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### **STRENGTHENING CHINA'S AIR DEFENCE CAPABILITY: S-400 SAM SYSTEM**

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Recent media reports state that China has finally signed the 3 billion dollar contract with Russia for the supply of S-400 Triumf Surface to Air Missile (SAM) system.<sup>i</sup> Some reports claim that the deal has not yet materialised and is still in the negotiation process.<sup>ii</sup> However, if the deal materialises, the SAM system would tremendously strengthen China's air defence capability as the S-400 is currently one of the most potent and modern SAM system. Moreover, China will be the first foreign country to procure the S-400 Triumf. Concerns are already in the air on the potential impact if the system is deployed across the Taiwan Strait and Shandong peninsula, close to the disputed Islands.

China deploying the S-400 system will be a game changer in the region as the system is more potent than the existing S-300 versions and its re-engineered variant- the HQ-9 SAM. This system would put more pressure on China's adversaries as it would take greater resources and effort to counter it. China acquiring the S-400 is a bigger cause for concern because historically the number of aircraft lost in combat to SAM systems is enormous compared to air-to-air engagements. This ratio has shown a rapid increase over time. The system in combination with fighter interceptors would make Chinese air space extremely difficult to penetrate as the attrition rate could be very high. This might result in a reduced tempo of air operation particularly in the early phase of a conflict.

#### **S-400: THE SYSTEM**

The S-400 is a system with high operational mobility which would be suitable for manoeuvre warfare as well as for protecting fixed sites and is an enhancement over the S-300 series. It comes



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with enhanced anti-jamming and some level of anti-stealth capability (inclusion of optional VHF T/R and ELS). The system was designed with the aim of making it capable of intercepting low flying targets. The more significant aspect is the increased power aperture performance which gives the system a maximum detection range of around 400 km.<sup>iii</sup> The system also comes with multiple option of missiles and radars for specific scenarios. The increased power aperture also gives some anti-stealth capability as it increases the burn-through distance for target detection and acquisition. In this case, unlike the VHF antenna, the acquired low RCS target can be tracked and engaged starting from the achieved burn-through distance.

Almost all of China's SAM systems are either Russian origin or locally cloned versions of Russian systems. Reports claim that Russia was reluctant to sell the system to China due to concerns over the possibility of PRC reverse engineering it.<sup>iv</sup> However, this might have been overcome as both countries have signed an enhanced Intellectual Property Protection agreement and possibly with a promise from China on acquiring the system in large numbers so that the Russian industries are not affected even if China re-engineers the system in future.<sup>v</sup> However, there is no information on how many S-400s China will purchase and with what configuration (optional radars and missiles). It is likely that China might not go for the legacy missiles (developed for the S-300 which the S-400 could also use) as China has already re-engineered and locally manufactures these rockets for the HQ-9 system.

### **TAIWAN AND EAST CHINA SEA SCENARIO**

It is feared that China would deploy the S-400 SAM system across the Taiwan Strait, which it most probably would as they have deployed the S-300 SAM in the region, which is confirmed by satellite imageries. Given its range the S-400 could cover the entire Taiwan airspace preventing any of Taiwan's fighter jets from getting airborne and climbing beyond a certain altitude. When used in combination with the PLAAF fighter aircraft and the 1500 and above Short Range Ballistic Missiles (SRBM) deployed across Taiwan Strait, China could maintain absolute air superiority over Taiwan which it considers will be a key factor for victory. The PLA strategy is to deliver pre-emptive strikes



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on the enemy's Command and Control nodes and airbases to put it out of action for a sufficient time. To counter this, Taiwan air force is preparing its fighters to Take Off from roadways at selected points and is also improving runway repair capability. However, with the S-400 in place, the alternatives for Taiwanese Air Force fighter jets are getting restricted.

Enormous resources, preparation, training and special tactics are needed to defeat this system (S-400). It is possible that low altitude ingress with highly capable jammers and stand-off weapons could defeat this system. But, China might use the HQ-12 SAM system as it does with S-300s to provide low altitude cover for the S-400. The system could also cover the disputed Senkaku Islands when deployed in the Shandong province of mainland China.<sup>vi</sup>

China might reverse engineer the system in the future like it did with the other military system bought from Russia. China would immensely benefit from the technology additions done in the S-400 systems. Based on the previous deployment pattern of S-300 SAM, the areas that PLA would possibly deploy this system would be across the Taiwan Strait, Beijing area, possibly Shanghai, across the Senkaku Islands (Shandong province) and important military facilities in the East. Another possible use would be adopting the system for PLAN ships like it was done by adopting the HQ-9 for the Type-52C Aegis type destroyers.

***(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies [CAPS])***

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<sup>i</sup> "Use of Force Against Taiwan Breakthrough: Continental Deploy missiles targeting 1300", <http://www.akjunshi.com/n/20141222/107196.html>, 22 December 2014.

<sup>ii</sup> China to buy S-400: Russia worries the unique technology might be copied", <http://mil.cankaoxiaoxi.com/2014/1210/592898.shtml>, 10 December 2014

<sup>iii</sup> "Almaz-Antey 40R6/ S-400 Triumph Self Propelled Air defence System / SA-21", <http://www.ausairpower.net/APA-S-400-Triumph.html>, May 2009 (updated on April 2012)

<sup>iv</sup> no.2

<sup>v</sup> "Putin Approves sale of S-400 to China", <http://thediplomat.com/2014/04/putin-approves-sale-of-s-400-to-china/>, 11 April 2014

<sup>vi</sup> no.1