PISM POLSKI INSTYTUT SPRAW MIĘDZYNARODOWYCH
THE POLISH INSTITUTE OF INTERNATIONAL AFFAIRS

BULLETIN

No. 25 (620), 26 February 2014 © PISM

Editors: Marcin Zaborowski (Editor-in-Chief) ● Katarzyna Staniewska (Managing Editor)
Jarosław Ćwiek-Karpowicz ● Artur Gradziuk ● Piotr Kościński
Roderick Parkes ● Marcin Terlikowski

Lone Tiger? Development of Taiwan's Air and Missile Defence

Marcin Andrzej Piotrowski

Taiwan is facing a potential threat from the Chinese arsenal of ballistic missiles, which now far outnumber Taiwanese defence capabilities. Additionally, the rapid modernisation of China's air forces has influenced the growing military imbalance between China and Taiwan. For these reasons, Taipei is working on full integration and modernisation of its air and missile defences, and investing in the creation of its conventional deterrence forces. Beside examining the unique situation of Taiwan, Poland could also draw important lessons from Taiwanese experience in both areas.

The Threat from China. Taiwan is concerned about the growing military power of China. In the 1990s, Beijing initiated the modernisation of China's People's Army. Taiwan currently has 215,000 soldiers and a military budget of $10.3 billion, while China has more than 2 million troops and budget of $102 billion, ten times more than Taiwan. As well as making progress with new strategic missiles (DF-31 and JL-2), China is now armed with new short range ballistic missiles (DF-11, 300 km, and DF-15, 600 km). According to the United States, China might be armed with arsenal of 1,100-1,200 short range missiles, and according to Taiwan, up to between 1,500 and 1,600. China is also developing different versions of the medium range DF-21 ballistic missile (1,700 km), and this arsenal is reinforced with up to 500 DH-10 cruise missiles (2,500 km). Chinese ballistic missiles were used as an instrument of pressure on Taiwan during demonstrative tests in 1995–1996 and 2004. They might be used for the destruction of Taiwanese command centers, early warning radar and air defence systems, military airfields and ports, and civilian targets. Missiles strikes are one of preconditions for Chinese air superiority based on the use of multirole Su-27 and Su-30, which vastly outnumber the fleet of the Taiwanese F-16s. Taiwan's unfavorable situation is exacerbated by the deployment on China's coast of navy vessels equipped with the Russian S-300 air defence system (with a range of up to 200 km), also useful for control of the air space over the Taiwan Strait. Taiwan is also concerned about China's plans for the future, including the possibility of the introduction of new generation tactical ballistic missiles (analogous to Russian Iskanders) and J-20 and J-31 fighters, with built-in stealth technology, by 2020. And even with all these new systems in place, China will probably maintain its older generation of missiles, which, used heavily, could disturb or paralyse Taiwan's defences.

Internal Constraints. Military modernisation by China is accompanied by an otherwise better climate in relations with Taiwan, and the growing economic interdependence of both countries. This has had an impact on the shrinking of Taiwan's defence budget to 2% of GDP, and to debates about the cost of missile defence. Problems in determining the common interests of the commanders of the army, navy and air forces of Taiwan were also an important factor, but even more so was the pressure of public opinion, demanding defence for civilian centres and not for military bases. In the previous decade, Taiwanese politicians also opposed dependence on United States technologies and systems, with support for more investments in research and production at the Chung-Shan Institute of Science and Technology (CSIST). Additionally, politicians criticised the growing costs of the early warning radar project ($1.23 billion instead of $800 million), which even with impressing capabilities for long-range reconnaissance would probably not survive the initial phase of a conflict between Taiwan and China.

Relations with the United States. Due to the history and asymmetry in potentials of China and Taiwan, the government in Taipei has traditionally been oriented towards close but informal military cooperation with the United

States. Compared to the Cold War period, the U.S. is currently less committed to the defence of Taiwan. In Washington there are divisions about the strategic importance of this country. The pro-Taiwanese lobby is still influential in the Congress and Republican Party, and American arms manufacturers have a voice too. Studies by the Pentagon in 1999–2001 concluded that Taiwan would not be able to monitor the airspace around its islands without naval destroyers equipped with Aegis and SM-3 systems or ground THAAD radar and missile defence systems. However, the priority of the U.S. Navy's requirements, and protests by Beijing, resulted in the U.S. providing only four Kidd-class destroyers with less effective systems. And even after Barack Obama's announcement of the "Pivot to Asia," Taiwan cannot count on real security guarantees or more advanced defence systems from the United States. Its chances of obtaining offensive arms from the U.S. or finding alternative and serious partners in the area of missile defence are also slim.

The Architecture of the System. In 1993, Taiwan achieved limited capabilities for missile defence, with the delivery of Patriot PAC-2 systems. However, only since 2006 has Taiwan integrated different elements into a single network. The most important part of this network is the integrated *Po Sheng-Shyun An* command system, created by the CSIST with Lockheed Martin, and introduced 2009. Taiwanese defence is also based on the Pave Paws early warning radar, built by Raytheon in Leshan. Since 2013 this radar has been capable of surveillance of up to a thousand objects in air space, to a range of up to 3,000 km over China and the DPRK, which is a reason for great speculation about its importance for the U.S. and its allies in region. Missile defence for Taipei is covered by three batteries of the Patriot system with radar and interceptors with a range of 160–170 km. Taiwan bought them in 1993, along with 200 PAC-2 missiles, but since 2008 they were have been upgraded to PAC-3 level. Taiwan is also expecting the delivery of three more batteries with 330 PAC-3 missiles soon. Patriots are coupled with Taiwanese produced TK-1 and TK-2 missiles, with ranges of 100 km and 200 km respectively. The TK-1 and TK-2 missiles and radar were developed by the CSIST and Lockheed Martin in 1986–1998 (using 80% PAC-1 technology), for defending against aircraft and cruise missiles. Taiwanese defence is also unique in that part of its TK-2 missile arsenal is deployed in two bases with specially enhanced silos. The four Kidd-class destroyers mentioned above, with their SM-2 systems with a range of 130 km, are still of limited importance due to their few launchers (of the vessels were delivered in 2005–2006). Taiwan's short range air defence is based on the 13 batteries of the I-HAWK system (with a range of 40 km), also useful against cruise missiles. Taiwan's combination of systems (PAC, TK and I-HAWK) is augmented by very short range army batteries (Chaparral and Avenger, with a range of 5–6 km). Taiwan's great expectations are focused on the CSIST's development of the new Chang Shan radar, and TK-3 missiles with a range of 200 km. The TK-3 missiles have been tested since 2008, and they might have capabilities similar to those of PAC-3, but at a much lower production cost. There are also plans for a naval version of the TK-3 batteries.

"Taiwanese Claws"? Asymmetry with China and the high costs of missile defence forced Taiwan to study the doctrine of long-range conventional strikes. It may be cheaper to achieve this solution than to opt for new generation, multi-role fighters from the U.S., and would complicate the offensive capabilities of China. Such a concept was confirmed during work on the Taiwan's *Quadrennial Defense Review* of 2009 and 2013. The latest document refers to Taiwan's "credible deterrence forces" based on the ballistic and cruise missiles. Due to the high mobility of Chinese offensive systems, this Taiwanese deterrent might be aimed at a few economic centres on the Chinese coast. Taiwan's options for a retaliatory strike include a few hundred HF-2 cruise missiles with a range of 600–800 km, as well YF ballistic missile with ranges of 1,200 km and 2,000 km. These options are much cheaper than the newer generation of the American multi-role aircraft would be, and would complicate China's military calculations and plans.

Conclusion. Poland is planning the creation of its own air and missile defence system, so it should observe Taiwanese experience. Taiwanese solutions of strategic, technological, economical and internal problems while building its air and missile defence would also have some relevance to Polish plans. Moreover, Poland should monitor the evolution of the Taiwanese military defence doctrine. The quantitative advantage and expected qualitative progress of China are also pushing Taiwan, with limited resources, towards investment in integrated air and missile defence, as well as into its own conventional deterrents. In the light of China's growing ambitions and military capabilities in the region, it may be expected that India, Vietnam, the Philippines, Japan and South Korea implement their own programmes, similar to Taiwan's investment in short and medium range ballistic missiles.