



ADAS 2016

Leonardo helicopters soar in Philippine skies



The Philippine Navy has ordered two AW159 Wildcat helicopters. (Photo: Leonardo Helicopters)

STAND 1250

Leonardo Helicopters has achieved outstanding recent success in the Philippine market. For example, the Philippine Navy (PN) purchased five AW109 Power aircraft and the Philippine Air Force (PAF) eight examples.

ADAS Daily News spoke to a Leonardo spokesperson about this. 'The choice of the AW109 is very interesting because it represents the ambition of the Philippines to truly upgrade their capabilities in terms of patrol and escort, but keeping in mind cost-effectiveness.'

He added: 'There are many countries with similar requirements around the world, and the AW109 can be a solution for them. It is proven by many military operators... and it includes modern solutions for safety

and avionics. It is no surprise that both the Philippine Air Force and Navy are extremely happy with their AW109s, considering them a step change in their capabilities.'

Leonardo enjoyed further success when the PN ordered two AW159 Wildcats (pictured left) in March. The spokesperson commented: 'The AW159s were chosen after a competitive selection to respond to a very sophisticated anti-submarine warfare (ASW) and anti-surface warfare (ASuW) requirement of the Philippine Navy. The deliveries are scheduled for 2018. As for the configuration, suffice to say it is a complete ASW and ASuW suite.'

Leonardo is showcasing its rotorcraft range for patrol, naval/maritime and SAR roles at ADAS 2016, but it has other products available too. The spokesperson noted: 'Other than

aircraft and helicopters, the Philippines' strategic posture is interesting as it might open a number of opportunities for collaboration in the naval and air fields.'

The company added: 'With the navy undergoing modernisation plans, we are ready to work with them in the field of naval guns, such as the best-selling 76/62 Super Rapid gun from our Defence Systems division. Furthermore, we offer a range of ship-based radar and naval combat solutions that might be of interest.'

Leonardo is confident about its Asian prospects. 'The AW159 selected by the Philippines and South Korea is catching a lot of interest and it exemplifies the growth of demand in the fields of ASW/ASuW requirements in the area.'

By Gordon Arthur

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Japanese cutter buy for PCG approved

STAND 1852

Governmental approval has been given for the acquisition of two 94m heavy-weather high-endurance cutters for the Philippine Coast Guard (PCG) in a PHP8 billion (\$167.3 million) programme.

This was one of nine high-priority projects approved by the National Economic and Development Authority (NEDA) board on 14 September during its first sitting under the new administration of President Rodrigo Duterte.

The programme is called the Maritime Safety Capability Improvement Project for the PCG, Phase II. These large vessels are called Multi-Role Response Vehicles, the same name given to ten 44m boats being built by Japan Marine United Corporation following a 2015 order lodged under Phase I.

The first of this latter class, BRP *Tubbataha*, was delivered in August.

Like the smaller MRRVs, Japan will also build the high-endurance cutters for the Philippines. The Japan International Cooperation Agency (JICA) offered Manila a soft loan of \$143 million with low interest and long-term repayment conditions to fund the deal.

Japanese shipbuilders will be able to vie for the contract. The Japan Coast Guard already operates a number of platforms that are similar to the specifications outlined by the Philippines.

The 94m vessels will have a 4,000nm range and be capable of sailing in Sea State 6 (waves up to 6m high). Such seakeeping capabilities during typhoons are important for the PCG, given the local prevalence of storms and difficult weather conditions.

The cutters will be able to cruise at 15kt for up to 15 days. They must be able to accommodate up to 500 passengers in the event of a maritime disaster. The vessels must also offer

'wider maritime coverage for strategic and national security purposes'.

Delivery is expected for November 2020 and March 2021 respectively for the two new ships.

PCG commandant RAdm William Melad said earlier: 'The West Philippine Sea could be a logical deployment but [the cutters] can be deployed anywhere. Today, the basic justification is to improve PCG's maritime capability.'

Incidentally, the PCG is moving an additional vessel to the South China Sea to beef up the agency's presence. The 120t BRP *Nueva Vizcaya*, one of four *Ilocos Norte*-class patrol boats built by Tenix in Australia, will join the larger 56m BRP *Pampanga*, which itself commenced patrols in the area in July.

PCG spokesperson Cdr Armando Balilo explained: 'The tour of duty of each ship would last for five days. They would be there for law enforcement patrol against poaching and other lawless activities.'

Fuzir by day or night

STAND 1750

Pyser-SGI, based in the UK, is showcasing its Fuzir weapon sight at ADAS 2016. This new fused device is available in two variants – the Fuzir-i and the Fuzir-v. The former combines image intensified vision with a variable thermal overlay, while the latter fuses daytime optic sensors with the same variable thermal overlay.

Both compact Fuzir types feature a 384x288 17µm thermal sensor, with the Fuzir-i having 1x magnification and the Fuzir-v a 2x electronic zoom.



Pictured here is the Fuzir-v daytime weapon sight from Pyser-SGI. (Photo: Pyser-SGI)

This sight is mounted on a Picatinny rail in line with existing weapon sights. The advantage it offers is that users can mix two different technologies to precisely determine the nature and location of any target.

Pyser-SGI explained: 'Fuzir-i combines both thermal and image-intensified sensors collimated to a single image to offer a fully in-line thermal weapon sight, or a full night vision weapon sight, or a fully user-selectable fusion of both.'

Batteries offer up to four hours of usage, and video output is possible. The Fuzir is a non-ITAR item.

A bridge over troubled waters

STAND 1451

French company CNIM is promoting its motorised floating bridge known as the PFM. The company states that the bridge 'provides today's ground forces with the capability of rapidly crossing wet gaps and obstacles such as large rivers and lakes'.

The PFM can serve as a self-propelled ferry able to carry vehicles weighing up to MLC 80, or a series can be combined to form a continuous floating bridge. This versatility means gaps of all sorts can be crossed by military vehicles and equipment.

As well as combat use, the PFM is applicable to disaster relief scenarios where bridges may have been washed away or damaged. In



Photo: CNIM

such cases where speed is of the essence, the PFM can be quickly deployed.

A bridging set includes carrier/launcher vehicles, motorised 10m-long modules and embarkation/debarkation ramps. The floating modules, with outboard motors, are launched with the crew aboard. They

then manoeuvre to link together and form a continuous bridge.

CNIM stated: 'No extra erection sets or auxiliary boats are required in the deployment of the bridge, nor in a support role.'

The manufacturer also offers a modular assault bridge, which can carry vehicles up to class MLC 80 too.

PAF looks forward to air combat capability



Photo: PAF

The Philippine Air Force (PAF) is looking forward to the arrival of its ten remaining Korea Aerospace Industries (KAI) FA-50PH light fighters. A PAF representative confirmed that two more will arrive in late November/early December, while the balance will enter service during 2017.

The PAF already has two aircraft, delivered and accepted on

5 December 2015. These are operated by the 7th Tactical Fighter Squadron ('Bulldogs') from Clark Air Base.

The FA-50 serves as a lead-in fighter trainer (LIFT) and light fighter as the PAF re-establishes an air combat capability lost when it retired its Northrop F-5A/Bs in October 2005. The squadron of 12 FA-50PHs will deliver the air force a more

credible defence capability at a time when Manila is concerned about China encroaching into the South China Sea.

A \$421 million government-to-government contract was signed with KAI on 28 March 2014 after the Department of National Defense had announced selection of the type in August 2012.

Jet environment

A PAF officer previously told ADAS *Daily News* that flying the FA-50 was not a quantum leap, since the PAF had never completely exited the jet environment as it still flies the Aermacchi S.211 trainer.

Initial FA-50PHs have been delivered without any associated munitions, so the PAF is currently seeking weapons such as air-to-air missiles.

The FA-50 differs from other Golden Eagle variants in that it

carries a multi-mode radar, radar warning receiver, chaff/flare dispenser, tactical data link and smart weapon capability.

The FA-50 is a step on the pathway towards a far more capable PAF. Indeed, the Philippines is aiming for multirole fighters under its Flight Plan 2028 modernisation programme.

A spokesman said: 'After we're well under way with the LIFT, our bridging platform, we'll begin the second phase of our upgrade, which will include multirole fighters. That's definitely in the planning.'

It is too early to speculate what platform the PAF might acquire, but a single-engine aircraft would seem to best fit Philippine needs. Once a multirole fighter is inducted, the FA-50PH will be able to fully perform its intended LIFT role.

By Gordon Arthur

Airbus lifts off with C295

STAND 1460

As well as celebrating the delivery of three C295 medium transport aircraft to the Philippine Air Force (PAF), Airbus Defence & Space is looking forward to other opportunities in this market. 'We certainly expect to play a bigger role in future,' a spokesman commented.

The representative told ADAS *Daily News* that 'the third and final aircraft for the Medium Lift Aircraft programme was delivered in December 2015 – ahead of contract schedule – and the fleet is being operated by the PAF's 220th Airlift Wing.'

Airbus Defence & Space won this contract in 2014. An official commented: 'The C295 is a thoroughly proven platform operating worldwide and which we believe is ideally suited to Southeast Asia and the Philippines in particular. It provides a unique combination of very high capability and outstanding operating economics.'

The European aerospace giant has received orders for 168 C295s of all kinds. 'Several customers have placed

repeat orders, so we are confident that we can make an attractive proposal to address the Philippines' Long-Range Patrol Aircraft requirement,' the official said.

What is Airbus highlighting at ADAS 2016? Apart from the aforementioned C295, the A400M strategic and tactical heavy airlifter. Also prominent are UAVs and helicopters.

The company added: 'We have a large portfolio of satellite platforms for both telecoms and earth observation, and the associated solutions including imagery. Then there are our C4I and intelligence systems.'

Airbus Defence & Space believes the recent move of the Skynet 5 communications satellite to the east 'constitutes a unique offer for Southeast Asian nations to provide military satellite X-band services', and that it 'could be of particular interest to the Philippines due to its geography and the resulting challenges for its armed forces and police in terms of fully secure connectivity'.

Airbus has earth observation satellite services (eg weather or



One of the three C295 medium transport aircraft now in service with the PAF. (Photo: Airbus)

maritime security imagery) available from its constellation of optical and radar satellites.

Of further interest to the PAF is the Eurofighter Typhoon, with Airbus keen to 'explain how such an advanced multirole/swing-role combat aircraft could fit into the PAF's Flight Plan 2028', the air force's modernisation programme.

Airbus Helicopters is ready to support the PAF's modernisation programme with suitable platforms. A representative noted: 'Through our local customer centre in Manila, we are the unrivalled leader in the civil market in the Philippines and we trust

that we have the products and quality of support to meet the PAF's demanding mission requirements.'

In the wider region, Airbus confirmed that the Royal Malaysian Air Force (RMAF) received its third A400M on 9 June. The fourth and final aircraft is due for delivery in the first quarter of 2017. The platform can perform a wide range of missions such as disaster relief and air-to-air refuelling.

The firm pointed out: 'We believe that the successful RMAF operation will trigger further interest in the A400M in this region.'

By Gordon Arthur



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Elbit builds on M113 work

STAND 1210/1220

A major Philippine success for Elbit Systems came via a June 2014 contract to upgrade 28 M113A2 APCs for the army's Mechanized Infantry Division. The contract was divided into three lots. First to be delivered in June 2015 was Lot 3, a batch of six M113s with 12.7mm remote-controlled weapon stations, plus four armoured recovery vehicles.

Lot 2 covers four M113s with UT25 unmanned turrets containing a 25mm M242 Bushmaster cannon; these performed in an army capability demonstration on 20 September.

Lot 1 involves 14 fire support vehicles fitted with retired Scorpion

tank 76mm turrets enhanced with upgraded fire control systems.

Citing customer confidentiality, Elbit declined to comment on this programme. However, ADAS Daily News understands delivery of these Lot 1 vehicles has been delayed until the first quarter of 2017 because of the poor condition of the turrets used for the conversion.

Elbit Systems has a number of other products such as communications systems on show at ADAS 2016 'as part of its growing cooperation with the Philippine Army', according to the company.

Its unmanned solutions include the Skylark 3 tactical UAV optimised for dismounted or vehicle-based operations. The electrically powered Skylark 1-LEX is designed



Photo: Gordon Arthur

for 'beyond the next hill' reconnaissance.

On water, the Seagull is a 12m autonomous unmanned surface vessel equipped with a dipping sonar and capable of launching lightweight torpedoes.

Elbit is also known for EW solutions such as its Multi-Spectral Infrared Countermeasure (MUSIC) family of directed IR countermeasures for aircraft.

NEWS IN BRIEF

GLOCK, STOCK AND BARREL

President Rodrigo Duterte has laid out a plan to equip every member of the Philippine Army with Glock 30 automatic pistols. Glock officials met the president earlier this week to discuss the plan. The first unit to receive these .45-calibre weapons will be the First Scout Ranger Regiment. The official distributor for Glock in the Philippines is Manila-based Trust Trade.

NC-212I DELAY

A PT Dirgantara Indonesia spokesman said the company is ready to hand over two NC-212I light transport aircraft to the Philippine Air Force, pending approval from the Department of National Defense. Delivery could occur within two months. A contract for the aircraft was awarded in January 2014. ADAS Daily News understands that delivery was delayed as certification for the autopilot is finalised.

HERCULEAN EFFORT

The Philippine Air Force is awaiting arrival of its second refurbished C-130T Hercules aircraft in late September. The first one arrived in-country in April, these being acquired for \$61 million via the Excess Defense Articles programme from the US. This will give the air force's transport fleet a fifth Hercules.

TALONS FOR GOLDEN EAGLE

Even as the Philippine Air Force awaits its final ten FA-50PH light fighters, moves are under way to arm and equip them. Money has been allocated to buy 93,600 rounds of 20mm ammunition for their A-50 triple-barrel cannons. The Department of National Defense has also cleared funding for 17,280 RR170 chaff cartridges and 8,640 MJU-7 infrared flares for the fighters' Elisra self-protection systems.

Air surveillance from IAI

STAND 1314

A \$56 million contract for three ELM-2288-ER over-the-horizon air surveillance radars was inked with Manila on 21 December but only publicised earlier this year. IAI Elta Systems must deliver the first radar within 22 months of opening a letter of credit, which occurred in the third week of January.

However, Philippine defence officials previously said all units could be handed over in 2017.

The Philippine Air Force (PAF) will operate the new systems. PAF spokesman Col Enrico Canaya said: 'The surveillance radars will help us monitor our territorial airspace and air defence identification zone.' They are expected to be sited in Ilocos Norte, Lubang Island and Palawan.

Acquisition of these radars is part of the PAF's Flight Plan 2028, and they will complement the capabilities of FA-50PH light fighters. The FA-50PHs are equipped with Elta Systems ELM-2032 multi-mode airborne fire control radar.

The Philippines had previously expressed a desire for six radars, so a follow-on order remains a distinct possibility.

Philippine Navy SSV proving its worth operationally

STAND 1140

Despite the Philippine Navy's (PN's) first Strategic Sealift Vessel (SSV) being hit by a Liberian-registered tanker in waters off Zamboanga City on 19 September, the ship is continuing its vital role as a floating command and control platform for operations against the terrorist Abu Sayyaf Group in the southern Philippines.

BRP *Tarlac* will be repaired in its next scheduled maintenance cycle. Capt Lued Lincuna, a PN spokesman, noted that 'minor dents on her starboard side because of the incident...will not affect her role in said operations'.

2013 contract

Launched by PT PAL in Surabaya, Indonesia on 17 January, the 7,200t BRP *Tarlac* was commissioned on 1 June. It is one of two LPDs

purchased under a contract approved in October 2013.

The second 123m vessel is expected to be delivered to the Philippines in May 2017.

Ships in the class have a complement of 121 officers and enlisted personnel. They are capable of carrying 500 troops, two landing craft and they can carry three helicopters. They are powered by two MAN diesel engines producing 7,830bhp total.

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WHEN RESULTS MATTER

Shelter by design

STAND D17

Shelter is one of humanity's most basic needs. When disasters strike, as they regularly do in the Philippines, residents can be ripped from their homes. One solution is portable structures that can be used to resettle victims of natural disasters.

One ADAS exhibitor, Canadian company Design Shelter Inc, is opening a new manufacturing facility in Subic Bay to build soft-walled portable shelter systems for the Philippines and the wider Asian region. It is doing so in partnership with Global Architectural Fabrications Subic.



A shelter being used after a hurricane in the Cayman Islands. (Photo: Design Shelter)

The shelters employ fabric technology related to thermal insulation to suit them for environmental conditions ranging from -50 to +50°C. Lightweight, they can be erected in less than 30 minutes and have a 20-year lifespan.

Design Shelter thus believes they are ideal for 'field hospitals, medical clinics and field surgical centres, as field dispensaries and pharmacies, for command and control and for any other soldier-related tactical facilities, [or] as temporary classrooms for children and for any other requirement for temporary field facilities'.

Proposed hike for defence budget

The Philippine government proposes to increase the budget of both the Philippine National Police and the Armed Forces of the Philippines (AFP). Their allocations are slated to rise 24.6% and 15% respectively in 2017 compared to last year.

If the 2017 budget is approved by the bicameral legislature later this year, the AFP's funding will rise to PHP130.6 billion (\$2.8 billion). The figures were published by the Department of Budget and Management on 15 August.

However, it is quite possible that this figure might be pruned by the budget ratification process.

The increases are said to be due to the administration's war against crime, drugs and terrorism. At the same time, the AFP needs to boost its maritime security capability, particularly in the South China Sea where Beijing has aggressively reclaimed islands, built military bases and illegally occupied the Scarborough Shoal, according to a

ruling of the Permanent Court of Arbitration (see feature in yesterday's ADAS Daily News).

The lion's share of the budget will go to the Philippine Army with PHP56.88 billion. The Philippine Navy (PN) will receive PHP20.59 billion and the Philippine Air Force (PAF) PHP18.9 billion.

Personnel expenses (PHP31.4 billion) make up a significant share of the overall AFP budget.

Some PHP25 billion will go to an equipment modernisation programme 'to give our soldiers more weapons and equipment', according to President Rodrigo Duterte in his budget speech.

Five-year plan

This would make it the second year in a row that this level of funding for equipment has been achieved, with the goal of fulfilling a five-year plan to invest PHP82 billion on modernisation of the AFP.

High on the wish list are two surveillance aircraft and six close air support planes for the PAF that could be employed to fight terrorists in Mindanao in the far south of the country. Manila is also on the verge of signing a contract for two new frigates for the PN with Hyundai Heavy Industries in South Korea.

Considerable funds also need to be set aside for future instalments to pay for 12 FA-50PH light fighters ordered from Korea Aerospace Industries in South Korea. The first pair of aircraft is already in service.

The Government Arsenal, which makes ammunition and weapons, will also benefit from PHP1.21 billion of funding.

The AFP has been attempting to shift its focus to external territorial defence of the Philippines, but a recent resurgence of fighting in the southern part of the country is diverting attention and resources from this ambition.

Protective potential

STAND 1540

After seeking to buy 50,000 sets of body armour over the past 12 years, the Philippines realises the need to protect soldiers in harm's way. However, troops often discard this armour because it is heavy and hot, and they prefer to load up with weapons and ammunition instead.

MKU believes it has the answer to this with its sixth-generation body armour. It uses two technologies, Ammoflex 6 and Polyshield 6. The result, the company claims, is 'up to 40% lighter, almost 30% thinner and about 50% more flexible than similar standard solutions'.

To date, MKU has provided body armour to more than two million soldiers worldwide.



Photo: Gordon Arthur

Behind-armour blunt trauma is a leading cause of head injuries among soldiers too. MKU makes ballistic helmets that it says offers a 40% reduction in trauma compared to standard models. The Mukut combat helmet uses bolt-free technology, where the absence of holes ensures no compromised areas in the shell. It also

has a modular padding suspension system for stability and comfort.

MKU further provides lightweight armour solutions for naval craft ranging from patrol boats to frigates. At ADAS 2016 the Indian company is exhibiting its Jaguar 14 night vision monocular and Jaguar 7 binocular night vision devices too.

Reflecting the regional build-up of 'white-hull' fleets, two 2,018t cutters were commissioned by Taiwan's Coast Guard Administration on 21 September. (Photo: CGA)



Changing course?

Concluding a two-part analysis, *ADAS Daily News* looks at reactions to the recent court ruling against Beijing's South China Sea territorial claims and predicts what might happen next. **By Gordon Arthur**

Yesterday we explored the import of the Permanent Court of Arbitration's (PCA) decision handed down on 12 July against China's maritime claims in the South China Sea. Today we look further at how the situation may play out.

China predictably reacted furiously to the ruling. However, its continuous questioning of an international court reflects hurt national prestige rather than adherence to a rules-based order. It has also painted itself into a corner that narrows the avenues of escape open to it.

Rather than lashing out, it might be argued that China should have viewed this award as an opportunity to move forward. Instead, it has stuck to what appears to be a legally indefensible position. Its arguments that the PCA is invalid are seen as incorrect, as the case was dealt with in accordance with UNCLOS regulations.

Legal opinion

Donald Rothwell, a professor of international law at the Australian

National University, spoke to *ADAS Daily News* on the sidelines of the Public International Law Colloquium on Maritime Disputes Settlement in Hong Kong on 15-16 July. He said China has 'some strong arguments on jurisdiction'. Yes, 'the tribunal was hamstrung because one side only appeared', he admitted, but the court bent over backwards to consider China's position.

The decision to boycott the process was Beijing's alone. The award did not touch on sovereignty in the South China Sea, so Chinese accusations that the tribunal overstepped its bounds seem to be false. Nor did it delimit overlapping maritime boundaries. The tribunal has not snatched occupied features from China's hands, but it has clearly defined which rocks are entitled to a 12nm territorial sea.

Indeed, Rothwell said: 'It's quite a benign award. There's no cease and desist, no damages.'

Beijing's apparent campaign to discredit the tribunal includes allegations of bias. For example,

China's Vice Foreign Minister Liu Zhenmin cast aspersions that the Philippines bought off the judges. 'These judges are paid, so who's really behind this tribunal? Who was paying them? Was it the Philippines or some other country?' he asked.

Air defence zone

Liu said that China reserves the right to establish an air defence identification zone (ADIZ) over the South China Sea, just as it controversially did over the East China Sea in November 2013. If it did so, this would be seen as an inflammatory escalation.

Gen Herbert Carlisle, head of US Air Combat Command, said Washington would ignore it. 'If they declared [an] ADIZ then we would continue, over international airspace, to conduct operations that we feel are within the bounds of legality like we do now.'

Meanwhile, Adm Scott Swift, commander of the US Pacific Fleet, commented: 'I don't really see any changes in what the Pacific Fleet is doing.' It averages

700 ship-days a year of operations in the South China Sea, and he did not perceive any reduction.

Adm Wu Shengli, commander of the People's Liberation Army Navy (PLAN), warned: 'The Chinese navy is prepared to react to any infringement of rights or aggression... Efforts to force us to succumb to pressure will only be counterproductive.' He promised China would press ahead with construction on its occupied reefs.

Demonstrations such as military exercises, fly-bys and sail-bys of PLA assets are therefore likely. An H-6K bomber flew over the Scarborough Shoal soon after the ruling, for example. A key catalyst will be Chinese actions at this location.

One other area to watch is activities by Chinese maritime militia, essentially fishing fleets in military service to the nation, against foreign trawler fleets and even naval vessels.

Sebastien Colin, a researcher at the Hong Kong-based French Centre for Research on

Contemporary China, told ADAS Daily News: 'Beyond this rivalry and some knee-jerk reactions that could be taken by China... there is nevertheless room for easing tensions. The key is without doubt very largely in the hands of the new Philippine administration led by Rodrigo Duterte, who has the dual mission of managing the heritage of the outcome of an arbitration procedure launched by his predecessor while redefining a policy vis-à-vis China.'

In the wake of the PCA decision, Philippine Solicitor General Jose Calida said 'the baseline for any negotiation should be the decision' itself, adding that 'we will not concede any awards given to us'.

Dispute resolution

Beijing asserted: 'China stands ready to continue to resolve the relevant disputes peacefully through negotiation and consultation with the states directly concerned on the basis of respecting historical facts and in accordance with international law.'

Yet, simultaneously, China is refusing to negotiate on the basis of the PCA ruling. Liu said: 'China



A Type 052C destroyer of the People's Liberation Army Navy arrives in port after sailing through the South China Sea. (Photo: author)

will not allow any negotiation based on the ruling... China expects the new Filipino government to cooperate and recognise that the ruling is nothing more than a piece of waste paper and cannot be enforced. China hopes that the Filipino side will set aside the award and return to the negotiation table.'

Clearly the two countries need to engage in diplomatic talks, but Rothwell said a lot will depend on how innovative both sides are willing to be in their negotiations.

Given China's entrenched negotiating approach evident above, the process will not be easy. Rothwell agreed that 'the Philippines now has the high

moral ground and the backing of much of the international community, I suspect'.

He said China's current reaction is to be expected and that it will take at least a year to measure its true response. Although the ruling has now been delivered, he predicted it will be 'a long game'. **ADAS**

Rafael eyes AFP weapon opportunities



Photo: Rafael

STAND 1110

The Philippine Air Force (PAF) is already in possession of two of the 12 FA-50 light fighters that it purchased from South Korea. However, the service does not yet have munitions for these aircraft, with Washington rumoured to have denied the sale of US-manufactured armaments to Manila.

This creates opportunities for Rafael, however. At ADAS 2016 the Israeli manufacturer is promoting its Derby and SPICE munition families. The I-Derby and I-Derby ER are beyond-visual-range air-to-air missiles.

This active radar missile 'enables operational flexibility and multi-shot capability'. According to Rafael: 'It can be launched at an enemy aircraft day or night and in all weather conditions.'

SPICE (Smart, Precise Impact, Cost-Effective), meanwhile, is a family of stand-off air-to-ground gliding bombs. Available in 250, 1,000 and 2,000lb sizes, Rafael states that SPICE 'uses state-of-the-art navigation, guidance and homing techniques to achieve the accurate and effective destruction of targets with a CEP of better than 3m'.

Rafael's Litening 5 multispectral airborne navigation and targeting pod could also be integrated onto FA-50s to enhance day and night attack capabilities.

The Philippines has already selected Rafael's family of Spike missiles - the NLOS variant for AW159 helicopters and the ER for naval craft. To date, more than 26 countries have selected Spike and more than 25,000 missiles have been produced and over 4,000 fired.

Rafael is already contracted to supply three Mini Typhoon remote-controlled weapon stations for Philippine Navy multi-purpose attack craft. Each of three MPAC Mk III boats will feature a Typhoon MLS-ER containing a 12.7mm machine gun and Spike-ER rounds. These missiles will give the 17m MPACs an offensive range of 8km.

These attack craft are being constructed via a joint venture between Lung Teh in Taiwan and Propmech in the Philippines under a contract awarded on 5 February.

Finally, the SPYDER is a mobile, truck-mounted air defence system (pictured) that could meet long-running interest from the Philippines for such a capability. Providing both short- and medium-range defence, the SPYDER fires I-Derby and Python-5 missiles.

Heavy metal

The Asia-Pacific region is home to significant armoured vehicle manufacturing. This article examines indigenous designs in Southeast Asia, as well as in China, a country likely to be of interest to readers of ADAS Daily News. The focus is on heavier types like main battle tanks (MBTs), infantry fighting vehicles (IFVs) and armoured personnel carriers (APCs).

Chinese armour

China's People's Liberation Army (PLA) fields an estimated fleet of 7,050 MBTs and 5,090 IFVs/APCs. China North Industries Corporation (Norinco) is responsible for the majority of armoured vehicle production, and its latest equipment was showcased in Beijing's military parade in September 2015.

An important parade duo was the ZTZ99A MBT and ZBD04A IFV. Mao Ming, Norinco's chief designer of the tank, called it a 'world leader in terms of firepower, defence, manoeuvrability and information technology'. It mounts a 125mm gun, and a dynamic muzzle reference system boosts the ZTZ99A's accuracy rate. The turret has explosive reactive armour, and the MBT has an active protection system and laser warning receiver.

What further adds to the tank's combat capability is the adoption of a high-technology data link that gives it access to battlefield information obtained by other combat platforms. This battlefield management system has a self-monitoring function that can, for example, report the need for ammunition or fuel replenishment.

While the ZTZ99A represents the pinnacle of Chinese tank design, numbers will remain relatively low because of its steeper price tag. More common

ADAS Daily News rounds up recent developments in the armoured fighting vehicles market in the Asia-Pacific region. **By Gordon Arthur**

in the PLA is the second-generation ZTZ96 family, also sporting a 125mm smoothbore gun. The upgraded 41.5t ZTZ96A was unveiled in 2006, while first indications of the upgraded ZTZ96B appeared in June this year. The latter variant is likely to become a mainstay of the PLA tank fleet.

Debuting in the Beijing parade, the ZBD04A IFV features a turret with the same 100mm main gun and 30mm cannon as the preceding ZBD04. Norinco's 21.5t ZBD04 slavishly resembled Russia's BMP-3, but the amphibious ZBD04A is much closer in concept to a Western IFV. It also has an advanced information system capable of being integrated with that of the Type 99A tank. Clearly an improvement over its predecessor, analysts expect higher ZBD04A production.

Missile launcher

Another important PLA vehicle to appear in the Beijing parade was the AFT10 anti-tank guided missile launcher that fires

non-line-of-sight HJ-10 missiles from a pair of quadruple launchers. Propelled by a solid rocket booster and micro-turbojet engine, the missile has a 10km range. Entering service in 2012, the AFT10 provides the PLA with a long-range anti-tank capability.

Reflecting the international trend towards wheeled armoured vehicles, the PLA operates two main types. One is Norinco's Type 09 8x8 family, of which the main version is the 21t ZBD09 IFV featuring a 30mm cannon in a two-man turret. The same 8x8 platform has been available for export since 2008 as the VN1, with Venezuela the sole customer to date. Another PLA variant is the ZLT11 armoured assault vehicle boasting a 105mm main gun.

The second wheeled family in PLA service is the amphibious 6x6 ZSL92, which has sold well overseas. A wide range of variants exist, including the 17t ZSL92B with a turret containing a 30mm cannon. There is also the 19t PTL02 tank destroyer with a 105mm low-recoil gun, of which the PLA has an estimated 350

examples. The 16.5t PLL05 120mm mortar/howitzer entered service with PLA units in 2008.

Singaporean prowess

Pockets of indigenous AFV production are emerging in Southeast Asia but none come close to Singapore. ST Kinetics has produced the Bionix IFV for the Singapore Army since 1999 in the shape of the Bionix 40/50, Bionix 25 and Bionix II, plus there are recovery, bridge-laying and Trailblazer mine-clearing variants.

ST Kinetics also produced the amphibious Bronco all-terrain tracked carrier that the Singapore Army employs in a multitude of variants. The platform scooped a major success in 2008 when the British Army ordered 115 similar Warthogs for service in Afghanistan. At the 2016 Singapore Airshow the company showed off a production-ready example of the re-engineered Bronco New-Gen.

Another important ST Kinetics platform is the 24t Terrex 8x8 vehicle. The main infantry carrier variant is armed with an EOS R-600 RWS. The Singapore Army also operates pioneer and ambulance versions, while other planned types include: ATGM (Spike); command; recovery; reconnaissance, surveillance and target acquisition (RSTA); and STrike Observer Mission (STORM) for artillery observers.

ST Kinetics is competing in the US Marine Corps' Amphibious Combat Vehicle 1.1 programme with a modified 30t Terrex 2. It has a more powerful 600hp engine, a V-over-V hull for protection, and reserve buoyancy that allows it to launch/swim at sea. As one of two remaining contenders, ST Kinetics is building an initial 13 vehicles for the engineering and manufacturing development phase. However, ►



These PLA ZTZ99A MBTs manufactured by Norinco were witnessed participating in the impressive military parade in Beijing on 3 September 2015. (Photo: author)

the Terrex 3 was eliminated from the Australian Army's Land 400 Phase 2 competition earlier this year.

The Singapore Armed Forces has received its first prototype of the Next Generation AFV that is destined to replace the M113 Ultra vehicles that the army still operates.

ST Kinetics commenced this programme in 2006 and the new platform is expected to be commissioned by 2019. A crew of three operates it. Weighing 29t, it is 6.9m long and 3.28m wide, which is bigger than the Bionix II. A remote-controlled turret houses a stabilised 30mm Bushmaster cannon.

Thai spiders

ST Kinetics is also assisting Thailand's Defence Technology Institute (DTI) to develop the Black Widow Spider 8x8 vehicle. A 24t prototype was exhibited at last November's Defence & Security show in Bangkok sporting an ST Kinetics Adder unmanned turret with 30mm cannon. Ricardo was enlisted to help design the vehicle, while ST Kinetics is technical consultant.

While the concept reinforces Thailand's goal of becoming more self-sufficient in defence

manufacturing, there is no guarantee the project will proceed to production.

In other Thai news, Bangkok will be the first customer for the 52t VT4 (MBT-3000) MBT from Norinco. Thailand ordered 28 examples in a \$137 million procurement in March. Delivery will occur within two years. The army also plans to acquire 18 additional tanks to complete a battalion, plus it wants five recovery vehicles and four maintenance vehicles.

Thailand has another company doing well. Chaiseri Metal & Rubber manufactures the 11t First Win 4x4 mine-resistant ambush-protected vehicle, with the Royal Thai Army ordering 21 examples and the Department of Special Investigation 18 for operations in Thailand's insurgency-plagued south.

Malaysian manufacture

The Malaysian Army is also procuring the First Win, although DRB-HICOM (Deftech) calls it the AV4. Chaiseri modified the AV4 body to create a 2+1 door configuration, while Malaysian vehicles have a roof-mounted turret featuring a Dillon Aero 7.62mm M134D Minigun for deployment to the tense area of

Eastern Sabah. Malaysia is acquiring 20 vehicles; Deftech will assemble around three quarters and first deliveries will occur this year.

After gaining experience assembling FNSS ACV-300 Antran tracked vehicles in Malaysia, local assembly was also important for a 2011 contract awarded to Turkey's FNSS for 257 8x8 vehicles to be delivered to the Malaysian Army from 2014-18.

Known as the AV8 Gempita, the vehicle is based on the Turkish Pars design. The \$559 million agreement with Deftech covers 12 variants, including IFVs with either a Denel GI-30 30mm or M242 25mm cannon, and a vehicle armed with Denel Ingwe missiles. The first twelve IFV-25 units entered Malaysian Army service in December 2014. Deliveries are slower than originally scheduled, although about 65-70 are expected to be handed over in 2016.

State-owned PT Pindad in Indonesia began producing the Anoa-1 6x6 APC in 2008, while the Anoa-2 appeared in 2012. The latter incorporated improvements to suit it for peacekeeping duties, and variants include APC, command, logistics, ambulance, recovery and mortar.

Around 300 Anoa vehicles have been produced to date, and the newest amphibious variant has passed certification tests.

Betting on Badak

Pindad is pinning much credence on its Badak 6x6 AFV, unveiled at Indo Defence 2014. The type successfully performed test firings with its 90mm main armament last December. Pindad is cooperating closely with Belgian company CMI Defence. The latter's Cockerill CSE 90LP two-man turret with low-pressure gun will be produced in Indonesia under a transfer of technology agreement.

In January the Indonesian Army ordered an initial 50 Badak units, but it is rumoured the army wants several hundred. Series production could see 25-30 produced annually, with deliveries possibly beginning late this year. Pindad's spokesman hinted that 'we'll continue to develop new variants of this type of panzer'.

On 7 November 2014, Pindad and FNSS signed an MoU to cooperate on a new conventional medium tank with a 105mm gun for the Indonesian Army. Development work commenced in early 2015, and two 25t prototypes are expected by 2017. **ADAS**



The Terrex 8x8 armored vehicle from ST Kinetics, seen here in Singapore Army guise, has potential export prospects to the USMC. (Photo: author)

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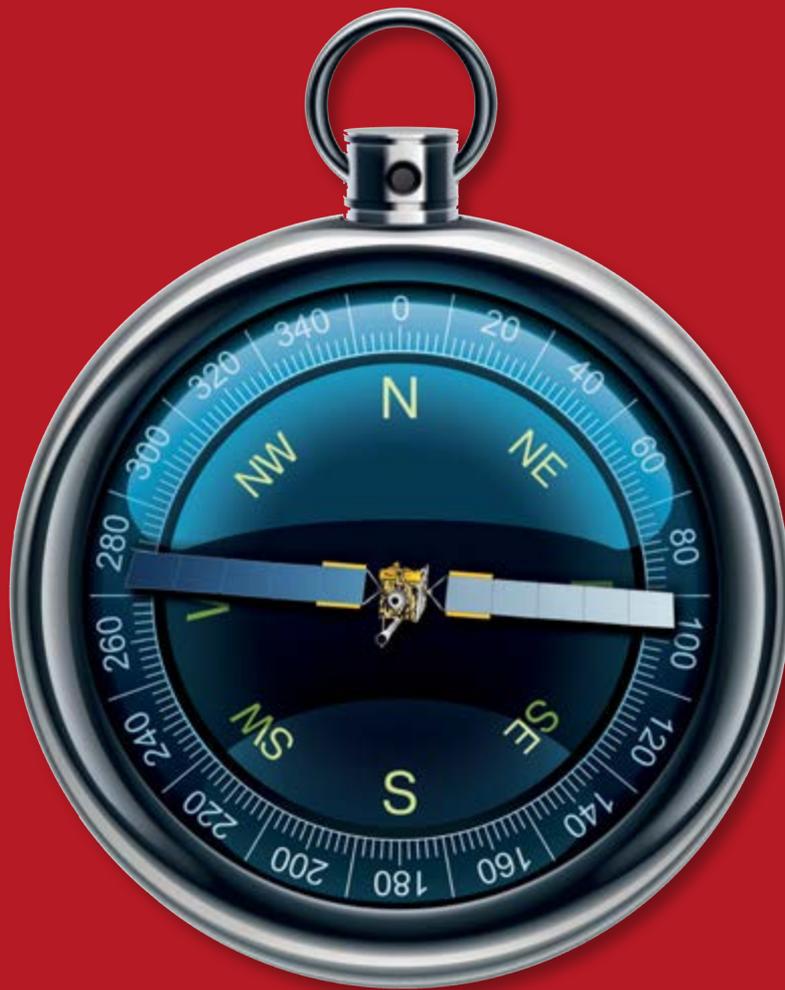
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