S. research institutes have conducted wargames on the scenario of a Taiwan contingency. Among them, a Center for Strategic and International Studies (CSIS) Report even mentions the state of exhaustion between Taiwan, the United States, and China after the resolution of a Taiwan contingency. This Report has been widely covered by the Japanese media. Many of the wargames present a scenario in which a preemptive attack on U.S. military bases in Japan would be carried out in anticipation of China’s invasion of Taiwan. In response to this Report, the U.S. House of Representatives Select Committee on the Chinese Communist Party has recommended policy measures such as the dispersal of U.S. military forces to the Indo-Pacific region and strengthening of base defense to mitigate the damage.¹

The potential economic damage to Japan from a Taiwan contingency would be incalculable. Japan, which imports more than 90% of its oil from the Middle East, would not be able to use the conventional maritime route between Taiwan and the Philippines via the Bashi Channel, the South

¹ “*Zainichi Beigunkichi no Kyoka o Teigen: Kaintokubetsui, Taiwan Yuji de* [the U.S. House of Representatives Select Committee on the Chinese Communist Party Recommends Reinforcing U.S. Bases in Japan in the Event of a Taiwan Contingency],” *Sankei Shimbun* newspaper, May 25, 2023, <https://www.sankei.com/article/20230525-DGHSUPK7OJP2DFJY3MRNV73QOA/> (Japanese). “U.S. bases in the theater should be strengthened against the possibility of PLA attack,” Item 9 in Executive Summary, House Select Committee report, TEN FOR TAIWAN Policy Recommendations to Preserve PEACE and STABILITY in the Taiwan Strait, <https://selectcommitteeontheccp.house.gov/sites/evo-subsites/selectcommitteeontheccp.house.gov/files/evo-media-document/ten-for-taiwan-final-with-cover-page-2.pdf>

China Sea, and the Strait of Malacca and would have to use a route that makes a major detour, resulting in higher oil prices due to increased transportation costs. Moreover, depending on the war situation, foreign crew members, who comprise the majority of the crew on Japanese merchant fleet ships (estimated at nearly 60,000), may well refuse to board, and Japan's oil import itself may not be possible.

The impact on the global economy could be even more serious. Taiwan holds more than 60% of the global market share in the semiconductor contract manufacturing sector² making it a key location in the supply chain. The fact that the world's most advanced, yet untapped technology in logic IC manufacturing and the world's only R&D and production base are located in Taiwan could pose a global risk in the event of a contingency. In particular, the dependence of US companies on Taiwan Semiconductor Manufacturing Company (TSMC), Taiwan's leading semiconductor manufacturer, is extremely high, and the impact of a hypothetical stop in product supply in the event of a contingency could be catastrophic.³

The occurrence of a Taiwan contingency could cause unacceptable levels of economic loss and disruption not only to Japan but also to the world, and it is essential to deter an invasion. Many research institute reports, however, focus on the factors and effects of victory or defeat in a Taiwan contingency and do not sufficiently address how a contingency itself could be deterred. For this reason, Section 1 of this study introduces the types of deterrence measures that Japan can take from both economic and military perspectives. Section 2 discusses "punitive deterrence," which is one type of deterrence, and Section 3 examines each element that could contribute to "denial deterrence," which is likely to become more important in deterrence. Discussion is based on the abovementioned CSIS Report and Japan's three security documents, i.e., National Security Strategy, National Defense Strategy, and Defense Buildup Program. And finally, Section 4 addresses potential approaches in response to hybrid threat activity that could be used during the course of an escalation of a Taiwan contingency.

1. Types of deterrence measures

Generally, deterrence is defined as a military role that demonstrates a willingness to respond militarily and inflict damage in the event that the other party attacks, with the objective of dissuading the opponent from initiating an attack. For deterrence to function, the deterring party

² Japan External Trade Organization (JETRO), Overseas Research Department, "*Taiwan ni okeru Handotai Sangyo ni tsuite: Taiwan no Kanren Seisaku to Shuyo Kigyo no Sapurai Chen Chosa* [The Semiconductor Industry in Taiwan: A Survey of Taiwan's Relevant Policies and Supply Chains of Major Companies]," 2022, p. 3.

³ Ibid, p. 14.

must have the intent and capability to execute a military response, and it is essential that this intent and capability are correctly recognized by the other party. In order for these intents and capabilities to be credible, it is believed that a variety of capabilities must be developed in accordance with the level of anticipated attack.⁴

These deterrence concepts are often categorized as punitive or denial deterrence.

(1) Deterrence by punishment

Punitive deterrence is a strategy that involves threatening the opponent with intolerable consequences if it takes actions contrary to one's own country's interests. By working on the opponent's cost-benefit calculations, punitive deterrence forces the opponent to abandon an attack.

An example of punitive deterrence is generally the commonly used method of changing the opponent's will as a nation by forcing it to foresee the damage that would be inflicted by the deterring party through economic sanctions or other means.

In examining the deterrence of a Taiwan contingency, we will focus on three resources that are indispensable for waging war: energy, food, and semiconductors. We will analyze the impact of sanctions related to these three sectors on China, assuming to have launched an invasion of Taiwan. Section 2 will examine whether such sanctions could contribute to deterring a Taiwan contingency.

(2) Deterrence by denial

Denial deterrence is a strategy that relies on the ability to physically deter specific offensive actions that an adversary could undertake. By working on the opponent's calculations of the likelihood of achieving its goals, denial deterrence causes the opponent to abandon the attack.⁵

In Section 3, a comparison of the military strength of Japan, Taiwan, the U.S., and China will be made in order to objectively analyze the deterrence capabilities of Japan and the U.S. from the perspective of denial deterrence. In addition, we will focus on the results of a CSIS Report which conducted wargames and analyzed the opponent's potential to achieve its objectives in the event of a Taiwan contingency. We will then examine the factors that could contribute to denial deterrence. We will conclude this study by analyzing how the contents of Japan's three security documents issued in December 2022 and the recent moves of the Japanese government could

⁴ "(Commentary) Deterrence," Ministry of Defense website, http://www.clearing.mod.go.jp/hakusho_data/2010/2010/html/mc323000.html (Japanese), viewed May 10, 2023.

⁵ Ibid.

contribute to denial deterrence.

2. Effects of punitive deterrence

The effects of punitive deterrence need to be analyzed from various perspectives, including such areas as financial sanctions. However, this section focuses on sanctions in three targeted areas: energy, food, and semiconductors, which have a particularly large impact on the maintenance of military functions, and we will examine what would happen if sanctions were imposed on these sectors in the case of a Taiwan contingency.

(1) Energy

As of 2019, China is the world's 7th largest oil producing country and has the 13th largest proven oil reserves in the world, with a reserves-to-production ratio of 19 years. China is the world's second largest oil consumer after the United States. It accounts for just over 10% of global consumption and imports 70% of its consumption; in 2017, it surpassed the U.S. to become the world's number one oil importer; as of 2019, China accounted for 23% of global crude oil trade.⁶

In the first half of 2022, crude oil exporters to China were Saudi Arabia (17%), Russia (15%), Iraq (11%), Oman (9%), Angola (8%), UAE (6%), and Kuwait (6%), with a heavy reliance on the Middle East and Russia.⁷ While U.S. sanctions on Iran's crude oil imports have not been lifted, China has increased its crude oil imports from Iran since the beginning of 2021. With China and Iran agreeing and signing a "comprehensive cooperation plan" for a period of 25 years, China's crude oil imports from Iran may increase.⁸

Russia's invasion of Ukraine has prompted China to seek to expand its RMB economic zone, and, in December 2022, China and Saudi Arabia moved toward yuan-denominated oil trading.⁹

These facts of oil transactions with Russia and Iran as well as moves toward yuan-denominated oil transactions with Saudi Arabia and other countries, suggest that the impact of economic sanctions and other measures by the U.S. may be limited.

⁶ Mika Takehara, "Chugoku no Sekiyu ni okeru Sonzaikan [China's Presence in the Oil Sector]," Japan Organization for Metals and Energy Security, April 9, 2021, https://oilgas-info.jogmec.go.jp/info_reports/1008924/1009008.html (Japanese).

⁷ "Chugoku no Genyu Yunyuryo 'Roshiasan' ga 2-kagetsu Renzoku Shui ni [China's Crude Oil Imports 'From Russia' Lead for Second Consecutive Month]," Toyo Keizai Online, August 9, 2022, <https://toyokeizai.net/articles/-/609932> (Japanese).

⁸ Takehara, "Chugoku no Sekiyu ni okeru Sonzaikan [China's Presence in the Oil Sector]" (Note 6).

⁹ Koichi Iwama, "Beidoru Haken o Kuzusu Jinmingen-date Sekiyu Torihiki ni Genjitsumi wa Aru no ka? [Is there any realistic prospect for yuan-denominated oil trading to undermine U.S. dollar hegemony?]," Economist online, January 30, 2023, <https://weekly-economist.mainichi.jp/articles/20230207/se1/00m/020/042000c> (Japanese).

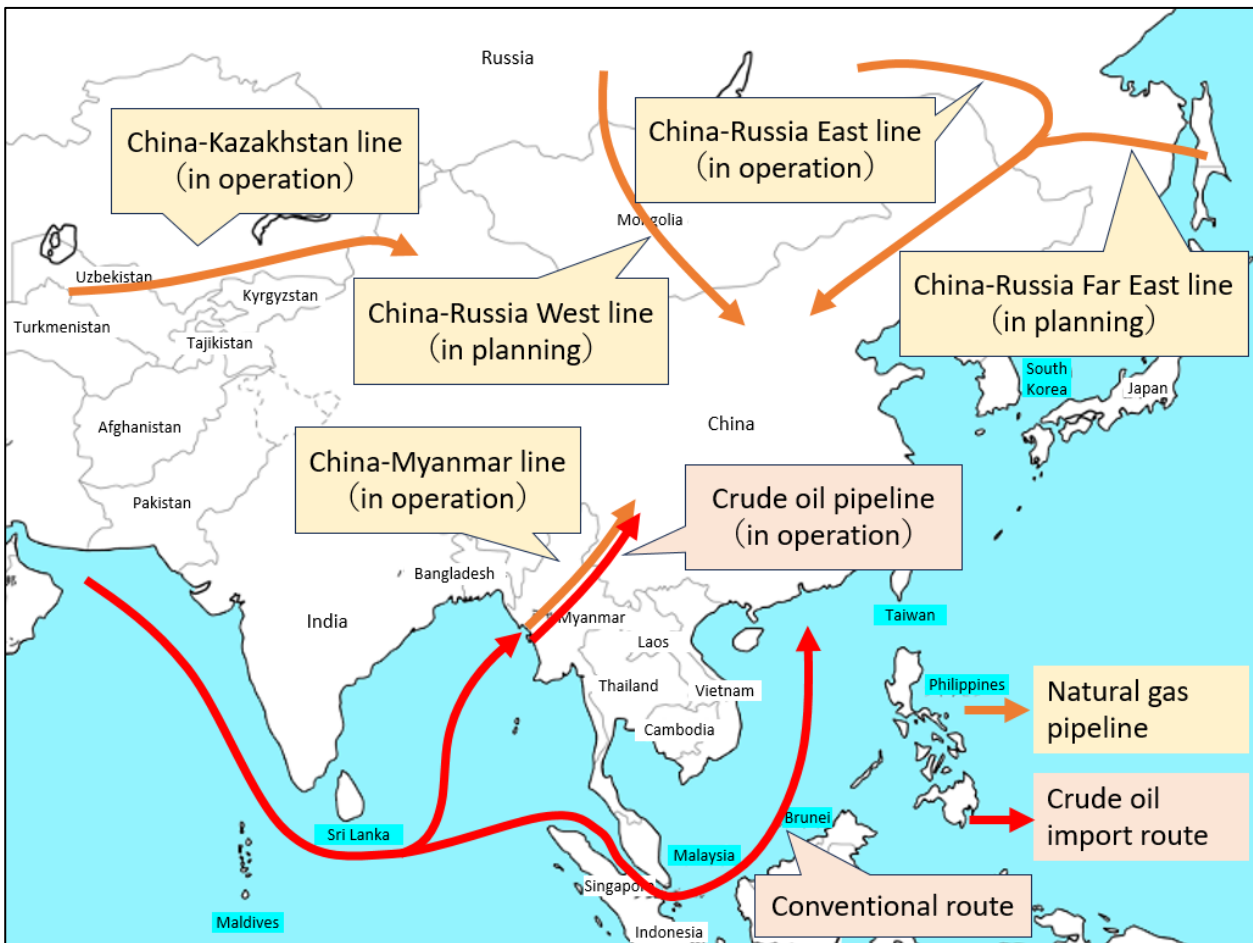


Figure 1 Status of China's Natural Gas Pipelines and Crude Oil Import Routes

Source: Tanaka Nobuhiko, "Chugoku to Roshia o Tsunagu Tennen Gasu Paipu Rain: Ukuraina Senso de 'Gyofu no Ri' wa Aru no ka [Natural Gas Pipeline Connecting China and Russia: 'Profiting Possible While Others Fight' in the War in Ukraine?]," NEC, March 25, 2022, prepared by the author based on <https://wisdom.nec.com/ja/series/tanaka/2022032501/images/002.webp> (Japanese).

Natural gas is not likely to be a decisive factor in economic sanctions, either. The figure above illustrates the status of China's natural gas pipelines and crude oil import routes. In 2021, China surpassed Japan to become the world's largest importer of natural gas. China also produces natural gas domestically, but 90% of its needs depends on imports.¹⁰ Of these imports, 82% comes from Turkmenistan, Uzbekistan, and Kazakhstan, 8% from Myanmar, and the remainder from Russia, making it likely that economic sanctions cannot be effectively imposed in coordination with Japan

¹⁰ Nobuhiko Tanaka, "Chugoku to Roshia o Tsunagu Tennen Gasu Paipu Rain: Ukuraina Senso de 'Gyofu no Ri' wa Aru no ka [Natural Gas Pipeline Connecting China and Russia: 'Profiting Possible While Others Fight' in the War in Ukraine?]," NEC, March 25, 2022, <https://wisdom.nec.com/ja/series/tanaka/2022032501/images/002.webp> (Japanese).

and the United States.

Making sanctions in the energy sector even more difficult are the transportation routes for oil and natural gas. In the case of natural gas, 40% is transported by land pipeline and 60% by ocean transport.¹¹ About 50% of oil is imported from the Middle East via ocean transport.

In the past, China's only maritime route for transporting oil from the Middle East was via the Strait of Malacca and the South China Sea, the same route as that used by Japan. Therefore, there was a common belief that a Taiwan contingency would never actually occur, as such a situation would prevent the aggressor itself from using this essential route, resulting in a devastating stagnation in economic activity. However, as of 2023, an oil pipeline has been laid onshore along the China-Myanmar natural gas pipeline, and crude oil brought by tankers from the Middle East and Iran is unloaded at the Kyauphyu port in Myanmar and sent to China via pipeline.¹² This allows China to import crude oil without having to go through the Strait of Malacca, which saves a great deal of cost and time, and, at the same time, the impact of any difficulties in maritime transportation in the South China Sea can be contained to some extent.

Thus, in the event of a Taiwan contingency, both Japan and China would face significant difficulties in using the maritime route via the Strait of Malacca for oil imports, but since China has transportation methods that do not depend on this route, it is not expected to be a major deterrent factor.

(2) Food supply

China is the world's largest food producer. In China, foodstuffs is defined as rice, wheat, corn, kaoliang (*Sorghum nervosum*), millet, and other minor grains, as well as potatoes and legumes. Among these, rice, wheat, and corn account for about 90% of total foodstuffs production.¹³ In its foodstuffs policy, China has emphasized self-sufficiency and has made it a national goal to be self-sufficient in foodstuffs as a whole, including feed grains; in 2014, this policy was partially changed to allow partial import of corn for assuring a stable supply, while absolute domestic self-sufficiency in rice and wheat would have to be ensured.¹⁴

In 2021, about 150 million tons of rice was produced domestically and 3% of that, or 4.96 million tons, was imported. Two years prior, in 2019, 2.55 million tons was imported, indicating

¹¹ Ibid.

¹² Ibid.

¹³ Shoichiro Kawahara, "Chugoku no Shokuryo Seisaku no Tenkai Katei to Kongo no Hoko [The Development Process and Future Direction of China's Food Policy]," *Nogyo Kenkyu* [Journal of Agricultural Research], No. 34, 2021, pp. 80-81.

¹⁴ Ibid, p. 87.

an increasing trend in imports.¹⁵

Previously, some wheat was imported for feed, but in the past few years it has been mainly for food use and has shown a sharp increase since 2020. The government explains that the imports consist of high-grade wheat for processing while the country is self-sufficient in standard-grade wheat.¹⁶

Corn imports increased in 2021 to 28.36 million tons. This increase in imports was due to tight domestic supplies and high prices in China.¹⁷

The self-sufficiency rate of soybeans has declined significantly. China has been an importer of soybeans, a raw material for oil extraction and animal feed, since 1996. China describes itself as completely self-sufficient in food soybeans.¹⁸

Production areas, volume of imports, and ratio of domestic production of China's major foodstuffs in 2021 are shown in Table 1.

¹⁵ Toru Nakamura, "Chugoku no Shokuryo Jikyū Taisei: Taitosuru China CO-OP no Yakuwari [China's Food Self-Sufficiency System: The Role of the Emerging China CO-OP]," Frontier Eyes Online, December 6, 2022, https://frontier-eyes.online/china_food-self-support/ (Japanese).

¹⁶ Ibid.

¹⁷ The Agriculture & Livestock Industries Corporation, "Saikin no Chugoku no Tomorokoshi Jūkyū no Doko [Recent Trends in China's Corn Supply and Demand]," *ALIC Monthly*, June 2022, p. 81.

¹⁸ Nakamura, "Chugoku no Shokuryo Jikyū Taisei [China's Food Self-Sufficiency System]" (Note 15).

Table 1 Production Areas, Volume of Imports, and Ratio of Domestic Production of China's Major Foodstuffs in 2021

Production areas	Wheat		Corn		Soybeans	
	Volume of imports (ten thousand tons)	Ratio by production area (%)	Volume of imports (ten thousand tons)	Ratio by production area (%)	Volume of imports (ten thousand tons)	Ratio by production area (%)
U.S.	273	28.08	1,983	69.94	5,811	60.20
Australia	273	28.14	0	0.00	0	0.00
Canada	264	26.14	0	0.00	0	0.00
France	141	14.50	0	0.00	0	0.00
Russia	10	1.07	0	0.00	0	0.00
Ukraine	0	0.00	824	29.05	0	0.00
Brazil	0	0.00	0	0.00	3,233	33.50
Argentina	0	0.00	0	0.00	375	3.89
Others	20	2.08	29	1.01	233	2.41
Total volume of imports (import ratio; %)	972	(6.6)	2,836	(9.4)	9,652	(88.8)
Volume of domestic production (domestic production ratio; %)	13,695	(93.4)	27,255	(90.6)	1,640	(11.2)

Source: Prepared by the author based on Toru Nakamura, “*Chugoku no Shokuryo Jikyū Taisei: Taitosuru China CO-OP no Yakuwari* [China’s Food Self-Sufficiency System: The Role of the Emerging China CO-OP],” *Frontier Eyes Online*, December 6, 2022, https://frontier-eyes.online/china_food-self-support/ (Japanese).

Regardless of the validity of the explanation that China is completely self-sufficient in foodstuffs, the small ratio of rice, wheat, and corn imports to domestic production, with the exception of soybeans, suggests that even if the United States were to take the lead in imposing economic sanctions on food, and even if certain effects of the sanctions are observed, the situation would not reach a point at which the sanctions would seriously affect the lives of the citizens.

(3) Semiconductors

De facto sanctions are already in effect in this sector.

In October 2022, the U.S. Biden administration announced that it would tighten export controls on semiconductor-related products that can be converted into weapons of mass destruction or state-of-the-art military systems to China. These advanced semiconductors are positioned as strategic assets essential for next-generation industries such as automated driving and the metaverse, in addition to high-tech weapons such as the latest missiles and fighter aircraft. The U.S. has also sought cooperation from Japan and the Netherlands, which have a high market share in manufacturing equipment such as “exposure systems” that burn circuits into semiconductor materials.¹⁹

On May 23, 2022, the Japanese government promulgated an amendment to the Ministerial Ordinance on Goods and Services under the Foreign Exchange and Foreign Trade Act, expanding the scope of export control to include 23 items, including advanced semiconductor manufacturing equipment. Although the 23 items are not subject to specific country or regional restrictions, they require individual permits for export to all countries and regions, with the exception of 42 friendly countries and regions, making exports to China more difficult.²⁰ As a result, many experts at this time believe that it will be extremely difficult for China to achieve the sophistication and domestication of its semiconductor industry without technology from Western countries.²¹

In response, many Chinese semiconductor manufacturers have been buying large quantities of spare equipment and materials in anticipation of such restrictions. Some observers believe that

¹⁹ “*Sentan Handotai Seizo Sochi Chugoku nado e no Yushutsu Tetsuzuki Genkakuka Naze* [Why Stricter Export Procedures for Advanced Semiconductor Manufacturing Equipment to China and Other Countries],” NHK website, March 31, 2023, <https://www3.nhk.or.jp/news/html/20230331/k10014025251000.html> (Japanese).

²⁰ “*Sentan Handotai no Yushutsu Kisei, 7-gatsu 23-nichi Shiko: Keisansho ga Shorei Kaisei* [Export Controls on Advanced Semiconductors to Take Effect July 23: METI Revises Ministerial Order],” *Nihon Keizai Shimbun* newspaper, May 23, 2023.

²¹ Daisuke Minami, “*Kasokusuru Beichu Dekappuringu: Beikoku Shudo no Taichu Handotai Yushutsu Kisei to Sono Jigyo Eikyo* [Accelerating U.S.-China Decoupling: U.S.-led Restrictions on Semiconductor Exports to China and Their Business Impact],” PwC Japan LLC, April 3, 2023, <https://www.pwc.com/jp/ja/knowledge/column/geopolitical-risk-column/vol4.html> (Japanese).

in the short term, due to China's preparations, the impact of Japan's tighter export controls will not be significant.²² Against this backdrop, reports are circulating that a prototype of the most advanced extreme ultraviolet (EUV) lithography equipment, which has been developed jointly by a team of three Chinese research institutes, has been completed and is on track for development within a few years.²³ In response to the U.S. regulations, the Chinese government is also expanding its support for the semiconductor industry and is working to strengthen its domestic industry by, for example, acquiring highly skilled semiconductor engineers in Taiwan. These moves suggest that even if U.S.-led regulations are tightened in the future, there is still a possibility that China's industrial policy will be successful, and the domestic production of advanced semiconductors will be realized.²⁴

As of May 2023, more than a year has passed since Russia's invasion of Ukraine began. Although export control on semiconductors to Russia is seen as imposing certain restrictions on weapons manufacturing and development, Russia is adapting by combining parts of old weapons, and so far there has not been enough impact from restrictions to significantly change the war situation.

Thus, although export restrictions are estimated to have a certain effect, because they may be overcome by the development of alternative products or proprietary technologies, the restrictions are not expected to have a decisive deterrent effect.

(4) Assessment: Effectiveness of punitive deterrence in preventing a potential invasion of Taiwan

Based on the above accounts, it can be argued that the deterrent effect of sanctions on individual resources is likely to be limited. Therefore, punitive deterrence cannot be expected to have significant effects.

3. Effects of denial deterrence

²² "Nihon no Sentan Handotai 'Yushutsu Kisei': Chugoku wa Do Miru no ka, Zairyo wa Taisho ni Fukumarezu Tankitekina Eikyo wa Keibi to no Mikata mo [Japan's Export Restrictions on Advanced Semiconductors: How China Sees It, Materials Not Included, Some Believe Short-Term Impact Minimal]," Toyo Keizai Online, May 31, 2023, <https://toyokeizai.net/articles/-/675602> (Japanese).

²³ Takeshi Hattori, "Chugoku Osorubeshi! Chugoku wa Supakon ni Tsuzuki Sentan EUV Roko Sochi mo Jishu Kaihatsu ka? [Formidable China! China to Independently Develop Advanced EUV Lithography Equipment Following Supercomputers?]," SEMICONPORTAL, May 11, 2023, <https://www.semiconportal.com/archive/blog/insiders/hattori/230511-chinaeuv.html> (Japanese).

²⁴ Minami, "Kasokusuru Beichu Dekappuringu: Beikoku Shudo no Taichu Handotai Yushutsu Kisei to Sono Jigyo Eikyo [Accelerating U.S.-China Decoupling: U.S.-led Restrictions on Semiconductor Exports to China and Their Business Impact]" (Note 21).

The following section will examine the military perspective of the effects of denial deterrence by addressing the conditions for deterring an invasion of Taiwan by China.

(1) Comparison of military strength

A comparison of the military strength of Japan, the U.S., China, and Taiwan as of 2022 is shown in Table 2.

Table 2 Comparison of Military Strength of Japan, U.S., China, and Taiwan

		China	Taiwan	U.S.	Japan
Total military strength (troops)		Approx. 2.04 million	Approx. 170,000	Approx. 1.32 million	Approx. 250,000
Ground forces	Ground forces strength	Approx. 970,000	Approx. 100,000	Approx. 670,000	Approx. 140,000
	Tanks, etc.	Approx. 6,200	Approx. 750	Approx. 6,300	Approx. 1,000
Naval power	Naval vessels	Approx. 750 (approx. 2.24 million tons)	Approx. 250 (205,000 tons)	Approx. 970 (approx. 7.26 million tons)	Approx. 140 (510,000 tons)
	Aircraft carriers, destroyers, and frigates	Approx. 90	Approx. 30	102	48
	Submarines	Approx. 70	4	69	22
	Marine corps	Approx. 40,000	Approx. 10,000	Approx. 180,000	0
Air power	Combat aircraft	Approx. 3,030	Approx. 520	Approx. 3,500	Approx. 360
	Modern fighter aircraft	Approx. 1,270	Approx. 323	Approx. 2,400	Approx. 260

Source: Prepared by the author based on *The Military Balance 2022*, *SIPRI Yearbook 2021*, others.

The strength of China's total military and ground forces already exceed those of the United States. Naval power of the two countries is also nearly matched in terms of aircraft carriers, destroyers, frigates, mainline naval vessels, and submarines. Air power is dominated by the United States.

However, the United States has nine joint forces around the world, and the United States Indo-

Pacific Command is the one in charge of Taiwan and Japan. The Command consists of about 300,000 troops, or about 20% of the total U.S. military, so China has an overwhelming advantage in terms of the military strength that can be deployed in the vicinity of Taiwan.

Further, China is estimated to possess more than 2,200 various ground-launched ballistic and cruise missiles, including the DF-21D anti-ship ballistic missiles with a range of more than 1,500 kilometers, collectively referred to as the “carrier killer” for their anti-ship capabilities; the DF-26 medium-range ballistic missiles with a range of 3,000 to 5,000 kilometers, known as the “Guam Killer”; and the DF-17 hypersonic missiles.²⁵ These long-range precision strike systems that China has developed are relatively inexpensive when compared to targeted U.S. naval and other vessels and are said to impose costs on the U.S.²⁶

With the expansion of China’s military power, the U.S. is believed to be shifting its military strategy guidance toward denial deterrence. Rather than relying on overwhelming China with conventional maritime-aerial dominance, the U.S. has shifted to a strategy using more cost-effective assets such as stand-off weapons like stealth bombers, fighter aircraft, submarine-launched long-range cruise missiles, and ground-launched missiles and unmanned vehicles to asymmetrically neutralize China’s large assets, its command and control, and intelligence, surveillance and reconnaissance (ISR) capabilities.

(2) Conditions for deterring an invasion of Taiwan by China

On January 9, 2023, the Center for Strategic and International Studies (CSIS) released *The First Battle of the Next War* (the “Report”). The content of this Report examines wargame scenarios of a Chinese landing operation on Taiwan in 2026.

The Report’s stated purpose is to examine the following questions and encourage discussion of the U.S. response:²⁷

- (a) Would a Chinese invasion of Taiwan succeed in 2026?
- (b) What would be the cost to both sides?
- (c) What variables most affect that outcome?

²⁵ Michael Pillsbury, translated by Kyoko Nonaka, *China 2049: Himitsuri ni Suikosareru ‘Sekai Haken 100-nen Senryaku’* [China 2049: The Secretly Executed ‘100-Year Strategy for Global Hegemony’], Nikkei BP publisher, 2015, pp. 235-238.

²⁶ Aaron Friedberg, translated by Shigetoshi Hirayama, *Amerika no Taichu Gunji Senryaku: Ea-shi Batoru no Saki ni Aru Mono* [Beyond Air-Sea Battle: The Debate Over US Military Strategy in Asia], Fuyo Shobo publisher, 2016, pp. 57-62.

²⁷ Center for Strategic and International Studies, *The First Battle of the Next War: Wargaming a Chinese Invasion of Taiwan*, January 2023, p.40. https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/230109_Cancian_FirstBattle_NextWar.pdf?VersionId=WdEUwJYWlySMP1r3ivhFolxC_gZQuSOQ

The following three subsections will examine the analytical results of the three questions in terms of how they might contribute to denial deterrence.

(a) Would a Chinese invasion of Taiwan succeed in 2026?

CSIS has conducted a total of more than 33.5 million simulations of 24 different battle scenarios with varying settings. The results show that the U.S. won in 22 scenarios while China won in 2 scenarios.²⁸

In the two scenarios in which China won, one scenario assumed that the U.S. did not intervene, and the other scenario assumed that the U.S. did intervene but that Japan took a neutral position and did not allow U.S. forces stationed in Japan to participate in the fighting.

In the remaining 22 scenarios in which the U.S. was victorious, the simulations were divided into three categories: a base scenario, a pessimistic scenario, and an optimistic scenario. The details of these scenarios are undisclosed, and it is impossible to determine whether they actually match the plans prepared by the Chinese side. However, the results of the analysis based on the vast amount of data accumulated by the U.S. through the simulations indicate that the U.S. would win in the majority of scenarios, including the pessimistic ones. This indication of the results in itself has the effect of obscuring China's war outcome forecasts and making it more challenging for them to make a decision to launch an invasion. Even if the results of the Chinese simulations indicate a strong possibility of a Chinese victory, this may have the effect of delaying decision-making by arousing suspicion that there may be flaws in China's assumptions or in their assessment of U.S. military capabilities, thereby contributing to denial deterrence.

(b) What would be the cost to both sides?

Item (a) above is a case of denial deterrence focused on the likelihood of a successful invasion. In addition to this, predicting the post-invasion damage can also contribute to denial deterrence. As shown in Table 3, according to the Report, the U.S. would suffer significant losses in terms of fighter aircraft, while China would suffer significant damage to its naval vessels.

²⁸ Ibid. pp. 85-105.

Table 3 U.S., Japan, and China

Scenario types	U.S.		Japan		China	
	Fighter aircraft	Naval vessels	Fighter aircraft	Naval vessels	Fighter aircraft	Naval vessels
Base scenario	270	17	112	26	155	138
Pessimistic scenario	484	14	161	14	327	113
Optimistic scenario	200	8	90	16	18	129

Source: Prepared by the author based on *The First Battle of the Next War*, p. 94, Center for Strategic and International Studies (CSIS) Report, January 9, 2023.

The reason for the above assessment of damage is that, with regard to fighter aircraft, the U.S. uses mainly its military bases in Japan, which are few in number, making it easier for China to narrow down the targets of attack, while the Chinese side has many airfields on the continent, making it easier to limit the damage by deploying fighter aircraft to various bases. With regard to naval vessels, the majority of the damage on the Chinese side would be amphibious assault ships used to transport ground forces, perhaps because the naval vessels may have relatively lower defensive capabilities.

The Report notes that in three weeks of combat around Taiwan, the U.S. would incur half the casualties sustained from 20 years of U.S. combat in Iraq and Afghanistan.²⁹ It also states, “Victory is not everything. The United States might win a pyrrhic victory, suffering more in the long run than the ‘defeated’ Chinese.”³⁰

(c) What variables most affect that outcome?

The Report lists the following conditions as necessary for deterring an invasion by China and defending Taiwan.³¹ In other words, the Report tacitly recommends that each country concerned clarify its position on the following conditions in order to maximize the effectiveness of deterrence

²⁹ Ibid. p. 120.

³⁰ Ibid. p. 4.

³¹ Ibid. p. 83.

by denial.

(i) Taiwanese forces must hold the line

This condition means that Taiwan's military will not surrender before U.S. forces enter the war³² and is an absolute condition for deterring China's invasion of Taiwan.

(ii) U.S. forces must quickly engage in direct combat

Taiwan is separated from mainland China by the Taiwan Strait, in contrast to being connected by land as is the case of Russia and Ukraine. This makes it impossible for foreign countries to supply arms to Taiwan in the event of a Taiwan contingency, as a naval blockade of Taiwan by the Chinese military would be initiated if war were to break out. Therefore, the Report emphasizes that it is first necessary to strengthen Taiwan's military before an invasion occurs.³³ It also highlights that U.S. forces would need to enter the war within a few days to prevent Taiwan from being isolated, once a battle is launched.³⁴

(iii) The United States must be able to use its bases in Japan for combat operations

In the U.S. military operation to deter an invasion of Taiwan, the most important mission will be for U.S. military aircraft to attack Chinese ships. In this scenario, fighter aircraft stationed at U.S. military bases in Japan will be used to attack Chinese ships and escort U.S. bombers from Guam in preparation for attack. If the U.S. bases in Japan were not available, the fighter aircraft would have to launch from Guam or other distant bases, which would make it impossible for these assets to re-launch in a short time after refueling and replenishing ammunition, etc. at the bases, thus making it impossible to achieve sufficient effects.

The Report recommends not only the U.S. use of its military bases in Japan but also its use of Japan Self-Defense Forces (JSDF) bases and civilian airports in Japan to enhance the survivability of U.S. fighter aircraft.³⁵

(iv) The United States must possess enough air-launched, long-range anti-ship cruise missiles ASCMs (LRASM)

This operation requires that U.S. forces have sufficient stockpiles of air-launched, long-range anti-

³² Ibid. p. 3.

³³ Ibid. p. 123.

³⁴ Ibid. p. 3.

³⁵ Ibid. pp. 126-127.

ship cruise missiles (LRASM) in order “to strike the Chinese fleet rapidly and en masse” to hinder Chinese amphibious operations. If these missiles are depleted, U.S. forces would have to use short-range missiles to attack Chinese ships. In this case, the U.S. forces would have to enter the range of China’s surface-to-air missile and airborne early warning and control aircraft, resulting in increased attrition on U.S. forces.³⁶

The Report states that the key weapon to victory is the LRASM, and it estimates that the U.S. Air Force and U.S. Navy will have a total of 450 missiles in 2026 and recommends mass production and deployment of LRASMs.³⁷

(d) Conditions for deterring invasion of Taiwan from the perspective of denial deterrence

In terms of military strength, it may be difficult for U.S. forces to maintain a numerical advantage over Chinese forces. However, denial deterrence can be expected to function through asymmetric attrition. In particular, possession of enough air-launched, long-range anti-ship cruise missiles (LRASM) would be a factor in deterring an invasion of Taiwan by China. In addition, strengthening Taiwan’s military to be able to maintain the front line until the U.S. military intervenes, as well as enabling the U.S. military use of its military bases in Japan in the event of a Taiwan contingency, would contribute to denial deterrence.

Since the Report also states that Japan’s involvement is an essential condition for deterring an invasion of Taiwan, the next section examines Japan’s three security documents released in December 2022 and the Japanese government’s trends in relation to these four conditions and how they contribute to denial deterrence.

(3) Japan’s three security documents and trends in the Japanese government’s crisis response approach

We will review the descriptions about the “Response to China” in Japan’s three security documents approved by the Cabinet on December 16, 2022 and analyze how Japan can contribute to the denial deterrence of an invasion of Taiwan by China from the viewpoints of two of the four conditions of the aforementioned CSIS Report: “U.S. use of its military bases in Japan,” which is directly related to Japan’s defense, and the “U.S. military’s possession of air-launched, long-range anti-ship cruise missiles (LRASM).”

(a) Response to China

³⁶ Ibid. p. 137.

³⁷ Ibid. pp. 137-138.

Of Japan's three security documents, National Security Strategy, which defines Japan's basic security policy, refers to China's security trends as follows: "China has intensified its attempts to unilaterally change the status quo by force in the maritime and air domains including in the East and South China Seas," "China has not denied the possibility of using military force" against Taiwan, and "China has been intensifying its military activities in the sea and airspace surrounding Taiwan." The National Security Strategy also refers to China as the "greatest strategic challenge in ensuring the peace and security of Japan and the peace and stability of the international community" and should be addressed by Japan "in cooperation with its ally, like-minded countries and others."³⁸

Next, the National Defense Strategy (formerly the National Defense Program Guidelines), which is the basic policy for missions performed by the Ministry of Defense and the JSDF, among the policies related to security lists "to deter, through cooperation with our ally, like-minded countries and others, unilateral changes to the status quo by force and such attempts" as a defense objective, and, as one approach to achieving this goal, "Strengthening Japan and U.S. joint deterrence and response capabilities" as one of the approaches.³⁹ And as a necessary function and capability to respond to new ways of warfare, the National Defense Strategy raises "stand-off defense capability," which is a long-range counterattack capability from outside the sphere of threats.⁴⁰

The "U.S. military air-launched, long-range LRASM" referred to in the previous section is a system that forms part of this stand-off defense capability.

(b) Analysis of Japan's policy corresponding to conditions listed by the CSIS Report

(i) The United States must be able to use its bases in Japan for combat operations

The CSIS recommendations include the U.S. use of its military bases in Japan, improving the resilience of military bases, and the use of civilian airports. The National Defense Strategy calls for efforts to "gain understanding and cooperation from local governments and residents around their [U.S. military] facilities [in Japan]⁴¹ and "initiatives to reinforce the readiness and resiliency of U.S. Forces in Japan.⁴² In addition, since the Japan-U.S. 2+2 meeting held on January 11, 2023 agreed to consider the U.S. use of civilian airports and other facilities in Japan,⁴³ it can be

³⁸ National Security Strategy, approved by the Cabinet on December 16, 2022, pp. 8-9.

³⁹ National Defense Strategy, approved by the Cabinet on December 16, 2022, p. 7 (Japanese); p. 18 (English).

⁴⁰ Ibid, p. 8 (Japanese); p. 18 (English).

⁴¹ Ibid, p. 13 (Japanese); p. 18 (English).

⁴² Ibid, p. 15 (Japanese); p. 20 (English).

⁴³ Ministry of Defense, "Joint Statement of the Security Consultative Committee ("2+2") (tentative translation)," January 11, 2023,

evaluated that the CSIS recommendations and the direction of Japan's policy are generally in agreement. Although whether U.S. military bases in Japan can actually be used by U.S. forces is ultimately a matter of political decision-making, it can be evaluated that Japan and the U.S. have established a common policy stance which will contribute to denial deterrence to deter an invasion of Taiwan.

(ii) The United States must possess enough air-launched, long-range ASCMs (LRASM)

The CSIS recommendation for U.S. military's possession of enough air-launched, long-range ASCMs (LRASM) has been clearly stated as a policy for introduction into the JSDF as a stand-off defense capability.

Based on the National Defense Strategy, the Defense Buildup Program (formerly the Medium Term Defense Program), which outlines the capabilities, budget, and personnel of the JSDF to be developed and acquired over approximately the next five years, calls for the development and production of the prototype of upgraded domestic missiles and the procurement of foreign-made stand-off missiles.⁴⁴ Looking at procurement trends, the F-35A onboard Joint Strike Missile (JSM) will be acquired.⁴⁵ The JSM is a Norwegian-made air-launched anti-ship or land attack cruise missile. On the other hand, the introduction of the U.S.-made LRASM for the F-15 upgraded aircraft has been abandoned due to the high cost of refurbishment.⁴⁶ By promoting the installation of air-to-ship missiles (JSM) on the F-35A (currently 27 aircraft), Japan will have an air-launched LRASM strike capability similar to that of the U.S. military, albeit limited. However, this does not necessarily mean that the JSDF will conduct operations similar to those of the U.S. military in actual operations. Nevertheless, the possession of this equipment will give Japan a potential capability, which the target countries will have no choice but to consider as a threat assessment factor and can therefore be evaluated as a positive factor for denial deterrence.

To sum up, the analysis of Japan's three security documents and the trends in the Japanese government's policy development demonstrate their contribution to the denial deterrence of a Taiwan contingency.

4. Response to hybrid threats

In Russia's 2014 annexation of Crimea and 2022 invasion of Ukraine, the success or failure of the

https://www.mod.go.jp/j/approach/anpo/2023/0112a_usa-j.html (Japanese);

<https://www.mod.go.jp/en/article/2023/01/e595130b273955f65e436fa3a8150eb06bfc42a3.html> (English).

⁴⁴ "Defense Buildup Program," approved by the Cabinet on December 16, 2022, pp. 2-3 (Japanese); pp. 6-7 (English).

⁴⁵ Ministry of Defense, *Defense of Japan 2022* (Annual White Paper), Nikkei Printing Inc., 2022, p. 249 (Japanese); p. 249 (English).

⁴⁶ "Kuji F-15J Noryoku Kojogata e no LRASM Tosai Chushi e [LRASM procurement to be canceled on Japan Air Self-Defense Force F-15J upgraded model]," *Ships of the World*, August 23, 2021, <https://www.ships-net.co.jp> (Japanese).

exercise of hybrid threat activity had a significant impact on the success or failure of the military invasion. Therefore, appropriate response to the exercise of hybrid threat activity is considered important in order to deter military invasion from other countries. In light of Russia’s invasion of Ukraine, it is widely believed that when China attempts to unify Taiwan, it will use various hybrid threat activity against Taiwan, Japan, and the United States rather than launching a military invasion from the outset. However, the scope of hybrid threat analysis conducted by various research institutes thus far is generally focused on a few areas such as cyberattacks and information warfare and does not cover new areas such as space and electromagnetic waves, where the arms race among major powers including Russia and China is remarkable, or economic and social areas, where hybrid warfare could be widely employed before a full-fledged military invasion begins, making it a challenge to grasp a complete picture of the threats. Therefore, in order to analyze potential hybrid threats against Japan, we consider it useful to conduct a threat analysis for a Taiwan contingency using the Conceptual Model for Hybrid Threat Analysis (Figure 2), which is said to have been used by Hybrid CoE - the European Centre of Excellence for Countering Hybrid Threats to analyze hybrid threats during Russia’s invasion of Ukraine. The model uses the “40 tools of hybrid threat activity” and “13 affected domains” listed as the threat checklist.

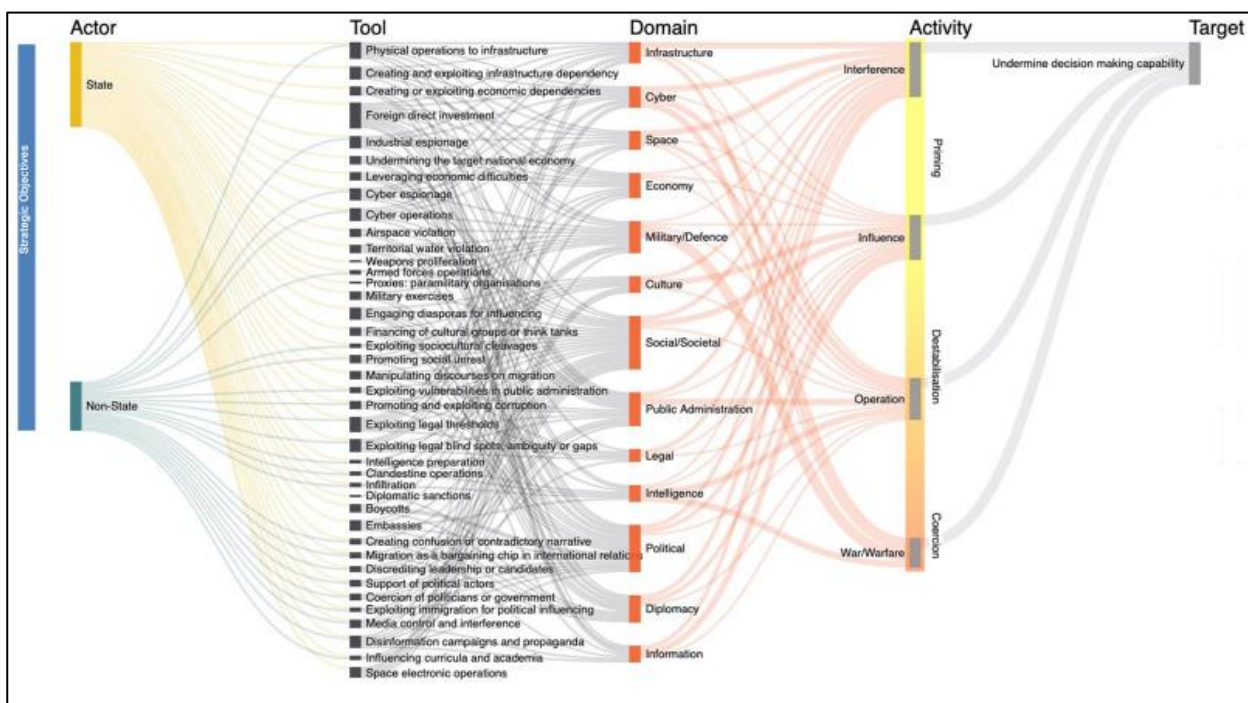


Figure 2 Conceptual Model for Hybrid Threat Analysis

Source: *The Landscape of Hybrid Threats: A Conceptual Model Public Version*, p. 13.
https://www.hybridcoe.fi/wp-content/uploads/2021/02/conceptual_framework-reference-version-shortened-good_cover_-_publication_office.pdf

Below, we discuss the significance of utilizing this model and points to keep in mind when applying it to a Taiwan contingency.

(1) Significance of using the conceptual model

Figure 3 summarizes examples of previous or existing studies of hybrid threats by China against Japan in the event of a Taiwan contingency based on the abovementioned Conceptual Model for Hybrid Threat Analysis. The areas surrounded by red squares are possible tools of hybrid threat activity by China that have not yet been studied extensively and should be researched. By utilizing the conceptual model, it is possible to identify areas that are under-researched and to get a complete picture of the threats.

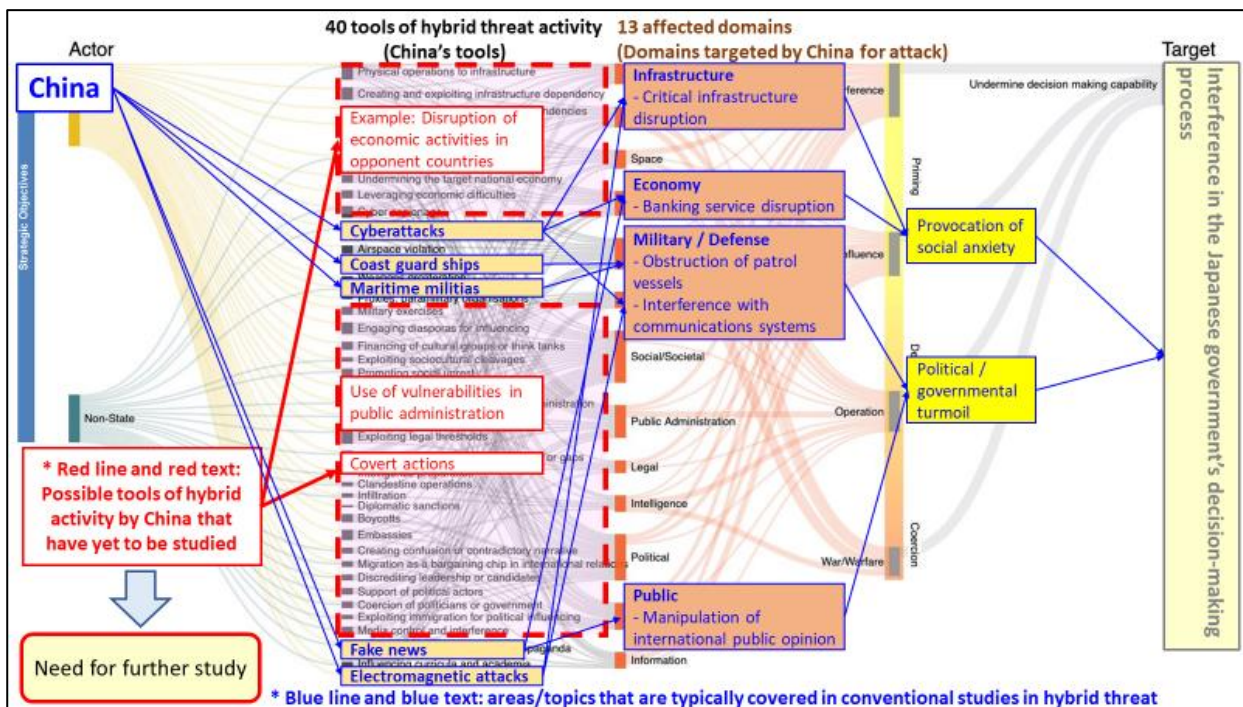


Figure 3 Conceptual Model for Hybrid Threat Analysis and Research Status of China's Hybrid Threat against Japan

Source: Prepared by the author based on *The Landscape of Hybrid Threats: A Conceptual Model Public Version*, p. 13 (https://www.hybridcoe.fi/wp-content/uploads/2021/02/conceptual_framework-reference-version-shortened-good_cover_-_publication_office.pdf)

If viewing the CSIS Report's recommendations by applying this goal from China's perspective, one would see that China could be able to heighten a possibility of success in its operation to invade Taiwan by influencing Japan to disallow the U.S. use of its military bases in Japan. In other words, China could potentially conduct a hybrid threat activity with an emphasis on the goal of

disabling U.S. military bases in Japan. The Conceptual Model for Hybrid Threat Analysis provides more specific tools of hybrid threat activity that China could possibly use by applying China's more specific goal. In this case, a goal of "interference in the Japanese government decision-making process" can be further specified as "disrupting the U.S. use of its military bases in Japan" as shown in Figure 3, allowing us to deliberate on the specific tools relevant to this goal.

(2) Points to keep in mind when applying the conceptual model to a Taiwan contingency

In applying this conceptual model to a Taiwan contingency, the following two points should be kept in mind.

(a) Differences in the security environment between Europe and East Asia

The conceptual model presented by the Hybrid CoE was developed based on studies of Russia's use of hybrid threat activity against Ukraine. While Russia and Ukraine are neighboring countries connected by land, China and Taiwan are separated by the sea, so their security environments are different. Therefore, because the tools of hybrid threat activity may differ, the conceptual model cannot be used as is. For example, the frequent disruption of submarine communication cables near Taiwan by Chinese fishing vessels is a typical example of a tool of hybrid threat activity that could destabilize Taiwanese society. Such a hybrid threat activity cannot be considered as a tool for Russia to conduct against Ukraine because Russia and Ukraine are connected by land.

Therefore, it is important to keep in mind the differences in the security environments between Europe and East Asia and, if necessary, to develop a unique framework specific to a Taiwan contingency.

(b) The relationship between the use of hybrid threat activity and deterrence

During Russia's invasion of Ukraine in 2022, Ukraine was said to have successfully responded to Russia's use of various hybrid threat activity. However, given the fact that even when the use of hybrid threat activity was neutralized, Russia still decided to launch a military invasion, it is clear that the conceptual model is not complete as a deterrence tool. As mentioned above, for deterrence to function, the deterring party must have the intention and capability to execute a military response, and that intention and capability must be accurately recognized by the other party. For this reason, it is necessary to consider strategies to both respond to hybrid threat activity as well as to link them to deterrence.

Conclusion

This study examines “punitive deterrence” and “denial deterrence” as potential means of deterring a Taiwan contingency referencing the CSIS Report and Japan’s three security documents mentioned at the beginning of this study report. As a result, while punitive deterrence would be unlikely to be effective in a Taiwan contingency, the CSIS Report presents the effectiveness of denial deterrence and suggests that a military-strategic response would deter both sides from invasion or response. While there may be concerns about escalating tensions that could contribute to the security dilemma on the one hand, on the other, the Japanese government’s policy as set forth in Japan’s three security documents should have a positive influence on the effect of denial deterrence.

In addition, in responding to potential hybrid threat activity in the course of development into a Taiwan contingency, establishing a system for detecting and analyzing indicators using the Conceptual Model for Hybrid Threat Analysis could be effective. Although there are many challenges to be addressed toward implementation, such as reflecting the differences in the security environments between Europe and East Asia, development of countermeasures to respond to specific hybrid threat activity, and examining appropriate information strategy to deter these threats, the conceptual model is useful to make assumptions regarding hybrid threat activity that could be used in the development stage before a full-scale invasion of Taiwan and to systematically understand the situation in the event that hybrid threat activity is actually exercised. The conceptual model provides a perspective that could serve as a basis for envisioning Japan’s approach to deterring a Taiwan contingency, and further research is needed.