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## **Robots for Japan's Defence: The Key Issues**

*By Kalyan M Kemburi*

### **Synopsis**

*With evolving security requirements and changing socio-economic imperatives, Tokyo might increasingly opt for robots and unmanned systems for defence systems. However the Japan Self Defence Forces may have to grapple with key organisational and operational issues if they decide to robotise warfighting capabilities.*

### **Commentary**

THE JAPANESE government aims to create a robotic revolution by 2020 to overcome many of the societal and economic challenges such as falling birth rates, ageing population, and declining productivity. As the global leader in industrial robots, achieving Prime Minister Shinzo Abe's dream of a "robotic revolution"—though hindered by societal lethargy and institutional inertia—is within the technological and financial ambit of Japan.

Robots in the defence arena have a different (or no) story. Despite the technological prowess in robotics, Japan has been ambivalent in deploying robots for military purpose. Popular perceptions tend to point towards the pacifist constitution as the main hurdle; however other subtle factors might be influencing the discourse and decisions. Japanese affection for robots and robotic prowess that overemphasises creating advanced prototypes than producing relatively simpler but practical systems, might have stymied the widespread deployment of military-relevant robots. Notwithstanding, evolving security requirements along with changing socio-economic imperatives are bound to change this situation.

### **Robots And Changing Strategic Landscape?**

Living in a turbulent neighbourhood with changing military balance, Tokyo would be hardpressed to rely only on traditional military systems. For example, there is a growing missile and fighter jet gap between Japan and its two main antagonists—China and North Korea. China has over 1600 fighter jets compared to less than 400 with Japan. Although 3/4th of the 1600 belong to 2nd and 3rd generation and are not a match to Japan's advanced fighters including the F-35s—quantity often has a history of overwhelming quality in combat.

Consequently, Japan also needs to deploy capabilities that cater to the growing demand for increased policing roles, while simultaneously avoid creating insecurities among its neighbours. Robotic systems have the potential to help Japan bridge the 'gap' in a non-threatening manner while taking up policing roles without exacerbating insecurities in the neighbourhood.

Apart from the security drivers, three socio-economic factors increasingly make robots/ unmanned systems an attractive proposition for the Japan Self-Defence Force (JSDF): declining working age population (by 2025, 40% would be 65 and above); limited defence budget (less than 1% of the GDP); and exorbitantly priced military platforms (for example, in 2015 approximately US\$1.2 billion was spent for six F-35).

In this context, it is pertinent to understand the organisational and operational issues that the planners with JSDF might have to grapple with if they decide to robotise warfighting capabilities for a robotic future in defence:

### **Organisational and Operational Issues**

First, Japan has to decide whether to use these unmanned platforms exclusively for surveillance and reconnaissance missions or include combat missions as well as logistics tasks such as air-to-air refueling and casualty evacuation. Moreover, operationally and financially it is prudent to recruit and train specialists to operate these systems, rather than use highly trained-experienced officers—as done by the US Air Force, whose services are more critical for strategic missions.

Second, compared to the last century—where many of the advanced technologies had their genesis in military R&D—globally the last two decades have witnessed a new trend where civilian R&D has become an important source of advanced technology, such as unmanned/ autonomous systems. Increasingly defence agencies need to buy off-the-shelf commercial products and tweak them for military use. While developing new robotic systems Japan has to note these trends and where necessary adopt technologies from the civilian sector rather than being drawn to reinventing the wheel.

Third, given limited experience of JSDF in using unmanned/ robotic systems for military missions, prudence dictates enhancing cooperation with international partners. With the procurement of three Global Hawks unmanned surveillance aircrafts along with the existing strong military partnership, invariably Japan draws its initial doctrinal inspiration and operational ideas in using unmanned systems from the US experience.

Other countries such as Australia and Singapore with vast experience in operating unmanned systems also offer important avenues for learning and partnership. For example, the Republic of Singapore Navy has integrated Scan Eagle drones on its six Victory-class missile corvettes to provide organic ISR capabilities, which JSDF can consider partnering for training and joint exercises.

Fourth, the true potential of unmanned systems could be realised only with their teaming with manned systems. The US Army already has in place manned-unmanned teaming: Kiowa Warrior helicopters with Shadow unmanned aircraft systems and Apache attack helicopters with Gray Eagle.

Other than the dull, dirty, and dangerous tasks, manned-unmanned teaming has the potential to create new possibilities in high-intensity missions. For example, drones are ideal platforms for scouting and targeting, whereas Apaches are excellent at providing superior firepower at short ranges. This manned-unmanned teaming is useful in delegating the “dull”—possibly dangerous—task of scouting and targeting to Gray Eagle, whereas Apaches can focus all their time on flight for destroying targets, possibly even from a safe standoff distance.

### **Drones and East Asian Skies**

Fifth, with East Asian skies increasingly getting crowded with drones, Japan has to consider the pertinent operational and normative issues. For example, in September 2013, a Chinese military drone flew towards the Japanese-controlled Senkaku islands and JSDF responded by scrambling F-15 fighter jets. Since scrambling a jet for a drone is not proportional either operationally or logistically, procurement of unmanned systems potentially provides feasible options for the JSDF. With increased deployment of drones, China, Japan and South Korea should consider discussing standard operating procedures to deal with incidents involving the drones—a crucial step in preventing crisis escalation.

Ultimately, the Japanese Government will have to exercise political will to overcome the organizational and operational issues to deploy robotic capabilities for the JSDF in a technologically and strategically changed milieu.

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