

VIEWPOINTS

The SAF's Advanced Combat Man System: Hindrance or Help?

“Our transformation to a 3rd Gen SAF has brought together advanced systems and technologies in integrated capabilities and operational concepts - our expanded mission contributions to safeguard peace, our new training and learning methods, and our participation in various operations other than war have all continued to show Singaporeans that the SAF is ever-vital, relevant and progressive”.¹

LG Desmond Kuek, Chief of Defence Force

On 5 November 2009, Research Associate Ong Weichong published an article titled “Future Soldier Systems: Promise or Hubris of the Networked Infantry Man” on the RSIS Commentaries, a network of the S. Rajaratnam School of International Studies that discusses contemporary issues from international security to warfare. In his article, Ong claims that the Advanced Combat Man Systems (ACMS) is cumbersome, and argues that components of the ACMS will hinder a soldier’s movement, aiming and performance. He further states that cost management is a major concern of the ACMS and asserts that the ACMS merely improves the technical capabilities of SAF soldiers but does not account for their innovative abilities. CPT Yap Kwong Weng debunks his arguments and takes the position that technological advancement in defence is essential across all levels in the SAF. He proposes that the soldier behind the machine, along with the relevant attributes and convictions will enable the SAF to survive and thrive in the future.

With the development of the SAF’s ACMS, soldiers can now capitalise on wider resources to provide more accurate firepower on the adversary through increased communication and network capabilities. However, it was suggested that this equipment is flawed in many aspects. Though tested in the field, can the SAF’s ACMS triumph over its critics? I shall examine the author’s arguments on in detail.

Brain or Bomb?

It was said that “Current FS systems tend to be “tortoise-shells” that would barely let an infantryman “drop and roll” with hare-like reflexes”. Here, the author’s view seems to be disoriented with highly imaginative impressions of the soldier’s backpack in question.

The “tortoise-shell” that was referred to is in fact a portable computer, which processes data collected from sensors,

Global Positioning Systems (GPS) and other ACMS components to provide real-time battlefield updates.

The use of this portable computer increases the operational abilities of the soldier, which enables the delivery of real-time information along the chain of command such as coordinating fire from air and land platforms, thus facilitating the delivery of precise information, fire and manoeuvre capabilities. Since soldiers are required to carry full packs in operations, it is unlikely that one added piece of equipment would hinder a soldier's movement. For one thing, this "Central Nervous System" will enhance a soldier's combat effectiveness and decision-making on the battlefield, which potentially minimises collateral damage in operations.

Eyes on Target

The ACMS Helmet Mounted Displays (HMD) was deemed unsuitable for operational use as it "hindered soldiers' movement and aiming".² It appears that the author may be referring to an older version of the HMD. To clarify, the current HMD provides a full peripheral view of the surroundings, and there are plans to incorporate a "dashboard" concept that will not hinder the soldier's view in operations.

On this note, the SAF provides an efficient way of developing the ACMS prior to its full-scale production. The DSTA manages to ensure high levels of efficiency by employing "Commercially off-the-Shelf" (COTS) items at the developmental stage before customising them to meet the

military's operational requirements. This process was carried out with thorough considerations from both DSTA and the SAF in experimentation, testing and evaluation to ensure that the ACMS remain relevant and "user-friendly" for the soldier on the ground.

Battery Charging

The author indicated that continuous charging of batteries required by the ACMS is a problem. However, I doubt that the constant replenishment of batteries would be detrimental to mission success. If the soldier is disciplined and follows procedures in preparation, he or she will naturally ensure that there would be sufficient batteries required for the assigned mission.

The changing of the ACMS batteries should be treated no differently from other items, i.e., signal sets that run on batteries. Here, good preparation is key to mission success. This is ultimately the duty of a soldier to ensure that their equipment is ready at all times in training and operations.

As such, the crux here should not be on batteries but on whether soldiers possess the ability to possess sufficient situational awareness to respond to changes in operations or at the workplace. Nevertheless, improvements to battery technology should not stop. That is why the Defence Science and Technology Agency (DSTA) has ready plans to better battery technology and improve smart power management of the ACMS.

Cost Management

The cost management of the ACMS was brought up as a major concern. While there was no effort made to further justify the arguments with credible data in connection with the ACMS, I believe the issue here is to not compare costs, but rather to rationalise on the fundamental reasons why the ACMS should be developed in the first place.

While the ACMS cost a total of \$100 million³ to build, it was necessary for two reasons. First, the SAF has to keep up with the changing dynamics of modern warfighting techniques. Second, through the use of the ACMS, soldiers can fight better in urban environments, which is more prevalent in today's battlefield.

This brings us to another aspect - defence spending. Despite being affected by the global economic recession, the SAF is still progressively equipping its troops to ensure mission success.⁴ On this note, Deputy Prime Minister and Minister for Defence, Mr Teo Chee Hean said:

“The Government’s policy is to invest steadily on defence - like an insurance policy. We do not sharply increase spending during an economic upturn just because more money can be made available, and we do not sharply cut spending when the economy slows. Instead of a feast and famine approach, we put in consistent investments in defence. This is the prudent approach”.⁵

New World, New Soldiers, New Technology

The ACMS is said to create only a more competent “combat technician”, but does not spawn innovative abilities. Today, soldiers need to leverage on technology to handle the demands of the complex security environment. They have to deal with multiple challenges across the spectrum of operations from peacetime to contingency operations.

We now face a new world - a world of change. To rest on our laurels and maintain status quo would be a recipe for disaster. Therefore, we need to develop and enhance soldier attributes to stay ahead of the curve. Besides struggling with the increasingly technological basis of warfare, the improvement of these attributes is assessed to be essential for soldiers in the modern battlefield environment:

1. *Critical Thinking.* SAF soldiers now need to think strategically and tactically to address non-traditional threats and challenges in the contemporary security landscape. They need to be tough fighters but at the same time appreciate the nexus between operations and strategic implications as they analyse situations, solve problems and identify core issues in different situations.
2. *Good Judgment.* Judgment is the essence of effective leadership.⁶ With the future operating environment being uncertain and ever changing, new threats will demand new

judgment calls from soldiers even at the tactical and operational levels. Soldiers must be able to stand on their feet to make decisions that will influence the battle, in small and big ways.

3. *High Levels of Adaptability.* In order to stay relevant and stay ahead, soldiers are now required to adapt to complex security threats, and respond to crises that occur without much warning⁷. Hence, they will have to think critically, adapt quickly and respond effectively in order to survive and succeed in the complex operating environment.

With the enhancement of these attributes coupled with the right equipment to complement their combat effectiveness, soldiers can increase their survivability and capabilities in operations, rather than hinder it.

After all, it is not just about the men behind the equipment. It is about “carrying the whole network of the SAF”⁸ behind their backs that allows the SAF soldier to fight more decisively on the battlefield. It is about the ability to make informed decisions and share information in a networked environment - this is the essence to combat effectiveness on the modern battlefield.

Conclusion

It is the future, and not the past that demands our thoughts to achieve soldier excellence. The SAF’s 3rd

Generation soldiers must not only be able to work with higher technologies but also be ready to adapt effectively to the increasing demands of the security environment.

The ACMS complements this proposition as it enhances the soldier’s ability to function across a range of operational scenarios.⁹ It uses various sensors and portable devices¹⁰ aiming to equip the SAF soldier with communication, image-gathering and navigational technologies as it enables the soldier to tap into the wider SAF network for increased firepower.

Developed by the Defence Science and Technology Agency (DSTA) in collaboration with the SAF, the system has gone through numerous trials and experimentation before it was formally introduced in 1998. The production of the ACMS is expected to be fully completed by 2012.¹¹

With all that said, we should now turn our thoughts to the servicemen and women who are out there defending our country, and think of innovative ideas to ensure their safety and survivability.

Only ideas that are translated into action will bear the fruit of success.

That is what I believe in. That is why I believe it. 

CPT Yap Kwong Weng
(Branch Head,
Commando Training Institute)

Endnotes

- ¹ Desmond Kuek, Speech by Chief of Defence Force, LG Desmond Kuek at the SAF National Education Event 2009, dated 28 Oct 09.
- ² The ACMS will not be used only by infantry soldiers. The equipment can be employed across a spectrum of operations in the SAF.
- ³ Ibid, *The Straits Times*.
- ⁴ Fact Sheet, “Networked Urban Operations”, dated 5 Sep 08. Online. Available at http://www.mindef.gov.sg/imindef/news_and_events/nr/2008/sep/05sep08_nr/05sep08_fs2.html.
- ⁵ Teo Chee Hean cited in Kor Kian Beng, “Steady Defence Spending”, *The Straits Times*, 13 Feb 09.
- ⁶ Noel M. Tichy and Warren G. Bennis, “Judgment: How Winning Leaders make Great Calls.” New York: Penguin Group.
- ⁷ Yap Kwong Weng, “Managing Ahead of Crises: Rising Towards a Model of Adaptability”, *POINTER Monograph*, No.7, pp73-82. In another paper, US military analyst Leonard Wong asserts that the US Army must now acknowledge and encourage the notion of adaptability in their junior officers after an in-depth study on Operation Iraqi Freedom. See Leonard Wong, “Developing Adaptive Leaders: The Crucible Experience of Operation Iraqi Freedom” dated July 04. Online. Available at <http://www.strategicstudiesinstitute.army.mil/pdf/PUB411.pdf>.
- ⁸ Teo Chee Hean cited in “Soldier of the Future to have “Network” Edge in Battle”, *The Straits Times*, 1 Jul 08.
- ⁹ Sherlyn Quek, “Gearing Up For Networked Urban Operations”, dated 8 Sep 08. Online. Available at http://www.mindef.gov.sg/imindef/publications/cyberpioneer/news/2008/September/08sep08_news.html.
- ¹⁰ Fact Sheet, “Networked Urban Operations”, dated 5 Sep 08. Online. Available at http://www.mindef.gov.sg/imindef/news_and_events/nr/2008/sep/05sep08_nr/05sep08_fs2.html.
- ¹¹ “ST Electronics bags \$100m SAF Deal”, *The Straits Times*, 9 Jun 09.



Myanmar's Oil & Gas Industry

Speech by **Yap Kwong Weng**
ASEAN Energy Business Forum

Kuala Lumpur, Malaysia. 5 Oct 2015

“Myanmar offers geographical strategic advantage, sizable resources and holds the potential to export value energy products.”

The elections for Myanmar are around the corner. The heat is on to create unprecedented change. Political parties are gearing up; so are businesses. Myanmar is undergoing an economic transformation to build new infrastructure, to better lives, and to instil greater investor confidence. In the oil and gas sector, it has shown significant potential as countries continue to invest surgically.

Despite being a work in progress, Myanmar has shown the world that it has grown quickly as indicators of growth such as Gross Domestic Product (GDP) and Foreign Direct Investment (FDI) have surged in the last few years. This is a clear sign of progress and potential. The country has come a long way, and is one of the world's oldest oil producers, exporting its first barrel in 1853. Producing oil for more than 100 years, with Rangoon Oil Company, is



the first foreign oil company to drill in 1871.

Since the country's opening after 2010, it has been catching up with the world. Political and economic reforms continue to be a priority but there are challenges to transform a backward Myanmar into a modern country. Parami Energy Group was formed in that process before Myanmar opened its doors. It started as a service engineering company and has now expanded to business units in oil

exploration, power generation and construction. After the sanctions eased, and potential discovery of oil and gas in the onshore and offshore block areas being discovered, international energy companies took a turn and started to invest.

Like its legislative reform, the Myanmar government intensified the pace of entry to foreign companies. According to the Myanmar Investment Commission, foreign capital pledged to Myanmar's oil and gas sector is



estimated to be \$17 billion, and \$2.6 billion had already been invested this January. This represents around 30 percent of the country's total foreign investments.

The Myanmar government has included new players from around the world and also locally. Previously run by firms from China and Thailand, new players are entering the market today. For example, in early May this year, Norway's Statoil and US-based ConocoPhillips have committed an investment of more than US\$300 million in the exploration and production of offshore oil and gas in Myanmar.

Myanmar continues to import refined oil from the Middle East because of the increase of domestic demand. More cars, more consumption, more demand. Locally, there's not enough oil to go around. Myanmar has three oil refineries but they all need upgrading. Myanmar will have to

modernise existing facilities and build new refineries to save on imports.

As tender projects in Myanmar are underway to upgrade refineries, and to scale up storage and transportation facilities, a productive and inclusive infrastructure model is required. Multi-laterals need to play a greater role in this development as big ideas succeed only when solid implementation is achieved. In this aspect, Singapore's modernization provides an excellent development model for benchmarking. One of the reasons why the resource-constrained country managed to kick start its economic and industrial transformation in the 1970s was due to its effective development of oil refineries, ports, water and electrification systems.

Income from gas exports accounts for 20 to 30 percent of GDP in Myanmar. Myanmar faces a shortage of gas, but it is also largest exporter of gas in

Southeast Asia, exporting 1.6 million cubic feet of gas to China and Thailand. Gas is transferred via the Myanmar-China pipeline in the Special Economic Zone (SEZ) of Kyauk Phyu. In the country's south, PTT, gas transfers are made to Thailand via oil giants PTT, Total and Petronas.

70% of people in Myanmar do not have access to electricity. 7.2 million households need to be electrified in 15 years. The government projection of 19,000 Megawatts in 2030 is underestimated. One of the indicators is seen from the influx of trade flows and FDI the country has received so far. For now, the Myanmar government has already embarked on a plan to ramp up access to electricity by 2030. If this works, the national grid would have to be expanded and connected, reaching households even in rural areas.

Myanmar offers geographical strategic advantage, sizable resources and holds the potential to export value energy products. Thailand and China are key stakeholders and the attraction of more regional players to Myanmar could happen once the SEZs in become operational. As significant development takes place, teething problems are expected. First, the inclusion of local companies into the



bigger picture is a critical part of the pie. So it's important to train locals to fit into the entire ecosystem.

Otherwise, there will be a domestic gap of labour, which will in turn affect industry competitiveness. A good car without good servicing and support will not get one far.

Second, Myanmar does not have enough skilled talent to meet up to its current and future demand. There is a need to deploy skilled labour and local content, which could narrow the labour gap and boost industry capability. Third, the level of transparency and emphasis on social responsibility towards communities cannot be undermined as Myanmar develops. Checks and balances are needed to ensure that its social fabric and ecology remain strong so that tensions between communities can be reduced during the course of development.

Finally, the oil and gas sector is set to be a rising star in Myanmar. Local content and inclusiveness are essential as international companies support its growth trajectory. What is necessary now is to quicken the pace of private-public collaboration without compromising on one's values.

“As significant development takes place, teething problems are expected... So it's important to train locals to fit into the entire ecosystem.

Otherwise, there will be a domestic gap of labour, which will in turn affect industry competitiveness. A good car without good servicing and support will not get one far.”

Yap Kwong Weng is the Chief Operating Officer in Parami Energy Group. He advocates for progressive growth, transparency and for clean energy in ASEAN. During this forum, he participated in the CEO-Ministers dialogue.

A local energy company, Parami Energy has been selected as a Global Growth Company of the World Economic Forum since 2015. In the same year, it won the ASEAN People's Award for its contribution to society.


ASEAN Energy Business Forum 2015
5-7 October 2015, Grand Hyatt, Kuala Lumpur, Malaysia