

European **Security & Defence**

2/2015



European Maritime Security Strategy



Protection of NATO's Airspace

One year ago, the North Atlantic Council adopted a wide range of measures in response to the Ukrainian crisis.



Fire Support Combat Vehicles

Future operations in urban terrain will require an AFV which is capable of engaging a wide target spectrum while providing all-round protection.



21ST CENTURY MULTI-ROLE CAPABILITY

With every mission, the Bell AH-1Z and UH-1Y earn the reputation of being the most capable attack and utility helicopters flying today. Individually or combined, these helicopters accomplish a wide array of missions, effectively and efficiently, anywhere in the world. The Bell AH-1Z and UH-1Y – among the most combat-effective and survivable aircraft on the modern battlefield.

BELLHELICOPTER.COM



On a Mission.

Bell Helicopter®
A Textron Company

A Vision Is Not A Solution



Some visions inspire and spur us on to make them become reality. Unfortunately, there are also some visions that prove to be illusions; they hinder us, they ask too much of reality, and they lure us into postponing decisions in the belief that a brighter future awaits where the master plan can be successfully realised. The bustling current President of the European Commission, Jean-Claude Juncker, has called for a "European Army". Those observers who view the EU neither through rose-tinted spectacles nor in sceptical shades of grey find it hard to determine with any certainty which type of vision this is. It cannot be considered a new and innovative idea, because it is one that had already been discussed extensively by both politicians and the public over six decades ago, and it has repeatedly been a subject of debate ever since. A vision that has stubbornly resisted becoming reality for so long does, however, deserve closer examination, and a proper appraisal of its prospects and the likelihood of it becoming reality, before it is held up as a Holy Grail. We should, however, take care not to accept the trite spin that, up to now, the only barriers to creating such an army have been regrettable national egoism and vanity. The Western view is that only democratic and legally recognised states have the right to the internal and external use of force, and they maintain military forces to that end. However, the EU is not a state; it operates in a constitutional grey area between a confederation of states and a federal state. Passionate pro-Europeans view this position merely as one of transition. It is their belief that a path is already mapped out, leading from the fragmentation of nation states, with all their historical baggage, to the safe haven of a federal Europe. However, they are declaring this future a fact that "only" needs to be implemented, when it is actually currently little more than a possibility, and even then it is a possibility that could only become reality following a complex democratic decision-making process within the Member States. The response to European challenges is not necessarily a greater degree of centralisation, more integration and, therefore, more EU bureaucracy. "More Europe" does not automatically mean a better, more efficient or even a "fairer" Europe, based on broader acceptance from its citizens. Those people who

create a sense of alarm by putting forward the hypothesis that Europeans must start speaking with one voice in order to avoid being marginalised on the world stage, should first propose an answer to the question of how this voice can articulate common interests – ones that are more than just arduously negotiated platitudes – what grounds there are for its legitimacy, when it should override minority opinions, and exactly what role the European global player would be entitled to in a world, which – outside the western hemisphere at least – does not perceive its absence, following centuries of colonial rule, as a shortcoming.

Those calling for a common European defence policy, and even a joint European army, must also explain how they view NATO. Since the end of the Second World War, this alliance of sovereign states has safeguarded peace, stability and freedom on our continent, and this has only been possible because the Americans were also on board. During the Cold War, it was under the auspices of NATO that a path was established, which would lead from European integration to the EU of today; following the end of the Cold War, it was again NATO that provided a framework for Europe to reach out and extend beyond the former Iron Curtain. And now, once again, it is NATO that is taking concrete steps to meet the new security challenges in the East and the South; NATO is not postponing its response to a distant future. It is, of course, also conceivable that any European integration in the field of defence would remain within this transatlantic framework, and perhaps even strengthen it. However, it is just as conceivable that the Gaullist spectre will raise its head again and gain a momentum of its own, leading the Europeans to separate their security policy from that of the North Americans. It is not to be supposed that this is Juncker's intention. He is simply seeking a way out of the difficulties that have been highlighted by budgetary constraints and declining military capabilities among the Member States. But visions will not tackle this issue. Rather, what is required is willingness from the European partners to invest more in their security and to identify concrete areas for closer cooperation.

Peter Bossdorf

The Year of Narendra Modi



In an effort to steer India away from foreign dependence, the new Prime Minister launched a new policy encouraging the local defence industry to meet the military's needs quickly and effectively. [Page 22](#)

The International Market for OPVs



Patrol vessels are typically the smallest, most numerous, and least complex part of a country's maritime force mix. They also tend to be operated by a wide variety of agencies and services besides navies. [Page 66](#)

■ SECURITY POLICY

- 11 **The EU Contribution to Strengthening European Armed Forces**
Michael Gahler MEP
- 15 **European Maritime Security Strategy**
Dieter Stockfisch
- 19 **Energy as Part of Hybrid Warfare**
Michael Rühle and Julijus Grubliauskas
- 22 **The Year of Narendra Modi**
Bindiya Thomas

■ COUNTRY FOCUS: TURKEY

- 26 **Turkey – A Struggling Democracy in the Centre of a Political Ring of Fire**
Savas Bicer
- 29 **The Turkish Armed Forces**
- 32 **"It is our objective to develop strategies that make the armed forces ready for future combat."**
Interview with Head of SSM,
Undersecretary Prof. Dr. Ismail Demir
- 35 **The Turkish Security and Defence Industry**
Korhan Özkilinc
- 39 **Four Questions: FNSS – a Leader in the Market**
- 41 **Roketsan: A Highly-Specialised National Industrial Force**
Interview with Mr Selçuk Yaşar, President & CEO
of Roketsan Missiles Industries Inc.

■ ARMED FORCES

- 44 **Protection of NATO's Airspace**
Ulrich Rapreger
- 48 **Modelling and Simulation in the NATO Alliance**
An Allied Command Transformation Point of View
Wayne Buck

■ ARMAMENT & TECHNOLOGY

- 51 **Recent Equipment Developments – Impressions from the Market**
Jan-Phillipp Weisswange
- 54 **An Epidemic of Terror**
Tim Guest
- 58 **Fire Support Combat Vehicle Concepts for Future Scenarios**
Rolf Hilmes
- 61 **Conventional Submarines**
Naval Warfare Systems Meeting Global Requirements
Dieter Stockfisch

■ INDUSTRY & MARKETS

- 66 **The International Market for Offshore Patrol Vessels**
Growing Sales, Growing Capabilities
Bob Nugent
- 74 **Future Forces Exhibition & Conference: International Advanced Technologies in Defence & Security**
Stephen Barnard

COUNTRY FOCUS: TURKEY



- Security Policy
- Armed Forces
- Defence Procurement
- Security and Defence Industry

Pages 26-43

■ COLUMNS

- 3 Editorial
- 6 Periscope
- 17 Masthead
- 72 Firms & Faces

■ VIEWPOINTS FROM ...

- 14 **Athens: No Risk of a "Grexit"?**
Dimitrios Angelopoulos
- 18 **Rome: Libyan Crisis: Italy Strengthens Maritime and Homeland Security**
Luca Peruzzi
- 47 **Vienna: "Please don't count on us...!"**
Georg Mader

FAR OUT ARTILLERY



155 mm / 52 cal.
NORA-B/52
Armored
Truck-Mounted
Gun-Howitzer

YUGOIMPORT
SDPR

Republic of SERBIA • Bulevar umetnosti 2, 11150 Beograd • Phone: (+381 11) 222 4444
Fax: (+381 11) 222 4599 • e-mail: fdsp@eunet.rs • www.yugoimport.com

■ Sweden Orders A26 Submarines

(df) The Swedish Minister of Defence, Peter Hultqvist, announced that the government gave a approval to the Armed Forces

(Graphic: Saab)



to order two submarines. This opens the door to an investment of €0.9 billion in two next generation A26 submarines. Saab has not received any order on production of the new submarine yet, but looks forward to the discussions, which will lead to an agreement. Saab and FMV (the Swedish Defence Materiel Administration) already signed a Letter of Intent in June 2014 regarding the Swedish Armed Forces' underwater capability for the period 2015 – 2024. The Letter of Intent refers to support, development, design and production of submarines and other underwater systems, correspond-

ing to potential orders of approximately €1.2 billion.

■ ARTHUR Weapon Locating System Upgrade

(gwh) Defence and security company Saab has received an order from the Norwegian Defence Logistic Organisation (NDLO) for a prototype of the Mid-Life Upgrade of their current ARTHUR weapon-location radar system.

ARTHUR (ARTillery HUNting Radar) is a radar system that locates enemy artillery fire and determines the weapon position with high accuracy. It utilizes a passive phased-array antenna technology for optimized performance in an electronic warfare environment. The Norwegian Army took ARTHUR into service in 1999 integrated on a Hägglunds BV-206 tracked vehicle

(Photo: SAAB)



designed to support light infantry brigades. The recent order includes upgrading the sensor to Saab's current production version of ARTHUR (ModC), development of new Command, Control and Communication functions and integration in a new 10ft container. The container has ISO corners for easy and flexible use on many vehicle types. The Norwegian Army will use M113F4 Armoured Tracked Vehicle as the main carrier for ARTHUR.

■ Su-30MKI with BRAHMOS

(Photo: Brahmos)



(yl) The first multirole Su-30MKI combat aircraft with integrated Brahmos missile was handed to the Indian Air Force. BRAHMOS is the name of a family of supersonic cruise missiles in production and development by the Indian-Russian joint venture Brahmos Aerospace formed up on 50/50 basis with NPO MASH INSTROYENIA (Russia) and DRDO (India). It is currently in service with the Indian army and navy.

According to Brahmos Aerospace the Su-30MKI design has been adapted for the new type while the missile dimensions and weight have been diminished. In comparison with the ground and naval version 3,900 kg weight and 9 m length the BRAHMOS-A airborne version comes to 3,400 kg and 8.5 m. The range of 290 km and speed of 1,000 m/s remain.

The first test launches of BRAHMOS-A from Su-30MKI are to start this month to follow with the second adapted aircraft shortly.

The number of Indian Air Force Su-30MKI with BRAHMOS integration is to be 42. In October 2012 the Indian government approved €1 billion spending on 200 BRAHMOS-A acquisition. Each Su-30MKI could carry up to three BRAHMOS-A but the regular configuration is to include a single missile under the airframe body.

In the more distant future BRAHMOS-A shall be incorporated into the Russian and Indian fifth generation fighter which is under joint development by Sukhoi and HAL.

■ Trends in European Defence Spending

(gwh) The European Defence Agency EDA has published the annual "Defence Data Booklet" giving 2013 defence spending of the EU member states.

■ Brazilian CACADOR MALE

(df) Brazil is developing the CACADOR national medium altitude long endurance (MALE) RPAS (remotely piloted aircraft system).

CACADOR's multi-mission system is based on IAI's HERON RPAS, which has been in use in the Brazilian Federal Police since 2010. Transfer of technology is made by IAI to the Brazilian partner company Avionics Services. The CACADOR RPAS will be



(Photo: IAI)

equipped with an automatic takeoff and landing system (ATOL) and will be adapted for a broad range of tasks, utilising diverse mission payloads.

CACADOR will carry multiple payloads for line-of-sight missions or beyond line of sight using satellite communications. Its sensors will feed ISR data to the ground segment and to tactical-level end users in real-time. The system includes an advanced ground segment offering a sophisticated Man Machine Interface (MMI) with advanced, ergonomic and modular design.

Despite acquisition of Croatia as a new member, defence spending in the EU decreased by €1.7 billion to €186 billion. Following this trend, defence expenditure has decreased since 2006 by €32 billion or 15%. Contrary to the trend, expenditure for research and development (R&D) slightly increased to €7.5 billion, making 4% of total expenditure. Included are €2.1 billion for research and technology (R&T), which did not reach the required level of 2%.

Although data provided by the member states is not sufficient, EDA estimates collaborative equipment procurement expenditure decreased as well as nationally overlapping research. Just €4.8 billion (16%) out of €30 billion was spent on collaborative procurement. Collaborative R&T got only 10%. That means 90% of R&T was driven nationally.

■ Delivery of New UH-72A LAKOTA

(df) Airbus Helicopters delivered the first UH-72A LAKOTA helicopter in new configuration to the U.S. Army. The aircraft will join seven LAKOTAs previously in the Army inventory that have already been modified to the training configuration and fielded to Fort Rucker, in preparation for LAKOTA's formal introduction into the training curriculum in early fiscal 2016. Ultimately, Army plans call for an initial-entry rotary wing training fleet of 187 LAKOTAs, made up of a mix of new deliveries and already in-service aircraft reconfigured for the training mission.

■ New ICBM Successfully Tested

(yl) After the first evaluation process the Russia MoD declared the latest Intercontinental Ballistic Missile (ICBM) testing launch a full success.

The tested RS-26 RUBEZH (FRONTIER) is to become a successor for the ageing intercontinental force of the Russian Strategic Rocket Forces (RVSN). The March 18 launch took place at the Kapustin Yar testing range in the Astrakhan region. The warhead mock-up hit the target accurately at the Sary-Shagan testing field in Kazakhstan only few minutes after



(Photo: RVSN)

■ MALE UAS HAMMERHEAD

(gwh) Selex ES announced its successful contribution to the maiden flight of the prototype 001 of the Piaggio Aerospace P.1HH HAMMERHEAD, after an extensive flight campaign carried out with the P.1HH demo technology demonstrator, at the Italian Air Force base of Trapani Birgi.



(Picture: Finmeccanica)

The prototype flew with the Finmeccanica – Selex ES new vehicle control and management system for the first time and was remotely operated from the Finmeccanica – Selex ES ground control station (GCS), via the company's datalink and communications systems to ensure safe operations during all flight activities.

HAMMERHEAD will have a payload of 226 kg and a service ceiling of 13,700 m maximum. The range is up to 8,100 km with an endurance of 16 flying hours.

The Italian Air Force has selected HAMMERHEAD as MALE UAS for surveillance, reconnaissance and support of disaster relief and will procure three systems with six aircraft, three ground control stations and ISR-kits to be delivered at the beginning of 2016.

the start. The rocket is said to be able to make evasive manoeuvres and changes of direction at hypersonic speed.

The developer of the new ICBM – as well as all former mobile ground-based systems – is the Moscow Institute of Teplotechnika (MIT). At the moment the RVSN operate three mobile ICBMs (TOPOL, TOPOL-M and YARS) and four silo-based ICBMs (RS-18, RS-20, TOPOL-M and YARS).

According to the RVSN Commander in Chief, Colonel General Sergei Karakaev, the new ICBM will become operational next year with the Irkutsk based division.

■ EU Defence Research Group

(gwh) The first meeting of the newly established Defence Research Group was chaired on March 30 by Elżbieta Bieńkowska, European Commissioner for Internal Market, Industry, Entrepreneurship and SMEs. The group members are politicians, academics, researchers and industry, and advise on how the EU can support research related to the Common Security and Defence Policy. This group follows the conclusions of the December 2013 European Council calling for the creation of a so-called 'preparatory

action' linked to defence research beyond 2020. The implementation of defence directives to strengthen the EU's industrial defence base is also planned.

The 16 members of the EU-Defence Research Group are: Federica Mogherini, Fernando Abril-Martorell, Carl Bildt, Antoine Bouvier, Håkan Buskhe, Paul de Krom, Tom Enders, Michael Gahler, Elisabeth Guigou, Ian King, Bogdan Klich, Mauro Moretti, Reimund Neugebauer, Arndt Schoenemann, Teija Tiilikainen and Nick Witney.

■ Russia Releases Iran's S-300

(yl) On April 13 Russian President Vladimir Putin signed a decree to terminate a five year embargo on S-300 long range Air Defence System (ADS) delivery to the Islamic Republic of Iran. The €757 million deal was signed in 2007 but banned in 2010 by an unilateral decision of Dmitry Medvedev, at that time President of Russia. Some sources claim that the ban was result of a secret protocol previously signed by Russian Prime Minister Victor Chernomyrdin and U.S. Vice President Al Gore. As a result Russia was facing Iran's €3.8 billion claim at the International Court of Arbitration and received

(Photo: Almaz-Antey)



substantial loss of reputation as a reliable arms supplier.

Russian Foreign Minister Sergei Lavrov explained the Kremlin's decision by positive changes with the Iran's nuclear programme at the Geneva talks. Russia also expects Iran's withdrawal of the claim and a new air defence contract conclusion.

The disputed S-300 system is out of production and so Iran was offered Antey-2500 long range ADS with extended antiballistic missile capabilities as a substitution. Another option could be the latest S-400 ADS. This system is more efficient but also much more expensive than S-300. Another problem may arise with the possible date of delivery. Almaz-Antey ADS Concern production facilities for S-400 are booked with the Russian state order and an export contract with China for the next 5 years. So if Iran has an eye on S-400 TRIUMPH it will have to wait till 2020.

Despite Lavrov's announcement that S-300 has "an exclusively defensive character not to be a threat for any other state in the region including Israel", both U.S. and the Jewish State oppose embargo termination. Tel Aviv even threatened Russia "to reconsider" its position on the Ukrainian conflict, but Moscow is going to stay firm to protect its own political and financial interests.

With the Geneva talks progress economic and military sanctions against Iran will be ended relatively shortly and Russia is going to become Iran's military-technical partner.

■ Funding for the Littoral Combat Ship Approved

(df) The U.S. Navy has issued a Lockheed Martin-led industry team a contract modification for one fully funded 2015 Littoral Combat Ship (LCS) valued at €342 million, along with €75 million in advanced procurement funding for a second ship. The balance of the second ship will be funded by December 31 2015.

The advanced procurement dollars approved by Congress provide the funding required to maintain the cost and schedule of the final block buy option. The award also includes a priced option for one additional fiscal year 2016 ship.

The contract modification is for construction of LCS 21 and LCS 23, the 11th and

12th FREEDOM variant ships. The first ship under this 2010 contract, the Milwaukee (LCS 5), was christened and launched in 2013, and is slated to be delivered to the Navy this summer. Detroit (LCS 7) was

(Photo: Lockheed Martin)



launched in 2014. Little Rock (LCS 9) and Sioux City (LCS 11) are in construction, with LCS 9 christening and launch planned for this summer. Wichita (LCS 13) had its keel laid in February 2015. Billings (LCS 15), as well as Indianapolis (LCS 17) and to be named LCS 19 are in the construction phase.

■ Modernisation LECLERC Battletank

(gwh) The French Defence Procurement Agency (DGA) notified Nexter Systems of the LECLERC tank modernisation contract. This order constitutes the third step by the French Ministry of Defence under the SCORPION programme, intended to modernise the French Army's combat forces. Valued at approximately €330 million, the contract provides the delivery of 200 "Modernised LECLERC" tanks and 18 "Modernised DCL" recovery vehicles from 2020.

The planned modernisation work will enable the LECLERC to make the best use of its fire power and mobility within future "SCORPION" joint tactical groups (GTIA). Thanks to the development of specific interfaces for the new CONTACT tactical radio system and the SCORPION information

(Photo: Nexter)



and command system (SICS), it will be able to effectively network with all components of future "SCORPION" GTIAs. Moreover, the upgrade of its protection through the development of specific armour kits will en-

■ First Italian F-35A LIGHTNING II

(df) The first Italian F-35A LIGHTNING II rolled out of the Final Assembly and Check Out (FACO) facility in Cameri, Italy, in March. This production milestone marks the first F-35A assembled internationally and the first of eight aircraft to be assembled at Cameri.



(Photo: Lockheed Martin)

The aircraft, designated AL-1, will now proceed to additional check-out activities before its anticipated first flight later this year.

The Italian FACO is owned by the Italian Ministry of Defence and is operated by Alenia Aermacchi in conjunction with Lockheed Martin Aeronautics with a current workforce of more than 750 personnel engaged in F-35 aircraft and wing production.

The FACO will build all Italian F-35A and F-35B aircraft, is programmed to build F-35As for the Royal Netherlands Air Force and retains the capacity to deliver to other European partners in the future. In December 2014, it was selected by the U.S. Department of Defense as the F-35 LIGHTNING II Heavy Airframe Maintenance, Repair, Overhaul and Upgrade facility for the European region.

able the LECLERC tank to deal more effectively with new threats, such as improvised explosive devices.

A 3rd generation tank with a high degree of automation and diagnostic assistance, the LECLERC tank currently gives the French land forces "first entry" capability as part of an international coalition. Due to the modernisation, France plans to maintain this capacity beyond 2040.

The 57-ton LECLERC has been fielded from the beginning of the 1990s and features a hyperbar-engine (a combination of piston-engine and turbine), hydropneumatic suspension and automatic loader for the 120 mm smoothbore cannon.

■ Maritime Mine Counter Measures

(df) On behalf of the French Defence Procurement Agency (DGA) and UK MOD's Defence Equipment & Support organisation, OCCAR has awarded the Maritime Mine Counter Measures (MMCM) contract to Thales, in collaboration with BAE Sys-



tems, their partners in France (ECA) and in the UK (ASV, Wood & Douglas, SAAB). Initiated in 2012 under a cooperation agreement between France and the United Kingdom, the MMCM programme develops a prototype autonomous system for detection and neutralisation of sea mines and underwater improvised explosive devices (UWIEDs).

The MMCM contract includes three stages, starting with a first phase for design. The next stages, which are subject to contract options, will manufacture and experiment with the future mine countermeasures capabilities of both France (SLAM-F future mine countermeasures system) and the United Kingdom (MHC – Minecountermeasures and Hydrography Capability). The programme will deliver an autonomous, remotely operated mine countermeasures solution.

As part of the MMCM programme, Thales and BAE Systems are committed to providing systems to both the French Navy and Royal Navy for two years of evaluation.

■ PATRIOT Upgrade for South Korea

(df) The Republic of Korea has awarded Raytheon a €711.4 million contract to upgrade their PATRIOT Air and Missile Defense System batteries to the latest Patriot Missile Defense System Solution configuration.

The upgrades include: Open architecture, which ensures PATRIOT can operate on a variety of networks. Modern Man Station, a new operator interface featuring touch



screen technology and colour graphic displays, and a new Radar Digital Processor, which improves target detection and identification, enhances surveillance, and supports the PAC-3 MSE missile.

This contract follows the upgrade of its missiles to the GEM-T configuration, that the Republic of Korea began in 2014.

Each system will comprise a USV (Unmanned Surface Vehicle) equipped with an autonomous navigation system, an obstacle detection and avoidance sonar, a threat identification and neutralisation capability based on ROVs (Remotely Operated Vehicles), a T-SAS (Towed Synthetic Aperture Sonar) and AUVs (Autonomous Underwater Vehicles). The geolocated AUVs will use the latest-generation synthetic aperture sonar SAMDIS with multi-aspect functionality for improved classification. They will perform their tasks autonomously with control from a host ship or shore-based station via high-data-rate communication links.

■ PANDUR I Upgrade

(gwh) The upgrade of 131 armoured wheeled 6x6 PANDUR I has been ordered collectively by Austria and Belgium. RUAG has developed custom-made solutions for crew protection of all five PANDUR variants (personnel transport, ambulance, anti-tank, recovery, maintenance and command). The kits may be integrated without significant disassembly or major changes.

RUAG uses the SidePRO-KE/IED modular protection system to better protect the PANDUR against fire (kinetic energy) and improvised explosive devices (IED). Armour plates of different materials will be installed directly onto the existing armouring. To enhance mine protection MINEPRO add-on-armour will be fitted under the belly. RUAG will evaluate the crew compartments and – when required – optimise stowage and seating for crew and passengers to counter mines. Work on the

five year contract, with a value of €13,6 million will start in the next weeks.

The Austrian PANDURs of the Bundesheer will undergo an extended inspection at the HLogZ logistics centre in Graz. 40 will get an EFWS remote weapon station from ESL Advanced Information Technology GmbH to replace the current



mechanical one. EFWS may be equipped with 12.7 mm MG, small-calibre MG or 40 mm grenade launcher.

■ No Replacement of MiG-29

(df) The Royal Malaysian Air Force (RMAF) will not replace its ageing MiG-29 fleet in the near future, the Malaysian Defence Minister Datuk Seri Hishammuddin Hussein said at the LIMA 2015 trade show in Malaysia. Instead, improvement of the serviceability levels of its Su-30MKM. Retirement of the MiG-29 is expected in late 2015. Hishammuddin Hussein stated that he hopes the decommissioning of the Mig-29 will help to increase the serviceability of the Su-30MKM.

(df) BAE Systems has been awarded additional funding of €355 million to cover the final phase of work to design a suc-



12 months to enable us to start construction in 2016."

(df) Airbus Defence and Space has been selected by the French defence procurement agency DGA (Direction Générale de l'Armement) to build the three CERES satellites, which will provide France with its first operational SIGINT capability.

The CERES (Capacité de Renseignement Electromagnétique Spatiale or Space Signal Intelligence Capacity) system comprises three closely positioned satellites that are designed to detect and locate ground signals, along with ground control and user ground segments. CERES is due to enter



service towards 2020. Airbus Defence and Space has been entrusted with the space segment comprising the three satellites, while Thales is responsible for the payload and the user ground segment. The two manufacturers are the joint prime contractors for the entire system. In addition, Thales Alenia Space acts as a subcontractor to Airbus Defence and Space in supplying the platform.

2014 – 2019 Military Planning Law has translated this priority into programmes and funding, which include signals intelligence and one of its operational uses, the CERES programme.

(df) Poland will spend about €38 billion on the modernisation of it's armed forces over the next decade. Included are plans on the acquisition of three new submarines by 2030 with proceedings starting this year. Even though the submarine class is not choosen yet, the focus on weapons is already concentrating on TOMAHAWK by Raytheon (USA) and MDCN (Missile de Croisière Naval) by MBDA (France). Since Poland is partner in the European missile defence system established by NATO and a reliable partner in recent operations no restrictions by foreign sales policies of France or the USA are expected.

(df) German company Thyssen Krupp Marine Systems (TKMS) may be heading into the Indian submarine procurement programme. The Indian Navy wants to renew their underwater fleet by buying six submarines. TKMS will offer its HDW Class 214 submarines with fuel-cell based Air Independent Propulsion (AIP) system. The HDW Class 214 combines the proven design principles of the HDW Class 209 family with additional features of HDW Class 212A, the newest submarine of the German Navy.

MITTLER --- REPORT

[illegible]

European Security & Defence is escorted by the new fortnightly newsletter **ESD Spotlight** which is distributed by email. **ESD Spotlight** is available free of charge. You can order your subscription by sending an informal email message to esd.spotlight@mittler-report.de.

Alternatively, there is a subscription order form on the magazine's website at www.euro-sd.com.



The EU Contribution to Strengthening European Armed Forces

(Photo: Gahler)



Michael Gahler MEP

The Lisbon Treaty has been in force for five years, and yet European governments still lack the will to tap into the full potential of the text of that document pertaining to European defence policy.

Although there is currently no shortage of wars and conflicts in the EU's neighbourhood, its governments have refrained from developing concerted military responses to these challenges within the EU framework. As a central response to Russia's erratic behaviour in violation of international law, European countries have agreed to closer military cooperation within the NATO framework.

It is a mistake to think that NATO alone can ensure our security; the EU also makes a contribution. For example, the member states within the EU framework have gradually tightened sanctions against Russia. Further, we should bear in mind the not-yet invoked European mutual defence commitment (analogous to Article 5 of the NATO treaty) and the solidarity commitment in the event of a terror attack. Although these instruments are contained in the treaty, in the EU context it is still unclear how and to what extent the member states are obliged to "solidarity" in the event of an external attack. In view of gaps in military capabilities and the poor mission readiness of European armed forces, it quickly becomes evident that even NATO, pillar of security that it

is, is poorly equipped to counter the current challenges. In the interplay between NATO and the EU, the question arises: to what extent can the EU contribute to the task of generating new capabilities and increasing the mission readiness of European armed forces? Unlike NATO, the EU has a common legislative body and a common budget. These two European levers — EU laws and EU money — should also be used to give weight to member states in their handling of crises and conflicts. The new European Commission made a strong commitment to providing such defence policy weight when it called for substantive talks on permanent structured cooperation (PSC). Furthermore, the Horizon 2020 research and innovation framework programme for civil-military capabilities development, along with the parliamentary initiative for EU defence research, offer far-reaching opportunities to strengthen European armed forces. To realize the potential these possibilities offer, the member states will have to muster the necessary political will and bravely mobilise the defence policy support capabilities of the EU.

Inadequate Capabilities and Poor Mission Readiness

Cooperation among the European armed forces is not a new issue. Consider the multilateral procurement programmes of the 1970s and 80s, which yielded the military capabilities available to today's troops. Unfortunately, cooperation up to now has not exactly been characterised by cost efficiency or adherence to planned timetables. A number of European states took part in the development and procurement of the A400M, the EUROFIGHTER, the TIGER attack helicopter and the NH90 transport helicopter. The underlying idea of specifying common requirements, seeking common

procurement cost savings and efficiencies of scale is indeed compelling. However, when it came to the realisation of the above-mentioned projects, both the governments and the industry made significant missteps.

Our governments, with their "special national requirements", managed to block all of the positive effects mentioned above. At the same time, potential common mission scenarios are the rule, which calls such special national requirements into question. In future, our governments must freeze their common requirements in the development and procurement process. Special national requirements should be flatly declined because they cost time and money. Often, our industry representatives and policy-makers have harboured false hopes or, as Airbus CEO Thomas Enders so eloquently put it: "We have failed to adhere to agreements, disappointed expectations, and in many cases created cost overruns."

Procurement is not the only area in which Europe comes up short; materiel maintenance has also been woefully inadequate among European armed forces. Recent reports of faulty equipment have come from many European states. Spain can only ensure 15 per cent mission readiness in its Eurofighter squadrons. As a result, its six functional EUROFIGHTERS have only a limited capability to scramble a Quick Reaction Alert (QRA) force and ensure Spain's sovereignty over its own airspace. Reports from France claim that only 31 per cent of the country's tanks and just 50 per cent of its frigates are mission capable. Those are extremely poor numbers for an armed force that can no longer fulfil its government's requirement for a global military intervention capability. Germany was shocked last autumn by Defence Minister Ursula von der Leyen's admission that the Bundeswehr's airborne systems could no longer fulfil their NATO obligations.

Author

Michael Gahler, Christian Democrat MEP from the German State of Hessen (Germany) and security policy speaker for the EPP Group.

Overall, the 28 armed forces of the EU member states paint an abysmal picture. Although the governments have known of their lack of capabilities since the end of the 1990s – in the areas of strategic air transport and unmanned aerial surveillance platforms, for instance – they have collectively done very little to remedy these shortfalls. Even good ideas, such as the EU's Pooling and Sharing ini-

— aerial refuelling capabilities, for instance.

Juncker Commission Announcements Offer Hope

Even before it assumed its duties, the Juncker Commission aroused high expectations with regard to security and defence issues. When, as a presidential

more pointed in her hearing in response to my query on permanent structural co-operation (PSC) in which she promised more active engagement on the issue. She must use the next five years to create the political conditions necessary for PSC implementation. PSC is an effective but previously unused EU instrument with which to merge uncoordinated isolated solutions into forms of military cooperation. PSC offers an opportunity for participating member states to mobilise EU processes and EU budgetary means in support of peacetime military cooperation. Given the political will, it is legally possible to use European funds to finance peacetime military infrastructure and training measures, for example. In future the MEPs will continue to support Ms Mogherini in her important assignment for the political implementation of the PSC.

Restating Political Goals Is No Substitute for Armament Programmes

In general, MEPs are pleased that heads of state and government have agreed to revisit defence issues in June 2015. Despite Russia's actions, which are illegal under international law, and spiralling violence in Syria, Iraq and Libya, member states were incapable of making a breakthrough last year to eliminate known capability gaps. So far they have succeeded only in generating more paper that restates in different words the stated goals of committee resolutions. Although the European Defence Agency has now issued a comprehensive paper outlining a "policy framework for systematic and long-term defence coop-

(Photo: OSZE)



The crisis in Ukraine has underscored the fragility of peace in Europe.

tiative and the NATO Smart Defence initiative became bogged down and were ineffective at influencing the creation of new capabilities. Existing capabilities were merely regrouped into a common pool — for instance, air transport capabilities were pooled under the European Air Transport Command (EATC) — and access to already-planned capabilities was coordinated amongst the members

candidate, Jean-Claude Juncker presented himself to the MEPs and described his policy guidelines, he called for establishing a "minimum level of integrated defence capacities" and "more cooperation in the procurement of defence-related goods." Federica Mogherini, Vice President of the European Commission and High Representative of the Union for Foreign Affairs and Security Policy, was even



The EUROFIGHTER TYPHOON, a multinational defence project

(Photo: Bundeswehr)

(Photo: Airbus D&S)



The A400M transport aircraft will have to prove its mettle in European air transport.

eration,” the politically incendiary question of implementing PSC has remained unanswered. The ongoing Common Security and Defence Policy (CSDP) missions add urgency to the question of how the defence programmes for medium altitude long endurance (MALE) UAVs or aerial refuelling capacities are progressing. These are capabilities that the heads of state and government held out the prospect of last year.

EU Financed Civil-Military Research and Development

There has been some progress in supporting military capabilities development with EU funding. The start of the EU Framework Programme for Research and Innovation (Horizon 2020) also marked the beginning of the Secure Societies sub-programme, which for the first time covers both domestic and foreign security issues. The European Parliament and the Council of Europe have provided €1.7 billion from 2014 to 2020 for the sub-programme, which also includes civil-military research and development measures for the support of CSDP missions. Unfortunately, until now the commission has failed to clearly articulate its support for the CSDP when issuing its research tenders. It is unclear to what extent the

member states or the European External Action Service (EEAS) as users participated in CSDP-relevant research tenders. On a side note: EU financing not only secures research and development, but also the Council or EEAS can actually procure and use the security technology developed through pre-public procurement.

EU Parliament Gets Defence Research off to a Good Start

The heads of state and government called for the establishment of a preparatory action on CSDP-related research at the European Defence Council 2013. The EU funds preparatory actions for three years to prepare measures for inclusion into the regular EU financial framework — in this case from the autumn of 2021. The proposed preparatory action should go beyond existing civil-military CSDP research to enable EU-funded defence research. European MEPs successfully exercised political pressure on the commission with a proposed amendment to the 2015 budget. MEPs introduced the non-partisan proposal, which I initiated, a pilot project from 2015 for CSDP research with a specific focus on defence products. With this proposed amendment, the parliament combined two political messages: first, CSDP research with EU funding must

be capable of being carried out in the near future — the previous commission proposal on preliminary measures had a target date of 2018 or 2019. And second, the knowledge of the European Defence Agency (EDA) should be placed at the centre of military CSDP research, as it is where the knowledge of the member states converges and because the EDA has already gathered experience in multilateral capabilities development. Because the European Parliament and the Council of Europe agreed in December 2014 on a compromise proposal for the 2015 budget, the pilot project for CSDP defence research can now begin as planned next year.

Defence Summit 2015

In future, MEPs must redouble their efforts to tap the unused potential of the Treaty of Lisbon for a European defence policy of the future. At their next defence summit in June 2015, the heads of state and government will have the opportunity to speak out for the importance of defence with concrete actions. In the lead-up to the summit, the European Parliament must not slacken in its efforts to rapidly activate permanent structured cooperation, and to lead the parliamentary initiative for EU defence research to success. ■

Viewpoint from Athens



No Risk of a “Grexit”?

The anti-austerity far left Syriza party has won the recent Greek election held on 25 January by a decisive margin, but just short of an outright majority; Syriza won 149 seats in the 300 seat parliament. New Prime Minister Alexis Tsipras who surprised the Greeks by speedily agreeing to share power with the populist right-wing Independent Greeks party ANEL, was handed a mandate by Greece's president Karolos Papoulias to form a government following his invitation at the presidential house.

The Country's Economic Status

The austerity measures were imposed by the International Monetary Fund and the European Union in 2010 in return for a massive €240 billion (US \$272 billion) bail out designed to help Greece tackle interest payments on its debt pile worth €320 billion. While the measures were designed to rein profligate Greek spending and slim down a top-heavy state, they have instead been blamed for shrinking national output by 25 percent and pushing youth unemployment over 50 percent. The new government has pledged to enter into constructive negotiations with its creditors in order to avoid a humanitarian crisis at home.

Greece's Foreign Policy

Foreign Minister Mr. Kotzias has expressed his concern at the fact that Greece is in a triangle of insecurity – the three vertices of which are Libya, Ukraine and the Middle East – stressing that Greece has its own stabilising role in the region. He posed the question of the potential impact on Europe's stability in the case of the destabilisation of Greece and a generalised destabilisation in a region that extends from Russia and Ukraine to North Africa and the Middle East. He also called on his counterparts to consider the domino effect that the measures they take might have, and to begin a general strategic debate on that issue. He also called on the European partners to support Ukraine so as to weaken separatist trends, but not to follow barren processes that will cause more general instability that is much worse than today's.

Relations between Russia and the new government in Greece continue to warm up. Russian President Vladimir Putin invited the new Greek Prime Minister Alexis Tsipras to visit Russia. Greek Prime Minister Alexis Tsipras has blasted European economic sanction on Russia over the Ukraine crisis. He accused Brussels of hypocrisy over the sanctions, saying it was unfair not to pursue Russian oligarchs with money invested overseas. "If you want to punish Russia, you need to punish all the countries where Russian multi-billionaires have invested their assets," Tsipras told the German magazine Stern.

Security Concept

According to the recently revised White Paper released by the Greek MOD the fundamental objectives of the national defence policy are:

- Safeguarding national integrity, sovereignty, independence and force and therefore, defending the land, sea and air national territory and, therefore, national security.



Dimitrios Angelopoulos

- Contributing to the integrity of the sovereignty, independence and security of the Republic of Cyprus, in the context of the strategic cooperation between the two countries in the common geographical area of the Eastern Mediterranean.

Apart from the above objectives, the country mainly aims at ensuring peace and stability in South-eastern Europe, Eastern Mediterranean and other regions of specific interest.

Defence Budget and Procurements

Remarkable reductions in defence spendings have been imposed over the last few years:

- €533 million in 2014
- €700 million in 2015
- €598 million in 2016
- €497 million in 2017
- €500 million in 2018

Based on the above figures, Greece plans to spend €3.25 billion on defence this year, down 46 percent from the 2010 figure. Procurement spending in 2015 will amount to €700 million, down 65 percent from 2010.

In light of his commitment on fighting corruption Defence Minister Panos Kammenos is determined to proceed to investigations on defence procurements that have been approved by previous governments. He recently announced that he submitted two files related to arms procurement to the public prosecutor in order to investigate possible bribery and corruption. That is the purchase of NH-90 helicopters dated from 2003 and the purchase of German Submarines dated from 1998.

Greece and Germany have two different visions of their shared currency zone and common government. In Athens, Germany's austerity diktats have long been viewed as myopic and cruel. Greeks complain that while Germans rail at "corruption" in their country they reflect little on the bribes paid by German companies, such as Siemens, to win contracts in Athens. On the other hand the German political leadership believes that the newly elected Greek government has totally destroyed the trust of its European partners. Despite the above Greek public opinion believes that a final compromise will succeed and that there is no risk of a possible "Grexit". Recently the European Union committed €2 billion (\$2.15 billion) to help Athens deal with what even EU leaders now call the "humanitarian crisis" hitting Greeks in the wake of the financial crisis that has left the nation on the brink of bankruptcy.

European Maritime Security Strategy

Dieter Stockfisch

In late June 2014, the European Union (EU) approved a new European Union Maritime Security Strategy (EUMSS). In view of the naval challenges emerging in the early years of the 21st century, the EUMSS defines the maritime interests of the EU and its member countries, describes maritime threats and establishes courses of action for ensuring global maritime security.

The world's oceans represent an essential source of growth and prosperity for the European Union and its people. Europe is a peninsula of the Eurasian continent, meaning that over 70 percent of the EU's external borders are coastal. The majority of European trade is carried by sea. The flow of goods that are important to Europe's economy is not limited to waters within European borders: commodities are carried on all the world's oceans. This includes maritime regions that will be of future European interest, such as passages in the Arctic Ocean. In terms of economic development, the EU is therefore critically dependent on open and secure shipping routes, a secure maritime infrastructure, the free flow of trade by sea, energy security, access to marine resources and a healthy marine environment. Emerging global challenges, such as the globalisation of all areas of life, the growing world population, increasing levels of migration by sea routes, the race for raw materials, climate change, and international terrorism (piracy) have significant implications for the EU's economic development and maritime security. Against this background, the EUMSS forms the framework for ensuring maritime security for the EU and its member countries.

Objectives

Like the maritime strategy recently adopted by the UK, the EUMSS focuses on bringing together all the existing EU maritime authorities, bodies and organisations, allied partners (NATO, EU), navies, and trade and industry in order to work in close cooperation and in a coordinated manner – based on human rights, freedom and democracy, and international agreements such as the UN Convention of law of the Sea (United Nations Convention on the law of the sea, UNCLOS) – to counter global maritime threats and risks effectively and, if possible, to work to prevent them. There is a special focus on maritime security in sea areas adjacent to Europe (Baltic Sea, North Sea, Black



70 percent of the EU's external borders are coastal.

Sea, Mediterranean Sea, Arctic, Atlantic). EUMSS thereby provides the political and strategic framework needed for the basis of action to counter threats. Examples of such operations include the EU-led anti-piracy operation "Atalanta" off the Horn of Africa and potential EU-led operations against piracy and terrorism in the Gulf of Guinea, West Africa.

The EUMSS aims to safeguard maritime safety by applying the following concrete strategies:

- Coordinating all aspects of maritime security in the EU and the maritime interests of the EU member states,
- Supporting the EU Member States in enforcing their rights in territorial waters and on the high seas,
- Promoting the EU's maritime economy, as set out in the strategic paper "EU's Growth Strategy – Europe 2020",
- Contributing to maritime security and protecting the EU's maritime borders,
- Collaborating on maritime security with regional and international partners,
- Strengthening bonds between the EU member states and promoting mutual

assistance in dealing with maritime security challenges,

- Promoting the mutual exchange of information about maritime affairs, operational concepts, situational pictures and experiences in accordance with the "need to share" principle, in order to – among other things – recognise threats at an early stage and be able to take a common pre-emptive approach to countering them,
- Strengthening the role of the EU as a global player and guarantor of maritime security, with responsibility for crisis management and conflict prevention at sea and for ensuring stability and peace through comprehensive long-term EU actions.

Guiding Principles

The EUMSS will adhere to the following guiding principles:

Cross-sectoral approach: All civilian and military organisations/authorities and EU agencies (police, border protection, customs, fisheries protection, environmental



Photos: Bundeswehr

EU led naval force (NAFOR) "Atalanta" off the Horn of Africa

protection organisations, maritime administrative and research organisations, navies, coast guards, intelligence services, shipping associations, shipbuilding industry, etc.) are called upon to cooperate, without compromising their internal powers.

Functional integrity: The EUMSS does not directly affect the powers and sovereign rights of the EU and its member states in the named sea regions or the exclusive economic zones. The rights, mandates and interests of EU member countries remain untouched; they are included in the EUMSS as support functions, without creating new

organisations and maritime forums, in particular with the United Nations and NATO.

Maritime Security Interests

With regard to maritime security, the EUMSS cites the following security interests of the EU and its member countries as requiring safeguarding and protecting:

- The security of the EU, its Member States and its citizens,
- Maintaining peace, the peaceful settlement of maritime disputes on the basis of international law, the prevention of

conflicts and the strengthening of international security,

- Protecting against maritime risks and threats, including protecting critical maritime infrastructure such as ports and port facilities, offshore installations, cross-water energy supplies, underwater pipelines and cables, and maritime research and innovative projects,
- Ensuring free and unimpeded maritime traffic, protecting the EU's global maritime supply routes and maritime trade, the right to unimpeded transit passage for ships and protection for crews and passengers,
- Protecting economic interests, including securing maritime energy resources, the unimpeded use of maritime resources in maritime zones and on the high seas, monitoring and eliminating illegal fishing, safeguarding fishing fleets from EU member states; protecting EU member states' exclusive economic zones,
- Protecting EU external borders at sea and the maritime interests of the EU against illegal migration and border crossings,
- Protecting the environment and managing the consequences of climate change in marine areas and coastal regions.



The US destroyer USS FARRAGUT from Combined Task Force 151 sinks a pirate ship.

structures and administrative requirements or imposing additional financial demands.

Respect for rules and principles:

The EUMSS respects international law, human rights and democracy; it has a strong emphasis on the provisions of UNCLOS and supports the International Tribunal for the Law of the Sea (ITLOS) when ITLOS has to dispense justice and enforce legislation in disputes or when interpreting UNCLOS regulations.

Maritime multilateralism: The EUMSS respects the institutional political structure of the EU and its autonomy in decision-making, and promotes close cooperation between all international partners and or-



A boarding team from the German frigate KÖLN inspecting a pirate boat off the Somali coast

- Threats to the security of European citizens and their economic interests on the seas, threats to the sovereignty of EU member countries or armed conflicts,
- Illegal border crossings and organised crime including piracy and armed robbery at sea, human trafficking, drugs and arms trafficking, illegal fishing and smuggling at sea,
- Terrorism and violence at sea and in ports against ships, ships' cargoes, crews and passengers, violence against ports and port facilities, and against maritime energy infrastructures, including cyber attacks,
- Proliferation of weapons of mass destruction at sea,
- Threats to free navigation such as blocking access to the sea and sea passages and impeding maritime transport,
- Environmental risks including the illegal exploitation of marine resources, illegal fishing and environmental destruction caused by the illegal dumping of chemical, biological or nuclear waste, chemical munitions and poisonous gas or unexploded bombs,
- Risk of natural or man-made disasters, the impact of climate change on the maritime transportation system and maritime infrastructure.

Focus on Prevention

The EUMSS takes a broad conceptual approach with a focus on prevention, and aims to strengthen the EU's resilience to maritime threats and global risks. The EU sees itself as a global player with responsibility for maritime safety and wants to make this role clearly visible in the future. Its strategy therefore focuses on linking regional and international partners and organisations, with particular emphasis on cooperation with NATO and the UN, the African Union and ASEAN organisations, with civilian maritime organisations such as the European Defence Agency – e.g. on maritime defence and security – and on the integration of the EU common foreign and security policy.

EU Mission "Atalanta"

In anticipation of the EUMSS, the EU has been actively working for maritime security at sea since 2008. At that time, and within the framework of the Common Foreign and Security Policy, the EU decided to deploy naval units on its first naval mission – EU NAVFOR "Atalanta" – to the Horn of Africa to protect commercial shipping from piracy. The operation is a good example of the practical implementation of EUMSS. In December 2008, Germany decided that, as an EU Member State, it would participate in the mission with naval and naval air units. Since then, the German Navy has been the largest contributor to the EU-led anti-piracy mission, providing continuous support in the form of frigates, task force supplies and maritime patrol aircraft.

The "Atalanta" EU Naval Force's original assignment was: to monitor sea areas off the coast of Somalia, including Somali territorial waters, in order to protect World Food Programme vessels – in some cases also protecting civilian ships; to deter, prevent and stop acts of piracy in the theatre of operations – if necessary by force; to detain people suspected of having committed acts of piracy and to cooperate with organisations and states to combat piracy. Since then, the EU mandate has expanded and now allows offensive action against piracy, including off the Somali coast.

The operational headquarters of the EU mission "Atalanta" is at NATO Allied Maritime Command Northwood, United Kingdom. The international operation is under British leadership, and a German Admiral represents Germany. Command of the EU unit at sea rotates among the EU nations every four months. In the context of collaboration with other organisations and nations, "Atalanta" cooperates with the U.S. Navy's Combined Task Force 151, with the permanent NATO operational units and with numerous naval units from other countries, which also operate to protect their own merchant ships off the Horn of Africa. ■

Masthead

European Security & Defence

Issue 2/2015
ISSN 1617-7983
www.euro-sd.com

Published by

**MITTLER
REPORT**

Mittler Report Verlag GmbH
A company of the Tamm
Media Group

Editor-in-Chief: Dr. Peter Bossdorf (pb)
Deputy Editor-in-Chief: Henning Bartels (hb)
Managing Editor (Magazine): Stephen Barnard (sb)
Managing Editor (Newsletter): Dorothee Frank (df)
Industrial Editors: Jürgen Hensel (jh), Gerhard Heimig (gwh), Dieter Stockfisch (ds), Ulrich Rapreger (ur), Yury Laskin (yl), Dr. Jan-Philipp Weisswange (ww)
Supported by the editorial team of "Europäische Sicherheit & Technik"
Publishers: Rainer Metzner, Henning Bartels

Layout:

davis creativ media GmbH, Bonn, Germany

Production:

UNIPRINT Basım San. ve Tic. A.Ş.
34555 Arnavutköy / İstanbul / TÜRKİYE

Office address:

Mittler Report Verlag GmbH
Baunscheidtstraße 11
53113 Bonn, Germany
Phone.: +49 228 3500870
Fax: +49 228 3500871
Email: info@mittler-report.de
www.mittler-report.de

Director of Marketing

Jürgen Hensel (jh)
Baunscheidtstraße 11, 53113 Bonn, Germany
Phone: +49 228 3500876, Fax: +49 228 3500871
Email: juergen.hensel@mittler-report.de

Advertising Representatives:

Dipl.-Betw. Uwe Nemeyer, optiproject GmbH – Agentur für sicherheitspolitische und wehrtechnische Kommunikation
Von-Imhoff-Weg 5, 53359 Rheinbach, Germany
Phone: +49 2226 909637, Fax: +49 2226 909653
Email: uwenemeyer@optiproject.de, www.optiproject.de

UK/Ireland/Eastern Europe:

Stephen Barnard, c/o Mittler Report Verlag GmbH
Phone: +49 228 35 00 886
Email: stephen.barnard@mittler-report.de

USA/Canada:

Black Rock Media, Inc., Diane Obright,
810 Val Sereno Drive, Olivenhain, CA 92024, USA
Phone: +1 858-759-3557, Email: blackrockmediainc@icloud.com

Russia & CIS:

Laguk Co., Yury Laskin, General Director
Krasnokholmskaya Nab., 11/15, 132, RF-109172 Moskau, Russian Federation
Phone: 007-495-911-1340, Fax: 007-495-912-1260, Email: yalarm-lml@mtu-net.ru

Subscription/Reader Service:

PressUp GmbH, Postfach 70 13 11,
22013 Hamburg, Germany
Phone: +49 040 41448471
Fax: +49 040 41448499
Email: mittler-report@pressup.de

European Security & Defence

© Copyright Mittler Report Verlag GmbH

The views expressed are not necessarily those of the editor or publisher.
All rights reserved. No part of this publication may be reproduced without prior written permission of the publisher in Bonn.

Cover Photos: EUNAVFOR, NATO, Rolf Hilmes

Price per issue:
€ 5.90 (plus postage)
Annual subscription rate (6 issues):
€ 35.60 incl. Postage

Viewpoint from Rome



Libyan Crisis: Italy Strengthens Maritime and Homeland Security

The day after the dramatic terrorist attack in the Tunisian capital on 18 March, which killed 20 foreign tourists including four Italian citizens, the Italian Government announced the boosting of naval and air assets presence in the Central Mediterranean off the Libyan coastline, as well as the strengthening of homeland security forces and terrorism law within Italian borders. As explained jointly by the Italian Minister of Defence, Roberta Pinotti, and the Minister of Foreign Affairs and International Cooperation, Paolo Gentiloni Silveri, during a hearing in front the relevant committees of the Italian Parliament, the 'Mare Sicuro' (Safe Sea) mission's objective is the protection of the national interests in the area, including these waters' highly busy communication lines with commercial, cruise shipping and fishing vessels, offshore oil platforms as well as "monitoring of Jihadi formations". The mission is likely to include an unspecified number of surface vessels, including FREMM type frigates and offshore patrol vessels, and possibly a submarine operating together with one landing helicopter dock or amphibious assault ship, fixed- and rotary-wing assets, special forces and vessel inspection detachments. These are already involved in the Italian Navy's 'Mare Aperto' (Open Sea) ongoing training exercise based on a force of eight naval units, special forces, helicopters and fixed-wing aircraft as the first such complex exercise since 2013. The Minister also mentioned the Italian Air Force's Predator UAVs as well as unspecified electronic surveillance assets, which are expected to monitor the chaotic situation in Libya as well as suspicious activities ashore and in littoral waters. The situation in Libya has forced Italy to withdraw all diplomatic, security and military assistance and training personnel, while intensifying respective activities in neighbouring countries.

According to these scarce early statements, the new mission is expected to concentrate on the protection of national interests and maritime security on the open sea and in the littorals and further offshore as the Italian State-controlled ENI energy group works in a joint-venture with the Libyan National Oil Corporation at offshore gas/oil production sites and processing plants on the Libyan coast that are connected with the Greenstream underwater pipeline reaching Sicily at Gela, even if the Italian Minister of Defence did not mention the inland installation. Previously, in the scope of Italy's empowered 'Mare Nostrum' migration control mission the lives of more than 150,000 migrants could be saved in a sea space of up to more than one hundred nautical miles from the Italian coast (unfortunately, still hundreds of refugees were killed due to crumbling carrying



Luca Peruzzi

boats and sea conditions). The mission had taken advantage from a significant involvement of the Italian Navy with up to five front and -second line combatants, two fixed-wing and one Predator UAV, Coast Guard, Guardia di Finanza and Police forces naval and air assets. The 'Mare Nostrum' operation has been succeeded by the ongoing EU Frontex-lead but much smaller 'Triton' mission with operations up to 30 nm from the coast, although further offshore rescue operations are conducted. This flow of migrants, fuelled by criminal and terrorist organisations, has not been reduced during the latest winter period; rather, the first months in 2015 saw a doubling of saved migrants compared to same period in 2014. Moreover, these organisations have become more aggressive, threatening the lives of the Italian Coast Guard crews involved in migrant rescue operations, which are increasingly conducted just outside Libyan national waters. The reduced scope and capabilities of the 'Triton' mission could increase the burden of activities of 'Mare Sicuro' as its naval and air assets are expected to control migrant flows to Italy. As of yet, no indication has been provided with regard to the rules of engagement as well as how to monitor armament embargoes on sea. Moreover, the new tasks of protecting national interests, such as ENI-managed offshore oil/gas production and inland refining installations, could force Italian naval assets into dangerous waters, thus becoming highly exposed targets for any terrorist and militia group. During Operation Unified Protector, an Italian frigate appeared to be subject to target acquisition (without consequence) by an unidentified weapon system on the Libyan coast. The smuggling of lightweight anti-ship missiles from Iran or China into Libya, or suicide attacks could, however, pose a serious threat. The seizing of coastal gas/oil installations by terrorists or hostile militia could interrupt the gas flow through the Greenstream pipeline with massive consequences for Italy's energy reserve supply. Minister Gentiloni spoke about 'counterterrorism and containment' measures, should the UN effort to unify the Libyan parties fail; but no indication has been provided about how to implement such measures, except for boosting maritime and strengthening homeland security.

Energy as Part of Hybrid Warfare

Michael Rühle and Julijus Grubliauskas

The events surrounding Russia's illegal annexation of Crimea have given prominence to a term that until now was only known in specialist circles: "hybrid warfare". By overtly and covertly employing military and paramilitary forces, supplying separatist groups, staging cyber attacks and waging a massive propaganda campaign, Russia provided a textbook example of how non-traditional warfare can be effectively employed to achieve political objectives.

Against this background, the references in Russia's new military doctrine to the "integrated use" of military and non-military measures are more than a mere description of the characteristics of modern warfare: they accurately describe Russia's actions.

was – and continues to be – a far more important factor in hybrid warfare than is commonly acknowledged. Russia occupied Ukraine's gas fields in and around Crimea by traditional military means, and supported violent separatism in Eastern Ukraine. It exerted economic pressure on

operating in Crimea – Chornomornaftogaz – together with all its energy assets, including those offshore. Given the vast asymmetry in the military forces of both countries, Ukraine had no chance to prevent this. This move allowed Russia not only to ensure a stable supply of energy to the region, but also to render it independent from mainland Ukraine, which was critical for effective control of the territory.

Since some of the offshore gas installations – four natural gas fields with drilling rigs – extend from the Crimean coast all the way to the maritime border with Romania, their nationalization by Russia also significantly extended that country's geographical dominance in the Black Sea area off the Western coast of Crimea. Hence, in addition to previously Ukraine-owned energy infrastructure and the Chornomornaftogaz company, estimated to be worth around USD 1.2 billion, and over two billion cubic metres of natural gas storage in Crimea, Russia has acquired a massively extended maritime zone with the claim to underwater resources potentially worth trillions of dollars. Russian interlocutors have pointed out that Russia's enormous energy reserves make their newly acquired options around Crimea not especially relevant. For Ukraine, however, the loss of its opportunity to exploit what may amount to being the best deep oil and gas reserves in the Black Sea is a massive setback to its future economic prospects and its hopes of achieving energy independence.

With regard to the Donbass region, energy plays an even more important role. The region is rich in energy resources and infrastructure: it produces 90 percent of Ukraine's coal, has both conventional and unconventional gas fields, several underground gas storage sites, and transit pipelines. In addition, some of the infrastructure located in the Donbass region is of particular strategic importance



(Photos: dpa)

Pro-Russian campaigner in eastern Ukraine

Predictably, the discussion focussed on the most outrageous aspects of Russia's hybrid approach, such as the appearance of "little green men", i.e. soldiers without national insignia, as well as Russian troops allegedly "vacationing" in Eastern Ukraine. By contrast, Energy was not seen as part of the hybrid warfare narrative. A closer look, however, reveals that Energy

Ukraine, including by gas cut-offs, while trying to deter other European countries from assisting Ukraine with reverse gas supply. Russia also pushed a narrative about her irreplaceable role in Europe's energy security, and about the risks Europe was creating for itself should it support Ukraine. Each of these three steps deserves closer examination.

Authors

Michael Rühle and **Julijus Grubliauskas**, Energy Security Section NATO Emerging Security Challenges Division. The authors express solely their personal views; an earlier version was published in www.energlobe.de

Military Action: Occupation of Crimea's Gas Fields and War in the Donbass Region

Before Russia's annexation, Crimea received almost all of its energy from mainland Ukraine. In order to establish effective political control of the region, Russia "nationalized" the Ukrainian company

to Russia. The Stavropol-Moscow and Krasnodar-Moscow gas pipelines transit the Donbass region and there are several compressor stations in Ukrainian territory. Hence, with Russia-backed separatists wresting control over the region away from Kiev, Western Ukraine became even more dependent on imported energy, while Russia minimized the risk of a disruption to its own gas supply.

Economic Pressure and Deterrence: Ukraine Energy Cut-off and Gas Supply Reductions in Europe

Ukraine's high energy inefficiency and dependence on Russian gas imports have made energy a tempting tool through which Russia can exert pressure. The Ukraine crisis, however, has brought this pressure to a new level. Since the illegal annexation of Crimea also "returned" the important Sevastopol naval base to Russia, Moscow no longer felt obliged to grant Ukraine a lower gas price and to pay Kiev over \$600 million annually for use of the base and the right to use Ukrainian waters. As a result, Ukraine was faced with a loss of revenues coupled with increased energy costs. When Ukraine refused to pay the increased price, Russia turned off the gas.

Even with respect to coal, where Ukraine used to be self-sufficient, the crisis provided Russia with additional leverage. The fighting in Eastern Ukraine affected both the coal mines in that region as well as the railway lines needed to transport coal to the power plants. Russian pressure on Ukraine was accompanied by attempts to deter other European countries from supporting Ukraine. Several countries in Central and Eastern Europe were



(Photo: OSCE)

Crimean oil platform

warned not to allow the reverse flow of Russian gas to Ukraine. The reduced pressure in certain pipelines, which led to a reduction of supplies, was also widely believed to constitute a warning to some of Russia's customers not to interfere with Moscow's Ukraine policy.

Strategic Communications: a Story about the West Shooting Itself in the Foot

Propaganda is a key ingredient of the hybrid approach. From the beginning of the Ukraine crisis, Moscow made a tremendous effort to promulgate her own version of ongoing events. By focusing on an objective fact – Russia's indispensable role as an energy supplier for Europe – that narrative implied that by supporting Ukraine the European countries, pushed by the United States, were acting against their own long-term interests. While Russia took great care not to undermine its image as a reliable supplier vis-à-vis some European customers, the message of the

West shooting itself in the foot by helping Ukraine came across: many European observers repeated the message, thus reinforcing its credibility. Russia also used its gas deal with China to demonstrate to the West that it now had an alternative customer, while Europe remained dependent on Russian gas. As one "Russia Today" Op-Ed pointed out, "Russia's pivot to the growing markets of the east is in full swing. The West may yet rue the day it sent its politicians to address the crowds in the Maidan."

Lessons for NATO

NATO is neither an energy institution, nor is Ukraine a NATO member. Nevertheless, NATO must confront the challenge of hybrid warfare, including its energy dimension. While this type of warfare may only succeed against states that are internally fragile and divided, it could introduce sufficient ambiguity to make NATO's strategic assessment and decision-making difficult, while at the same time marginalising elements of the full spectrum of NATO's defensive capabilities. Five areas of adaptation appear most obvious:

First, intelligence sharing and strategic analysis. By bringing together over 60 intelligence services from 28 nations, NATO provides a unique forum for exchanging information relating to hybrid threats. To further enhance situational awareness, NATO Headquarters and the Strategic Commands have significantly increased their in-house analysis capacities. Allies have also demonstrated a greater willingness to discuss more frequently non-military subjects such as global energy developments, given their potential security implications. The next step will be to adapt NATO's political decision-taking process to ambiguous warning situations.

(Photo: Gazprom)



Russian natural gas pipeline

Second, closer relations between NATO and the European Union. The Ukraine crisis demonstrated the EU's growing effectiveness as an energy-actor. The Union's role in brokering a deal about the price of Russian gas for Ukraine, as well as its success in organizing the "reverse flow" of Russian gas to Ukraine were impressive examples of an emerging energy solidarity, in this case for the benefit of a non-EU European neighbour. Against this background, NATO-EU staff discussions on hybrid threats, the participation in some of each other's exercises, and the search for more synergies in each other's training and education efforts appear both urgent and feasible.

Third, strategic communications. As an alliance of 28 sovereign democracies NATO does not engage in propaganda campaigns, nor can it react as rapidly to Russian propaganda as one may wish. However, in the Ukraine crisis NATO has been able to react quickly to rebut false Russian claims, for example by SACEUR releasing photos of Russian military equipment on Ukrainian territory. Even on energy issues, which unlike soldiers or tanks do not lend themselves to a "visual" narrative, NATO must at least be able to counter the Russian version of events with accurate facts and figures.

Fourth, access to outside expertise. Over the past years, NATO has been increasing its cooperation with the International Energy Agency (IEA), which specialises in the field of energy, collects data from OECD countries and produces solid analysis. As a military organization, NATO cannot afford the analytical resources the IEA has in the area of energy. However, NATO also cannot afford to miss important energy elements in assessing the wider security picture. In order to stay abreast of a rapidly changing security environment, NATO will need to play in a team and collaborate with specialized institutions such as the IEA, as well as the private sector.

Fifth, training and exercises. In order to address the challenges of hybrid warfare, NATO military planners and diplomats need to fully grasp the energy dimension of the emerging security environment. Energy supply disruptions and critical energy infrastructure failures could affect both the normal functioning of economy and the country's ability to effectively organise its defence. Energy is therefore a tempting target in hybrid warfare. Accordingly, preparedness through training and exercises is key for a comprehensive understanding of defence and security.

Conclusion

In sum, the Russia-Ukraine crisis demonstrated the effectiveness of hybrid war, including its energy dimension. While Ukraine's unique geographical position as well as its energy dependence allowed Russia a degree of influence that it may not enjoy vis-à-vis many other countries, there are nevertheless reasons for Western concern: as a single state and "managed democracy" (Putin) Russia controls the whole array of tools (economic, military, strategic communications, etc.) to achieve its goals. By contrast, the West has to negotiate a common position not only among many states but also among different institutions.

This asymmetry will always work to the initial advantage of the offender. Whether it will still work in the longer run is less clear, however. In the end, the West was neither deterred from assisting Ukraine nor from imposing sanctions on Russia. Moreover, the low oil price has emerged as a major challenge for Russia's economy while the crisis has given Europe an additional incentive to diversify its energy sources and distribution networks. In short, while hybrid war can achieve a lot, it cannot overcome what Clausewitz had aptly labelled "the fog of war": after you have made the first move, events tend to evolve in unforeseen ways. ■

UNDER THE AUSPICES
OF THE MINISTRY OF DEFENSE
OF THE REPUBLIC OF SERBIA

YUGOSLAVIA - SERBIA

PARTNER 2015
Sajam naoružanja
www.partner.mod.gov.rs

INTERNATIONAL FAIR OF ARMAMENTS
AND DEFENSE EQUIPMENT
Belgrade Fair, Belgrade, Serbia
June 23-26, 2015

БЕОГРАДСКИ САЈАМ

The Year of Narendra Modi

Bindiya Thomas

In India, the Narendra Modi-led National Democratic Alliance government is set to mark one year in office this May.

Modi comfortably beat the Congress-led United Progressive Alliance (UPA) helmed by then-Prime Minister Manmohan Singh and has since led India's previously arid defense establishment, scattered with delays and scams, toward what might appear to be a more promising path than his predecessor.

According to the Home Ministry, in the first half of 2014, there were 334 "transgressions" by Chinese troops over the Indian border in the first 216 days. India has also accused Pakistan of violating ceasefire agreements that led to the deaths of nearly 20 civilians in late 2014. New Delhi has emphasized that the increased border violations are a result of Pakistan's fear of a "more assertive Indian leader".

A Triangle of Insecurity

While speaking at a Rally in September 2014 Modi, said, "The enemy has real-

In his first year in office, Narendra Modi has clearly restored might to the Prime Minister's Office that was lacking with his predecessor Manmohan Singh. Modi has revitalised foreign policy and announced bold initiatives like Make in India and the Clean India campaign and has even managed to push some minor bills through Parliament.

But the proverbial honeymoon period might just be over. Though his visions for India may be grand, the achievements so far have been meagre. Modi still has a long way to go in keeping his campaign promises and the coming year, 2015-16, will be make-or-break for the government as he tackles domestic security, the economy and the promised creation of millions of jobs.

It will also be interesting to see how a traditionalist like Modi handles growing calls for social change in India at a time where security for women, equal pay and a demand for a higher standard of living are points of daily discussions in the country.



(Photo: MoD India)

Indian Army troops guarding the border

Border security and cross-border terrorism have topped Modi's agenda. In his first meeting with visiting Chinese President Xi Jinping in September, Modi clearly taking a much tougher stance than the Congress-Singh government bluntly said that further border incursions might impact bilateral ties.

Author

Bindiya Carmeline Thomas, based in Bengaluru, India, is a specialist defence and aerospace journalist.

ized that times have changed and their old habits will not be tolerated."

India has since increased border patrols and the armed forces have been ordered to retaliate with more force should they come under attack. The Government's stance on Pakistan is clear: no talks until the shootings end.

"Even such small incidents can impact the biggest of relationships just as a little toothache can paralyze the entire body," Modi told President Xi on September 20th, days after Chinese troops refused to pull back in the Chumar sector of eastern Ladakh.

While speaking to reporters after his meeting with Xi, Modi said that he raised

serious concern over repeated incidents along the border. "We agreed that peace and tranquility in the border region constitutes an essential foundation for mutual trust and confidence and for realizing the full potential of our relationship. This is an important understanding, which should be observed diligently," he said.

"Both sides are capable of effectively managing the border situation and to settle the border disputes at the earliest," President Xi told local media echoing Modi, at the time. He added that his country was sincere and the issue should be settled in a manner that it does not have an impact on ties.

Modi also stressed on the need to resume talks on clarifying the Line of Actual Control (LAC) but the Chinese reportedly did

not feel the same way. According to local media reports, the Chinese would rather settle border disputes permanently rather than waste time on the LAC while India hopes to demarcate the LAC, in an effort to set up permanent borders, in the same manner it did with Pakistan along the western side of Jammu and Kashmir many years ago.

Since then newly-appointed Defence Minister Manohar Parrikar told Parliament on March 1 2015, "Transgressions along the Line of Actual Control (LAC) between India and China do occur but no Chinese incursion into the country's territory has taken place."

"There is no commonly delineated LAC between India and China. There are areas along the border where India and China differ in their perception of the LAC. Due to both sides undertaking patrolling up to their perception of LAC, transgressions do occur. Such transgressions have also occurred in the general area of Chumar. However, no incursion into the Indian territory by China has taken place," Defence Minister Manohar Parrikar told Parliament.

India reportedly plans to set up 32 Coastal Radar Surveillance (CSR) stations with navigational military radars in Mauritius, the Seychelles, the Maldives and Sri Lanka in an effort to counter Chinese maritime traffic.

According to local media reports, India will deploy eight stations in Seychelles, five of which will be based in Mahe and the remaining in the outer islands. Mauritius will also have eight radar networks, while the Maldives will have 10 of them.

India and the USA

Meanwhile, the United States has assured China that it need not feel threatened by its growing ties with India.

President Obama made the statement in February, after China's state-run media said India must not fall into the trap of rivalry set by the West to support the US' "pivot to Asia" strategy, after his visit to India in January. The visit is significant because, not only is it Obama's second visit to India since 2010, he became the first US President to attend to Indian Republic Day Parade in New Delhi. The photo-ops of Modi serving tea to Obama certainly proved to be a hit with the Indian populace even if no major agreements, such as the nuclear deal, were signed.

As a sign of growing camaraderie between Modi and Obama, the two countries have established a list of goals to strengthen their economic partnership.



(Photo: White House)

Barack Obama and Narendra Modi during the US President's second visit to India in January 2015

The US and India plan to "build on our partnership to support sustainable, inclusive development, and increased regional connectivity by collaborating with other interested partners to address poverty and support broad-based prosperity. Over the next five years, we will strengthen our regional dialogues, invest in making trilateral consultations with third countries in the region more robust, deepen regional integration, strengthen regional forums, explore additional multilateral opportunities for engagement,

and pursue areas where we can build capacity in the region that bolster long-term peace and prosperity for all."

In the past four years, the US has overtaken Russia as India's largest arms supplier, bagging contracts worth almost \$10 billion since 2007-2008 including contracts to supply eight P-8I long-range maritime patrol aircraft worth \$2.1 billion, 10 C-17 GLOBEMASTER-III giant strategic airlift aircraft worth \$4.1 billion and 12 C-130J SUPER HERCULES aircraft worth \$2 billion.

(Photo: MoD India)



Boeing will deliver 22 APACHE attack helicopters (shown here) and 15 CHINOOK heavy-lift helicopters to the Indian Armed Forces.

Photo: Dassault



Under the terms of the original RFI, Dassault would deliver 12 RAFALE aircraft in ready-to-fly condition and HAL would develop the rest in India. Bearing in mind the “critical operational necessity” for multi-role combat aircraft in the Indian Air Force, India has launched a parallel Government-to-Government request to France to supply 36 RAFALE fighter jets in “fly-away” condition “as quickly as possible” – double the number proposed in the original tender.

More recently, Boeing beat Rosoboron-export to win two helicopter deals, for 22 APACHE attack helicopters and 15 CHINOOK heavy-lift helicopters, worth over \$2.5 billion.

During a visit to New Delhi in August 2014, US defence secretary Chuck Hagel once again called for co-production of major arms projects such as the JAVELIN anti-tank guided missiles, MH-60 ROMEO multi-role helicopters, “big data” and cyber security, magnetic catapults for aircraft carriers, spy drones, mine-scattering systems and 127 mm naval guns.

India and Russia

It is important to note that overall Russia still remains India’s biggest weapons supplier with sales well over \$40 billion in the last three decades despite the latest losses. New Delhi has expressed its disappointment with constant delays and growing costs from Moscow and cited them as a major reason for the latest shift.

For instance the delay and cost overrun of handing over of the aircraft carrier, INS Vikramaditya, are among the major reasons why India has preferred American arms over Russian in the past five years.

Despite the setbacks and pressure from Western allies to join them in sanctions against Russia for its involvement in the Ukraine crisis, India has chosen to back Moscow as a strategic partner and is one of the few countries to do so.

“Whatever happened in Ukraine, people died, it’s very saddening and not good for humanity. India’s view is that efforts need to be made to sit together, talk and resolve the problems,” Prime Minister Modi told CNN last year.

With ties going back to the Cold War, Russia has long emerged as an important partner in defence, nuclear and multilateral cooperation.

In March 2014, India’s then National Security Advisor Shiv Shankar Menon told local media that Russia’s interests in Crimea were “legitimate” following which New Delhi abstained from voting in a United Nations General Assembly motion condemning Russia.

Russia clearly hopes to gain its former footing in India and is aggressively marketing the Su-30MKI to the Indian Air Force as a possible replacement for the Medium Multi-Role Combat Aircraft (MMRCA) project and has even offered the aircraft at a discount.

India and MMRCA winner Dassault have locked horns over the \$15 billion project

since the contract was awarded in 2012, over Hindustan Aeronautics Limited’s (HAL) role in the deal, transfer of technology and cost escalation.

Under the terms of the original RFI, Dassault would deliver 12 aircraft in ready-to-fly condition and HAL would develop the rest in India.

However, Dassault has raised objections over HAL’s ability to absorb “sophisticated technology”.

With a possibility of negotiations collapsing, India may have no choice but to acquire additional Su-30MKI fighters from Russia to make up for its dwindling fighter aircraft squadron strength.

According to the latest figures published in a Parliamentary Standing Committee (PSC) report on Defence, the squadron strength of the IAF has fallen to 25 from the sanctioned strength of 45.

Although both the MoD and IAF have maintained that “the current strength is 32 squadrons with each squadron comprising around 18 aircraft”.

“The Su-30MKI is an adequate aircraft for meeting the air force’s needs,” said Defence Minister Manohar Parrikar to local media on January 1.

The deadlocked MMRCA is also likely to force India to seal the Russian stealth fifth-generation fighter aircraft (FGFA) deal worth \$25 billion for 127 aircraft.

“A contract for the R & D phase is being prepared and is expected to be signed this year,” Yuli Slyusar, President and Chairman of the Management Board of the United Aircraft Corporation (UAC) was quoted as saying at Aero India 2015.

“The export version of the 5th generation fighter, the perspective <we presume the intent is “prospective” – Ed.> multi-functional fighter (PMF-FGFA) is being created in partnership with India. The Russian and Indian parties have generally agreed on the work share of each party.”

Meanwhile, the government has revised the FDI (Foreign Direct Investment) from the previous 26 percent to 49 percent in Defence. The Minister of Defence has explained that “up to 49% is allowed in the sector through Government route and above 49% through approval of Cabinet Committee on Security (CCS) on case-to-case basis, wherever it is likely to result in access to modern and state-of-the-art technology in the country.”

'Make in India' Gathers Momentum

In an effort to steer India away from foreign dependence, Modi launched the

“Make in India” campaign, in October 2014, a new policy encouraging the local defence industry to meet the military’s needs quickly and effectively.

Under this new policy, about half of India’s total weapons requirement for the next decade (worth approximately \$100 billion) may be developed indigenously. Simply put the local industries, which at present exports weapons worth only \$100 million a year, could wind up with the responsibility of filling that requirement – a seriously unrealistic expectation from the local industry that, besides HAL, does not even know how to build a helicopter.

Meanwhile, the Defence Procurement Procedure and the Defence Production Policy are expected to undergo further changes to keep in line with the ‘Make in India’ scheme.

While speaking at a seminar in January 2015, Parrikar, said, “MoD would be bringing about major changes in the Defence Procurement Procedure and the Defence Production Policy to provide greater autonomy to the Defence Public Sector Undertakings (DPSUs) and Ordnance Factory Board (OFB) units for their expansion and diversification. Every machine in operation is like adding an additional equipment. DPSUs will be provided support but they must think like a commercial organization.” Referring to the Make in India Procedure in Defence, Parrikar said it needs further improvement. According to an Indian MOD Press Release the Defence industry in India is “a unique industry where the only customer is the Services” – which

ennial exhibition held in Bangalore (now Bengaluru) from 18 to 22 February 2015. The five-day event started with Prime

said in a statement. And BAE Systems was awarded a five-year contract worth GBP 18.5 million to provide Hindustan

(Photo: Aero India)



Aero India 2015: the biennial exhibition was held in Bangalore (now Bengaluru) from 18 to 22 February 2015.

Minister Narendra Modi calling for an end to India’s dependence on defence imports but concluded with no major deals signed. Among the deals announced, Bharat Electronics Limited (BEL)

Aeronautics Limited (HAL) a comprehensive package comprising Ground Support Equipment, Spares, Support and Training for the HAWK Mk132 advanced jet trainer at Aero India 2015. This is in support of HAL’s plans to establish a dedicated Repair & Overhaul facility for the aircraft in advance of a major servicing milestone anticipated in 2016, BAE systems said in a statement.

The show saw strong participation from the US, perhaps as a sign of changing times. The United States led the largest representation at Aero India 2015 with 64 companies out of the total 328 in attendance from 33 countries. Following the US, France had 58 companies, the UK 48, Russia and Israel had 41 and 25 respectively.

The US also outnumbered the foreign military aircraft on display. Seven of the eleven foreign military aircraft, including two F-15C EAGLES, two F-16C FIGHTING FALCONS, one Boeing KC-135 tanker, one C-17 GLOBEMASTER III and a P-8A POSEIDON maritime surveillance aircraft, were American. Other aircraft included three French RAFALE jets and one Brazilian Embraer EMB-145 jet.

| HITS | MISSSES |
|--|--|
| Effective foreign policy. Inviting US President Obama to watch the Republic Day Parade in New Delhi. | Several pro-Hindu bans on beef and movies in place. Censorship is at an all time high. |
| Strengthening strategic ties with the US, Japan, Australia and Vietnam. | Security for women. |
| Better work ethic. Bureaucrats are now expected work longer hours. | Swachh Bharat. The Clean India movement is lacking in plans and policy on waste management and implementation. |
| Several initiatives similar to Make in India launched. | No plan in place to see through creating 5-8 million jobs. |
| Increase in budget for cyber security and retooling cyber defence agencies. | Delay in implementing projects with Myanmar. |

suggests that the Indian MOD itself is not entirely au fait with the technological capabilities and export potential of its own suppliers...

‘Make in India’ was also the central theme around, Aero India 2015, the bi-

won a contract from Elbit Systems for the production of Elop’s Compact Multi-Purpose Advanced Stabilized Systems (CoMPASS™). This is in addition to an earlier order for the supply of CoMPASS, received by BEL from Elop in 2014, BEL



Turkey – A Struggling Democracy in the Centre of a Political Ring of Fire

Savas Bicer

In the late eighteenth century, just prior to the disorders caused by the French revolution, the Ottoman Empire was located in a territory, the borders of which extended to the Balkans, the Mediterranean Basin, the Middle East, North Africa, the Caucasus and beyond to Central Asia, and the Black Sea Basin including the Turkish Straits.

Even with relatively small leftovers of this large heritage today, the modern Turkish Republic's unique geography corners one of the most unstable and uncertain areas of the world. Most of the conflicts which are top on the international agenda today are taking place around Turkey. It is largely accepted by the international community that, as a pivotal country, Turkey acts together with the community of nations in containing these conflicts and assumes responsibilities in this region and beyond. After the end of the Cold War, particularly within the last fifteen years, Turkey has striven for the promotion of the rule of law, democracy and free market economics on its periphery and has achieved an enviable record of economic growth and democratisation. Furthermore, Turkey has obviously shown its ability to play an ever-increasing role in geostrategic and geopolitical matters.

"Zero Problems with Neighbours" Strategy

Turkey places this strategy at the very centre of the country's foreign policy vision, keeping in mind that growth and the steps forward in real terms can only be achieved in a long-lasting peaceful and stable environment. This is a natural manifestation of the "Peace at Home,

Peace in the World" policy which was initiated by Great Leader Ataturk, founder of the Republic of Turkey.

While global political developments are subject to considerable changes, Turkish foreign objectives are pursued in the centre of a geographical region with the above mentioned processes happening

the generation of a geographical region, where all countries can live in peace and stability, starting with Turkey's neighbours. However, with this policy Turkey has to remain realistic and keep in mind that a "zero problems" approach in this environment represents an ideal, even considered utopian for some archaic historical reasons.

With the help of a multidimensional dialogue process Turkey has developed the country's relations with Greece to a remarkable level since 1999. Besides the political dialogue at high levels, Turkish-Greek relations are maintained and developed through significant mechanisms such as regular political contacts, exploratory talks on Aegean problems, confidence-building measures, and High Level Cooperation Council meetings. Turkey is aware that the positive atmosphere of the bilateral relations will further facilitate the solution of common problems in the future.

As far as relations with Ukraine are concerned, Turkey has also made considerable progress and could increased bilateral trade in the last decade. Meanwhile, Turkey has also developed relations and cooperation with the Russian Federation, based on a multi-dimensional and balanced understanding, besides taking the deepening of mutual cooperation in regional security as a basis. Although Turkey endeavours to be given an important role in regional affairs, the country's passive role with regard to developments in the Black Sea region, particularly regarding the case of Crimea, do not confirm such ambitions. Turkey, being aware of the crucial importance of preserving the political stability of the Caucasian countries, practises an active foreign policy with a view to resolving the problems in the region through peaceful means and by promoting regional cooperation. Turkey's efforts in creating an environment of dialogue and trust in the region are clear signs of this approach. Turkey takes steps towards strengthening the country's relations with Azerbaijan, a country with which Turkey has close social, cultural and his-



(Photo: atatürkarchiv)

Mustafa Kemal Atatürk (1881-1938), founder of the Republic of Turkey

in the most intensive way. As the world is witnessing rapid changes, the risks that problems may pose are spreading and deepening more than ever before. Building peace, stability and security on firm foundations in such a global world order is increasingly difficult. It is thus a mission for Turkey to assume more responsibility in the region. Ultimately and according to statements of officials at all levels, Turkey's objectives seem to include

Author

Col. (ret) Savas Bicer, PhD, is an Assistant Professor at the Department of Political Science and International Relations of the Esenyurt University, Istanbul, Turkey.



torical ties, while continuing to progressively develop relations with Georgia. In the region, security concerns force Turkey to follow a policy aimed at finding a peaceful solution to the Abkhazia and South Ossetia conflicts within the internationally recognised borders of Georgia. As another risk of conflict in the Caucasus, the Azeri-Armenian dispute remains still unresolved with consequences that go beyond the boundaries of the countries directly involved. Turkish officials have asked the international community to now concentrate efforts on solving the Azeri-Armenian dispute and any solution to the problem should take into consideration the territorial integrity and sovereignty of Azerbaijan and the security concerns of the Nagorno-Karabakh Armenians. Although there is no progress so far, Turkey maintains the political will to move forward in the normalisation process of relations between the two countries. Furthermore, Turkey remains confident that this normalisation process can be permanent, if concrete steps are taken for a peace in Southern Caucasus. As far as the relations with Iran are concerned, Turkey is closely observing Iran's nuclear programme, which raises doubts



The former Greek Prime Minister Antonis Samaras (right) talks with Turkish Prime Minister Ahmet Davutoglu (left), during the 3rd Greek-Turkish High Level Cooperation Council in Athens, 6 December 2014

in the international community, and supports all initiatives to settle this issue through diplomatic and peaceful means. When separatist Kurdish terror is considered, both countries mostly share a great will to cooperate; meanwhile, they are on the rival's side because of the sectar-

ian differences in the Middle East power struggle.

When turning southwards to the burning Middle East, above all, Turkey carries out strong actions both in bilateral and international political relations so that Iraq can establish its political unity and

YOUR LOCAL PARTNER
IN GLOBAL DEFENCE

FNSS



05-08 May 2015 IDEF'15
VISIT US AT
SALON - HALL 7
STAND NO: 710



FNSS

**Savunma
Sistemleri A.Ş.**

territorial integrity. Furthermore, Turkey aims at ensuring that Iraq can take care of the country's own security and has the capacity to eliminate terrorist elements, which also pose threats to Turkey. Also, Turkey undertakes significant efforts with regard to Iraq becoming a prosperous country; in this respect, close contact is maintained with all political groups in order to intensify the

Turkey's relationships with the Kurds and exacerbated the government's battle with domestic opponents. Oil pipelines in the region serve the interests of several terrorist organisations, including the Islamic State (IS). Turkey has officially declared a policy to support the shaping of the future of Syria, in line with the legitimate aspirations of its people and maintenance of her territorial integ-

well as world security, particularly by way of advocating stronger incorporation of G20 countries into global economic and financial management and decision-making processes. For this reason, it will argue for a restructuring of international organisations and institutions such as the UN Security Council, the IMF and the World Bank in favour of the new industrialised countries. Whatever the results



(Photo: dpa)

Turkish soldiers patrol the Cilvegozu border with Syria.

relations with Iraq in a multidimensional manner. Secondly, bilateral relations with the other important neighbour Syria have entered into a new phase due to the persistent violent reactions by the regime's forces following the popular uprisings in March 2011. This is not due to a failure of Turkey's Zero Problems strategy, but related to the approach of the Syrian regime, the actions of which made it impossible to continue relations in good neighbourhood. Ties between Turkey and Syria have historically been uneasy and Turkey's latest Syria policy also has negative domestic consequences. Since the south-eastern parts of Turkey have now almost become safe haven for terrorism finance, weapons smuggling, illegal oil sales, and the flow of fighters to Syria, the presence of extremists threatens Turkey's internal security as well as its economic stability. The disorder in Syria has greatly complicated

ity. In this context, the policy of Zero Problems with Neighbours has gained additional meaning and importance as the Middle East stands at the edge of a historical transformation. Turkey believes that the positive results of the Zero Problems with Neighbours strategy will in the future become a priority issue in the region and possibly on a global scale, particularly for building lasting security for all mankind.

Perspectives

In recent years Turkey has expanded and more or less consolidated its position as a regional power. It will continue to become more important to Europe as well as to the region at the border between the Mediterranean, the Black Sea, the Middle East, the Caucasus and Central Asia. Turkey is a major candidate to play an active role in the world economy as

of its EU membership negotiations, Turkey will continue to have close ties with Europe since it will secure its position as a key business partner, its importance as a transit country for energy from Central Asia and the Middle East will grow, and it will be indispensable for the structuring of a European security strategy. As such, it is critical that the European Union develop a rational and reliable strategy for dealing with and building relations with Turkey. Although, the recent tensions within Turkey's debates over the country's policy, actual expected in the Middle East, the Balkans, the Caucasus, Central Asia, and South Asia emphasise the degrees to which this region is increasingly playing a role in the minds of Turkish citizens at home. Turkey is rapidly moving ahead in becoming a democratic, wealthy, powerful, contemporary and great country and become a reliable partner in her all international relations. ■



The Turkish Armed Forces

ARMY

The Turkish Army or Turkish Land Forces is the main branch of the Turkish Armed Forces responsible for land-based military operations. The land force has a total active manpower of 402,000, including 325,000 conscripts with approximately 258,700 troops in reserve. The army is by far the largest of the three service components. The structure of the Turkish Army has historically had two facets: operational and administrative. The operational chain consists of the field fighting formations, and the administrative the arms and service branches – infantry, armour, artillery etc.

New Procurements/ Upgrades

- Turkish Armed Forces have recently received their first T129 ATAK advanced attack and tactical reconnaissance helicopter. This delivery is the first of 59 helicopters, 9 in T129A Early Delivery Helicopter (EDH) configuration and 51 in T129B configuration.
- The Undersecretariat for the Defence Industries of Turkey (SSM) has contracted Otokar with the designing of first National Main Battle Tank of Turkey-ALTAY Project. The Turks' official goal is to design, test, and build the first Altay tank in 6.5 years, which would place the event in early 2015.

The deal includes technology transfer worth \$330 million dollars and the production of 4 prototypes worth \$70 million dollars. Once development is complete, a second set of contracts will be signed. Turkey reportedly plans to produce at 200-250 of the tanks in Turkey. The Republic of Korea will be providing technical support and assistance to the project.

- The Turkish Army has purchased 170 upgraded M60A1s from Israel Military Industries (IMI). The tanks were upgraded to M60T configuration. IMI was the prime contractor for the \$687.5 million project, considered to be one of the world's largest tank upgrade programmes, bringing the M60A1 tank to the level of the world's leading main battle tanks.
- Turkish Army will soon be receiving 336 FIRTINA and 138 PANTER Self Propelled Artillery systems. A requirement has been formulated.
- Turkey has awarded EUR 150 million worth contract to AgustaWestland, a Finmeccanica company, for the procurement of nine T129 combat helicopters. The nine T129 helicopters will be assembled by Turkish Aerospace Industries, Inc. (TAI) and delivered by mid 2012 in a basic configuration, one year earlier (than) the 51 T129s already on order. This contract increases the total ordered by the Turkish Land Forces Command to 60.
- Turkey has selected Sikorsky Aircraft Corp. for a contract to co-produce

Army Equipment

| Category | Name | In Service | Category | Name | In Service |
|------------------|------------------------|------------------------------|--------------------|--------------------------------|------------|
| MBT | Leopard 2A4 | 298 | Mortar | 60 mm | 5,342 |
| | M60A1/A3 | 923 | | 81 mm | |
| | Leopard 1A1/1A3/1A4 | 394 | | 107 mm | |
| | M-48 A5T1-T2 | 800+ | | 120 mm | |
| APC/ MICV/IFV | AIFV series | 650+ | MLRS | 302 mm kasirga | 54 |
| | AAPC | 1,380 | | 122 mm T-122 Sa-karya | 125+ |
| | ACV | 424 | | M270 | 12 |
| | Mortar carrier | 178 | | ATACMS rockets | 72 |
| | TOW carrier | 48 | Anti Tank GW | MILAN | 400+ |
| | M113A1/A2 | 3162 | | BGM-71 TOW | 390+ |
| | BTR80 | 170 | | Rocketsan Cirit | |
| | Otokar Cobra | 600+ | Recoilles rifle | 57 mm | 3,295 |
| | Otokar Akrep | 200+ | | 75 mm | |
| | FNSS Pars | (1000+ on Or- der) | | 106 mm | |
| Artillery | 155 mm towed M59 | 171 | SAM | STINGER MANPADS | 850+ |
| | 105 mm towed M101A1 | 490 | | Pedestal mounted stinger (PMS) | 148 |
| | 155 mm towed M114A1/A2 | 171 (to be re- placed) | | ATILGAN | 70 |
| | 203 mm towed M115 | 159 | | ZIPKIN | 78 |
| | 155 mm towed Panther | 100+ | AA Gun | Twin 20 mm and 35 mm | 175 |
| | 155 mm M52T and M44T | 530 | | 12.7 mm | 1,300 |
| | 175 mm M107 | 36 | | 40 mm M42 Duster | 110 |
| | 203 mm M55 | 159 | SSM | J-600T YILDIRIM (I/II) | 100 |
| | 155 mm Firtina | 120+ | | ATACMS MGM 140 Block I | 72 |
| | M110 A2 | 219 | | | |

Army Personnel: 402,000

Army Aviation

| Category | Name | In Service |
|---------------------|-------------------|-----------------|
| Helicopter | AH-1W Super Cobra | 8 |
| | AH-1P/S Cobra | 22 |
| | AB-206 | 32 |
| | AB-204/205 | 72 |
| | S70A Black Hawk | 106 |
| | UH-1D/H | 50+ |
| | AS532UL Cougar | 40+ |
| | T-129 (attack) | 4 (56 on order) |
| | OH-58D | 3 |
| Fixed wing aircraft | T-41 | 24 |
| | U-17A | 71 |
| | T-42 | 3 |



Navy Equipment

| Category | Name | In Service | Category | Name | In Service | |
|------------------------|-------------------------------|------------|--------------------|---------------------------------|------------|--|
| Submarine | Gur Class Type 209T2/1400 | 4 | Mine Warfare Force | Alanya Class | 6 | |
| | Preveze Class Type 209T1/1400 | 4 | | Edincik Class | 5 | |
| | Atilay class TYPe 209/1200 | 6 | | Bayraktar | 1 | |
| Frigate/ Corvette | Barbaros Class (Meko 200T) | 2 | | Samsun Class | 9 | |
| | Salihreis Class (Meko 200T) | 2 | | Tirebolu Class | 2 | |
| | Yavuz Class (Meko 200T) | 4 | | Karamursel Class | 3 | |
| | Gaziantep Class | 10 | | Foca Class | 4 | |
| | Muavenet Class | 3 | Auxiliary ship | Ex-FRG Rhein Class | 2 | |
| | Bozcaada Class | 6 | | Submarine support ships | 3 | |
| Patrol Vessel/ FAC | Tufan Class | 6 | | Fleet replenishment tankers | 2 | |
| | Kilic Class | 3 | | Tankers (fleet oil tanker) | 9 | |
| | Kartal Class | 8 | | Transports | 10 | |
| | Dogan Class | 10 | | Hydrographic ships | 2 | |
| | Akhisar Class | 2 | Amphibi- ous Force | Osman Gazi Class LST | 1 | |
| Navy Personnel: 55,000 | | | | Ertugrul Class LST | 2 | |
| | | | | Landing craft tank (LCT) | 27 | |
| | | | | Landing Craft Mech-anized (LCM) | 17 | |

109 derivative Black Hawk multi-mission helicopters. Under the contract, valued at \$3.5 billion, Sikorsky along with other American and Turkish companies will provide components for the new fleet which will be based on the S-70i Black Hawk.

- Russia's Rosoboronexport plans to participate in a tender to provide Turkey S-300 and S-400 surface-to-air-missile systems.

NAVY

The Turkish Navy is one of the three branches of the Turkish Armed Forces. The mission of the Turkish Navy is national defence, although it also participates in coordinated security and humanitarian

efforts as part of Black Sea Naval Cooperation Task Group (BLACKSEAFOR). The Turkish Navy maintains several Marines and Special Operations units. These include the Amphibious Marines Brigade (Amfibi Deniz Piyade Tugayı), several commando detachments and two special operations forces. The Turkish Navy is the eighth largest navy in the world. It currently has approximately 55,000 active personnel. The Turkish Navy is also the third largest navy in Europe, in terms of the total displacement of its fleet, which is 258,948 tonnes.

New Procurements/ Upgrades

- The MİLGEM project is the name of Turkish national warship programme. A total of twelve MİLGEM class warships (eight corvettes and four frigates) will be built for the Turkish Navy.
- A credit agreement of \$2.18 billion euro was signed for six submarines to be manufactured by naval shipyards in Turkey with assistance from Germany. The credit will be used to finance manufacturing of six AIP (air-independent propulsion) technology U-214TN submarines in Turkey. According Undersecretariat for Defence Industries of the Turkish Government these submarines will be "co-pro-

duced" with "maximum local content at Gölcük Naval Shipyard" in Kocaeli, Turkey.

- Turkey signed an agreement with Alenia Aeronautica, a Finmeccanica company, for ten ATR 72 ASW aircraft valued at \$219 million.

AIR FORCE

The Turkish Air Force (TuAF) is one of the oldest air forces in the world and operates one of the largest combat aircraft fleets of NATO. Supported by the TuAF's inflight refueling capability, the fighter aircraft of the Turkish Air Force can participate in international operations and exercises on every major continent and return back to their home bases. The Turkish Air Force currently has over 930 different aircraft and it is the third largest air force in NATO, in terms of its fleet size. At present, the Turkish Air Force operates MALE UAVs such as the TAI Anka, the IAI Heron and the I-GNAT ER. The Turkish Air Force will also procure six MQ-1 Predator and four MQ-9 Reaper MALE UAV/UCAVs in the short term.

New Procurements/ Upgrades

- The US Government has approved a possible sale of AIM-120C-7 Advanced Medium Range Air-to-Air Missiles (AMRAAM) to Turkey under the Foreign Military Sales programme. The Defence Security Cooperation Agency (DSCA) had notified the Congress of the possible sale on August 11, 2014 and the US State Department has approved the deal, estimated to be worth \$320 million. Turkey had sought to buy 145 AIM-120C-7 AMRAAM systems, 10 missile guidance sections, and 40 LAU-129 launchers, containers, support equipment, spare and repair parts along with other related items.
- Turkish Aerospace Industries (TAI) has rolled out the first locally built primary and basic trainer aircraft 'Hurkus' designed for the Turkish Air Force. The new single engine turboprop was unveiled at TAI's Kazan facility on 27 June 2012.
- Turkey is a level 3 partner of the F-35 Joint Strike Fighter (JSF) development programme and has agreed to initially purchase 116 F-35A Lightning II aircraft. Turkey is expecting to purchase a second pair of F-35 Joint Strike Fighter Lightning jets to be delivered in 2016. The country will be ordering a second pair of the jointly-made, next-generation, stealth fighter F-35 Joint

Naval Aviation

| Category | Name | In Service |
|---------------------|----------------|------------|
| Fixed wing aircraft | CN-235 | 6 |
| | TB-20 | 7 |
| Helicopter | S-70B SeaHawks | 24 |
| | AB-204 | 3 |
| | AB-212 ASW | 10 |
| | AB-212 EW | 3 |



Air Force Equipment

| Category | Name | In Service |
|---------------------------------------|---|----------------|
| Fighters/attack/Reconnaissance/bomber | F-4E/2020 | 53 |
| | F-4E | 48 |
| | F-16C/D | 217 |
| | F/NF5A/B | 60 |
| | RF4E | 18 |
| Transport/Tanker | Boeing 737 AEW&C | 1 (3 on order) |
| | C-160D | 19 |
| | C130E | 7 |
| | C130B | 6 |
| | CN-235 | 11 |
| | Citation II (VIP) | 2 |
| | Gulfstream IV | 2 |
| | CN-235 | 39 |
| Helicopter | KC-135R | 7 |
| | UH-1H Iroquois | 20 |
| Trainer | Cougar | 18 |
| | T38 Talon | 69 |
| | T37 | 58 |
| SAM | TSF-260D | 38 |
| | Nike Hercules | 72 |
| | Rapier | 86 |
| | Hawk XXI | 16 |
| AAM | FIM-92 Stinger | 108 |
| | AIM-120 AMRAAM, AIM-7 Sparrow, AIM-9 Sidewinder | |
| AGM | SOM, AGM-142 Popeye, AGM-88 HARM, AGM-65 Maverick, AGM-154 JSOW, SLAM | |

Air Force Personnel: 65,000

Strike Fighter Lightning II aircraft, as it did earlier this year following the production of the first two.

- Turkey is also a partner nation in the Airbus A400M programme. Although the A400M is essentially a heavy tactical lift aircraft, it can also be transformed into a tanker aircraft for aerial refueling at short notice. The TuAF has ordered a total of ten A400M aircraft.
- A total of four Boeing 737 AEW&C ME-SA Peace Eagle aircraft (together with ground support systems) were ordered by the Turkish Air Force, with an option for two more aircraft. Turkish Aerospace Industries (TAI) is the primary subcontractor for the Peace Eagle parts

production, aircraft modification, assembly and tests. Another subcontractor, Havelsan, is responsible for system analysis and software support.

- Turkey is planning to acquire new military/intelligence satellites in the short term. These include a 0.8m resolution reconnaissance satellite (Project Gökürk-1) for use by the Turkish Armed Forces and a 2m resolution reconnaissance satellite (Project Gökürk-2) for use by the Turkish National Intelligence Organization. Gökürk-2 is currently being produced by the Turkish Aerospace Industries, while Gökürk-1 is in the tender stage. The official bidders for the project are EADS Astrium (UK), OHB-System (Germany) and Telespazio (Italy).
- Havelsan and Boeing are in the process of developing a next generation, high altitude ballistic missile defence shield. It is envisaged that the system will be used by Turkey, the US and other NATO member states.
- Turkish Aerospace Industries, Inc. (TAI) and Lockheed Martin unveiled the last Turkish-built F-16 at a ceremony held at TAI's facilities in Ankara. The Turkish Air Force received 30 new, advanced Block 50 models between May 2011 and December 2012.

Defence Budget

Total defence spending: \$18.2 billion in 2013 (ranked 15th)
Estimated defence spending in terms of GDP: 2.31% (2012)

Turkey's defence budget will increase from the year 2014 which consists of government funds allocated for the Defence Ministry, the Gendarmerie force and Coast Guard. The defence budget will see US\$ 1.1 billion rise for F.Y. 2015, reaching around TL52.5 billion. 57 per cent of the ministry's budget in 2015 will go to personnel spending and 41 per cent to acquisitions of goods and services. Turkish government earlier raised the share of the defence budget in its 2014 economic programme. According to Ankara, the budget allocated for national defence and security rose from 45.3 billion liras for 2014 to 49.6 billion liras for 2015, with a 9.5 percent increase. The midterm economic outlook allocated 21.8 billion liras for the National Defence Ministry, 16.6 billion liras for the Turkish National Police, 452 million liras for the Turkish Coast Guard Command, 6.2 billion liras for the Gendarmerie General

Command, 1 billion liras for the National Intelligence Service and 3.5 billion liras for the Ministry of Internal Affairs.

Turkey's official defence policy is based on Atatürk's principle of 'peace at home, peace in the world'. Turkey's newly published defence industrial strategic plan 2012-2016 will modernise the country's critical technologies, ensure the indigenous development of defence capabilities and progressively reduce dependency on foreign imports. The 2010 budget was 26 billion liras. The total value of the contracts signed in 2011 was some \$27.3 billion. According to the new plan the total turnover target for the defence industry exports for 2016 is \$2 billion. The Law on the Court of Accounts provides for external ex-post audits of armed forces' expenditure. It also paves the way for audits of extra budgetary resources earmarked for the defence sector, including the Defence Industry Support Fund.

Turkey's SSM projects that Turkey will spend up to \$8 billion in defence purchases as its exports will reach \$2 billion in 2016.

Turkey, besides F-35 aircraft, is planning to purchase U-214 submarines from Germany. The Ministry of National Defence (MND) budget is supplemented by the budgets for the Gendarmerie, Coast Guard and Turkish Defence Industries Under-Secretariat (SSM). Turkish MOD Budget increased 12.2 Billion Dollars in 2011. MND spending accounts for around 70 per cent of the total budget, the Gendarmerie around 17 per cent and SSM procurement 10-12 per cent. The defence ministry is also planning to increase production of indigenous weapons systems.

Turkey's Defence Industry

The SSM is responsible for the modernisation of Turkish Armed Forces and development of defence industry and is currently pursuing 250 projects worth of \$26 billion. 24 percent of these projects are domestic development, 57 percent are joint production, 10 percent are direct procurement and 9 percent are consortium. The country has bought 50 Husky Visor 2500 U.S.-built mine detection vehicles in a deal worth \$115 million to use operations to clear the southeastern Turkish border areas to clear mines planted by Kurdistan Workers Party guerrillas.

Information published in cooperation with Brahmand Defence Update 2015.

“It is our objective to develop strategies that make the armed forces ready for future combat.”

Since the mid-1980s the Republic of Turkey has been investing significant effort in the modernisation of its armed forces. To ensure adequate national participation in defence procurement programmes and to acquire technologies and expertise in support of an indigenous defence industrial base, the Undersecretariat for Defence Industries (SSM) acts as a central procurement authority for the material needs of the Turkish armed forces and other governmental institutions. ESD spoke with the Head of SSM, Undersecretary Prof. Dr. Ismail Demir.

ESD: When SSM was founded in 1985 (then still called DIDA) the objective was to establish a modern and autonomous

platforms and systems. The Light Transport Aircraft and Armoured Combat Vehicle projects are good example for this kind of acquisitions. After 2000, SSM gained additional experience for the implementation of procurement and acquisition activities in response to Turkey's requirements. Not only the Turkish defence industry has advanced, but also the ways the projects are implemented have progressed considerably, so SSM has applied many authentic methods for procurement programmes since 2000 until today.

Partial design work for main projects was provided from 2000 to 2010 in the scope of programmes such as the National Ship (MILGEM), National Tank (ALTAY) and Unmanned Air Vehicle (ANKA). Based on the lessons learned from these both at technical and administrative levels indigenous projects have become subject to SSM's programme management after 2010. Ex-

amples include the ÖZGÜN indigenous helicopter and the GÖKTÜRK reconnaissance and surveillance satellite. These projects have nearly been completed and we are getting positive results.

As long as the numbers of SSM projects increased in the last decade, SSM had to be focused on basic and advanced technologies related to its defence and security programmes including sub-systems for platforms. For this reason, SSM is investing significant efforts in this kind of basic, advanced and important technologies to make them available for the Turkish defence industry.

Meanwhile, because of the increasing number and complexity of defence and security projects both for the Turkish Armed Forces (TSK) and other governmental institutions, SSM has had to get involved in the areas of Life Cycle Management and Performance Based Logistics, too. SSM has been work-

Photo: SSM



Undersecretary Prof. Dr. Ismail Demir was born in 1960 and has been the Head of the Turkish Defence Industry Undersecretariat since April 2014. He is married and has four children.

Turkish defence industrial base through defence procurement programmes handled by SSM. In what way was this to be implemented and to what extent do the results of today comply with the original expectations?

Demir: Since its foundation SSM has developed its procurement programmes in different ways. The first basic procurement activities were related to the Multiple Rocket Launcher and General Purpose Helicopter programmes before 1990. Between 1990 and 2000 SSM used the coproduction patterns with other partners for defence projects depending on the requirement for



Photo: Airbus

In the scope of the A400M programme Turkey has placed an order for 10 aircraft. Shown here is the first Turkish A400M during its maiden flight.



ing intensively in such logistics projects. If we look carefully at defence industrial capabilities and the deliveries of platforms and systems to TSK and other government institutions, like the ATAK helicopters for the Turkish Army and the MILGEM corvettes for the Turkish Navy, one can see that SSM has successfully implemented several procurement programmes using different methods in the last three decades. We have duly considered the results of these project and our national defence and security industries have improved their capabilities. Besides, the results achieved by SSM go beyond the original expectations.

ESD: To what extent does SSM assume responsibility for the R&D share of armament programmes? Do you have your own R&D personnel?

Demir: The law based on which SSM was established clearly defines R&D activities as one of SSM's most important functions. We have a dedicated department (R&D and Technology Management) in charge of R&D activities. Within the scope of the capital procurement programmes SSM's R&D policy favours technology-intensive R&D activities in priority areas, compatible with the needs and objectives of programmes that involve industrial collaboration and cooperation with universities and research organisations. R&D is not regarded as a procurement process itself. As a parallel process that supports the procurement process including domestic development, R&D may range from basic and applied research to experimental development. R&D projects can be executed in advance of or concurrently with the main system projects. Significant technological achievements made in R&D studies conducted by SSM so far have become the building blocks of the main system projects today. Nowadays, the Turkish industry can develop ships, tanks and other land vehicles, but we cannot talk about a serious level of system engineering and technology and product development. It is our objective to develop strategies that make the armed forces ready for future combat.

The total R&D expenditure of the defence industry has reached US\$927 million. US\$237 million of that amount is expected from the equities of the defence industry. The rest is provided in the scope of projects executed by SSM or other government agencies.

ESD: What are the most important defence programmes currently executed by SSM? What – in average – is the annual budget available for defence materiel investments,

and is SSM's budget entirely generated from the national defence budget?

Demir: The ALTAY main battle tank, ATAK assault and reconnaissance helicopter, MILGEM Class national corvette, HÜRKUŞ Turkish basic trainer and the ANKA MALE UAV, national fighter aircraft development (F-X), Turkish Navy Landing Platform Dock

capital expenditure, and funding for project costs related to defence equipment procurement and production.

ESD: Which of your current programmes are executed in international partnerships with other national or multinational procurement organisations?

Photo: Turkish Navy



Of the twelve MILGEM Class surface combatants eight will be designated corvettes (ADA Class), while four will be classified as F-100 frigates. Shown here is the first-of-class, TCG HEYBELİADA, during sea trials.

(LPD), Turkish long-range air and missile defence systems, new type submarine (AIP), TF-2000 anti-air warfare frigate, A400M, Joint Strike Fighter (JSF) and the T-70 utility helicopter programme are the most important defence programmes currently executed by SSM.

SSM was established under Law no. 3238 in 1985. It is the main defence procurement authority and is tasked with the development a modern indigenous defence industry. It fully controls the SSDF (the defence industry support fund), which is used to finance projects executed by SSM. SSM's share of the general budget is small and may not exceed 2 per cent of the SSDF. However, the Cabinet can increase that amount by 50 per cent. Law no. 3238 also permits the use of foreign loans for projects that require high levels of funding.

Law no. 3238 assigns the SSDF to the Central Bank under the supervision of SSM. Fund revenues consist of income tax, corporate income tax and sources which supplement the Ministry of National Defence's (MND) budget. Its function is to ensure continuous and stable extra-budgetary financing to enable the modernisation of the Turkish armed forces and the development of the Turkish defence industry. SSDF expenditures include credits for defence equipment production, contributions to

Demir: International cooperation and building partnerships is a fundamental pillar of our vision of the defence industry. As a NATO ally geographically situated in a region which is affected by turmoil and conflicts, Turkey aims to increase international cooperation. Today Turkish companies have extensive partnerships all over the world which facilitates both of our objectives for the defence industry such as the F-35 Joint Strike Fighter aircraft and A400M airlifter.

ESD: We understand that, as a rule, foreign defence contractors have to comply with a set of offset obligations. Can you elaborate on this point and provide some examples?

Demir: In recent years Turkey's defence industry has been subject to a significant momentum. We support the defence industry with offsets. As a rule, a separate Industrial Participation/Offset (IP/O) agreement is signed as part of a procurement agreement. According to the Industrial Participation/Offset (IP/O) Directive published in 2011 foreign contractors are obliged to commit to an IP/O share amounting to at least 70% of the procurement volume. The IP/O Directive from 2011 aims at strengthening the capabilities of the Turkish defence industry, increase the local content of the programmes and promote

Photo: Otokar



The Turkish ALTAY main battle tank programme is an excellent example of Turkish international cooperation.

export of defence products by long-term partnerships between the Turkish industry and international partners.

According to the IP/O Directive the threshold to require offset is US\$5 million. The IP/O commitments of 70% of the total contract volume are categorised according to Cat A, B and C. 30% of the Category A (industrial participation) obligations are to be implemented with subcontractors and SMEs. To emphasise the importance of SMEs, 50% of that share has to be achieved with SMEs.

As mentioned above, a separate IP/O Agreement is signed with the contractor defining its obligations. The Letter of Bank Guarantee is defined as 6% of the IP/O commitment; the penalty amount is also 6% of the unfulfilled commitment. With some detailed conditions specified by the IP/O Directive temporary crediting, banking of credits and transfer of excess credits are also allowed.

ESD: What advice can you give to a foreign defence contractor who wants to enter into a business relationship with SSM and the Turkish Armed Forces?

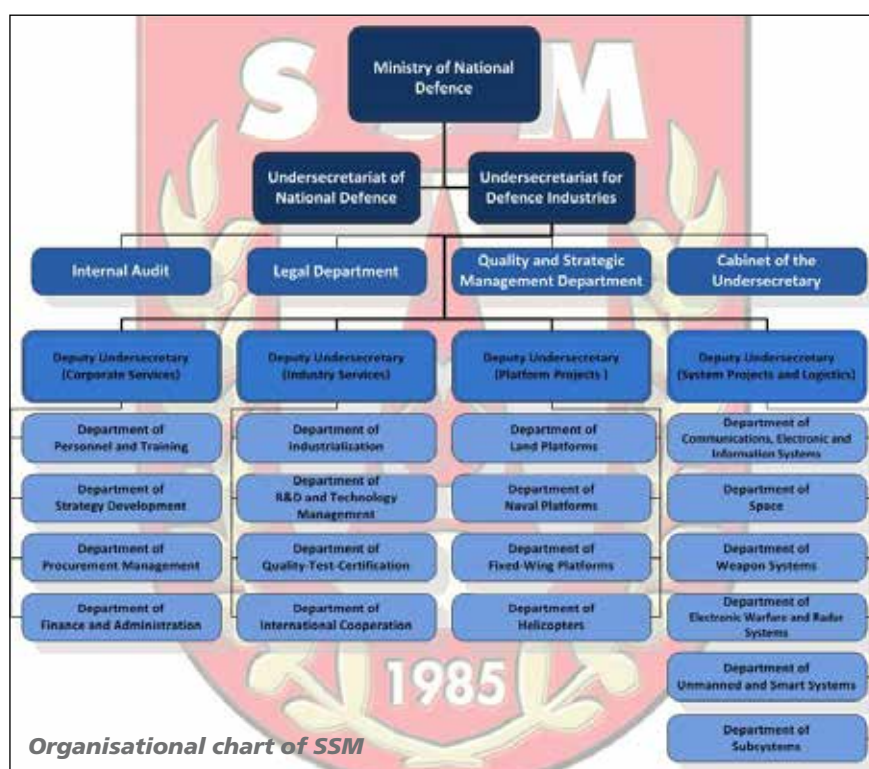
Demir: As you know, SSM is responsible for the development of the Turkish defence industrial base and the modernisation of the Turkish armed forces. In order to achieve these two goals, SSM maintains various industrial policies and uses financial instruments. As SSM, we are open to cooperation with our counterparts and foreign defence contractors on the basis of joint ventures, exchange of know-how and transfer of technology. Taking into consideration the young and well-educated population and highly skilled labour force

of Turkey, it will be an opportunity for a defence contractor to make a direct investment in the defence industry segment.

ESD: Are you happy with the way SSM operates today or do you have plans for changes?

Demir: Through strategic guidance and the support from SSM the Turkish defence industry has successfully evolved from fulfilling basic domestic demands to providing solutions for our international partners in a short period of time. Although I am happy with our achieve-

ments, continuous improvement is essential to extend and sustain our success. With the aim of developing a sustainable and competitive defence sector in Turkey, we will develop and adopt new approaches. One of the most important changes will be the preparation of a strategic plan for the Turkish defence industry which will re-evaluate the management of the defence industry and enable sustainable industrial development and procurement. We will ask for contributions of our stakeholders – industry, armed forces, universities, related public/private organisations – for the preparation and implementation of this plan. As another means of sustainability, we will encourage defence exports by improving bureaucratic and financial mechanisms and also focus on multiuse/modular designs in order to strengthening bonds between the defence and other sectors. Regarding improved expertise, SSM will play an active role in the determination and development of required human resources in the Turkish defence sector. Improving brand strength and increasing the number of internationally well-known Turkish defence companies will be an important aim, right along with establishing a competitive, effective and homogeneous sub-supplier procurement chain. Dispersed R&D and industrialisation activities will be integrated in line with long-term financial and procurement planning. I believe that the implementation of these necessary changes will successfully lead the Turkish defence industry to the next stage of this improvement process. ■



Picture: SSM



The Turkish Security and Defence Industry

Korhan Özkilinc

The roots of the Turkish defence industry can be traced back to the 17th century, but it became clear that there was an urgent need to establish a private Turkish defence industry when an arms embargo was imposed on Turkey during the Cyprus conflict.

The first step was establishing the Turkish Armed Forces Foundation, TAFF. Following a period of investment, and collaboration with TAFF, the defence contractors ASELSAN, TAI, HAVELSAN and ROKETSAN were founded in the mid-

international procurement. Since 2004, domestic – rather than foreign – companies have been selected as prime contractors, with the aim of diverting cash flow towards domestic businesses, and of making positive use of the development

process for the domestic supply chain. This boost is also having a strategic impact, which is expected to safeguard the country's basic focus ("multi-dimensionality") in global affairs. Prime Minister Ahmet Davutoglu, like his predecessor Recep Tayyip Erdogan, who is now the Turkish President, is cleverly using the defence industry as a political instrument in foreign and security policy. Prime Minister Davutoglu's concept of "Stratejik Derinlik" (Strategic Depth), published in a manifesto-like document in 2001, makes it clear that he considers the defence industry to be necessary to the success of the country's defence strategy. It defines the political pressures both inside and outside Turkey's borders and underlines the country's historical heritage.

Public Enterprises and Institutions

Mechanical and Chemical Industry Corporation, MKE [Turkish: Mekanik ve Kimya Endüstrisi Kurumu]

This state-owned company was officially founded in 1950. However, its roots can be traced back to the early 19th century. With nearly 6,000 employees, MKE is now one of the heavyweights of the Turkish defence industry. Its product range includes the full weapons system for the T-155 FIRTINA self-propelled howitzer, a number of different types of mu-



Former NATO Secretary General Anders Fogh Rasmussen shaking hands with Ahmet Davutoglu who has been the Prime Minister of Turkey since 28 August 2014

1980s and early 1990s. Today, they are the companies at the heart of the Turkish security sector.

Since 2000, the industry has made visible progress. Considerable investment has been put into the industry and, in addition, established medium-sized companies have been integrated into the defence sector. A key element of the industry's success has been a change in strategy regarding

Author

Korhan Özkilinc is an industry consultant based in Witten (Germany) specialising in international cooperation between high-tech companies especially SMEs.



T-155 FIRTINA self-propelled howitzer from MKE



(Picture: defenseindustrydaily.com)

With the PARS (Leopard), FNSS has developed a new generation of Wheeled Armored Combat Vehicles in 6x6 and 8x8 configurations with a special emphasis on mobility, protection, payload and growth potential.

nitions, explosives, missiles and guided missiles. In addition to its own brands, it also produces a number of assault rifles under licence.

Scientific and Technological Research Council of Turkey, TÜBİTAK

The Scientific and Technological Research Council of Turkey was founded in 1963 and has its headquarters in Ankara. The 15 departments of TÜBİTAK are dedicated to developing, promoting, managing and coordinating research projects. The sub-departments of TÜBİTAK, SOM Defense Industries Research and Development Institute, TÜBİTAK MAM Marmara Research Center, and TÜBİTAK BILGEM Informatics and Information Security Research Center, primarily focus on national security and the defence industry. TÜBİTAK SOM played a leading role in the development of the SAGE SOM cruise missiles. Comparable institutions include

the German Fraunhofer Institute and the Dutch Institute, TNO.

Companies in the Electronics/ Information and Communication Industries

The Turkish electronics / information and communication technologies (ICT) sector is expected to see double-digit growth year on year between now and 2016 but in the past, this branch was not viewed as a key sector of industry. With the 100th anniversary of the founding of the Republic approaching in 2023, expectations are high and call for considerable investment in the ICT sector. In order to meet the country's targets, efforts are being made to compensate for the shortage of skilled workers in Turkey by recruiting expatriates with the right skills. New technology clusters and IT centres are being used to support and promote the

structural developments. Some companies, for example, are focussing on the aviation, space and defence industries.

Milsoft

This is a software and systems integration company founded in 1998 in Ankara, with strong expertise in the field of C4I systems, electronic warfare systems, embedded systems, ICT solutions, imagery exploitation systems and cyber security.

METESAN SAVUNMA

This company was established in Ankara in 2006 and is part of the Bilkent Holding. It specialises in radar systems, laser systems, data links and radios, underwater acoustic systems, software, information technologies and simulators.

Koç Bilgive Savunma Teknolojiler [Koç Information and Defence Technologies Inc.]

Since 2007, this subsidiary of the Koç Group in Ankara has been working successfully on developments for systems and platforms for the Turkish security forces. Its key focus is on the integration of electronics on naval platforms and acoustic systems for underwater units.

SDT Space & Defence

Since it was founded in 2005 at the Middle East Technical University (METU) in Ankara, this company has been developing solutions for remote sensing, satellite technologies, electronic mission systems, simulation & modelling, software development, hardware capabilities and mechanical design capabilities.

Gate Electronics

Since 1989, this Ankara-based company has been much sought-after for developments in the fields of systems engineering, manufacturing of electronic equipment, unmanned systems, self-protection systems, sensors, ICT etc.

AYESAS

AYESAS is a renowned software development and systems integration company in Ankara. Since it was founded in 1990, the company has had substantial responsibility in the Turkish ICT sector. It is a joint venture company partnered with the American technology group L3-Communications. The company provides solutions for C4I systems, avionics software and electromechanical systems and products.

Savronik

The company was established in 1986, in Eskişehir, and has many branches, all

Photo: Turkish Government



KIRPI MRAP



of which contribute to the sector's success. This technology company operates in three key areas, namely defence, intelligent transportation systems and railroad systems. It has a particular emphasis on electronic devices and system requirements.

Bites

Bites is a new, dynamic and fast-growing company from Ankara, which has been developing software solutions for the aerospace and defence industries, often under demanding time constraints.

ALTAY

Since it was founded in Ankara in 1957, ALTAY has been operating successfully in the defence sector and on industrial projects. The company has developed numerous solutions for the IT, technical support and consultancy sectors for domestic and foreign security forces.

Companies in the Military Vehicle Industry

In Turkey, military land vehicles are produced by the manufacturers Otokar, Nurol Makina and the joint venture company FNSS. BMC, which was recently rescued from trouble by the government and then sold on, will probably now establish itself as a fourth. There is promising technical progress in this area, and the Altay battle tank, which is about to enter serial production, is an example of the outstanding performance of this branch of industry.

OTOKAR was founded in 1963 in Sakarya and chiefly manufactures busses and armoured tracked and wheeled vehicles. In April 2007 it was awarded the contract to produce the Turkish battle tank, the Altay. To date, four prototypes have been delivered and a fifth prototype is in the development phase. It is also likely to go into production. Otokar is a renowned company with considerable international expertise and many international partnerships.

FNSS was founded in Ankara in 1989 and is a joint venture company between Nurol Holding and BAE Systems. FNSS manufactures armoured tracked and wheeled vehicles, and also successfully markets its diverse range of products abroad.

Nurol Makina is a subsidiary of Nurol Holding and has been producing armoured wheeled vehicles for Turkish and foreign military forces since it was established in 1977. It has particular expertise in the field of NBC/CBRN protection, and also has access to specialist knowledge in

the field of armoured protection thanks to its sister company Nurol Teknoloji. British Motor Corporation (BMC) was founded in 1964, in Izmir, and has been wholly Turkish-owned since 1989. The company manufactures trucks and utility vehicles. Another important mainstay of the defence industry is the production of transport vehicles, articulated lorries, tankers and the Kirpi MRAP.

Companies in the Military Aerospace Industry

Turkish aerospace companies – with the exception of Turkish Aerospace Industries (TAI) and its subsidiaries – play a relatively important role in the international aerospace sector as suppliers of systems or as subcontractors. This sector has huge potential for development. However, development is likely to be slow due to a lack of skilled workers and certification.

There is a lot of investment potential in this area for foreign companies. In recent decades, the sector has gained a lot of experience as a supplier for Airbus, Boeing and other large carriers. It is hoped

that significant investment in infrastructure and training will close the gap between Turkey and Western countries. It is a national aim for Turkey to produce an indigenous passenger plane and combat aircraft, and an aim that is supported by the state.

There are four aviation clusters in the cities of Ankara, Eskisehir, Izmir, and Bursa. Numerous medium-sized enterprises have relocated and are attempting to expand their expertise with support from one another and the state. The companies are well on their way to making an international name for themselves. Some of these companies currently act as "build-to-print" partners of foreign airline companies. They will soon have an important role to play in the development of the indigenous 5th generation fighter jet – the TAI TFX.

ALP Havacılık

ALP Aviation is in a joint venture partnership with Sikorsky and manufactures important components and platforms for Airbus, Boeing, Lockheed Martin and Pratt & Whitney. The company is also the



*Type T-70 helicopter
(Sikorsky S-70)*

Photo: TAI



Photo: Istanbul Shipyard

**SNR-17 patrol boat**

leading member of the group manufacturing 109 Type T-70 (Sikorsky S-70) helicopters.

Baykar Makina

The company was established in 1984 as a supplier to the automotive industry. Over time, it has successfully engaged in the development and production of drones. Baykar Makina recently started delivering drones to the Turkish security forces. The system, which was designed for strategic and tactical assignments, is also suitable for promotion on the international market.

Vestel Defence Industry – together with its subsidiary, AYESAS (joint venture with L3) – also manufactures drones and surveillance systems, which will soon be used to equip the Turkish security forces.

Kale Aero

This company has set itself ambitious goals. It is a joint venture between Pratt & Whitney and the Kale Group, and is an important supplier for the JSF F-35 fighter jet and the F-135 engine. However, it does not just supply important components: Kale Aero is set to shortly take up a strategic position in the Western group providing maintenance for the JSF F-35 engine. The company also has specialist expertise relating to the B 737 commercial aircraft and to Boeing's B 787 programme.

Companies in the Military Shipbuilding Industry

Turkey – where shipbuilding is a 600 year-old tradition – is in an excellent position to become a leading shipbuilding nation. The industry produces a wide range of products including oil tankers, chemical

tankers, container ships, yachts, fishing boats, coast guard units and warships, and ranks among the top 10 in the world. The majority of warships are built in the domestic Gölcük Naval Shipyard or Pendik Naval Shipyard. Many projects have also been handed over to private companies, so that private shipyards can also develop expertise in the military shipbuilding sector. Some examples include: ARES SHIPYARD Antalya, which is a highly-skilled, new and dynamic company with plans to construct coast guard boats, patrol boats, small attack boats and small missile boats.

Yonca-Onuk Joint Venture Istanbul, which has been building fast attack boats

builds various sizes of oil and chemical tankers. They have designed and built a number of different boats to date (e.g. fast patrol craft, SNR 15-17-24-42; fleet replenishment tanker SNR FRT2500; fleet replenishment tanker SNR-FRT19800). The company has also been selected as a potential supplier for constructing the SNR-MOSHIP submarine rescue mother ship and the SNR-RATSHIP rescue and towing ship.

DESAN Shipyard, the origins of which date back to the 1950s. The company has the capacity to build large ships, thanks to its 200 metre-long docks. Its core skills are in civilian shipping. Having complied with the relevant NATO standards, the company is currently preparing to work on important naval projects.

DEARSAN builds a variety of ships and tankers. It has delivered 16 Tuzla class patrol boats, which are 57 metres long. The company is skilled in the construction of various types of ship, including: corvette class ships, multi-purpose search and rescue (SAR) ships, fast intervention boats, attack boats, fast patrol boats with guided missiles, hydrographic & oceanographic survey vessels, offshore supply vessels, offshore patrol vessels, mine hunting and mine sweeping vessels and landing ships.

ANADOLU TERSANESI ADIK was founded in 1950 as Deniz İnşaat Kollektif Şirketi and has built ships in sizes up to 18,000 DWT (dead weight tonnes). The company has developed two landing ship tanks (LST) for the navy. They are 140 metres



Photo: TAI

10 ANKA Block B MALE UAV are on order by the Turkish military from TAI.

and fast patrol boats up to 40m in length for domestic and international customers since 1986. These types of boat are held in particularly high regard by the Turkish special forces.

ISTANBUL SHIPYARD, which was founded in 1980. Since 2003 the company has been a subsidiary of the SNR Group and

long and weigh 7,125 tonnes. Eight landing craft tanks (LCT) measuring 80 m in length and weighing 1,155 t have already been delivered. Fast patrol boat and patrol boat projects are in the planning phase.

Sedef Shipyard is the largest private shipyard in Turkey and employs 1,800 people. In 1995, it delivered its first prestigious



project for the Turkish Navy. It was also selected by the Turkish Undersecretariat for Defence Industries (SSM) to build the landing platform dock. If negotiations fail, the DESAN shipyard, which is the fall-back option, will be awarded the project instead.

RMK Marine is one of the largest ship-building companies in Turkey and has outstanding expertise in the construction of modern ships, super-yachts and warships. RMK Marine has delivered the first of four coast guard search & rescue ships to the Turkish Navy. The company is also skilled in the construction of corvettes, multi-role coast guard vessels, fast attack craft and landing platform docks. Since 1997, RMK has been a subsidiary of KOC Holding. It has an annual capacity of 50,000 DWT and is able to build ships up to 200 metres in length.

Since it was founded in Istanbul in 1982, SELAH SHIPYARD has been building special ships, and has been awarded the contract to build the logistical support ship.

Turkish Armed Forces Foundation (TAFF)

ASELSAN

Askeri Elektronik Sanayii A.S. is the largest Turkish defence company with over 6,000 employees. It was founded in 1975, in Ankara. The company designs and manufactures electronic equipment for the Turkish armed forces, and



Image: Roketsan

The SOM-J cruise missile from Roketsan is currently subject to a testing campaign.

is in charge of exports. The products are also used in many NATO countries. The company is divided into departments covering information & communication technologies, defence systems technologies, radar & electronic warfare systems, microelectronics, guidance & electro-optics technologies, and transportation, energy, security & automation systems. According to Defence News, in 2014 the company ranked 67th in the world and aims to achieve a top-50 ranking among the world's largest defence companies.

Turkish Aerospace Industries TAI

TUSAS Havaçılıkve Uzay Sanayi A.S. was established in Ankara in 1984 as an avia-

tion and aerospace business. The company's origins date back to 1973, when Türk u Sanayi AS was founded. The company complies with worldwide quality standards in the production of technology products and its departments include fixed and rotary wing air platforms, unmanned aerial vehicles and satellites. The company has designed and produced the HÜRKUS basic trainer, the T-129 combat helicopter and the ANKA drone for the Turkish military forces. Producing the F-16 combat aircraft under licence is also a key part of the company's history. In future, TAI will be the main contractor in many Turkish armaments programmes, for example JSF-35, ATAKII and the new, latest generation

FNSS: A Leader in the Market



In preparation for IDEF 2015: Four questions to Melih Kayaalp, Manager, International Business Development, FNSS

ESD: What are the core competences of your company? What are your current turnover figures and employment numbers? Who are the shareholders of your company?

Kayaalp: FNSS is a medium-sized land systems manufacturer specialized in tracked and wheeled armoured vehicles and weapon stations. We are a flexible company that can tailor our products based on customer requirements. Our turnover for 2014 was US\$220M but will increase to US\$280M in 2015. FNSS is a Joint Venture, 51% owned by Nurool Holding and 49% by BAE Systems.

ESD: What are currently your most important defence programmes? Are any of these executed in international partnerships?

Kayaalp: We are currently executing a wheeled armoured vehicle programme in Malaysia for 257 wheeled 8x8 vehicles with a national Malaysian company. Another major programme is the Saudi Arabian M113 modernisation programme executed with our local partner at a facility near Riyadh, Saudi Arabia. Moreover, we have some domestic programmes to supply vehicles for the Turkish Land Forces.

ESD: What is the ratio of domestic to export business?

Kayaalp: 20% domestic, 80% export.

ESD: Are you happy with the current capabilities and operations of the company? What are your objectives for the short- and medium-term future?

Kayaalp: As I mentioned before, we are a medium-sized company which designs, develops and manufactures land systems for world armies. In order to be competitive in the domestic and international markets, we internally developed competences and capabilities that help us satisfy our customers and make us the leader in the market. As a result, we have satisfied customers who keep giving FNSS follow-on orders. I believe this is a good indication that we have been doing the right things and I am personally very happy with that. In the future, we will keep working on improving our company and its capabilities.

Hand Weapons from Turkey

The state-owned company Makina ve Kimya Endüstrisi Kurumu (MKE, Institute for Machine and Chemical Industry), which was founded in 1950, is Turkey's largest manufacturer of hand weapons. MKE has some 5,800 employees and refers to its roots originating from the Osman Empire in the 15th century. Today, the company primarily provides the Turkish armed forces with hand weapons, ammunition, rockets, missiles, explosives, even artillery systems. Among the most recent infantry products is the Milli Piyade Tüfegi



MPT-76



MKE MG



Sarsilmaz KILINC 2000

(MPT)-76 (National Infantry Rifle). MKE is under contract to the Turkish armed forces to supply 600,000 of this short-stroke gas pressure loader in AR-10 design. As a consequence, Turkey will be the only NATO nation to keep the older and stronger standard calibre of the Atlantic Alliance in cross-sectional service. The legendary MG3 machine gun is still in series production at MKE, even if a programme for a successor model has already been launched.

Sarsilmaz is another large and traditional manufacturer of hand weapons. The company is located in the Province of Düzce, is over 130 years old and has some 300 employees. Above all, Sarsilmaz supplies pistols to the Turkish armed forces, including the type Kilinc 2000 in 9 mm x 19. The SAR223 assault rifle is another product of Sarsilmaz. The company is also active as a supplier to the aerospace industry.

Other manufacturers, primarily in the sector of handguns, are Canik, Girsan und TİSAS. The Stoeger Silah Sanayi AS (formerly Vursan) company is today part of the Italian Beretta Group and specialises in semi-automatic shotguns. (www)

TF-X fighter jet, which is to be produced by 2023. TAI develops and manufactures components and is also a global player and partner to global aviation companies, such as Airbus, Boeing, Bombardier, Lockheed Martin, Northrop Grumman and Sikorsky. TAI currently ranks as the world's 80th largest defence contractor.

HAVELSAN

HAVA Elektronik Sanayii AS was founded in Ankara in 1982 and has extensive experience in the fields of software and systems integration. The company's product portfolio includes command & control systems, reconnaissance, surveillance and intelligence systems, simulation & training systems, naval combat systems and simulators. The company also manufactures systems for the civilian sector. The company's subsidiaries, HTR, ESDAS and EHSIM, complete its skill set with their expertise in technology.

ROKETSAN

Roket Sanayiive Ticaret AS was founded in 1988 in Ankara, and serves as a platform for domestic missile technology. Its product portfolio includes air defence systems, naval systems, precision guided missiles and ballistic protection systems. Roketsan leads the way on many Turkish defence projects, for example the SOM-J cruise missile, which is currently in the test phase. It will also soon start work on developing medium-range missiles.

Roketsan has evolved into a major partner working with several missile manufacturers, most notably MBDA, Saab Bofors and Raytheon.

TEI

TUSAS Motor Sanayii AS was founded in 1985 in Eskisehir, and is a joint venture company between TAI and GE Aviation. TEI's services include engine design & development, MRO, engine assembly and testing, and the company is also a major partner to well-known engine manufacturers. The company relies on a number of medium-sized companies to support it in research and development work relating to engines, and in the production of engine components.

İSBİR ElektrikSanayi

This company was founded in Balıkesir in 1977 thanks to investment from Turkish workers living abroad. Its core focus is manufacturing synchronous alternators and diesel generators.

ASPILSAN

Askeri Pil Sanayi was founded in 1981 in Kayseri and manufactures a wide range of batteries for the armed forces.

Turkey – an Attractive Partner Country

Turkey is making huge efforts to build a well-functioning defence industry in

order to remain largely independent in future, and not be reliant on imports. The industry has a strong focus on developing platforms, but it is increasingly clear that efforts are being made to cross-connect the supply chains both vertically and horizontally. This will be a major challenge.

Procurement planning is a strategic instrument for the domestic arms industry. The procurement plan will initially identify the needs of the entire Turkish security force (military, police and intelligence agencies) and this information will be passed on to the Executive Committee of the Defence Industry. If the Committee makes a positive decision, the Undersecretariat for Defence Industries (SSM) will be tasked with organising the entire process and supporting the projects through to their successful completion. The SSM can cover the needs with domestic production, by participating in international consortia, through collaborative production involving the offset policy or through direct procurement from abroad, with reference to the offset policy.

Turkey represents an attractive partner, due to its geographical location, its interfaces with key sales markets, and because it is an important NATO partner. Turkey has already proven that it is capable of successfully completing a number of joint projects with foreign partners. ■



Roketsan: A Highly-Specialised National Industrial Force

Interview with Mr Selçuk Yaşar, President & CEO of Roketsan Missiles Industries Inc.

ESD: What are the core competences of your company? What are your current turnover figures and employment numbers, and who are the shareholders of your company?

Yaşar: Roketsan Missiles Industries, which was founded by the decision of the Defense Industries Executive Committee, has been providing both service and reliable systems solutions with proven performance to its domestic and foreign customers for 27 years.

For the purpose of “possessing a leading institution in the country for designing, developing and manufacturing rockets and missiles”, the manufacture of the



(Photo: Network54)

Roketsan is integrating the Cirit missile on the Airbus Helicopters EC635 helicopter.



Mr. Selçuk Yaşar joined Roketsan as the company was established, in 1988, having previously earned a BSc in Mechanical Engineering at the Middle East Technical University in Ankara, and an MSc in Mechanical Engineering from Stanford University. Serving as Director of Production from 1997 to 2004 he managed several production programmes including the Rapier Air Defence programme for the Turkish Air Force. From 2004 to 2012 he served as Vice-President with responsibilities including the leadership and management of the Engineering, Production, Programme Management, Strategic Planning and IT groups of the company. He also led the Six Sigma and Lean Manufacturing applications of the company as Vice-President. He was appointed President & CEO in February 2012.

propulsion systems of Stinger missiles within the framework of “Stinger European Joint Production Project”, was performed as the first production project, which was an international programme. Roketsan has not only met the requirements of the Stinger Consortium fully in time, thanks to the correct strategies adopted to realize the objectives of its foundation, but also succeeded in transforming the transferred technologies into new products, using the brain power it has developed to the benefit of our country, and passing well beyond that intermediary goal. Roketsan has become a highly specialized national industrial force in the field of rockets and missiles. As a reflection of acquisitions regarding the rocket and missile technologies gained since our first project, Stinger, Roketsan is shaping the sector today with its almost 1,900 experienced staff (53% engineers) and with its technological know-how and infrastructure is rapidly moving towards being a global company. Maintaining a systems engineering approach, Roketsan designs and manufactures rockets and missile systems for Land, Air and Sea platforms, determined with customer requirements such as Launcher System Design, Development and Modernization, Command Control Systems, Cradle Systems, Flight Simulation and Trajectory Planning Software,

Fire Control Software, Modelling and Simulation, Guidance-Control, Propulsion, Warhead, Mechanical, Structural and Thermal Design, Ballistic Protection, Ammunition Disposal, Surveillance and Life Extension.

Roketsan's shareholders are the Turkish Armed Forces Foundation, which owns the largest share, and MKEK, ASELSAN, KUTLUTAŞ, VAKIFBANK, HAVELSAN, BARIŞ ELEKTRİK and İŞBİR ELEKTRİK.

ESD: What are currently your most important defence programmes? Are any of these executed in international partnerships?

Yaşar: We intend that Roketsan will be understood to be one of the major players in the global defence market through our indigenous products and by our international partners.

Some of the international programmes are; the PATRIOT Control Actuation System Production Program for Raytheon USA, Advanced ASPIDE & OTOMAT Missile Rocket Motor Development & Production Programme for MBDA-Italy, Naval Strike Missile Launcher Production Programme for Kongsberg Defence & Aerospace, Norway, integration of CİRİT on EC635 helicopter platform with Airbus Helicopters.

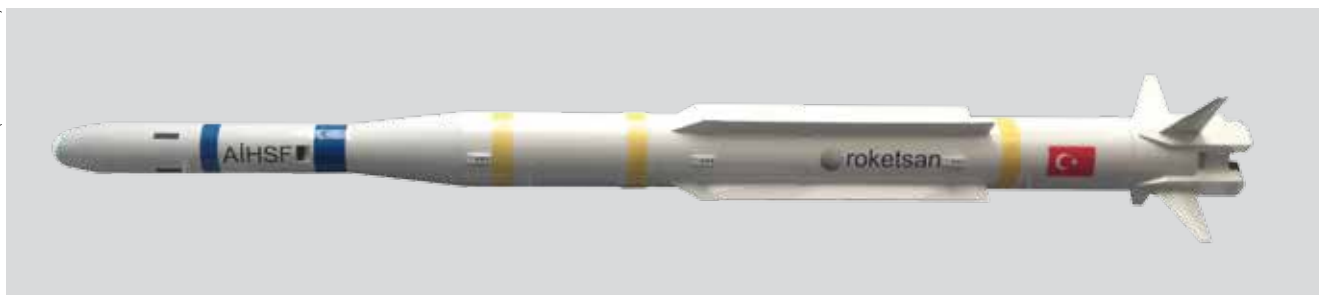
Roketsan has been appointed to design and develop low- and medium-altitude

missiles for the protection of mobile and stationary ground assets against existing and emerging area threats, using the latest technologies. HİSAR-A and HİSAR-O Missile Systems, among the most critical projects of Roketsan, are planned to enter service with the Turkish Armed Forces in 2018. Roketsan conducted the first firing tests of HİSAR-A Low Altitude Air Defence Missile and HİSAR-O Medium Altitude

fundamental research and conceptual design, Tubitak Sage has now completed the development phase. Roketsan is responsible for the serial production and international marketing of SOM. The first SOM serial production contract by the Turkish Ministry of National Defence was awarded to Roketsan in mid-2013. This is expected to generate international interest in SOM and accelerate marketing

Under the terms of the agreement signed at the ILA 2014 Airshow in Berlin, the two companies will initially exchange business and technical information with the aim of verifying possible areas of cooperation. The envisaged activities include, but are not restricted to, combat air systems, weapon integration, and future combat systems including Turkey's new indigenous fighter.

(Photo: Roketsan)



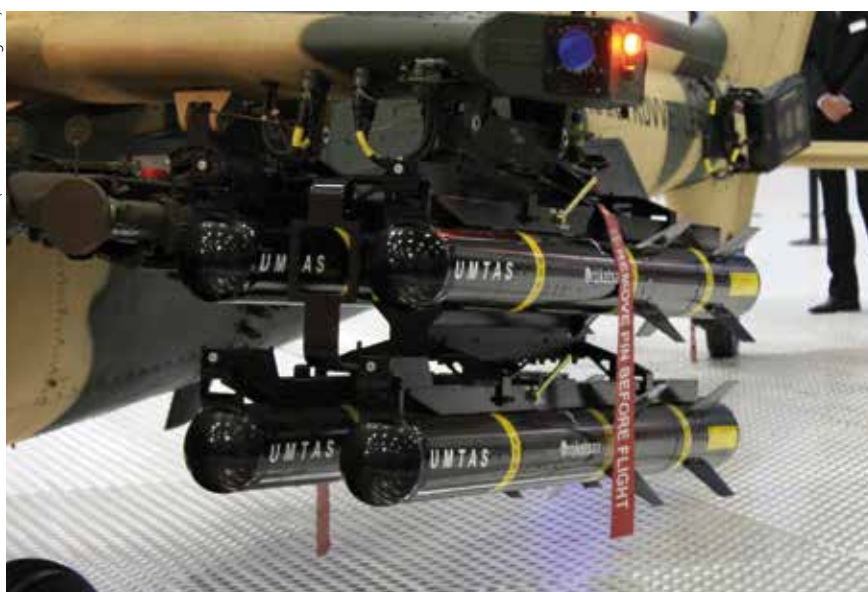
Roketsan is the Turkish lead company for the HİSAR-A missile system.

tude Air Defence Missile in 2013 – 2014. The first firing test of the IIR Guided Long Range Antitank Missile, UMTAS, from a Bell AH-1 Cobra helicopter, at a range of 3,500m was conducted in 2014. UMTAS is intended primarily for use against heavy armoured targets such as Main Battle Tanks. UMTAS will be the main weapon system of the T-129 ATAK helicopter of the Turkish Armed Forces. Another important milestone successfully achieved is the launch from a Seahawk platform against a surface target. Roketsan recently presented the Stand-Off Cruise Missile, SOM for fighter aircraft. The cutting-edge technologies of SOM get growing attention in the international market. Starting with the

activities around the world. F-16, F-35 and other newly-developed platforms are expected to generate a significant market for SOM. In June 2012 the Defense Industry Executive Committee tasked Roketsan with the modification of the F-35 internal carriage variant of the SOM missile named "SOM-J". SOM-J is planned to be integrated into F-35 Block-4 aircraft. Roketsan and Lockheed Martin (Missiles and Fire Control Division) recently signed an agreement for collaboration on the SOM-J for the F-35 aircraft in international markets. Airbus Defence and Space and Roketsan have signed a memorandum of understanding covering future collaboration on a range of military aerospace activities.

Another important agreement during ILA was between MBDA Deutschland GmbH and Roketsan. The companies signed a Memorandum of Understanding for collaboration in manufacturing and integration of a 70 mm guided weapon system. Under the terms of the agreement, the two companies will initiate the exchange of business and technical information for a guided weapon system based on the 70 mm rocket concept for the German UH Tiger. Both companies aim to provide a solution for an expected German Army requirement in the near future. During Eurosatory 2014, Roketsan and Saab Dynamics AB signed a Memorandum of Understanding, covering future collaboration on new age Anti-tank Missile Systems. Under the terms of the agreement, the two companies will work together to develop a new system to fill the gap in the short to medium range anti-tank missile market. Those projects and agreements play a crucial role in encouraging the growth and importance of Roketsan as a more global organization.

(Photo: internethaberleri)



Detail shows the UMTAS long-range anti-tank missile systems mounted on a T-129 ATAK helicopter.

ESD: What is the ratio/percentage of domestic vs. export business?

Yaşar: Roketsan is well on its way to be in the list of the top 50 defence organizations in the world, listed among Turkey's top 500 Industrial Enterprises and being one of the top 1000 exporters of the country. Our aim is to be within the top 100 exporters of the country. Turkey has been aware that the only way to achieve a US\$500Bn export target in the 100th anniversary of the foundation of Republic of Turkey is to grow the



market share of Turkish companies across all the different world markets in which they operate. The Turkish defence industry is one of those key sectors that create competitive advanced technologies in the international arena.

We are continuously investing in new technologies, sustainability and infrastructure so that our product portfolio can ensure a steady increase in our international market share.

In recent years we have been especially successful in our overseas markets; we have continually exceeded our export targets.

ESD: Are you happy with the current capabilities and operations of the company? What are your objectives for the short and medium-term future?

Yaşar: With new indigenously-designed products like CİRİT and Antitank Systems, and also with its sub-system design capabilities, Roketsan is planning to dominate exports into niche markets.

Our target is set as reaching to at least one new customer each year for the next 5 years. With this goal, Roketsan will be well on its way to being in the list of



(Photo: MirageC14.blogspot)

The SOM-J stand-off cruise missile is being developed for internal carriage aboard the F-35 JSF.

the top 50 defence organizations in the world.

Our aim is to grow continuously by having a strong financial structure and sustainable profitability; to gain competitive power established upon innovation and creativity by developing indigenous products and advanced technologies: to con-

duct effective foreign marketing activities; to be a corporation where the best people work and aim to work.

With our young and growing staff and the dynamism still of an entrepreneur, we are ready to share our expertise and infrastructure capabilities with our partners around the world.

TURKISH ARMED FORCES FOUNDATION

IDEF'15

12th International Defence Industry Fair

May 5 - 8, 2015

TÜYAP
www.tuyap.com.tr

Eurasian Meeting

Türkiye

BÜYÜKÇEKMECE - İSTANBUL - TÜRKİYE

www.idef15.com

TÜYAP İSTANBUL

TÜYAP FAIR CONVENTION AND CONGRESS CENTER
Büyükdere, İstanbul / Turkey

KOSGEBİ

International Congress and Convention Association

Minister of National Defence

Minister of Trade

Minister of Industry

Minister of Agriculture

Minister of Health

Minister of Culture

Minister of Education

Minister of Environment, Urbanization and Climate Change

Minister of Transportation

Minister of Energy

Minister of Justice

Minister of Labour

Minister of Social Security

Minister of Treasury and Finance

Minister of Foreign Affairs

Minister of Maritime Affairs and Fisheries

Minister of Regional Affairs

Minister of Science, Technology and Innovation

Minister of Tourism

Minister of Environment, Urbanization and Climate Change

Minister of Transportation

Minister of Energy

Minister of Justice

Minister of Labour

Minister of Social Security

Minister of Treasury and Finance

Minister of Foreign Affairs

Minister of Maritime Affairs and Fisheries

Minister of Regional Affairs

Minister of Science, Technology and Innovation

Minister of Tourism

THIS FAIR IS ORGANIZED WITH THE AUDIT OF TOBB (THE UNION OF CHAMBERS AND COMMODITY EXCHANGES OF TURKEY) IN ACCORDANCE WITH THE LAW NO.5174.

Protection of NATO's Airspace

Ulrich Rapreger

With their flexible quick-response capabilities, air forces contribute decisively to the permanent security of NATO nations' sovereignty. This is once again clearly shown by present challenges along the eastern and south-eastern edges of NATO territory.

By founding the North Atlantic Treaty Organization on the 4th of April 1949, twelve states of Europe and North America established the fundamental objective to guarantee the freedom and security of all member states by political and military means. With most diverse doctrines and strategies being continuously adapted to the respectively prevailing security-policy situations NATO has proved its steadfastness over the past 66 years and secured peace throughout the Alliance territory despite all threats. The associated high personnel and material expenditure has also contributed, upon the dissolution of the USSR and the Warsaw Pact, to giving many Eastern states their first opportunity to become politically independent and build up democratic structures or, in the case of Germany, to bringing about reunification. Knowing the insecure power relations and potential intentions of their once biggest partner, Russia, in 1999 twelve eastern states started putting themselves under the

starting in 2014. The following countries are presently aspiring to join NATO and its 28 member states: Montenegro, Bosnia-Herzegovina, the Former Yugoslav Republic of Macedonia and Georgia.

Command Structure in the Air Defence Forces

Since 1961, the allied Air Defence Forces, subsumed under the name NATO Integrated Air Defence System (NATINADS), have been placed under the command of Combined Air Operation Centres (CAOCs). These again are subordinate to the Headquarters Allied Air Command (HQ AirCom) in Ramstein (Germany) and located in Torrejón, Spain, and Uedem, Germany, each consisting of a Static Air Defence Centre (SADC) and personnel for a Deployable Air Operations Centre (D-AOC). In peacetime, they concentrate on performing Air Policing and Ballistic Missile Defence within the Area of Responsibility (AOR). In times

nel, ensuring JFAC deployability and the training of the assigned JFAC personnel within HQ AirCom.

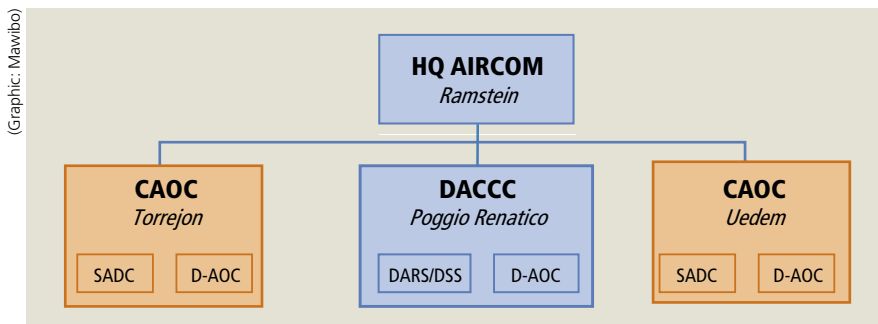
A sensor belt of air surveillance radar systems has so far been established from North Cape to the Black Sea, operated from stationary Control and Reporting Centres (CRC) or Reporting Points (RP). They contribute to Recognized Air Picture Production and, among others, assume interceptor control. In addition, Deployable Control and Reporting Centres (DCRC) with deployable radar equipment are kept on standby. As the situation dictates, Airborne Early Warning and Control System (AWACS) aircraft may reinforce both air surveillance/reconnaissance and interceptor control.

An essential contribution to integrated air defence is rendered by systems that ensure, as far as possible in real time, the data exchange between command posts, sensors and airborne platforms for the purposes of command and control and recognised air picture production. The most recent version is the NATO Air Command and Control System (ACCS) which has been almost completely introduced and will significantly improve networking of air defence components particularly in the area of Ballistic Missile Defence.

With the build-up of the ballistic missile defence capability in NATO, NATINADS was renamed NATO Integrated Air and Missile Defence System (NATINAMDS) while still remaining under the strategic command of NATO's Supreme Allied Commander Europe (SACEUR).

NATO Air Policing

Since NATO's inception its member states have kept land, air and sea forces on standby at different levels of readiness to safeguard their own security and that of the NATO allies. While land and sea forces are generally placed under national command or earmarked for being placed under Operational Command of NATO, in peacetime complete air defence components are already under Operational Command/Control of NATO to keep reaction times down. The leading elements, permanently operating for 24 hours on 365 days per year are the airspace surveillance, recognised air picture production and interceptor control forces of the Bundeswehr Joint Forces Operations



Command centres subordinate to Headquarters Air Command

tried and tested protective shield of NATO in order to preserve their freshly gained sovereignty. And with good reason, as recent developments in Ukraine have shown. To smother similar encroachments such as any violation of the territorial integrity of the new member states, since 1999 NATO has taken a number of measures at the request of these states, which have been continuously adapted to current developments and required further modifications

of crisis and for operations, the D-AOC personnel will reinforce the AIRCOM Joint Force Air Component (JFAC) organisation. The Deployable Air Command and Control Centre (DACCC) in Poggio Renatico, Italy, is also subordinate to HQ AirCom. Its tasks include the operational preparation of the Recognized Air Picture Production Centre/Sensor Fusion Post (DARS) component, the Deployable Sensor Section (DSS) and the D-AOC person-

Command. To enforce sovereign rights, the armed Quick Reaction Alert Interceptors, QRA "I", of its fighter formations are on 15-minutes standby that is shortened, depending on the situation, to 5-min-cockpit readiness or to airborne readiness supported by refuelling aircraft. Their task is to respond immediately to unidentified aircraft that approach or penetrate the airspace over sovereign territories of NATO partners. In that case, the interceptors will be authorized to approach the intruder to perform identification, to establish, if possible, voice radio contact, and to take appropriate follow-up measures scalable from ride-off, enforced landing or engagement.

An essential component of integrated air defence is NATO ground-based air defence (GBAD) which, being reduced in numbers, is able to survey the airspace only to a limited extent and whose operation is deemed an escalation; GBAD will not be considered any further in the context of "Air Policing". In the course of the expansion of NATO, states have been admitted which operate, if at all, only limited air forces. In order to include these states under the collective security shield of the Alliance, the other member states have agreed to add these territories into their air surveillance activities. Under the term "Air Policing", the airspace over the Baltic States is surveyed by 14 nations in rotation, that of Slovenia by Italy round the clock since 2004 and the airspace over Albania has been surveyed by Italy and Greece since 2009. While Italy and Greece can perform their air surveillance missions from national operating bases, this is impossible with respect to the Baltic States due to the long distances: two QRA interceptors are therefore on 15-min-standby at the Šiauliai airfield in Lithuania, alternately equipped and manned by the allies. Concurrently, the Air Space Control Centre staff in Karmėlava was temporarily increased with interceptor control officers for training purposes, detached also by Germany. Since 2000, the Baltic States Air Surveillance System (BALTNET) has been in operation to support data exchange between the Baltic States.

Member state Iceland plays a special role within NATO. Since the U.S. Air Force stopped deploying combat aircraft to Keflavik airport in 2006 national airspace security no longer exists and so far has not been requested by Iceland in the scope of NATO Air Policing for the future. Yet, since 2008, Iceland authorises combat, refuelling and air surveillance (AWACS) aircraft formations to conduct tactical exercises three times a year for two to three weeks under the name "Airborne Surveillance and Interception Capabilities to meet Iceland's



(Graphic: Mawibo)

On 28/29 October 2014 alone, 19 Russian aircraft were detected in international airspace by NATO air surveillance systems.

Peacetime Preparedness Needs". A novelty was the Iceland Air Meet (IAM) exercise from 3 to 21 February 2014 conducted by Iceland, Norway, the Netherlands and the USA together with their partner nations of Finland and Sweden the scope of the Nordic Defence Cooperation (NORDEFCO). Exercise objectives included, among others, Dissimilar Air Combat Training (DACT) and defence against air strikes. The Combined Air Operations Centre (CAOC) in Uedem, Germany, was responsible for the exercise coordination, and Swedish and Finnish forces were under Operational Control of the Norwegian DISTAFF.

Almost at the same time, from 27 January to 21 February 2014, but strictly separated from afore mentioned exercise, six Norwegian F-16 were stationed on behalf of NATO at Keflavik airport in the scope of the "Iceland's Peacetime Preparedness Needs..." operation.

Responsibility for the conduct of air defence exercises and interceptor operations in the scope of NATO airspace surveillance rests with SACEUR except that in a "renegade case" (terrorist attack) this responsibility falls back on national decision-making levels.

Reinforcements in Response to the Ukrainian Crisis

On 16 April 2014, The North Atlantic Council adopted a whole range of measures in

response to the Ukrainian crisis. These involve the additional deployment of combat aircraft and intensified exercise activities of land, air, and sea forces in the regions of the littoral states of the Baltic Sea, Romania and the Mediterranean Sea as well as the reinforcement of the Supreme Headquarters Allied Powers Europe (SHAPE) with personnel from 18 NATO nations.

Land Forces

Under the auspices of NATO the "Steadfast Javelin I" exercise took place from 16 to 23 May 2014 in Estonia with 6,000 participating soldiers from nine nations. After preparatory training, "Steadfast Javelin II" started on 8 September 2014 with 2,000 soldiers from ten nations. This exercise focused on international cooperation in, among others, aerial delivery of personnel and material to Latvia and Lithuania. Both exercises were concentrated on countering land and sea force attacks against the Baltic States.

Naval Forces

To perform seaborne security measures, NATO has sent two of its permanent Navy groups on patrol; Standing NATO Mine Counter-Measures Group ONE (SNMCMG1) and the Standing NATO Maritime Group ONE (SNMG1).

In the scope of this mission, SNMCMG1 set out for the Baltic Sea on 22 April 2014 with



(Photo: NATO)

JAS 39 GRIPEN (Sweden), F-16 (Norway) and F-18 (Finland) take part in an air defence exercise over Iceland in the scope of the "Nordic Defence Cooperation".

seven ships from six nations, heading for numerous different ports and participating in the annual "Open Spirit 2014" mine sweeping exercise.

On 12 May 2014, SNMG1 was increased to five ships by the addition of the Canadian frigate HMCS REGINA, tasked to carry out seaborne security measures in addition to anti-terror operations in the eastern Mediterranean Sea.

Air Forces

Concerning airspace security of the eastern NATO partners, a number of measures have been initiated at the request of, or upon arrangement with, NATO. The first step was the reinforcement of the routine Air Policing component in Šiauliai, Lithuania, from previously four to now ten F-15Cs of the U.S. Air Force on 4 January 2014. These combat aircraft were relieved by four MiG-29s (Poland) and four EUROFIGHTERS (UK) from April 2014 onwards. Apart from the reinforcements for the QRA interceptors in Lithuania, for the first time Danish F-16s in Estonia (Ämeri) and French MIRAGE 2000s in Poland (Malbork) established ground readiness. In early May 2014, a Canadian task force of six CF-18s that had initially deployed to Cămpia Turzii for joint training with the Romanian Air Force (MiG-21 LANCER) arrived to provide additional support. Starting 26 August 2014, the CF-18s deployed to Lithuania to participate in Baltic Air Policing. Upon request by the Romanian Prime Minister to NATO, four Portuguese F-16 fighter jets will be sent to Cămpia Turzii Air Base, Romania, in May and June 2015 in order to participate in NATO air policing missions. Aside from the QRA interceptors in Estonia, Lithuania and Poland, AWACS aircraft started surveillance flights over Poland and Romania in March 2014. They operate from Avord (France), the NATO Airborne Early Warning and Control Force (NAEW&CF) from Waddington (UK), and the E-3A component in Geilenkirchen (Germany) and from the Forward Operating Bases (FOBs) in Ørland (Norway), Preveza (Greece) and

Konya (Turkey). The aerial refuelling elements required for such sustained surveillance operations are provided by the Netherlands, the USA and Turkey.

With the deployment of twelve A-10 THUNDERBOLTS II from Davis-Monthan AFB, Arizona, to Spandahlem (Germany) in early February 2015 and their redeployment to Campia Turzii, Romania, by the end of June, the air forces in Europe will be further reinforced. The THUNDERBOLTS are participating in the long term "Operation Atlantic Resolve" that the U.S. Army Europe conducts to improve the cooperation among NATO allies. The same applies for twelve F-15 from the 125th Fighter Wing based in Jacksonville, Florida, to be stationed at Graf Ignatievo Air Base in Bulgaria until the end of September 2015.

Challenges

In his monthly press conference on 30 January 2015, NATO Secretary General Jens Stoltenberg presented the Annual Report 2014 in which he labelled the year 2014 as a "black year for European security". The use of military force had brought about the annexation of the Crimean Peninsula, destabilised Eastern Ukraine and intimidated the adjacent countries. The QRA interceptors fulfilled their roles four times more often than in the previous year (400 sorties) to safeguard the security of the European partners; here 150 incidents with four border violations occurred alone in the area of the Baltic States.

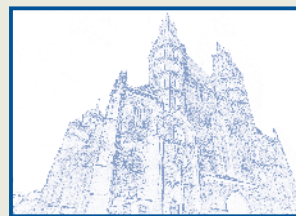
The NATO Secretary General addressed the Russian activities extending from the Baltic Sea to the North Sea, and from the Atlantic to the Black Sea which had peaked on 28 and 29 October 2014. Russian flights in international airspace involved bomber aircraft (Tu-95, BEAR), SIGINT aircraft (IL-20, COOT-A), fighter aircraft (MiG-31, FOX-FOUND/Su-27, FLANKER) and refuelling aircraft (IL-78, MIDAS) that every now and then came as far as to the coastal waters of Portugal. Because these aircraft would turn

off both their transponders and, at night, also their navigation lights, international airspace had been considerably endangered. The most severe incident occurred on 28 January 2015 when for the first time two Tu-95s penetrated the airspace over the English Channel so that British air traffic control was forced to redirect a number of airliners.

Other Reinforcement Measures

In addition to previously initiated precautions in terms of land, sea and air forces, Stoltenberg announced in the same press conference that negotiations on the implementation of a Readiness Action Plan (RAP) would be intensified. This plan would provide for measures such as reinforcement of the NATO Response Force (NRF) by, among others, building up a "Spearhead Force" which could deploy within a few days directly to the periphery of the NATO territory. This Very High Readiness Joint Task Force (VJTF) would involve all services and Special Forces. Exercises at short notice would serve to review the operational readiness of VJTF. In addition, the RAP would envisage a number of measures to reinforce logistics involving the shortening of reaction times by pre-stationing equipment and supply items. On 5 February 2015, these announcements were followed by concrete decisions during a meeting of the NATO defence ministers. These decisions include an increase of the NATO Response Force to 30,000 soldiers, including the 5,000 soldiers of the future "Spearhead Force". To be able to command these reaction forces without any lead time, it was decided to station, by way of an urgent measure, six command units with 40 soldiers each in the Baltic States, Poland, Romania and Bulgaria. A time frame for implementing these decisions was not mentioned. Yet it may be taken for sure that the already initiated reinforcement measures in the air forces will further be pursued. ■

Viewpoint from Vienna



“Please don’t count on us...!”

On 08 March 2015, European Commission President Jean-Claude Juncker called for the creation of a common European Union army in the wake of rising tensions with Russia. He said the force “could help counter new threats beyond the bloc’s borders and shape the long-stressed European common foreign and security policy.” According to him, a common European army would convey a clear message to Russia and underline the commitment to defending European values. German Defence Minister Ursula von der Leyen welcomed Juncker’s proposal, saying: “Our future as Europeans will at some point be with a European army...”

Last December, the Social Democrats in the German Bundestag (SPD) were also calling for an EU military academy and permanent military headquarters, along with other steps towards establishing an EU army. In their paper, the SPD MPs around their group’s defence policy speaker Rainer Arnold, called for “a joint EU military legislation and the designation of an EU Defence Commissioner at the head of the EU’s military bureaucracy. The procedure for deciding on war and peace should also be clarified. The transfer of EU nations’ sovereignty and the transformation of the authority of decision-making to a democratically legitimated EU organ must be discussed...”.

“Such denationalisation of the armed forces would be the greatest contribution to a policy of peace in the world. But initially, there can not yet be such an army as there is no such thing as a common European foreign and security policy!”, stressed Omid Nouripour, the German Green’s foreign-policy speaker.

What makes the latter two reactions noteworthy is the fact that only a few miles south of Germany all these “visions” – no more than that in part because of the role of the French and British nuclear forces in an integrated European army – around “transfer of sovereignty” and “denationalisation of forces” were received as nothing more than a disturbing threat by Mr. Arnold’s and Mr. Nouripour’s party fellows in Vienna. The social-democratic Austrian Defence Minister Gerald Klug and the security speaker of the Austrian Greens were overtaking each other in issuing shocked, yet alarming press statements of indignant rejection. “Not a good idea” by Minister Klug was the kindest one...

Even closer to Ukraine than to Switzerland, we remain “neutralistically” non-aligned, we enjoy the luxury at will to abolish most of the core military capabilities of a Bundesheer which should still fulfil all of its roles – as it has logically no allies to “share” them with. And two large parties – the ruling Socialists and their opposing “nightmare” right-wing Freedom Party – are both calling on the three most influential tabloids (kept happy by tax money via public sector advertisement) to keep Austria’s head out of the sniper sights of “big world’s” security and defence debate.



Georg Mader

Take the air element. The originally 18 Tranche 2 Eurofighters – later “mutilated” in their self-defence and night vision down to 15 Tranche 1s without any military justification – have never become a love affair. Even today every poll says that 70 % of the population would get rid of the horribly expensive “toy” of peacetime air-policing and to hand that over to (NATO) neighbours – to practically control their own overflights over neutral Austria. Seriously. But at the same time you get close to 80 % in favour of upholding what 1994’s EU-accession (“Petersberg Tasks” or NATO-PfP) has “left” of 1955’s neutrality between the Cold War blocs. NATO trains rolling through Austria during the Balkan Wars? Faded out. But even without an own military – commentators and some politicians love to point to the Vatican, Iceland, Costa Rica or Luxembourg – the same 70 % would consider neutrality as an integral part of the nation. And the widely circulating boulevard press is cementing this “split personality” of Austrian state identity.

As a resulting – shameful – side effect, Austrians and their political leaders do not really know what they want from their constitutionally-obliged Federal Army. They mock that it could have never defended them in the past anyway, but they cheer it for preparing World Cup downhill ski slopes or to assist with sandbags and helicopters in regular Danube floods. Despite Austrian troops being regarded and praised as highly competent and flexible in peace-keeping and – securing missions abroad under UN/EU or PfP command (for which the best equipment is “saved”), domestic disaster relief is often seen as their only justifiable mission. All this results in next year’s defence share of just 0.55 % of the GNP. This figure below €2 billion is what the second most-wealthy EU nation (EUROSTAT-figures 2013) has the nerve to invest in its military. No wonder that there are 44 year old jet trainers flying at Linz; there are just enough troops to guard maybe a dozen large objects – out of hundreds – of critical infrastructure; there is basically no ground-based air defence; vehicles for local exercises are drawn from all provinces; pilots and flight crews are taken from squadrons because of fuel contingents and so on... In a rivalry between the ruling coalition parties, the police get €300 million overnight, while the Bundesheer “lost” an entire annual budget within the last decade...

Modelling and Simulation in the NATO Alliance

An Allied Command Transformation Point of View

Wayne Buck

“If you want to do something without using the real equipment or real environment, or suffering the real consequences, then you probably need to use simulation.” Australia MOD 2005

All But War Is Simulation¹. Intrinsicly, as military trainers, we know this to be true. Whether the simulation is a live exercise war game, a tactical exercise

way that we conduct business in NATO. The continuously challenging Alliance strategic environment, coupled with the changing nature and increased complexity of operations, demands a fresh approach to preparing for and executing NATO activities. In order to improve the military effectiveness of the Alliance to address these emerging challenges Allied Command Transformation (ACT) has the mission to lead transformation of NATO military structures, capabilities, and doctrines. In this respect, ACT pursues a transformational model where concept development and experimentation, research and technology, and interoperability combine to promote and support the development of capabilities. Modelling and Simulation (M&S) has tremendous potential to support ACT's mission. M&S is an enabling technology that

can enhance training, defence planning and support to military operations. Furthermore, M&S can assist the capability development process which ACT utilises as its main tool for transformation. ACT is already making a considerable effort to support training by equipping the Joint Warfare Centre (JWC) in Stavanger, Norway and Joint Force Training Centre (JFTC) in Bydgoszcz, Poland with appropriate M&S assets required to perform their missions.

M&S Action Plan

The NATO M&S Master Plan (NMSMP) Version 1.0 was approved by the North Atlantic Council (NAC) and signed in 1998 by the NATO Secretary General. A new version of the Master Plan was released in 2012 and it has served as the implementing document for M&S in NATO since that date. The scope of the document is broad, addressing Alliance needs in different NATO M&S application areas. In spite of the significant steps achieved in building NATO's M&S capability in sup-



Photos: ACT

Lt.Gen. (ret'd.) Karl-Heinz Viereck (DEU Air Force) and Maj.Gen. Giovanni Fungo (ITA Army) discuss in the NATO booth during ITEC.

without troops, a table top war game or a game involving a synthetic environment, they are all simulations and they are all becoming more important to the

Author

Wayne Buck is a modelling and simulation specialist at ACT. His work concerns initiating, researching and writing policy and requirements concerning the use of modelling and simulation in Allied Command Transformation and in NATO. Having served 29 years in the Canadian Army, Wayne is well aware of the needs of the warfighter. Throughout his career, he had the privilege and pleasure of working with and commanding troops at many levels within Canada, the United States and on UN operations.



NATO medical personnel showcase their new training mannequin at the Allied Command Transformation display booth during the 2014 ITEC Conference in Cologne, Germany. The training mannequin can simulate breathing, bleeding, and moving to provide a realistic training scenario for medical personnel.

port of military training during the last years, some critical elements of this capability have progressed at a slower than required pace; in particular the complex interoperability and architecture pillars. M&S is considered a complex domain comprising aspects of the Connected Forces Initiative² (CFI) Implementation Plan, the NMSMP, the ACT M&S vision and various other NATO and member nations' efforts to come up with a common vision to support training and exercises. Recently, the International Military Staff at NATO HQ assessed that future efforts should be concentrated to develop a NATO M&S Action Plan in support of military training in order to:

- Strengthen interoperability between national and NATO M&S systems,
- Enhance Command Post Exercises (CPX) through the use of Computer Assisted Exercises (CAX), and
- Harmonise simulation requirements in support of capability development.

Due to the wide range of tasks and requirements in place within the M&S domain, it is essential to ensure co-ordination and synchronisation of all the activities across the Alliance in order to make the best use of the opportunities and close the training gaps. ACT will en-



Paul Thurkettle, Section Head for Education & Training Technologies in NATO Allied Command Transformation's Joint Force Trainer Directorate, tries out the latest in NATO's training simulations called "Boarders Ahoy" during the 2014 ITEC Conference in Cologne, Germany. The simulation is a serious game that uses off-the-shelf technology to simulate boarding operations for maritime security patrols.

sure that all stakeholders are involved in the action plan and vision. These stakeholders include the nations and:

Allied Command Operations – headquartered near Mons, Belgium, is responsible for all Alliance operations. ACO has several subordinate organisations including at the operational level consisting of two standing Joint Force Commands one in Bruns- sum, the Netherlands, and one in Naples, Italy – which can conduct operations from

their static locations or provide a task force headquarters. ACO is the main customer for the use of simulation in training.

NATO Modelling and Simulation Group – is a group within the NATO Science and Technology Organisation. The mission of the NATO Modelling and Simulation (M&S) Group (NMSG) is to promote co-operation among Alliance bodies, NATO member nations and partner nations to maximise the effective utilisation of M&S.



Save up to £900 with the Early Bird Discount

The International Forum for the Military Training, Education and Simulation Sectors



- Meet face-to-face with international, senior military and industry leaders
- Launch new technologies and services to a captive audience
- Network with high-quality international attendees
- Peer-Reviewed Conference includes seven themes
- First time exhibitor package for a cost effective way to exhibit

REGISTER TODAY AT WWW.ITEC.CO.UK/MITTLER

www.itec.co.uk/linkedin

www.itec.co.uk/facebook

[@ITEC2015](https://twitter.com/ITEC2015)

Organised by:



NATO Modelling and Simulation Centre of Excellence – The mission of the M&S COE is to support NATO and nations in their transformation efforts by providing subject matter expertise on all aspects of the M&S activities.

NATO Communications and Information Agency, the mission of which is to strengthen the Alliance through connecting its forces. NCI Agency delivers secure, coherent, cost effective and interoperable communication and information systems and services in support of consultation, command & control and enabling intelligence, surveillance and reconnaissance capabilities, for NATO, where and when required.

It is expected that the first product of the action plan will be a roadmap for the Strategic Commands, ACT and ACO, for improvement of simulation and virtual tools in NATO military training. The action plan will focus on M&S capability development areas and opportunities which will increase efficiency, effectiveness and the flexibility in the area of Training and Exercises.

CoreSim 2020

The JWC and JFTC use as their primary simulations the United States government supplied simulations Joint Theater Level Simulation (JTLS) and Joint Conflict and Tactical Simulation (JCATS). In 2013, the United States government advised NATO that due to planned changes in its architecture the United States would stop maintaining JTLS and JCATS in the near future. This information prompted ACT to initiate a project to seek a solution for its simulation needs. CoreSim 2020 is the project that will seek operational requirements from the NATO users of simulation to ensure that all users' needs are recognised. The requirements will be used to initiate or amend an already existing capability package to find a solution. Capability packages are work packages with the NATO Security Investment Programme used to satisfy NATO's long term infrastructure requirements.

While initiating the CoreSim project to satisfy the requirement for simulation to conduct collective training, it was realised that there are other areas where simulation is also used in NATO and that it would also be a good time to review the operational requirements of those areas. This will ensure that whatever the simulation solution is for collective training that it should also be as interoperable as possible with simulation solutions for the other areas. Thus, CoreSim now consists of three tranches



A participant of the 2014 ITEC Conference in Cologne, Germany tries out the latest in NATO Allied Command Transformation's training simulations called "Borders Ahoy".

representing respectively, collective training, simulation support to operations analysis, and education and individual training. The collection of operational requirements for Tranche 1 is finishing while the collection for Tranches 2 and 3 is underway. Collection of requirements is a process that involves visiting and interviewing selected headquarters, training centres and schools of the NATO command structure and the NATO force structure. There is also an online survey where users are encouraged to provide even greater information that could assist the collection efforts.

Future Technologies

The commercial and government sector is developing many of the key technologies and applications that have the potential for cost-effective adaptation for defence exploitation and use in modelling and simulation (M&S) applications such as defence planning, training, operations, medical training, manufacturing, and capabilities development. The exploitation of commercial and government technologies and appropriate use of open standards can provide efficiencies and increased benefits for NATO applications. There is a need to identify those technologies having the greatest near term potential and understand the future trends and developments in those technologies that have potential to meet future NATO requirements. The technological advancement of commercial games has manifested itself in various types of applications such as Serious Games³ and Virtual Worlds⁴, both of which may have a role to play in support of NATO and the Nations.

Technology has come along very well but it is more to virtual worlds and gaming than

just technology. There are cultural aspects of gaming that need to be recognised and studied to serve trainees. Overall, the process is still early for Serious Games and if the focus remains solely on technology, there is a risk of becoming short-sighted. ACT has developed several prototype Serious Games that are being evaluated to assist with educating and training staff and operators in areas ranging from ship boarding to the comprehensive operational planning procedure to small group tasks. In general, the outlook is bright for Serious Games to become a mainstay in the education toolbox used by NATO.

Conclusion

The outlook for NATO to increase the use of simulation in the near future is very good. NATO is in a rejuvenation phase brought on by the possible need to change its major training simulations, an increased interest in simulation from the most senior members of NATO's military, and perhaps most importantly an era of austerity for all Nations. This era of austerity means that all training solutions are being scrutinised to ensure that the most cost effective solutions are used. In many cases simulation will be the most efficient way ahead. ■

¹ Tim Lenoir, Stanford University

² CFI has developed and is maturing into a robust and multifaceted project which provides the structure for allies to train and exercise coherently, reinforces full-spectrum joint and combined training, promotes interoperability (including with partners), and leverages advances in technology.

³ Typically, a Serious Game is considered a game that is developed for not purely entertainment purposes eg it could be used for training

⁴ A virtual world or massively multiplayer online world (MMOW) is a computer-based simulated environment. The term has become largely synonymous with interactive 3D virtual environments, where the users take the form of avatars visible to others.

Recent Equipment Developments

Impressions from the Market

Jan-Phillipp Weisswange

Just a year ago observers were eagerly anticipating how the upcoming withdrawal of western military forces from Afghanistan might affect tactical apparel and equipment markets. Now it seems clear: the branch keeps on booming.

New trouble spots have flared up and, moreover, extremists go and take their war also to major Central European cities. These adverse developments call for new security-policies and tactical approaches including modern equipment concepts for military and security forces. This article takes a look at recent developments and

assistant. The latest generation plate carriers made of this material have a cut-in rather than a sewn-on PALS webbing grid. So their weight is still more reduced while all MOLLE-compatible pouches may nevertheless be attached as required.

Crye Precision presented its enhanced JPC 2.0 plate carrier and the AVS 1000 Pack.

Berghaus and Zentauron presented also backpacks designed to carry heavy loads. Several ammunition boxes, a radio set with spare batteries and the like fit between frame and sack of the Berghaus Crusader E-Carrier model. Zentauron's Muli features a frame with shelf including diverse combinable backpack modules and packsacks. It is also supposed to accommodate components of a (disassembled) HK automatic grenade launcher.

The Fjellduken ("mountain blankets") of Jerven or Helsport are not really new. Yet these heat-insulating Scandinavian pieces of equipment, all-round usable as poncho, tarpaulin or bivouac and makeshift sleeping bag, are becoming ever more popular also in Central Europe.

Revision Military has once again expanded its assortment by its Lightweight Assault Battery, a rechargeable universal battery, even though it continues to operate the protective equipment business with, inter alia, ballistic safety goggles and combat helmets very actively and successfully – most recently in Denmark and Great Britain.

Cutting down the weight of ballistic protection equipment is still an important objective and is achieved, among others, with trend-setting materials of for example DuPont or Dyneema. Dyneema has recently contributed another aspect to the discussion about protection technologies: the Dutch company spotlights sustainability and environ-



(Photo: MoD Norway)

Norwegian soldier equipped with fjellduk

trends as they could be observed on the occasion of the SHOT Show in Las Vegas as well as the IWA and EnforceTac exhibitions in Nuremberg, Germany.

Personal Equipment

The personal equipment standards set in previous years remain unchanged: Modularity and weight reduction still have top priority. The new hybrid laminate of Lindnerhof-Taktik, a company founded by former German operators, combines these two features. This innovative material is supplied with any German camouflage pattern according to the technical terms of delivery (but, of course, also with different patterns and hues) and proves not only to be very light but also extremely stable and tear-re-

This small backpack also holds a hard ballistic insert and can be fastened to the rear section of a carrier or rig. Also other equipment manufacturers are developing practice-oriented products in close cooperation with their domestic special forces. Two of them, Direct Action of Poland and S.O.D. of Italy, presented for the first time their assortments in Nuremberg.

Undercover equipment as well gains momentum. Appearing like civilian backpacks, the VertX Gamut Plus, the brand-new Blue Force Gear Micro Denied Area Pack or the Arcteryx Khard series accommodate weapons and equipment. Interior Velcro-fastened accessory pouches as well as interior pockets hold every item quickly accessible – established order produces tactical speed!



(Photos: Jan-P. Weisswange)

Lindnerhof hybrid laminate plate carrier



Direct Action combat equipment with PenCott GreenZone camouflage



Police equipment with Kryptek Typhoon camouflage



Arcteryx Khard 60 backpack



Berghaus E-Carrier loaded with .50cal ammunition boxes

mental protection in the manufacture and utilisation of ballistic protective structures.

Different Concepts

In the context of precautionary measures to counter terrorist attacks, heavily armed police forces – true to the motto “action by deterrence” – recently protected critical infrastructure in Germany. Interesting enough, a trend towards a less obtrusive appearance is now noticeable in the USA which is a result of the riots lasting for days after an unarmed teenager was fatally shot by a policeman in the U.S. town of Ferguson. The public was rather disconcerted to see a police force using phased-out military equipment against demonstrators. At the SHOT Show, the American S. O. Tech presented its approach to retaining full tactical clout despite an initially de-escalating-discreet appearance should the worst come to the worst. So the routinely worn basic clothing of a police patroller looks relatively normal while, if required, special Speed Clip



Revision Military Lightweight Assault Battery

adapters would allow to quick attachment of additional accessories, for example magazine pouches to the thighs.

Apparel

With respect to apparel, the trend has become prevalent towards modern formfitting cuts with stretch inserts that should improve wear comfort and freedom of movement in battle dress uniforms. Crye Precision and the Slovenian Ufpro made a start here and are meanwhile followed by Arcteryx, Leo Köhler or 5.11. Another big issue is protective functions like cut-resistant or flame-retarding properties. Relevant examples may be Crye's new FR-Flightsuit and Lindnerhof-Taktik's flame-retardant combat suit implementing the Pyrad fabric technology of W. L. Gore & Associates. In addition, BSST has its Magma C+F (Cut + Fire) with cut- as well as flame resistant properties on offer. Hexonia presented its Baluw underwear that provides protection against the impact of detonating booby traps. Scandic Outdoor, known for its knitted merino wool fabric, is currently bringing out a flame-retardant and anti-static underwear collection. Also X-Bionic, one of the pioneers in the field of functional compression underwear, is going to bank on merino wool in the future.

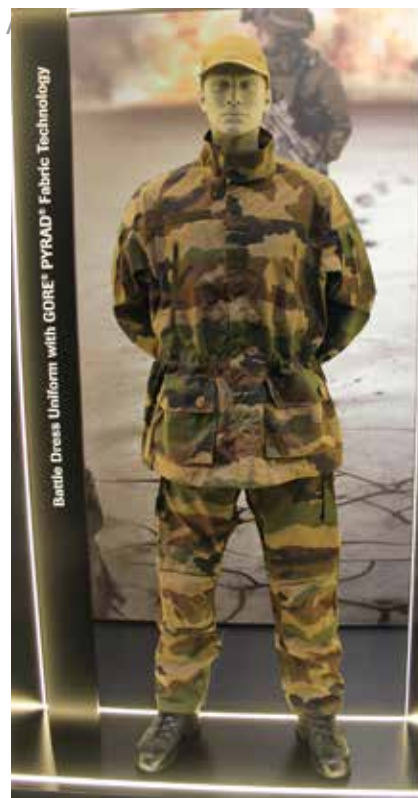
MultiCam has clearly taken the lead among military camouflage patterns whereas the digital green-grey-beige Universal Camouflage Pattern is hardly seen with new developments anymore. Especially in Europe the Hyde Definition developed PenCott camouflage schemes, in particular GreenZone, are increasingly in use. While Helikon Tex from Poland, Leo Köhler or Sabre (meanwhile distributed by ECS Textiles) have been working with these patterns for quite some time, the universal equipment provider Tasmanian Tiger is now closing up. Moreover, Helikon Tex supplies its apparel also with the reptile-like Kryptek patterns. S.O.D. and the Slovenian Ufpro company, which is renowned for its sophisticated concepts, displayed their collections also with the German Flecktarn camouflage that is, of course, also applied by Hexonia in the manufacture of the combat clothing for the German Infantryman of



UffPro Strider uniform with Flecktarn camouflage



S.O.D. combat gear with VegeCam and Flecktarn camouflage



Battle Dress Uniform with Gore Pyrad technology



New Haix French Army combat boot



Phantom Leaf camouflage concepts for urban terrain, winter conditions (in cooperation with Carinthia) and woodland

the Future – Extended System (Infanterist der Zukunft – Erweitertes System (IdZ-ES)). The full assortment provider Tacwrk in Berlin has expanded its offer by a further batch of the Crye Precision combat apparel with German camouflage patterns. The more recent camouflage pattern developments include e.g. the digital Inlandtaipan pattern of LBX.

With a view to tactical footgear, fashionably tailored lightweight models continue to be in vogue in addition to the “classical” mountain boots. In addition to traditional manufacturers like Haix, Hanwag, Lowa or Meindl, Salomon has launched its own Forces series which is marketed by Lindnerhof.

around Lindnerhof, the Eberlestock and Mystery Ranch backpack manufacturers and the Canadian apparel specialist Arcteryx presented their latest products.

Prospects

A tour through leading trade shows such as SHOT Show, IWA&Outdoor Classics or EnforceTac clearly demonstrates that the tactical community is still in motion. It remains to be seen how the general geopolitical climate is going to develop for it might give rise to an unprecedented qualitative and quantitative boom. ■

Tactical Tinkerers

The trend continues that smaller domestic and foreign companies appear at IWA at on stands of their cooperation partners. For example at the Tacwrk stand, Matbock displayed its products, among them ultra-lightweight and collapsible ladders and stretchers. The material provider Tactical Trim accommodated several such “tactical tinkerers”, among them Applied Orange (equipment), Project Gecko (German/Israeli supplier for training and equipment development) or Rainbow Design whose Wingsuit with MultiCam belonged to the eye catchers on the IWA 2015. Together with VTAC Germany, Velocity Systems/Mayflower Research&Consulting appeared who advises numerous renowned manufacturers on equipment developments. At the stands



Rainbow Wingsuit

An Epidemic of Terror

Tim Guest

The form that terrorism takes has evolved rapidly in recent years and is spreading in some regions like a contagious disease. From Al Qaeda and ISIL in the Middle East to Boko Haram in Nigeria and other groups and individuals in between, the changing manifestations of those who would do “us” harm are many. That the world’s worst outbreak of Ebola has had to be faced in the last twelve months is an uncomfortable coincidence.

In the western counter terror and intelligence community, terrorism is defined as: “premeditated, politically-motivated violence perpetrated against non-combatant targets by sub-national groups or clandestine agents”. International terrorism is defined as: “terrorism involving the territory, or the citizens, of more than one country”; and when it comes to the manifestations mentioned in the introduction, the term “terrorist group” is

defined as: “any group that practises, or has significant sub-groups that practise, international terrorism”.

These definitions certainly hold true for the rise in Islamic extremism and the Islamic terror groups that have populated the world’s terror map in recent years. Syria’s conflict, unchecked by the West, has been the breeding ground for many of these groups. It seems the decision not to interfere at the start of the conflict has

spawned some of the most heinous terror practitioners ever encountered in the form of ISIL – Islamic State of Iraq and the Levant (or ISIS or the Islamic State). This group, with more than 30,000 fighters, has differentiated itself by seizing land in excess of 30,500 km², about the size of Belgium in Europe or Maryland in the US. They’ve taken on the full force of several divisions of Iraq’s army in doing so and have the logistics and funding to keep up



Police forces arrest a suspect as gunmen take a number of tourists hostage at the National Bardo Museum, near the country’s parliament in Tunis, on 18 March 2015.



Photo: Savox Communications

Savox THOR tactical headgear system for special forces

their terrifying momentum. This capturing, securing and holding of territory is something not even Al Qaeda has done in its time at the top of the terror list. It is a factor which has forced the West to take notice and finally engage this new enemy, if only from the air – at this stage. When weak states in the affected regions, with poor governance, stretched economies and exploitable borders, multiply these weaknesses with ethnic, cultural, or religious tensions, they become catalysts for terrorism. Trends towards increasingly diverse, (freelance almost), terror operatives and groups, loosely or closely aligning themselves with ISIL's extreme doctrines, emerge and rise. Enabled and inspired through information technology and social media, these actors are spreading out like a contagion, exporting ISIL's new brand of hate and loathing onto the streets of western capitals, cities and towns.

Terror cells and individuals, who in the past might have been termed "sleepers", particularly during the "first" Cold War, have revealed themselves during recent attacks. Their determination means that the counter-terror community must keep several steps ahead in terms of operational and technological capabilities, as well as response strategies. And while such groups continue to carry out acts of terror in traditionally volatile regions – the March attack by gunmen on tourists at the Bardo Museum in Tunis is a case in point – that same menace is likely to make its way across borders, over land and sea to join up with those "sleepers"

already "at home" in the West. These fears have been realised by the inauspicious start to 2015; the Charlie Hebdo shootings in Paris in January, and the Copenhagen shootings in February.

Threat Evaluation – Tactical Solution

When it comes to how best to equip security forces to deal with these evolving threats, Chief Strategic Officer at Savox Communications, Mikael Westerlund, offers an insight into the company's thinking during the development of its new THOR tactical headgear system for special forces, SWAT teams and combat troops, launched recently. "Tactical responses in terror scenarios are becoming more complex and technical. Tactical response teams are expected to be able to carry out missions in a broad range of different environments and at different times of the day and year. Each 'gadget' used in these response events competes for the real estate found on the individual tactical team member." Westerlund said that one just has to consider the space requirements for gas, flash and splinter

efficient in their work. Already we are at the point where the teams have to prioritise what to carry and what to leave behind, as the weight versus agility factors are based upon the load capacity of the individual team members." He told ESD that addressing this situation by applying methods to increase a tactical team's overall capability, while providing dramatic weight-reduction benefits, better user comfort and situational awareness, was how Savox worked its way towards its THOR headgear system.

"We studied and prioritised capability versus weight requirements for a long period; we collaborated with some of the best Special Forces representatives in Finland for more than five years, and we came to our conclusions resulting in our THOR tactical headgear system. The main focal point in order to reach any weight reductions for these capabilities is found in a single word, integration. Through a high level of integration we've been able to dramatically improve the overall weight, balance point and user comfort – of crucial importance in a high-octane, anti-terror situation. Secondly, we realised it is not possible to create a 'one-size-fits-all' solution,

Photo: UN



The Ebola epidemic in western Africa is far from over.

grenades, spare magazines for assault rifles and secondary hand-held weapons, not to mention any electric or electrical tools, batteries and accessories used by these teams, and a crowded and complex picture appears. "Hand in hand with this is the expectation that these teams will be able to act quickly, remain agile and

so we've delivered a modular platform that can quickly be adapted to the requirement at hand. These developments have resulted in a more nimble, agile headgear 'system' configuration, able to improve the capabilities of the individual tactical response team member in today's changing terror threat environment."

Varied Inventory

From assault rifles such as Beretta Defense Technologies' ARX160 A2, or SIG SAUER's SIG516, to night vision devices from the likes of Millog, RIBs for inshore counter terror ops from Zodiac Milpro, remote controlled ignition systems for bomb disposal from Zengrange or SAWI Electronic, and robotic bomb disposal systems from the likes of iRobot, Northrop Grumman and QinetiQ, the inventory of the counter terror community is far too large to itemise in one article. But not only does it include the kind of obvious gear

quickly and quietly and assembled from 90-cm sections to create a wide, stable ladder ideal for military and CT applications. Up to six 90 cm ladder sections can be easily transported by one operative in a specifically designed backpack and can be assembled to create a 4.5-m ladder. The locking mechanism is combined with the precision manufacture of the carbon fibre elements for greater robustness and durability. It can be used for conventional ascent and descent or as a bridge to enable movement between buildings or structures. This is made possible by quickly fitting a Dyneema rope

claimed more than 10,000 lives in western Africa. As of March this year, according to the World Health Organisation, "A total of 79 new confirmed cases of Ebola virus disease (EVD) were reported in the week to 22 March: the lowest weekly total in 2015; there were 45 new confirmed cases reported from Guinea. ...a new confirmed case was reported from Liberia on 20 March. Sierra Leone reported 33 new confirmed cases in the week to 22 March" The epidemic is far from over.

As for weaponising such a virulent disease, it is the stuff of nightmares, but with a naturally- occurring and readily-available reservoir of the virus across western Africa, it is not beyond the bounds of possibility, or even probability, that one terror group or another will be seeking ways and means to take advantage of the situation – if their own microbiologists haven't done so already. Such a scenario is "on the table" according to leading biological and explosive-detection figures in the counter terror community.

ESD spoke with Fiona Marshall, Managing Director at BBI Detection for some thoughts on biological (including Ebola) and explosive detection. When it comes to the biggest terror threats in BBI's sector over the past 10 years, Marshall told ESD that, "The threat is changing and it is important that we don't just focus on classical threat agents but look to the wider threats including viruses such as Ebola, novel chemical threat agents and home-made explosives. The threat of urban warfare is far greater now than it's ever been and new technologies need to be adapted to address the changing threat posed by lone wolf and small threat cells as well as more well-known terrorist threats." As to how the biological and explosive threat 'ecosystem' has changed recently, Fiona Marshall told ESD that "access to materials for creating a biological or explosive threat is becoming increasingly easier with world-wide access to information and procurement". She said that, "Knowledge of how to isolate and cultivate bacteria and viruses is freely available, and access to equipment and chemicals is easy via the internet." She added that with less restricted access around Europe due to the lack of border controls it is easy for terrorists to move around.

For the counter terror community, Marshall had a clear message for the approach needed to deal with these new threat scenarios. "To counter these scenarios, a joined-up approach is required between governments – collaboration



Photo: BBI Detection

Conducting outdoor detection with the IMASS device

mentioned above but also seemingly boring equipment solutions, which are often crucial in enabling CT teams to get the job done. Marlow Ropes in the UK, for instance, provides the sector with BLACK MARLOW abseil ropes as well as their heat resistant DIABLO and FAST ropes for rapid deployment. Think back many years to the Iranian Embassy siege in London and the importance of a CT team being able to rely on their ropes is obvious. And while getting down into a situation fast might be the order of the day for some scenarios, CT teams often need to climb up to the task in hand, or traverse a gap to reach their objective. The REBS division of H. Henriksen of Norway has just developed a new carbon fibre ladder system to provide an effective means of rapid access for police, Special Forces and military applications. Called the CML (Carbon Multi Ladder), it can be deployed

bracing cable and strut that adds exceptional strength to the assembly which at its maximum weighs only 13 kg. With the bracing cable in place a CML ladder can be used to bridge gaps up to 5.4m wide and traversed by assault team members and equipment weighing over 100kg.

When Epidemics Collide

There is growing concern in the intelligence community that while allegiances are being sworn to the likes of ISIL by the likes of the Boko Haram jihadists in north-eastern Nigeria, this growing epidemic of terrorism might exploit some kind of advantage from the natural epidemic already occurring in western Africa, paving the way for a sinister potential future twist.

The Ebola outbreak, which began in March 2014 in Sierra Leone, has now

and the sharing of intelligence are imperative."

For the front-line security and emergency services facing threats and events as they happen, she said "We also need to arm our first responders and CBRN teams with the right tools to detect and identify, easily, what the threat actually is that they are dealing with. The broad spectrum of threats means that there is no one test that will detect all threats and, therefore, a suite of tests, or a tool kit, is required to arm military and home-defence first responders with an array of tests that they can choose from depending on the scenario facing them." From BBI's own portfolio, Marshall said that its IMASS solution is one of the few sampling and detection devices, which can offer this capability. "IMASS not only offers an off-the-shelf solution for detection of eight classical bio-threat agents, but it can also offer bespoke tests for an individual requirement." In addition, IMASS can also be used to detect explosives, both home-made and military grade: "At the moment the IMASS is set up to test both liquid and powder incidents and we have Bio and Explosive capabilities/variants and are developing chemical and drug precursor detection for all environmental threats. The IMASS can be modified to detect infectious diseases and breakdown products found in the body after chemical exposure from blood, urine and saliva samples."

With a 12-month Ebola outbreak claiming more than ten thousand lives and almost 25,000 people infected, it is clear that there are real concerns that this has given terror groups (and governments) "easy" access to a virus that would previously have been secured inside a lab facility. According to Marshall, "Non-traditional biological warfare threats are a real worry and naturally-occurring infectious diseases now offer real potential for bio-

Lone Wolves

Terror groups aside, the lone operative is another threat that can rear its head when least expected and which is very difficult for intelligence agencies to identify beforehand.

French Alps, March 2015 – The downing of a German Wings Airbus A320 Flight 4U9525, is, at time of writing, presumed to be an act of mass murder/suicide by a single individual – though with many questions still unanswered. While the exact motive is, as yet, unknown, for the counter terror and aviation communities, exactly how events unfolded is crucial to understand and revise, as necessary, onboard protocols, procedures, cockpit-door mechanisms, and more. How the civil aviation community will respond long term has yet to be seen, but for now, some authorities and airlines are immediately adopting a 'two-people-in-the-cockpit-at-all-times' policy.

Oslo, July 2011 – Right-wing extremist and lone terrorist, Anders Behring Breivik was responsible for a car bomb in Oslo outside the offices of Prime Minister Jens Stoltenberg, which claimed eight lives and injured more than 200, followed by the attack on the Worker's Youth League summer camp on Utøya Island, during which he shot and killed 69 people, mainly teenagers. A month later, the Gjørv Report revealed a damning indictment against the security services and police stating these tragic events could, potentially, have been stopped. The lack of available helicopters and suitable boats to reach the island were major hindrances. Since then the Oslo Police force has hired a further helicopter from the UK and tested the use of drones to free up its meagre fleet for other tasks.

logical warfare. Viruses and bacteria that can be released as aerosols through an explosion are a real and current danger." Or: what is to stop a lone wolf spreading these infectious diseases through, for example, air travel? Contamination of individuals in a major transport hub could see a worldwide spread of disease very quickly and easily without anyone knowing. It is believed that Russia is trying to weaponise Ebola at present. The current Ebola outbreak has demonstrated that this virus and others pose a real and immediate threat to world health and should, therefore, be considered as such by governments when building their strategy against biological threats.

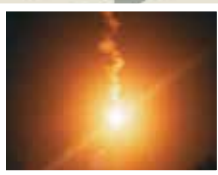
As for BBI Detection's specific responses to meet new threats, Marshall said, "Our Vision is for a world where everyone has the opportunity for a better quality of life, whether that is through providing assays that can detect biological warfare agents or clinical disease; we are trying

to make tools that will help with safety and diagnosis. We are currently developing a quick and easy-to-use Ebola assay and we are working with our JV partner, Novarum, to develop a quick and easy smartphone app that would allow tracking and 'databasing' of results to look at Ebola spread, much like CDC do with Flu outbreaks."

"Our aim is to build a toolkit for first responders that is small, portable, easy to use and accurate, one that can detect traditional agents, explosives, chemicals, drugs and infectious agents. The current IMASS device was developed in conjunction with the Defence Science and Technology Laboratory (Dstl) in the UK and is licensed through Ploughshare from the UK Secretary for Defence. We have a long-standing and trusted relationship with the UK and US military and work closely with them to determine where the next innovation is required to help with CBRN effort," Fiona Marshall concluded. ■

**We create
Highlights...**

- Signal & Illumination
- Training & Simulation
- Minefield Breaching



Drew Defense

Drew Defense GmbH

Vieländer Weg 147
D-27574 Bremerhaven - Germany

US Office

100 South Jefferson Road
Whippany, N.J. 07981 - United States of America

A Company of Drew Marine

info@drew-defense.com - www.drew-defense.com - Phone: +49 (0) 471 - 393-0 - Fax: +49 (0) 471 - 393-114

Fire Support Combat Vehicle Concepts for Future Scenarios

Rolf Hilmes

While considering their future-oriented equipment planning, the land force commands of the NATO nations no longer anticipate large tank battles as being the decisive factor in conflicts arising in the foreseeable future. Instead, they tend to envisage scenarios set in urban terrain. The target spectrum will be relatively diversified, ranging from soft targets, soft-skinned and light armoured vehicles, and occasionally main battle tanks (MBTs), to buildings, dugouts and field fortifications.

Engaging an asymmetrically-operating adversary, friendly combat vehicles will be exposed to significant threats, particularly in urban zones: booby traps (IEDs), portable anti-tank grenade and rocket launchers for example ranging from RPG7 to RPG 29, anti-tank guided missiles like the KORNET, mortar shell shrapnel, and sniper rifle and anti-materiel rifles up to 12.7mm calibre. Traditional MBTs are quite unsuited to operating in urban terrain because:

- their primary weapon system performance is excessive for close-range engagements;
- the insufficient elevation angle of their primary weapon system impedes the fight against close range targets positioned, for example, on upper floors or roofs of buildings;

- their primary weapon system (especially the long-barrel cannon) strongly limits operational mobility in narrow streets, and
- their armour has been designed under the aspect of a duel role capability so that the front and side walls of the crew compartment resist only low angle projectile impacts (approx. 30 degrees) while the armour plates on the remaining surfaces only withstand fires from automatic cannons – and in some areas only from infantry weapons.

To increase the fighting capability of traditional MBTs in urban terrain would first require an improvement in both combat effectiveness and protection. Combat effectiveness would have to be enhanced, for example by an additional remote-controlled weapon station on top of the turret – if there is still sufficient space. The armour on less protected surfaces would have to be significantly strengthened. Should the dual fighting capability still be retained, the combat weight would possibly amount to 65 to 72 tonnes (note: the Israeli MERKAVA Mk. IV MBT including anti-mine protection currently has a weight of 71 tonnes). Accordingly, efficient urban operations call for a quite different armoured fighting vehicle that is optimally tailored to special operational requirements in terms of design and capabilities.

Fire Support Combat Vehicles

Primarily the armament and protection of traditional MBTs would have to be modified for operations in urban terrain. The armament concept depends on the likely target spectrum and should include a mix of weapons comprising the following types:

- One or more automatic cannons of medium calibres (30 to 35 mm) to engage light armoured targets in open and built-

up areas. Such cannons could also engage the adversary in buildings and field fortifications. Their increased elevation angle would also permit the use of the weapons in narrow valleys and in mountainous terrain.

- Anti-tank guided missiles that would permit the use of different types of warheads. Modern “fire and forget” missiles are basically useless in urban scenarios; instead, the missiles should be equipped with a tried and tested SACLOS command guidance system. Primarily high explosive or high explosive/fragmentation warheads with adequate clearing effect and/or area coverage are the first choice. To engage opportunistic armoured vehicle targets shaped charge warheads should be available. Some nations authorize also the use of thermobaric warheads, which would in principle be useful. No less than four guided missiles should be kept ready for immediate launch, while additional missiles should be stockpiled in the vehicle.

- Automatic or single-shot grenade launcher(s) of 40 to 60 mm calibre to engage targets behind cover or walls, on rooftops and in dugouts with indirect fire.
- 7.62 mm to 12.7 mm calibre machine gun(s) to fight infantry and soft-skinned targets.

It is imperative that all weapons are useable in day and night conditions. The protection of such an armoured fighting vehicle would have to satisfy the following important requirements:

- front, sides and rear are largely protected against light anti-tank weapons and IEDs,
- the floor is protected against mines and IEDs,
- the armour on top of the vehicle (at least above the crew compartment) to be resistant to shaped charge projectiles,



(Pictures: Author)

Main Battle Tank (MBT) operating in built-up area

- hatches and gratings must be designed to withstand incendiary munitions to avoid secondary damage within the vehicle, and
- optical systems (cameras) and driver's optics are coverable, as required.

In addition to the aforementioned capabilities, a vehicle specifically designed for operations on urban terrain must also fulfil special "fightability" requirements in order to provide the crew with the best possible situational awareness. To this end, the vehicle must be equipped, in addition to its command, control, and information systems, with a close-range full spherical surveillance system (360 degree) – with day and night vision capability.

A Fire Support Combat Vehicle Emerges

First ideas for a fire support combat vehicle had emerged in Russia as early as 1980 as a consequence of the lessons learned in the Afghanistan War; however, this programme was pursued only desultorily. The Russians recognized the need for such vehicle in the First Chechen War because of the heavy losses of armoured vehicles they incurred particularly during fighting in Grozny. In 1995, the engineering design



The Russian BMPT Model 2000i with anti-tank guided missiles

department of the Russian company Uralvagonzavod, in Nizhny Tagil, started developing on its own initiative a special fire support combat vehicle for operations on urban terrain. The relatively good suitability of the ZSU 23-4 self-propelled anti-aircraft gun for urban operations was certainly decisive in selecting a medium-calibre automatic cannon. In 2000, Uralvagonzavod introduced its BMPT at the Russia Arms

Expo in Nizhny Tagil; at that time, the vehicle was also known under the designation RAMKA-99.

The BMPT Model 2000 was based on a modified T-72 MBT chassis and had a weight of 47 tonnes – but still lacked both anti-mine and rooftop protection. This first version was armed with a 30-mm 2A42 automatic cannon, four KORNET (AT-14) guided missiles, one PKTM 7.62mm ma-

Highest Protection Levels for Tracked and Wheeled Platforms



Survivability

Mobility

Growth Potential

Affordability

Defense Solutions for the Future

chine gun and two AG-17 30mm automatic grenade launchers. The crew consisted of five men; two of them operated the weapon station in the turret and two others the automatic grenade launchers mounted on either side on the front track fenders. By Russian standards, the BMPT is a relatively expensive and complex vehicle. The hypothetical possibility of engaging four targets at the same time presages the extremely challenging job of the tank commander when commanding the vehicle and simultaneously controlling the firefight.

After completion of factory trials the BMPT was tested and examined in the Russian Army. In 2002 Uralvagonzavod presented an improved model which the company unofficially named TERMINATOR. The 2002 model was now equipped with two 30 mm automatic cannons and the advanced ATAKA-T (AT-9) anti-tank guided missile, providing an effective range of up to 6,000 m. The gunner's sight was enhanced with a thermal channel while the commander's panoramic sight was still equipped with an ambient light intensifier. Some years later, a still further enhanced version was presented with features like third generation reactive armour (RELIKT) and ballistic protection for the panoramic sight of the commander.

To this day, the BMPT has not been fielded to the Russian armed forces. Technical literature assumes that the Russian military might be unable to find an appropriate force structure (possibly an army branch) for integrating this novel weapon system. This, in turn, would mean that the Russians find it more difficult to modify the structure their armed forces than to develop a complex weapon system. It may also be that the Russian forces prefer to use the available amounts of investment primarily for their new development programmes (ARMATA, KURGANETS and BUMERANG). As far as is



The BMPT-2 is the most recent Russian version.

known, only Kazakhstan has thus far introduced some ten BMPTs.

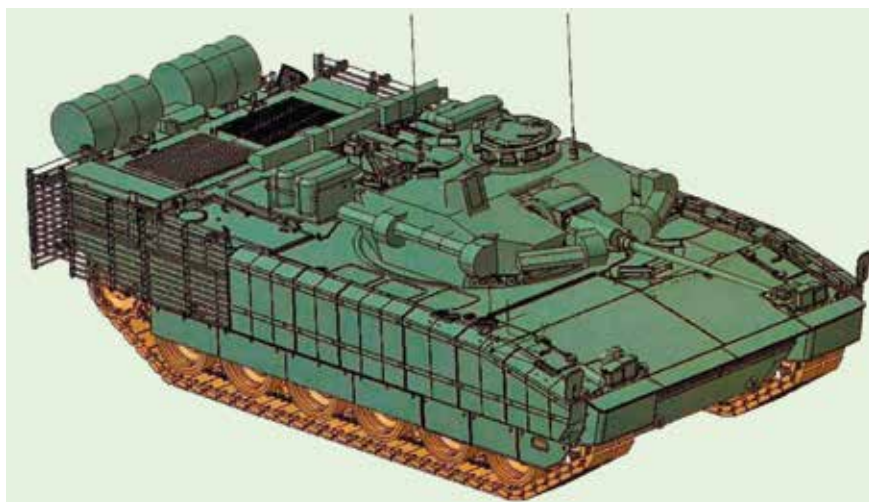
Based on this experience, Uralvagonzavod has designed a different BMPT version for sale on the export market. This vehicle, called BMPT-2, is lighter, less expensive and less complex than any of the previous models. It is no longer equipped with the two chassis-integrated automatic cannons so that the crew can be reduced to three. The fire control system was improved and modernised as was its armour, at least above the crew compartment. Its weight could be cut down to 44 tonnes. By all accounts, Uralvagonzavod also supplies conversion kits so that foreign customers can convert part of their own T-72 fleet into BMPT-2 vehicles; after all, the T-72 MBT has been exported to more than 30 countries. The French company Nexter has made similar suggestions (on paper) for a high-protection armoured fighting vehicle equipped with medium calibre weapons. For many years, Israel has applied its combat experience gained in urban operations to the design of its armoured fighting vehicles. Relevant examples include the ACHZARIT and

the NAMER (62 t) APCs. Israeli philosophy says, however, that APCs should primarily serve to carry infantrymen under high protection to the place of deployment rather than to achieve weapon effects with their 12.7mm and 7.62mm machine guns, each installed in a remote-controlled weapon station. Adapting a weapon station with a 30 mm automatic cannon would also be feasible.

Final Considerations

While there is broad agreement among most NATO nations that the time of big tank battles in open terrain has gone and mainly urban warfare should be expected for the future, they do not consequently consider this awareness in their medium-term and long-term equipment planning. The past and present crises and conflicts (Hezbollah in Lebanon in 2006, Syria, IS in Iraq in 2014) have clearly shown that the adversaries are fighting with increasingly powerful, effective and modern weapons. Given these basic conditions, future operations in urban terrain will require an armoured fighting vehicle which is capable of engaging a wide target spectrum with a mix of weapons while providing massive all-round protection for its crew. Traditional main battle tanks or protected vehicles would be limited in these scenarios and protect their crews only to a very low degree. Instead, a possible solution to meet these requirements would be the development of a special fire support combat vehicle. The chassis could also be adapted to implement a dual system or be derived from an existing MBT type.

It would be disastrous – although it would not be for the first time – if it came to be recognized in future conflicts that a means of combat that would offer supreme weapons effects and best possible crew protection in urban warfare is simply missing. ■



The LECLERC T-40 concept

Conventional Submarines

Naval Warfare Systems Meeting Global Requirements

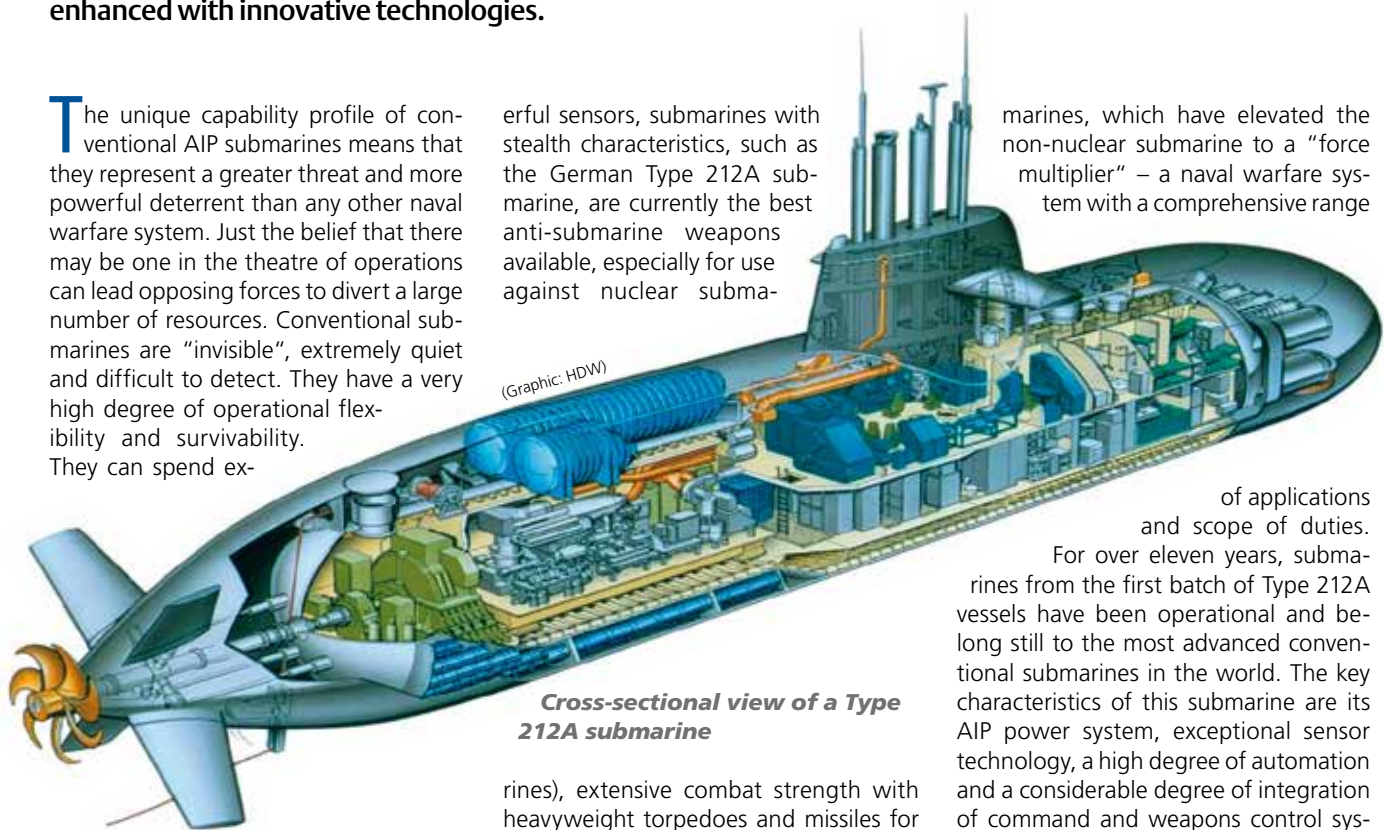
Dieter Stockfisch

Since the 1960s the number of navies with conventional (non-nuclear) submarines has more than doubled from 20 to over 40. Submarines with an AIP (Air Independent Propulsion) power system have become globally-coveted naval warfare systems. In comparison with nuclear-powered submarines (SSN), conventional submarines (SSK) are not only cheaper (procurement, operating and maintenance costs), they also have a comprehensive range of capabilities and applications which have continually been enhanced with innovative technologies.

The unique capability profile of conventional AIP submarines means that they represent a greater threat and more powerful deterrent than any other naval warfare system. Just the belief that there may be one in the theatre of operations can lead opposing forces to divert a large number of resources. Conventional submarines are “invisible”, extremely quiet and difficult to detect. They have a very high degree of operational flexibility and survivability. They can spend ex-

erful sensors, submarines with stealth characteristics, such as the German Type 212A submarine, are currently the best anti-submarine weapons available, especially for use against nuclear subma-

marines, which have elevated the non-nuclear submarine to a “force multiplier” – a naval warfare system with a comprehensive range



Cross-sectional view of a Type 212A submarine

tended periods at sea, can be deployed in any sea area in the world (deep waters, shallow waters, coastal waters), are impervious to weather conditions and can operate autonomously and remotely.

Range of tasks and applications

The range of tasks and applications that can be carried out by a modern AIP submarine has gradually expanded over the last 20 years and now encompasses: covert reconnaissance, maritime surveillance, protection and safeguarding of surface vessels, transportation and deployment of special forces/naval frogmen, covert mine warfare, deployment of UUV (unmanned underwater vehicles), anti-submarine warfare (with their pow-

erful sensors, submarines with stealth characteristics, such as the German Type 212A submarine, are currently the best anti-submarine weapons available, especially for use against nuclear submarines), extensive combat strength with heavyweight torpedoes and missiles for self-defence and use against surface targets, targets on land and – in future – aerial targets, finally, modern submarines can be used in network-centric operations.

Type 212A Submarines

In 1994, when the world's first Type 212A AIP submarine was designed for the German Navy and its specifications were contractually agreed, the New York Times, significantly, wrote, “The boat is back again”. Since then, there has been a rapid succession of advances in conventional submarine technology and continuous innovative technological enhancements in the field of conventional sub-

of applications and scope of duties.

For over eleven years, submarines from the first batch of Type 212A vessels have been operational and belong still to the most advanced conventional submarines in the world. The key characteristics of this submarine are its AIP power system, exceptional sensor technology, a high degree of automation and a considerable degree of integration of command and weapons control systems. Its ability to spend extended periods at sea permits it to operate broadly autonomously and remotely, and its heavyweight DM2A4 torpedos provide the submarine with one of the most advanced weapons currently available on the global market for use against surface and underwater targets.

Operational Success

These submarines were able to demonstrate their success in operational use during the 2013 WESTLANT Deployment, a series of exercises and manoeuvres performed with the U.S. Navy. Even before the manoeuvres, during the Atlantic crossing, the submarine (U32) had



(Photo: MoD Chile)

Chilean SCORPENE Class submarine

to face heavy seas and a low-pressure system. The adverse weather conditions were not an issue for the submarine, because its fuel cell system meant it did not have to snorkel during the storm, when waves reached heights of over eight metres. In tactical exercises / manoeuvres with ASW helicopters, MPA (maritime patrol aircraft), destroyers, an aircraft carrier group and a nuclear-powered ASW submarine from the US Navy, the U32 impressively demonstrated its superiority in one-on-one situations.

The U32 remained undetected by opposing submarines throughout the exercises, but was itself able to detect opponents at previously unanticipated distances

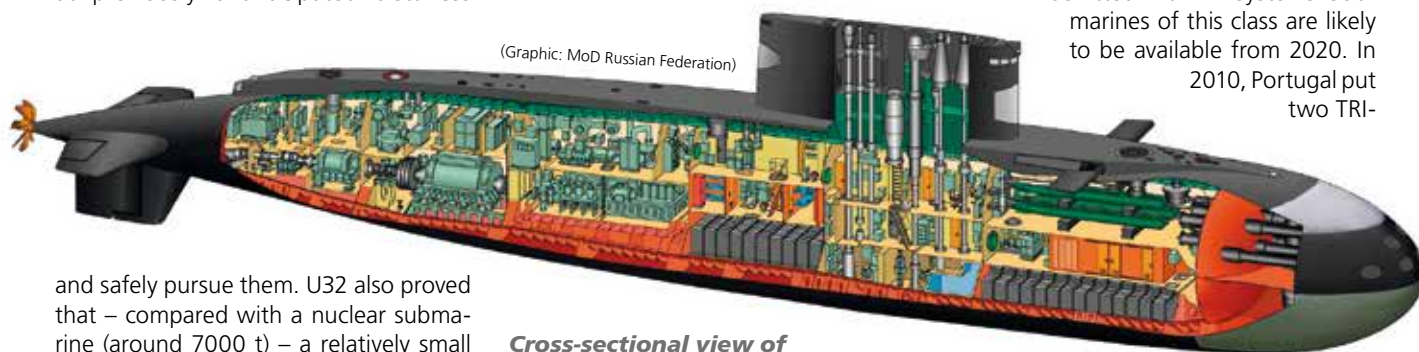
airborne ASW systems to take a targeted approach. Following the success of the U32, the US Navy, which does not have an SSK, declared: "The most daunting threats at sea of the coming years: modern low-signature and air-independent submarines operating in confined waters."

Global Submarine Procurement Efforts

The traditional and leading submarine manufacturers and exporters are located in Europe: DCNS in France, Thyssen Krupp Marine Systems (TKMS) in Germany, the

marines with AIP power systems. Spain has plans for a programme to construct four S80 type submarines. However, due to serious design flaws, the programme has been postponed for four years, until 2016. Poland plans to acquire three new submarines from 2022. It is as yet uncertain whether it will opt for German submarines, because French and Swedish submarines are also involved in the selection process.

The Royal Netherlands Navy has implemented a comprehensive modernisation programme for its four WALRUS Class submarines, which have been in service for 20 years. The programme will be completed by 2020. It should ensure that the submarines remain operational beyond 2025. The Italian Navy recently procured two Type 212A submarines, which were built under license by Fincantieri in Muggiano. There are plans for two additional submarines. Turkey has launched a programme for six Type 214 submarines. They are to be built and / or assembled under license by the Turkish Gölcük shipyard, with support from HDW. Greece's second Class 214 submarine with AIP system recently entered service at Hellenic Shipyards. Russia is building a range of variants of diesel-electric submarines. Russia recently put into service the first of six KILO III Class (3125 t) submarines. The six submarines are expected to be attached to the Black Sea Fleet by the end of 2016. In addition, Russia is building new designs for 5th generation LADA and KALINA Class submarines, which will be fitted with AIP systems. Submarines of this class are likely to be available from 2020. In 2010, Portugal put two TRI-



Cross-sectional view of a KILO Class submarine

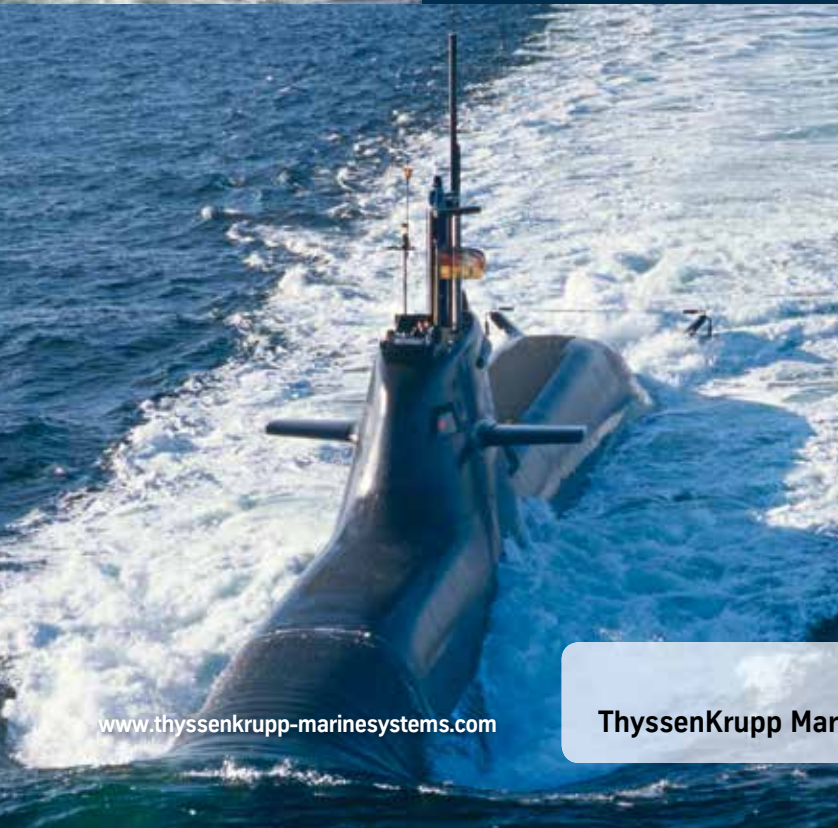
and safely pursue them. U32 also proved that – compared with a nuclear submarine (around 7000 t) – a relatively small and slow conventional submarine (1830 t submerged) with modern sensors and armaments provides extremely powerful additional support when protecting a surface group. This was particularly clear when U32 was integrated into an aircraft carrier battle group. When deployed in conjunction with helicopters, MPA and long-range towed sonar systems, U32 was able to deploy its torpedoes far outside its own sensor range. Likewise, U32's passive ranges, which are superior to those of a nuclear submarine, allowed

Admiralteskie shipyard in Russia, Navantia in Spain and Saab Kockums in Sweden. In Asia, South Korea, China and India are increasingly producing submarines under license and are developing their own submarines.

Many European navies want to retain diesel-electric submarines. For example, Norway aims to build / purchase approximately four submarines. Sweden is planning to build two A26 type sub-

DENTE Class submarines (Type 209PN, 2020 t) into service. Israel has expanded and upgraded its fleet of submarines. In 1999/2000, the Israeli Navy put three DOLPHIN I (1930 t) submarines, which had been built by TKMS into service. Three more DOLPHIN II Class submarines (2400 t) with AIP systems are under construction or due for delivery. The first DOLPHIN II Class submarine, INSTANIN, went into service at the end of 2014. Iran

On Scene. Unseen. Worldwide.



www.thyssenkrupp-marinesystems.com

ThyssenKrupp Marine Systems



ThyssenKrupp



(Photo: PIZ/Mar)

Christening of U35 from the 2nd batch of the German Type 212A submarines

has three KILo Class submarines (3125 t), which entered service between 1992 and 1996. The FATEH is one of two new coastal submarines (593 t), also built by Iran, which has already entered service. Between 2005 and 2008, South Africa procured three Class 209/1400 MOD (SA) submarines (1620 t).

In the Asia Pacific region, India is purchasing six SCORPENE Class submarines (1755 t). The last two of these submarines are to be fitted with an AIP system developed in India. The submarines will be assembled and fitted with help from French shipyards (DCNS) at India's national shipyard, Mazagon Dock Limited.

The first submarine is expected to be delivered in 2016 and the last two in 2020. India's arch enemy, Pakistan, wants to purchase six AIP-powered S20 Class submarines from China. They are a variant

of the YUAN class (3500 t) and the Pakistani Navy should take delivery of them by 2018. Bangladesh also has an agreement with China to acquire two MING Class submarines (2147 t) from Chinese stock. Myanmar intends to purchase two KILo Class submarines (3125 t) from Russia from 2016, in order to build a submarine fleet, and has already begun training submarine crews.

Singapore wants to replace its three CHALLENGER Class submarines (1229 t) with new Type 218SG submarines from TKMS. The Philippines want to purchase three submarines by 2020, but have not yet chosen a type. Malaysia has two SCORPENE Class submarines; there are plans to replace these submarines by 2020. Thailand's Navy has an aircraft carrier, but no submarines. However, the Navy's ten-year programme includes plans

to build a fleet of submarines, initially comprising three vessels. Thailand has already commissioned the construction of a naval base for submarines. Thailand originally envisaged procuring decommissioned Class 206A submarines from the German Navy to form the basis of a submarine fleet, but eventually discarded this plan. Indonesia's Navy aims to further expand its submarine fleet and procure approx. twelve new submarines by 2020. This number is to include three Type 209 submarines (1412 t), which are to be built at Daewoo (South Korea). Vietnam has an agreement with Russia to acquire six KILo Class submarines by 2016. The first two units were delivered and entered service in 2014. India has made appropriate submarine training facilities available to the Vietnamese Navy.

China is continuing to expand its submarine fleet with approximately 58 submarines of all classes, and is procuring an additional six YUAN Class submarines, as well as four LADA Class submarines (3125 t) from Russia. Twelve YUAN Class submarines are already in service. Taiwan's armament plans include a need for eight submarines by 2030. Taiwan also aims to develop and build its own submarines, with displacements of between c. 1500 t and 2000 t, possibly with foreign assistance (United States). South Korea is building nine Type 214 submarines in KSS-II and KSS-III Class (1890 t) variants. The KSS-III Class programme plans for nine submarines by 2020. They are to have vertical take-off launch pads for missiles for use against land targets. Japan's submarine fleet is expected to grow to 22 vessels. A procurement pro-

(Photo: ES&T archive)



An aircraft carrier viewed through the periscope of a conventional submarine

programme is currently ongoing to acquire seven SOURYU Class submarines with AIP systems and a displacement of 4200 t (submerged). The last two vessels are expected to enter service in 2016. Australia intends to replace its six COLLINS Class submarines (3407 t) with new vessels. The new submarines are to be fitted with AIP systems and will have a displacement of c. 4000 t. They will be capable of undertaking prolonged long-range operations. Australia may build the submarines with Japanese assistance, in accordance with designs for the SOURYU Class. Current plans foresee construction starting in 2016. The first unit could therefore enter service in 2024.

In South America, Brazil is notable for expanding its Navy. It is building four SCORPENE Class submarines designed by DCNS, which will be delivered from 2017. Chile has procured two SCORPENE Class submarines and they entered service in 2005/2006.

Enhancements to Non-Nuclear Submarines

Thanks to technological enhancements, the role of conventional, non-nuclear submarines in maritime conflict scenarios



(Photo: Michael Nitz)

Israeli DOLPHIN Class submarine

is set to continually expand (expansion of the mission spectrum). New requirements exceed the specifications of the current compact submarine classes like the U212A and determine the design of future submarines, which will have to meet the following criteria:

- Greater ranges and longer missions,
- High transit speeds,
- Greater displacement,
- Diverse scope of weapons,
- Armament with missiles able to en-

gage against targets on land, at sea and in the air,

- Advanced reconnaissance capabilities,
- Capability for network centric operations,
- More comfort for the crew.

The 2nd batch of Class 212A submarines for the German Navy (U35 and U36) is in the process of being delivered. These vessels already incorporate many essential elements of the future requirements for conventional submarines. ■

OpenSonarSuite KaleidoScope

Full-Spatial and Full-Spectral Coverage



Ready for Third-Party Algorithm Implementation

L-3 ELAC Nautik's OpenSonarSuite KaleidoScope is an advanced, totally integrated sonar system that meets the mission requirements of modern diesel-electric submarines. KaleidoScope performs integrated surveillance by using acoustic sensors (CAS, PRS, FAS, INTS, MOAS) that provide the channels for automatic contact tracking. It includes integrated detection, tracking and analysis for full-spatial and full-spectral surveillance functionalities.

The International Market for Offshore Patrol Vessels

Growing Sales, Growing Capabilities

Bob Nugent

The patrol vessel is a key platform in a nation's mix of maritime assets. Patrol vessels are typically the smallest, most numerous, and least complex part of country's maritime force mix. Patrol vessels also tend to be operated by a wide variety of agencies and services besides navies – marine police, customs services, ministries of interior, and coast guards.

The patrol vessel is the unglamorous “workhorse” of the sea services, carrying out the daily tasks of exercising maritime sovereignty – in national waters and beyond. This is hard and demanding

so in settings where the patrol mission and forces are owned by services other than navies – those with less political and social influence over budget decisions. However, an analysis of the current ship

to understand the state of the market and some characteristics of ships that are in service today. Next, a look at future market forecast for OPVs over the next 20 years, drawing on AMI International's proprietary naval market forecast data. Finally, a review of recent developments in regional OPV programmes drawn from AMI's reporting on the naval market over the past year.

Setting the Scene, Drawing the Lines

One major factor contributing to the growth in OPV demand has been the advent of the 200 Nautical Mile Exclusive Economic Zone under the UN Law of the Sea Convention. Others include the globalisation of maritime interest and wealth generation from the sea, while reduced budgets among many of the world's current leading navies have seen a turn to more economical platforms to assure maritime presence and governance. These forces are driving demand for the OPV globally, although the bulk of future market investment in OPVs remains concentrated in the United States and among NATO countries.

OPVs have been operated by navies and coast guards for decades – especially in those countries with long coastlines and/or widely dispersed sovereign territories. The U.S. Coast Guard's Large and Medium Endurance Cutters (designated as such some 50 years ago) and equivalent ship classes in Europe and elsewhere were carrying out the extended patrol missions long before the OPV designations or characteristics were formalised as a distinct ship type.

The shift to the specific “offshore” designation for patrol vessels can be traced in



(Picture: BAE Systems)

The new OPVs of the UK Royal Navy are being built by BAE Systems in Scotland and have been designed for range of 5,000 nautical miles and a top speed of 24 knots.

service, and arguably as or more vital to a nation's long-term economic and political security than more visibly impressive naval assets such as aircraft carriers, surface combatants and submarines.

Traditionally, the patrol ship and the patrol mission have been undervalued in the competition for naval shipbuilding resources around the world. Even more

fleets, and a look at the future market over the next 20 years, shows prospects are improving for the patrol ship segment. It is growing strongly, faster than many other naval market segments. This is true whether measured by percentages or by the absolute value of shipbuilding resources invested in patrol ship programmes. This is particularly true of a relatively new ship type among surface platforms – the “offshore” patrol vessel or OPV.

This article will explore the reasons for the growth in OPV demand, beginning with a look at changes in the legal framework defining sovereignty at sea. It then examines the world's current OPV fleet

Author

Bob Nugent is a Virginia-based Affiliate Consultant for AMI International in Bremerton, WA, USA.

large part to changes in the international legal regime governing maritime sovereignty since 1982. The 1982 UNCLOS brought a formal recognition of what had previously been customary observance of maritime sovereign territory – the 12 NM territorial sea and 24 NM contiguous zone. UNCLOS further codified a 200 NM Exclusive Economic Zone.

By 1994, regulations established national rights within the 200 NM Exclusive Economic Zone under UNCLOS. Part V of UNCLOS grants a state sovereignty over the seabed, its subsoil and the water adjacent to the seabed within this 200 NM limit.

With the advent of EEZ sovereignty, most nations not already operating coast guards or like forces equipped with ships for routine distant patrols found themselves without the right platforms to maintain maritime sovereignty in these new areas of responsibility. Existing naval ships designed for different missions were not optimal for extended patrolling at slow speeds. In fact such operations often reduced the effectiveness and service life of ships pressed into service as offshore patrollers. This helped drive the demand for specialised designs and construction of OPVs.

Defining Patrol Vessels – What Makes One “Off-shore”?

OPVs are distinguished from smaller patrol vessels and boats mainly by size as well as propulsion and other systems designed for specific range, speed and endurance requirements. AMI classifies and tracks OPVs now in service that range



(Photo: Northrop Grumman)

USCGC BERTHOLF, FOC of the U.S. Coast Guard's LEGEND Class (National Security Cutter), was commissioned in May 2008.

from 300 to 9,000 tons fully loaded and 40 – 150 metres in length. However, most of these current OPVs are between 700 and 3,700 tons and 50 – 110 metres. Ships of this size possess the endurance, range and sea-keeping needed for continuous at-sea patrolling on missions extending to weeks and months in duration.

This is especially noticeable in sea services operating in higher latitudes north or south of the equator. As noted above, the modern OPV traces its lineage to patrol ships and cutters designed for continuous operation in difficult environments such as the Arctic, Antarctic, Northern

Pacific, and Southern Atlantic where larger wave heights, stronger winds and currents required larger hulls.

An OPV is often built to commercial standards and is slower than its corvette and frigate cousins, typically with economical patrol and transit speed of 12 – 20 knots. However, some nations will build OPVs with space and weight margins for future weapon upgrades. These types of OPVs will generally be built to naval standards including hull and equipment shock requirements.

The Current OPV Fleet

AMI's Existing Ships Database (ESDB) currently shows 344 OPVs in active service worldwide. The distribution of these ships by region, length and weight is detailed in the table next page.

As seen above, the Asia-Pacific region (18 countries) operates the highest number of OPVs – about 35% of the world's OPV fleet. The 25 nations in the NATO region (not including the US) maintain another 25% of the global OPV inventory. The US has less than 10% of the global fleet of OPVs but, as will be seen below, invests in sophisticated large designs such as the LEGEND Class High Endurance Cutter and future Medium Endurance Offshore Patrol Vessel that make them among the world's most expensive OPV fleets as measured by acquisition cost.

In terms of size, the world's existing fleet of OPVs is relatively evenly distributed between small (less than 1,500t/60m),



(Photo: U.S. Navy)

With a length of 86m and a displacement of almost 1,700t the Mexican OAXACA Class has been laid out for sea space surveillance, SAR, civilian disaster management operations, and for deterrence in low- and medium-intensity conflicts. Shown here is FOC OAXACA which was commissioned in May 2003.

| | Weight (FLD) | | | Total Hulls | Length (metres) | | | |
|--------------------------------|-----------------|-------------|--------|-------------|-----------------|---------|----------|------------|
| OPV Hulls Currently In Service | Less than 1.500 | 1.500-2.500 | 2.500+ | | 40-60 m | 61-80 m | 81-100 m | 101-120+ m |
| Asia & Australia | 40 | 43 | 35 | 118 | – | 32 | 56 | 30 |
| Caribbean & Latin America | 31 | 27 | – | 58 | 14 | 29 | 15 | – |
| Middle East & North Africa | 18 | – | 2 | 20 | 12 | 6 | 2 | – |
| NATO | 36 | 26 | 22 | 84 | 29 | 19 | 24 | 12 |
| Non-NATO Europe | 7 | 6 | – | 13 | 5 | 4 | 4 | – |
| Russia | – | 4 | 5 | 9 | – | 5 | 4 | – |
| Sub Saharan Africa | 13 | 1 | 1 | 15 | 10 | 2 | 1 | 2 |
| USA | 14 | 13 | – | 27 | – | 14 | 13 | – |
| Totals | 159 | 120 | 65 | 344 | 70 | 111 | 119 | 44 |
| % | 46 % | 35 % | 19 % | | 20 % | 32 % | 35 % | 13 % |

medium, and large (2500+ tons/90m and above) designs. Large OPVs tend to be concentrated in countries such as the US, UK, France, the Netherlands and Japan with extensive EEZ and/or distant territorial possessions that require long-distance transits and extended maritime patrol presence in challenging sea conditions.

Looking at the age distribution of the world's current OPV fleet, one notes the upsurge in building after 1995 tied to formalisation of EEZ regulations under UNCLOS. While there are OPVs still in service today that were commissioned up to 60 years ago, only about 50 ships commissioned between 1955 and 1979 are still in service. The decade of the 80's

decade of 2000 – 2009 with 102 OPVs commissioned – an average of roughly 10 per year. OPV building has continued to surge in the first half of this decade, with the average increasing to 15 new OPVs entering service annually 2010 – 2014. Looking ahead, the pace of higher OPV building appears set to continue, with another 80+ hulls now building or expected to be built under existing programmes through 2020.

On the Horizon: The Future OPV Market 2014-2034

A look at AMI's forecast of the future naval shipbuilding by ship type also highlights the recent growth of the OPV seg-

ment. In percentage terms, the OPV segment forecast has grown the most of any of the small-medium surface ship types (corvette, fast attack craft, mine counter-measures, and patrol craft) since 2008. In aggregate total spending, the OPV future market amounts to US\$32 billion in new spending over 20 years (averaging about US\$1.6 billion per year in future spend). This remains a relatively minor part of the overall global naval market – slightly less than 4% of all new naval platform construction spending. Even with these numbers, the OPV market is still larger than any of the other small combatant surface ship segments.

A look at the future OPV market by programme status and region permits some additional observations about future market trends (see table on next page):

- The forecasted rate of ship construction will see some expansion in the total inventory of OPVs in service worldwide over the next 20 years. As noted above, about 50% (some 170 of 340) OPVs now in service have been commissioned within the last 15 years. Assuming an average ship life of more than 30 years, the world's fleet of OPVs will remain relatively young compared to other ship types over the next two decades. With 250 new OPVs expected to join fleets from ship programmes now building or expected to start over the next decade, this should boost to total of OPVs active from 344 now to an estimated 400-450 by 2034.

- The Asia-Pacific will continue to lead the world in OPV spending and new hulls acquired (28% and 35% of the global market respectively). The A-P region is followed by NATO, accounting for about one quarter of the future OPV market by spending and hull counts.

- The Caribbean and Latin America are also promising markets for OPVs, well

(Photo: Wire Target)



Lürssen's OPV 80 has been designed to deploy up to four RHIBs, e.g. in the context of operations against irregular forces.

saw 65 OPVs commissioned that are still in service, while 54 OPVs commissioned 1990 – 99 are still active. The pace of construction picked up in the

ment. Compared to AMI's 20 year forecast in 2008, OPV future market value has grown by 65% from US\$19.5 billion to 32.3 billion in estimated acquisition



SECURITY

FOR YOUR EXCLUSIVE ECONOMIC ZONE.



Lürssen Offshore Patrol Vessels are versatile and built to perform in territorial waters. They are particularly well suited for defence against pirates, smugglers and terrorists, protecting offshore infrastructure, guarding fish stocks and other natural resources as well as search-and-rescue operations.

More information:

+49 (0)421 6604 344 or **www.luerssen-defence.com**

**LÜRSEN**

| Vessel Type | 2014 20 Year Market Value (US\$B) | 2008 20 Year Market Value (US\$B) | Change (\$) | Change (%) | 2014 Market Share | 2008 Market Share | Change |
|------------------|--------------------------------------|--------------------------------------|----------------|---------------|----------------------|----------------------|--------|
| Aircraft Carrier | 73.9 | 22.8 | 51.1 | 224.1 % | 8.4 % | 3.6 % | 4.8 % |
| Amphibious | 65.2 | 43.4 | 21.8 | 50.2 % | 7.4 % | 6.8 % | 0.6 % |
| Auxiliary | 55.3 | 32.5 | 22.8 | 70.2 % | 6.3 % | 5.1 % | 1.2 % |
| Corvette | 25.1 | 19.4 | 5.7 | 29.4 % | 2.8 % | 3.0 % | -0.2 % |
| Cruiser | 6.2 | 33.9 | -27.7 | -81.7 % | 0.7 % | 5.3 % | -4.6 % |
| Destroyer | 173.5 | 130.5 | 43 | 33.0 % | 19.7 % | 20.3 % | -0.7 % |
| FAC | 13.2 | 13.7 | -0.5 | -3.6 % | 1.5 % | 2.1 % | -0.6 % |
| Frigate | 124.9 | 94.7 | 30.2 | 31.9 % | 14.1 % | 14.8 % | -0.6 % |
| MCMV | 13.8 | 16.7 | -2.9 | -17.4 % | 1.6 % | 2.6 % | -1.0 % |
| OPV | 32.3 | 19.5 | 12.8 | 65.6 % | 3.7 % | 3.0 % | 0.6 % |
| Patrol Craft | 22.5 | 15.5 | 7 | 45.2 % | 2.5 % | 2.4 % | 0.1 % |
| Submarine | 276.9 | 198.9 | 78 | 39.2 % | 31.4 % | 31.0 % | 0.4 % |
| Totals | 882.8 | 641.5 | 241.3 | 37.6 % | 100.0 % | 100.0 % | |

| OPVs | In Progress | | Planned | | Projected | | Totals | | % of Total | |
|-----------------------|-------------|---------------|------------|---------------|-----------|--------------|------------|---------------|------------|------------|
| Region | # Hulls | US\$M | # Hulls | US\$M | # Hulls | US\$M | # Hulls | US\$B | # Hulls | US\$B |
| Asia-Pacific | 59 | 5,285 | 32 | 2,570 | 14 | 1,100 | 105 | 8.955 | 35 % | 28 % |
| Caribbean & L America | 10 | 633 | 21 | 1,463 | 9 | 510 | 40 | 2.606 | 13 % | 8 % |
| MENA | 11 | 1,327 | 6 | 600 | – | – | 17 | 1.927 | 6 % | 6 % |
| NATO | 18 | 2,474 | 38 | 5,370 | 21 | 1,350 | 77 | 9.194 | 26 % | 28 % |
| Non-NATO Europe | 5 | 385 | 1 | 122 | 4 | 380 | 10 | 887 | 3 % | 3 % |
| Russia | 17 | 1,160 | – | – | – | – | 17 | 1.160 | 6 % | 4 % |
| Sub Saharan Africa | 2 | 151 | 6 | 300 | – | – | 8 | 451 | 3 % | 1 % |
| U.S. | 3 | 1,761 | 23 | 5,382 | – | – | 26 | 7.143 | 9 % | 22 % |
| Totals | 125 | 13,176 | 127 | 15,807 | 48 | 3,340 | 300 | 32.323 | 100 | 100 |

above comparable OPV acquisitions in the Middle East/North Africa, Russia, and Africa. This is explained by several

factors. First, South America includes many countries with extensive EEZs distant territories (Easter Island in Chile for

example), and Antarctic and Southern Atlantic/SE Pacific operating areas that require larger OPVs. In contrast, the regional geography and geopolitical circumstances for many countries in the MENA region – especially in the Arabian Gulf, have driven a preference for more heavily armed frigates, corvettes and fast attack craft. That said, some countries in the MENA region are acquiring new classes of advanced OPV designs – Oman for example.

Regional Highlights – OPV Programmes of Interest

NATO

The **UK Royal Navy** has ordered three modified RIVER Class OPVs to be built at BAE shipyards in Scotland. The 90m 2000t design was approved for an acquisition programme to fill the gap in naval shipbuilding until construction starts on the new Type 26 Global Combat Ship. The OPV design is similar to the Royal Thai Navy with a top speed of 24 knots and a range of 5,500 nauti-

(Photo: Flickr)



The PROTECTOR Class OPVs of the RNZN (pictured here is HMNZS OTAGO) have a range of 6,000 nautical miles and can deploy two RHIBs (or one RHIB for special forces missions). The weapons fit comprises a 25mm Bushmaster automatic cannon and two .50 cal. machine guns.

cal miles. Each OPV will be armed with one 20mm cannon and two 7.62mm machine guns. They are also to be built with a flight deck capable of operating and storing one Merlin-sized helicopter. Construction was scheduled to begin in October 2014, with the first hull to be commissioned in 2017, and the next two by the end of 2018.

Asia-Pacific:

Japan is building two new OPVs to equip a Japan Coast Guard (JCG) special unit intended to patrol in the region of the Senkaku Islands. These ships are expected to be additions to the current 1,250-ton Patrol Vessel Large (PL) Programme – extending the programme's scope from eight to ten hulls. The first three units were commissioned in 2014 with five additional units scheduled to enter service by 2017.

India's 97m OPV programme for the Coast Guard has been approved for construction. The programme will consist of 5 ships and is estimated to cost US\$220 million. India's Larsen & Toubro (L&T) is expected to complete negotiations with the MoD to start construction next year. The first of the five ships is expected to be delivered by 2018, with all five in service by 2022.

New Zealand is looking at bringing a third OPV into service by 2019 as a measure to offset the high cost of operating ANZAC Class frigates. The New Zealand Navy's OTAGO Class OPVs are seen as capable of carrying out many of the long distance maritime sovereignty and presence missions now assigned to the Navy's frigates. The total acquisition and operating cost of the new OPV would be significantly lower than a comparably-sized naval frigate. Additionally, the third OPV would increase the operational availability of frigates for other more complex tasks.

New Zealand's 85m OTAGO Class OPVs were built at Tenix Defense Systems, Williamstown (now BAE Systems) and delivered in 2010. They displace 1,626 tons and are powered by two MAN Burmeister & Wain 12 RK 280 diesel engines for a top speed of 22 knots.

Central and South America:

The **Mexican Navy** (MN) is acquiring new offshore patrol vessels (OPVs) with acquisition cost esti-

mated at US\$220 million for four ships. This will include construction of the last two OAXACA Class (starting construction in 2015 and delivered by 2020). The second two hulls will be a new OPV design – a modified OAXACA Class or new design.

Brazil's EMGEPRON (Empresa Gerencial de Projetos Navais) revealed its indigenous design for new Brazilian Navy OPV at Euronaval in Paris in October 2014. The Brazilian Navy had initially considered foreign designs but the acquisition was frozen in 2010 and the programme then looked inward to less expensive local designs – likely a result of budget pressures. As a near-term measure to fill the requirement, Brazil bought three OPVs based on

the BAE Systems 90 metre RIVER Class OPV that were originally built for Trinidad and Tobago. All three of the 90m OPVs, AMAZONAS (P120), APA (P121), and ARAGUARI (P122) entered active service in 2014.

Africa:

Nigeria's newest OPV, F91, completed sea trials in October 2014. The two P18N Class OPVs will be operated by the Nigerian Navy (NN). China's Wuchang Shipyard is scheduled to deliver the first hull by the end of 2014. The second ship will also be built at Wuchang with the superstructure added by Nigeria's Nigerdock. This ship will enter service in 2016. ■



DSEI
15 - 18 September 2015
The World Leading
Defence & Security Event
ExCeL, London www.DSEI.co.uk

AIR + LAND + NAVAL + SECURITY + MEDICAL + UNMANNED

REGISTER NOW
FOR EARLY BIRD DISCOUNT

Engage with the whole defence & security sector at DSEI 2015

- 1,500 companies representing the whole supply chain, from Primes to SMEs
- 6 sector specific areas including a Land Zone
- Largest display of the latest defence & security technology
- Networking opportunities with 32,000 representatives from government, military, industry and academia
- High-level seminars delivering the latest insight into the defence & security markets from an international perspective



Register NOW on:
www.DSEI.co.uk/register15

IMAGES COURTESY OF: Supacat, AgustaWestland, Richard Seymour and THALES

SUPPORTED BY






PLATINUM SPONSORS




ORGANISED BY



"Army 2015" Defence Exhibition in Moscow

(yl) At a recent briefing for foreign defence attachés the Russian MoD announced a new major defence exhibition to be held in Kubinka in the greater



(Photo: Russian MoD)

Moscow region from June 16 to 19 this year, designated "Army 2015 – International Military-Technical Forum". The concept includes live demonstrations of army, air force and navy equipment. Up to 5,000 Russian-made equipment items are expected to be displayed in the scope of the exhibition, including weapon systems, UAVs, robotic systems, laser and bio technologies, electronics, security equipment, simulators, etc.

The event will take place at the newly built Patriot demonstration park on the premises of an airbase and armour testing range. 75 armoured and other vehicles (including T-72B3, BMP-3, MSTA-S, BTR-82A) will take part in the live demonstrations. The organisers promise an amazing cross-country show including the so called "tank ballet" and firing exercises of unguided munitions.

The aviation part includes 19 fixed-wing aircraft and 12 rotorcraft including Su-30MK, Su-34, Su-35, Yak-130, Mig-29, Mi-28, Mi-35, Ka-52.

Each day the public will be able to observe dog-fight exercises, firings at ground targets as well as troop operations. Also, the prominent Russian aerobatics teams, the Russian Knights, Swifts and Eagles, have been announced.

The show will be held in parallel with the Paris Air Show and this is not by coincidence considering the disgraceful situation that happened to the Russians at last year's Farnborough Air Show when over 80% of the delegates were not issued their visas in time. As a result, the largest ever national exposition remained almost unmanned

which has been perceived as a "humiliation to be remembered for a long time". As a result the Russian display at Le Bourget 2015 will comprise only 20% of the space in 2013. The visits of Russian officials to Le Bourget will be limited to one day only, following which they will attend Army 2015 and the St. Petersburg Economic Forum.

Diehl and Orbital ATK Cooperate on AARGM

(wb) Diehl Defence signed an exclusive teaming agreement with the US company Orbital ATK on marketing and manufacturing the Advanced Anti-Radar Guided Missile (AARGM) in Germany. AARGM is among the most advanced anti-radar missiles worldwide. It is based on tactically significant improvements to the High Speed Anti-Radiation Mis-



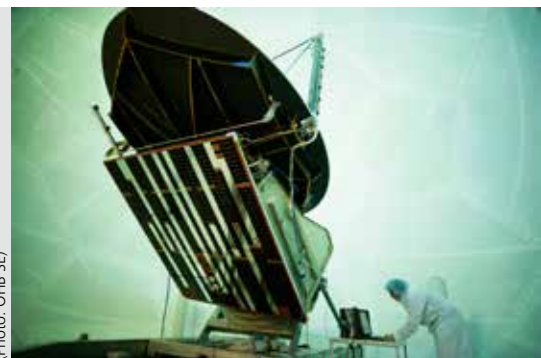
(Photo: U.S. Air Force)

sile (HARM). AARGM provides the legacy HARMs with a new guidance unit featuring GPS as well as an upgraded anti-radiation homing (ARH) antenna and digital signal processor. AARGM is also equipped with a millimeter wave end game terminal seeker providing substantially improved guidance solutions in the GPS-denied environments. In case the AARGM is procured by the Bundeswehr, the agreement between Diehl and Orbital ATK provides the transfer of essential workshares to Germany covering production and service during operative use.

OHB AG Becomes OHB SE

(gwh) Following the entry in the commercial register, OHB AG has officially adopted the legal structure of a Societas Europaea and is therefore now named OHB SE.

OHB SE's registered offices and headquarters will remain in Bremen. By adopting SE status, OHB is responding to the growing Europeanisation of space technology and the group's increasing intercultural structures. The change of corpo-



(Photo: OHB SE)

rate status will permit improved governance and promote an open and European corporate culture. At the same time, it is now easier for OHB SE to establish new branches within the European Union.

Reinke Named Vice President of NG

(df) Northrop Grumman has named R. Eric Reinke Vice President and Chief Technology Officer of its Electronic Systems sector, effective immediately.

Reinke will be responsible for the development of next-generation products and technologies that define the sector's future competitive discriminators. In this position, he will interface with technology leaders in the customer community, with industry partners and with university research partners.

Reinke joined the company in 2004 and served most recently as chief scientist for the Advanced Concepts

and Technologies organisation. His previous leadership positions have included being the lead system architect on several developmental efforts and the enterprise technical executive for systems of systems solutions.



(Photo: Northrop Grumman)

Cooperation of GA and SENER

(df) General Atomics Aeronautical Systems and SENER, a Spanish engineering company, announced a teaming agreement that promotes the use of the multi-mission Predator B RPA (Remotely Piloted Aircraft) to support Spain's airborne surveillance and reconnaissance requirements.

The joint partnership of GA-ASI and SENER offers a wealth of combined expertise

in support of the Predator B programme for Spain. Operationally proven with over one million flight hours, GA-ASI's Predator B provides persistent situational awareness, safeguarding borders and maritime approaches, supporting military missions worldwide. Complementing this capability, SENER will leverage its engineering experience to optimise and



(Photo: General Atomics)

synergise PREDATOR B data collection in support of the customer.

Rossner New Head of A400M Programme

(df) Following the reorganisation of the A400M programme announced earlier,

Kurt Rossner, currently Head of Light & Medium & Derivatives within Military Aircraft, has been appointed Head of the A400M programme with effect from April 1. He will report directly to Fernando Alonso, Head of Military Aircraft within Airbus Defence and Space.

Rossner has a wide knowledge of the programme after occupying different positions in the A400M organisation over the past years. He will replace Rafael Tentor, who will in turn replace Rossner as Head of Light & Medium & Derivatives, a position Tentor already held before heading the A400M programme.



(Photo: Airbus DS)

Volga-Dnepr Wins one of the Wings of Russia Awards

(df) Volga-Dnepr Group has been honoured with a special award to mark its "contribution to the development of Russian air transport" in the annual Wings of Russia Awards to recognise excellence in commercial air transport.

Sergey Shklyanik, Senior Vice President of Volga-Dnepr was presented the Group's award at a ceremony in Moscow by Valery Okulov, Russia's Deputy Minister of Transport. This is the first time the Wings of Russia Awards has included a category to acknowledge a company's outstanding contribution to the devel-

opment of Russian aviation. The new award comes as Volga-Dnepr prepares to celebrate the 25th anniversary of its first commercial flight.

This is the 13th Wings of Russia award to be presented to the Group. Its charter airline, Volga-Dnepr Airlines, and AirBridgeCargo Airlines, have previously won the "Airline of the Year – Cargo Carrier on Domestic and International Routes" award. Volga-Dnepr Airlines has been honoured seven times and AirBridgeCargo on four occasions since the awards began in 1997. Volga-Dnepr Group's most recent award, prior to this latest success, came in 2013 when it won the "Best Business Project in Russian Civil Aviation" category.

Preview

- **Country Focus: Defence & Security in Switzerland**
- Defence Policy and Armed Forces Development in Serbia
- International Combat Aircraft Market
- Air and Missile Defence in Poland
- Military Airlift
- MALE Systems for ISR and Combat
- Aircraft Weapons and Sensors
- GRIPEN in Service with the Swedish Air Force
- French Air Force in Operation
- Military Engineering in NATO
- TTIP and CETA – Defence Business Implications

Coming in June 2015



**MITTLER
REPORT**

Mittler Report Verlag GmbH

Baunscheidtstr. 11 · 53113 Bonn, Germany
Phone: +49 228-35008-70 · info@mittler-report.de
www.mittler-report.de · www.euro-sd.com

Future Forces Exhibition & Conference: International Advanced Technologies in Defence & Security

Stephen Barnard

The most recent Future Forces Exhibition and Conference took place in October 2014 in Prague, Czech Republic, under the auspices of the President of the Czech Republic, the Prime Minister of the Czech Republic, the Minister of Defence and the Chief of the General Staff.

Supported by LOM Praha as Prime Sponsor of the whole event, and Cisco as Conference Partner, Future Forces 2014 was organised by the organisers and gained some spectacular statistics...

In addition to extensive support from NATO and the Czech Permanent Delegation, three Czech ministries were behind the event, along with various senior dignitaries from the city of Prague, and the Czech Chamber of Commerce.

From the further education / training field were the Czech University of Defence, the Military History Institute, the Czech Technical University and the Military Research Institute. The Police Academy of the Czech Republic, the Armed Forces Academy of Gen. Milan R. Štefánik, the Technical University of Liberec and Masaryk University also supported the event.

NATO HQ, the NATO Joint CBRN Defence Capability Development Group and the NATO JCBRN Defence COE were joined by the Multinational Logistics Coordination Centre in attending the conference and exhibition.

At the Exhibition some 134 companies from 21 countries displayed their products and capabilities, with representation of over 200 companies and brands ranged throughout an attractive and professionally-presented show arena. In addition to the professional exhibition there were several live demonstrations and trials in two Live Demo Areas – a 240 m2 indoor space and 5000m2 outdoors.

Almost 7,500 visitors attended the event, including nearly 600 from 33 national Ministries and Departments of Defence, with 48 official delegates and nearly 20 international / multinational organisations.

Over 40 General Officers attended, from as far afield as Brazil, Korea, the Philippines, Australia, Jordan, the UAE and the USA.

In addition to the conference and exhibition, for two days a series of workshops was undertaken. Some of the 14 Expert Work-

ing Groups attended these workshops, as did over 400 attendees from more than 40 countries: 89 Speakers represented 17 countries and 4 international institutions, and 15 Industry presentations were also given. Representatives from some 25 different NATO and SHAPE components were in attendance.

All in all, the event proved yet again to be an outstanding venue for constructive networking and the active creation and pursuit of specific, concrete business opportunities – and of course, from the opposite perspective, a unique chance to learn about the in-

terests, capabilities, goals and technologies on show, and to explore ways to dovetail all of these with one's own requirements. EUROPEAN SECURITY & DEFENCE (ESD) was present in a modest supporting role – and looks forward to elaborating upon that role in 2016.

The event concluded with the now well-established Prague Military Days, offering a wide programme for the general public, enjoyed by more than 3,000 visitors. The next Future Forces will take place in Prague from October 19th-21st 2016, with ESD in close support!

FUTURE TECHNOLOGIES – TODAY'S BUSINESS



Future Forces

INTERNATIONAL

MILITARY - POLICE - IEMS ■ R&D - ACADEMIA - INDUSTRY

Latest needs and approaches to defence and security
 Protection and Equipment of Security Forces ■ CBRN
 ■ Cyber Security ■ Unmanned Systems and Robotics
 ■ Logistics ■ Training & Simulation ■ Digital Battlefield
 ■ Weapons Systems ■ Communication ■ Geospatial
 Field Medical

19 – 21 October 2016

PRAGUE, CZECH REPUBLIC

www.future-forces.org

Information Superiority.



European Security and Defence

- Politics
- Armed Forces
- Economy
- Technology

Dedicated intelligence for the intelligent.

Published bi-monthly as a specialist magazine and escorted by the fortnightly online newsletter 'ESD Spotlight' European Security & Defence (ESD) reports about events, trends and developments in the European and international defence and security environment. ESD's editorial staff comprises professional and recognised writers who report, analyse and comment based on accurate investigations. The magazine's regular contributors include decision makers and experts from politics, international defence organisations, armed forces, ministries and subordinate offices, procurement authorities, academia and associations.

The magazine's objective is to describe, explain and interpret European and transatlantic security policy, force development and armament efforts.

European Security & Defence is available both in print and e-paper format.

INFORMATION • KNOWLEDGE • COMPETENCE

Annual Subscription Rate (print format; six issues per year)

European countries: € 35.60 incl. postage

Subscription rates outside Europe on request



Test "European Security & Defence" and order a free copy now!

Mittler Report Verlag GmbH – Subscription/Reader Service

PressUp GmbH · P.O. Box 70 13 11 · 22013 Hamburg · Germany

Phone: +49 40 41448471 · Fax: +49 40 41448499 · Email: mittler-report@pressup.de

www.euro-sd.com

CREATING AN UNPRECEDENTED FIGHTER TAKES UNPRECEDENTED COLLABORATION.



AT LOCKHEED MARTIN,
WE'RE ENGINEERING A BETTER TOMORROW.

With its advanced stealth, sensor fusion and processing, the F-35 Lightning II is transforming air superiority. But just as remarkable is what it can do on the ground. As a joint production effort among several nations, including Turkey, the F-35 is making a big impact on the global economy too. And with unmatched interoperability, it helps forces work together like never before. Which means that while the F-35 is the only multirole stealth aircraft in production, it's not hard to see all of its advantages.

Learn more at F35.com/Turkey

F-35 LIGHTNING II

NORTHROP GRUMMAN | BAE SYSTEMS | PRATT & WHITNEY

LOCKHEED MARTIN