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INTERVIEW
**SERGEANT MAJOR
DAVOR PETEK,**
ACO CSEL

OPERATION "TRITON"

"ANDRIJA MOHOROVIČIĆ" RESCUES
MORE THAN **2,500** MIGRANTS

INTERNATIONAL CO-OPERATION

**CROATIAN ARMED
FORCES TAKE PART IN**

**TRIDENT
JUNCTURE
2015**

CROATIAN AIR FORCE AND AIR DEFENCE

KIOWA WARRIOR SOON IN THE CROATIAN AIR FORCE FLEET

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INTERVIEW

The Croatian Defence Academy in October 2015 hosted an interesting conference, titled "Research and Technology Innovations in Defence and Security", gathering the Croatian civilian academic and research community and the interested representatives of the Ministry of Defence and of the Croatian Armed Forces and presenting some of the state-of-the-art Croatian and international projects which have been or could be implemented in the domain of defence and security. The most senior foreign visitor was Major General Albert Husniaux (BE), the Chairman of NATO Science and Technology Organisation.



NATO is aware of the need for co-operation as the global threat calls for an Alliance-wide or global response. In NATO the concept of priority is what we, as a collective of 28, think is of importance for all of us. It is up to nations to decide whether they consider that an individual priority as well and invest resources...

GLOBAL THREAT CALLS FOR A GLOBAL AND

Is a conference of the kind a good start for Croatia?

I would think so. The first step is always to learn to know each other. It is very good that the Croatian Armed Forces took the initiative to organise this and to co-operate with your Parliamentary Assembly members and a think tank. You need to have exchanges of views between senior decision-makers, the politicians and the military, those with a more "technical" expertise. The conferences are conditioned by the austerity situation which we are all faced with and the need to share the means and find the ways to work together more closely. The conferences organised nationally will foremostly attract people from the organising Nation, providing them with an opportunity to speak to each other in an international setting. Moreover, I am also sure that you have a broad technology base, a capable industry, and knowledge in those domains addressing national needs. The extensive Croatian presence illustrates the need for national scientists to work together and learn from each other to support developing capabilities for defence and security.

NATO Science and Technology Organisation like other NATO bodies is in a process of reorganisation. We read that it was scheduled to be finished by the end of the year; can you briefly explain what kind of reorganisation it is?

The STO was stood up in July 2012. We were asked to continue to deliver an excellent programme of work

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There is no golden rule, or "one size fits all" solution; it is important that you use NATO Science and Technology network to present the findings that you want to share and that is of benefit for all nations. The Network should be employed in research fostering the development of your country.

while giving it more visibility and connecting it more strongly to the S&T stakeholders' community. The overall aim was to increase the use of the STO programme of work as an important resource in support of the Nations' / NATO objectives, such as capability development. The STO reorganisation addressed the austerity, by looking for efficiencies where possible but foremost by continuing to deliver an excellent programme of work, ensuring the results of that programme of work were a valuable resource to use by the stakeholders.

There are two big components in the STO. One is the Collaborative Network and the other one is a STO body dedicated to undersea research, the Centre for Maritime Research and Experimentation (CMRE) which is located in La Spezia in Italy.

If we look at the collaborative network, which generates the collaborative programme of work, we see an increase in the number of activities from 120 in 2009 to about 200 in 2015. We also observed that nations are more strongly connected to the STO CMRE programme of work: Nations recently have published a report, highlighting the fact that the CMRE PoW has been exploited well in the Nations. This illustrates an important point I would like to emphasise: we have focussed on connecting the NATO S&T communities of interest, those expressing an S&T need and those delivering S&T. If

Major General, MSc Eng Albert HUSNIAUX (BEL AF), NATO Chief Scientist and Chairman of NATO Science and Technology Board (STB), the highest authority in the NATO Science and Technology Organisation (STO)

Mankind will always explore, Science and Technology being one of the strongest exploration means.

you look at the participants and at how the programme is generated, you will notice that there are more and more connections with the communities expressing requirements, which was one of the reform tasks. We also found efficiencies: we have less staff than we had in the past and we have reduced the cost of operating the research vessels. This to say that in my view, we have made good progress. It remains a challenge however, to have decision-makers to continue to investing in the

areas of interest to the nation and to NATO. They pool and share as appropriate per project and once the project is finished they will start another one, not necessarily with the same experts; possibly with other ones. The STO is not a standing organisation with a fixed personnel establishment, it is a network which we draw upon to conduct research, supported by a NATO Staff.

Do you think that NATO funding for common sci-tech projects is sufficient and which projects can be highlighted?

NATO is an Alliance which brings the nations together and nations bring the means; and NATO provides Command and Control. The same is true for science and technology the major part of the resource investments come from the Nations (to conduct the 200+ elements of the Collaborative Programme of Work). There are exceptions, you have the Science for Peace and Programme which is funded by NATO (the collective of 28 NATO Nations). It is intended to foster co-operation with partners and in the Science and Technology Organisation we have also small programme funds for partner support, and of course you have the major part of the funding for the CMRE work in La Spezia.

Is there an area of science and technology to be singled out as crucial for NATO and EU security? The subjects highlighted today were the IT, UAV and composite materials?

It is always difficult to single out one area, so let me quote some examples of subjects the Nations are keen to address through the the STO programme of

ALLIANCE-WIDE RESPONSE

longer term, in times when there are a lot of needs in a shorter term. That is true in NATO and in every nation as well.

We saw the term Network in the STO site, which is a network of 3000 scientists; it sounds highly interesting, could you elaborate on the network and its functioning?

The basic idea is that the nations agree to co-operate, mainly funded by national resources. What NATO (the STO) will do is to provide an enabling and motivating environment for co-operation and to provide guidance on the priority domains and issues and to pool the specialists to conduct the cooperative programme of work sharing the burden and the risk and the results.

Twice a year the governing Board, the STB, will meet at the level of national research directors, to define a collaborative programme of work and to agree on initiating the projects in specific domains, e.g. sensorics or electronics. Then these representatives of the nations will go back to their nations and will seek the right specialists in the respective fields; and if a nation agrees to do that, and this is the network, the researchers will meet to conduct the programme of work and deliver to their activity.

The Network is the Nations' pool of subject matter experts delivering the programme of work in certain



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Technology is not confined to deliver lethal effects in a warfare environment.

work: autonomy and unmanned systems, cyber defence, big data, human performance enhancement, modelling and simulation, advanced materials, advanced manufacturing, directed energy weapons.

These examples address military requirements. NATO (the STO) will do is to look at its needs, express requirements, analyse them and translate them into science and technology language, aggregating them into S&T priorities for NATO.

These priorities are: precision engagement, advance human performance, information analysis and decision support, social and organisational behaviour, autonomy, communications and networks, advanced systems concept, data collection and processing, energy, platforms and materials. These ten priority areas are further detailed, area per area.

When we talk about priorities in a NATO context there is a difference as what you would expect in the national context. In NATO the concept of priority is what we as a collective of 28 think is of importance for all of us. It is up to nations to decide whether they consider that an individual priority as well and invest resources. That is the advantage of working in a network: you have your own views that you augment with the views of 28, discussing with your Allies, comparing notes and at the end of the day sovereignly deciding what to do.



CROATIAN ARMED FORCES

TRIDENT

The Exercise Trident Juncture 15 took place from 3 October – 6 November 2015, testing the readiness of NATO Response Forces was the largest NATO exercise conducted in the past 15 years, engaging more than 36,000 participants from several NATO and partner nations. It has also been the largest exercise event for the Croatian Armed Forces outside the national territory and received due attention, with the formal send-off ceremony for two landing craft minelayers of the Croatian Navy (“Cetina” and “Krka”) staged in Split on 11 October 2015. The craft sealifted 14 members of the Croatian Army with four Patria vehicles, two MAN lorries, a Puch vehicle and the equipment to the port of Sagunto near Valencia. The rest of the participants arrived to Spain by planes or land routes.

The Croatian component consisted of three basic groups – the members of the Croatian Navy operating the two landing craft-minelayers; the 14 members of the Armed Forces making part of NATO’s Deployable Communication Module, and the 1st Platoon of the 1st Company of the 2nd Mechanised



Battalion (“Gromovi”) of the Guards Motorised Brigade. The Platoon is a part of the company declared for NATO Response Force 2016. “We were glad to see our Company selected for the NRF and excited about the opportunity given to us. We initiated the preparations as early as in September, at the individual, pair and squad levels, including the platoon level. The Company has been certified and declared for NRF, which implied that our Platoon was ready to take part in “Trident Juncture”, said the Platoon Commander, 2nd Lieutenant Dinko Frajzman during our visit to the Platoon at the “Pukovnik Predrag Matanović” Barracks in Petrinja. The Spanish Army’s training range “San Gregorio” near Zaragoza, covered with shrubs and dust re-



Author: Domagoj Vlahović, Photo credits: NATO and CMPD photo archive

CROATIAN MILITARY MAGAZINE

THE "TRIDENT JUNCTURE 15" IS THE LARGEST NATO EXERCISE CONDUCTED OVER THE PAST 15 YEARS, SERVING TO TEST THE READINESS OF NATO RESPONSE FORCE (NRF). IT HAS BEEN THE LARGEST EXERCISE EVENT FOR THE MEMBERS OF THE CROATIAN ARMED FORCES, WHO TOOK PART ALONGSIDE CCA 36, 000 PARTICIPANTS FROM 30 COUNTRIES. THE CROATIAN COMPONENT, ALBEIT SMALL, INCLUDED SOME OF THE TOP PROFESSIONAL UNITS – THE DEPLOYABLE COMMUNICATIONS MODULE ASSIGNED TO THE EXERCISE COMMAND POST IN SPAIN, AND A PLATOON OF THE GROMOVI BATTALION, SUPPORTED BY FOUR AMVS, SEALIFTED TO THE EXERCISE LOCATION...



sembles a desert. On seeing the place the members of the 1st Platoon of the 1st Company had an impression they were in Afghanistan again – a sea of sand, rocks and leaves of grass". The Range offers austere accommodation – tents and containers, no built facilities as seen in the training ranges near Slunj or at Gašinci.

More importantly, the Range offers good training and practice conditions, particularly for large-scale events. "Trident Juncture" was an exercise and a training in interoperability of the members of the armed forces of NATO nations. Soon after arrival, the landing crew practiced drills, squad sequential training and evaluations alongside the members of the U.S. Army, the German and Spanish Armed Forces and a variety of assessment, the Patrias crews familiarised themselves with the terrain and started the engines. The vast and open terrain allowed the the members of the Croatian Army component to test the vehicles' options and get a better insight into their operating characteristics, including the

TAKE PART IN JUNCTURE 2015

DCM COMPANY – VALUABLE COMPUTER SUPPORT

The Croatian component to the Exercise Trident Juncture 2015 included a 14-member Deployable Communications Module. It was a specific unit, administratively subordinated to the Signal Regiment of the Croatian army, and operationally to NATO CIS Group (NCISG), i.e. it belonged to NATO Command Structure.

NCISG operated within the Signal Support Group, providing computer support at 14 spots of the Exercise established throughout Europe.

The DCM Company was entrusted with providing CIS support to the Joint Force Command (Brunssum) outpost. It was dispatched to two locations – six members assigned to the CGS group at the Zaragoza Air Base, where a Croatian officer was Deputy of the group. The group had 54 members and consisted of 2-CGS, one from 1NSB DCM B (Germany) and one from 3NSB DCM C (Slovakia). Eight members of the DCM Company were assigned to 1NSB RKM E (Denmark) and were entrusted with providing support to the Ground Logistic Support Group (GLSG). They were in charge of installing and maintaining CIS support to the Command, which comprised more than 800 members, accommodated in 40 tents. The Group's members installed more than 3,500 communications appliances (including workstations, routers, switches, servers and the like).

The Commander of the Exercise, General Hans-Lothar Domröse (GER) commended the performance of NATO KIS group for the important contribution to the Exercise and for ensuring the overall communications and information support to the Command. The members of the DCM company have justified the trust placed in them and demonstrated being able of fulfilling any task beyond the expectations.

INTERNATIONAL CO-OPERATION

movement in broad formations. When the two components joined back in platoons, the practice went smooth and well-versed. The joint operation with the famous Abrams tanks and Bradley armoured tracked vehicles was an impressive sight: "We all perceived the force inherent in the vehicles and had an unique opportunity to practice operation with a number of vehicles across a wide space and realise how challenging it was".

The training ranges in Croatia contain the improvised settlements for the practice of modern urban warfare doctrines, however the settlement at San Gregorio, known as Casa Altas, is far larger and has more facilities – "the size of a small town. It is a very complex task to conduct an operation in such



an environment, without knowing anything about the facilities and who is found in them".

The Croatian platoon was added to the Alpha company of the 2nd Battalion of the 7th Infantry Regiment of the U.S. Army (named "Cottonbalers"). Assigned as "Blue Force", the exercising forces, they opposed the "Red force" (OPFOR) generated from the units which were not in NRF 2016, mostly from the hosting nation and from the U.S. Army. The OPFOR was a respectable force as well, equipped with Leopards 2 – a German manufacturer and one of major competitors against the Abrams.

"The Croatian participants got used to the setting and the situation, having taken part in the Exercise Immediate Response, and they are moving on in the same vein. They have demonstrated high adaptability. The landing crew of the infantry exchanged the vehicles - the U.S. soldiers embarked aboard Patrias, and our soldiers aboard the Bradleys. Similarly, at one moment the Exercise required joint operation of the German, Spanish and Croatian participants.

SAFE VOYAGE THROUGH THE MEDITERRANEAN

Following the return from Spain to the home port Lora in Split (on 13 November 2015), the Commander of the Croatian Navy, Commodore Predrag Stipanović expressed satisfaction over the professional service executed by the Croatian vessel crews safely lifting the forces of the Croatian Army across a 2700-m distance by sea. "The participation in "Trident Juncture" has demonstrated the ability of the Croatian Navy member to fulfill any assigned task. It is important for the Croatian Navy in general, as it has proved its capabilities and the preparedness to perform the task such as this – the sealift of the Croatian forces by the assets available - two landing craft-minelayers.

The participation in Trident Juncture has been a success for us, and we hope to continue performing our duties at the level displayed", said Commodore Stipanović.

The Commander of the Croatian Navy's Flotilla, Navy Captain Damir Dojkić said the Navy was proud of the accomplishments in the course of 2015. The preparations were long and the Commander of the vessel group, Lieutenant Commander Ivica Pavić, chose the best route for a safe passage towards Spain, based on the analyses of weather forecasts. Lt.Com. Pavić expressed his honour in commanding the group and the appreciation to the crews members who worked along as a team and a family, which facilitated successful participation in the Exercise, to the pride of the Croatian Navy.



There may be differences in our operation details and our equipment compared to other countries', but the point of "Trident Juncture" among other things was to "spot, correct or harmonise them". The equipment of the Croatian soldiers draw much attention from the partner forces, for the reason of the quality and very recent date of manufacture, and for the fact that it was entirely made in Croatia, from Patria vehicles (Đuro Đaković Holding) and VHS machine guns (HS Produkt) to helmets (Šestan-Busch) and the uniforms (Kroko). "It is commendable that a small country like yours produces the equipment of such quality", was the impression shared by other participating nations.

At moments the forces were on the brink of exhaustion, particularly following a 10-day training part. The three-day preparations and the Exercise itself were highly complex. The Exercise kicked off with a demonstration tactical exercise for the Distinguished Visitors, among whom NATO Secretary General Jens Stoltenberg, who talked with the members of the "Gromovi" Battalion about the armaments used, and learned that they were the Croatian products. The Croatian forces took part in Combined Joint Offensive Operations (CJOO) – the most important part of the Exercise alongside other nations. The Croatian soldiers, in their Patria vehicles with the Croatian flag painted on the hull, proved their professionalism. What they remember particularly well was the night ride during the Combined Joint Offensive Operations, driving in a

column behind the Abrams and Bradleys, across a harsh and wet terrain. "We woke up at two in the morning, at 3 a.m. we went off to take up the positions for the attack unobserved. The order came from the U.S. component to drive with the lights off; we used the Patrias' thermal imagers, which for us was a new experience. We established a blocking position to curb the attack from east and to enable the remaining forces to seize the Casa Altas village. Of course, we performed our task successfully, and everything went well. I am proud of the members of this Platoon, which I think is one of the best prepared of the Croatian Armed Forces. I'm proud of my squad, I think it is currently one of the best trained in the Armed forces and I am ready to lead it wherever it may be deployed to", said 2nd Lt. Frajzman. Despite the sometimes harsh conditions in the Range, the soldiers we talked to said they enjoyed it and expressed the wish to take part in more exercises. They were part of the 50-member component selected from the Croatian Army units to participate in "Trident Juncture", and believed their contribution was well-received. The Croatian participants in the Exercise were aware it was a valuable and gratifying experience for them and for their careers as well as for the Croatian Armed Forces.




TWO-DECADES OF PARTNERSHIP

THE MINNESOTA NATIONAL GUARD



The National Guard is a centuries-long tradition in the United States. Following the Civil War each federal state - Minnesota included - established its National Guard. The Guard is mobilised upon the invitation from the state Governor in the event of major disasters, natural disasters and other emergencies and assist the civilian population. In the event of need its members can be called into federal active service commanded by the President of the United States. Although Minnesota is the 26th U.S. state in terms of population, its National Guard is the fifth largest Guard with 13,000 members organised in two components – the Minnesota Army National Guard Units Army (larger) and the Minnesota Air National Guard. The Air National Guard consists of the transport and the combat component, ensuring protection of air sovereignty of the State of Minnesota and providing combat support to the activities of the U.S. Army in international deployments. The Minnesota Army National Guard is taking an active part in a series of peace operations and missions worldwide (Afghanistan, Iraq, Kosovo, Kuwait)



The Minnesota National Guard and the Croatian Armed Forces have had a ongoing co-operation for 20 years already through the "State Partnership Program", which saw a number of joint exercises (such as GUARDEX and CROMINN), the joint OMLT training teams deployed to Afghanistan from 2009 to 2012, as well as humanitarian projects conducted in Croatia...



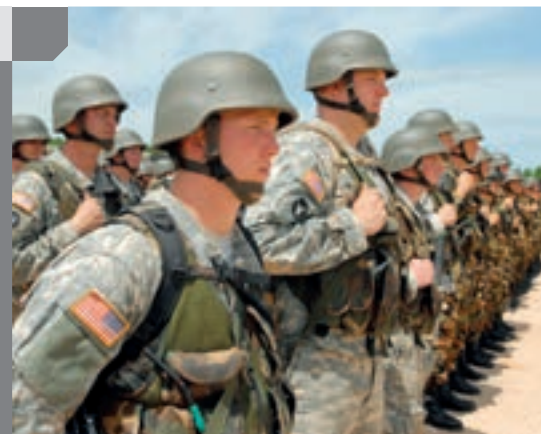
Minnesota and Croatia have run military co-operation since 1996 – the year in which the Minnesota National Guard launched the "State Partnership Program" to assist the Croatian Armed Forces develop military capabilities, ranging from the participation in peace operations to engagement in various humanitarian operations. The co-operation has yielded more than 130 bilateral military and civilian activities, firstly in the domain of training and education and gradually expanded to others. The co-operation and partnership have been intense in the past ten years, especially with the GUARDEX Exercises aimed at strengthening the mutual trust and assisting the Croatian Armed Forces upgrade their capabilities and reach NATO standards. The exercises were conducted as planned activities of the joint U.S. – Croatia military-to-military co-operation programme, comprising air force, naval and army forces bilateral ac-

tivities at the "Crvena zemlja" and Gašinci training ranges. For the first time a platoon-sized force arrived to Croatia to take part in GUARDEX 06 and the co-operation continued into 2012, with the aim to consolidate the achieved NATO standards in training and exercise planning, organisation and conduct and to upgrade interoperability at the tactical level employing NATO doctrines and procedures, and they grew complex in time. The programme included reciprocal activities and the members of the Croatian Armed Forces were regularly invited to take part in CROMINN exercises in the Camp Ripley in Minnesota.

The Croatia-U.S. strategic partnership grew in importance with the inclusion of the Croatian Armed Forces in the ISAF operation in Afghanistan, and with ever more responsible tasks entrusted to them, particularly upon the accession of Croatia to NATO. An important milestone was a deployment of a joint CS Operational Mentoring Liaison Team (OMLT) to ISAF, which testified of the trust placed in the Croatian military capabilities. The first OMLT rotation

AND ALLIANCE

– nearly 25,000 members of NGM served in the international missions in the past fifteen years. The MNG members are trained at Camp "Ripley", which provides superb training capacities and opportunities for various military and civilian training agency requirements. In addition to their ability to act in emergencies, natural disasters, administer first aid, conduct search-and-rescue actions the members of the Minnesota National Guard have forces prepared for response to CBRN accidents, drug interdiction as well as honour duties. The community support is one of the key missions of the Minnesota National Guard, which is particularly committed to the programme of re-integration and re-socialisation of the personnel following their deployments and to the support to their families. It was the Minnesota National Guard that pioneered the initiative, which subsequently grew into a nation-wide programme of re-integration of veterans into the community known as "Behind the Yellow Ribbon".



"STATE PARTNERSHIP PROGRAM"

The National Guard Bureau in 1993 launched partnerships between the National Guards with the countries in Europe, Africa and Asia titled the "State Partnership Programs" (SPP), today a major U. S. security co-operation factor. The programme consists in connecting the U.S. defence system components (primarily the single states' National Guards) with those of the respective country in the partnership. The civilian-military co-operation has a wide scope of activities, ranging from defence and security to the disaster management and relief, inter-institutional co-operation, bilateral training events and exercises.

Today the programme joins as many as 65 countries worldwide and 40 U.S. states. The Minnesota National Guard has State Partner-

was in early 2009, commanded by a Croatian officer. The pre-deployment training was conducted in the Gašinci Training Range, where the members of the two forces prepared to perform the mentoring of the Afghan National Army in reconnaissance, artillery, engineering and staff personnel. The OMLT was the peak of the bilateral co-operation between the Minnesota National Guard and the Croatian Armed Forces and one of the most demanding tasks the Croatian Armed Forces had been assigned. A total of six 6-month OMLTs were deployed to Afghanistan.

The regular exchange of infantry units grew into a regional defence co-operation format - in the Exercise "Adriatic Aurora" at the Gašinci Range the members of the Croatian Armed Forces conducted drills alongside the members of the Minnesota Nation-





ship Programs with Croatia, Norway and Canada. The Partnership Program MNG- Croatia was launched in early 1996 and involved more than 100 various bilateral civilian and military activities to date.



PRESIDENT OF THE REPUBLIC OF CROATIA VISITS MINNESOTA



Photo: Minnesota National Guard

The President of the Republic of Croatia, Kolinda Grabar-Kitarović did not miss to include Minnesota during her official visit to the United States in early January 2016. She met with the Minnesota Governor, Mark Dayton in St. Paul, with whom she reviewed the past two decades of co-operation between the Minnesota National Guard and the Croatian Armed Forces and the prospects for its development, namely the civil community life and the possible military assistance to civilian institution in cyber defence.

Marking the jubilar twentieth anniversary of the successful co-operation between Minnesota and Croatia President Grabar-Kitarović and the Croatian delegation visited the Minnesota National Guard and the Camp Ripley Training Center - the largest military training camp in Minnesota. During the meeting with the Adjutant General of the Minnesota National Guard, Major General Richard C. Nash the Croatian delegation discussed the bilateral co-operation between the Minnesota National Guard and the Croatian Armed Forces with the focus on the enhancing of the interoperability and the possible new domains of cooperation.

al Guard joined by the members of the units of the Army of the Republic of Macedonia, the Republic of Albania as well as of National Guards of New Jersey and Vermont. The co-operation has been expanded to domains other than the military, to include joint engineer works renovating public facilities, most often related to exercises. The U.S. and the Croatian engineers co-worked on a series of projects – elementary schools, kindergartens, community centres and hospitals.

Other services have gradually been included as well – the members of the Minnesota National Guard administered the pre-deployment training of waist gunners of the Air Advisory Team and the training of Croatian Mi-171 Sh waist gunner instructors in the Lučko and Zemunik air bases. The continuous co-operation was expanded to include on other training aspects and overall helicopter crews capability-lifting activities. New domains added to the co-operation were cyber defence capabilities, the intensified co-operation with the Combat Training Centre at the Eugen Kvaternik Training Range, as well as other civil-military co-operation programmes and programmes of assistance to civilian community, which is an area of rich expertise for the Minnesota National Guard.

The productive co-operation facilitated by mutual trust has in the past two decades evolved into strategic partnership and Croatia asserted itself as a credible ally and associate. The partnership will go on as the Minnesota National Guard will continue to support Croatian initiatives, particularly those at the regional level, as underlined recently by its Adjutant General, Major General Richard C. Nash in an interview for our magazine, in view of the progress achieved by Croatia to serve as model for the countries in its neighbourhood where it has taken a leading role thanks to its efforts, competence and initiative.





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SPECIAL FORCES EVALUATED COMBAT

The Barracks at Udbina in mid-November hosted the Exercise Uskok 15, as evaluation event in the implementation of Capability Goals in the area of responsibility of the Special Forces Command. The evaluated unit was the 1st Special Forces Group, staff officers and NCOs preparing for duties in the Special Operations Headquarters, who spent months training for the Exercise...



The barracks "Drgomali" in Delnice and "Josip Jovic" at Udbina in mid-November hosted a large exercise of the special forces of the Croatian Armed Forces titled "Uskok 2015", as an evaluation event for the implementation of Capability Goals in the area of responsibility of the Special Forces Command. The evaluated unit was the 1st Group of Special Forces and staff officers and NCOs preparing for the duty in the Special Operations Headquarters, who spent months preparing for the Exercise. The 1st Special Force Group completed a series of individual training and practice events and courses at home and

abroad, and has experience in international operations. Its members have acquired the skills and knowledge necessary to implement the Deployable Capabilities Goals for Special Operations. They were expected to have completed international special operations staff officer courses, the participation in several international military exercises of special forces and the experience in decision making on the planning and the use of special forces in special operations.

The evaluation was conducted by the Evaluator Team of the General Staff of the Croatian Armed Forces,

READY BY NATO



headed by Colonel Mijo Kožić and was attended by NATO Monitor Officers – Lieutenant Colonel Sandor Fabian, Senior NATO Monitor for NATO Special Forces Headquarters; Major Andrija Mihanović, Croatian representative to NATO Special Operations Headquarters, and Sergeant Major Antonio Pelegrino - who monitored the Croatian Evaluation Team's adherence to the standards, methodology, procedures and check lists as prescribed in the manuals for Special Operations.

The Exercise was also attended by the observers of the International Special Operations Training Centre, and representatives of Polish and Slovenian special forces.

The Croatian Air Force and Air Defence, the Psychological Opera-





SPECIAL FORCES COMMAND

COLONEL MIJO KOŽIĆ, HEAD OF THE EVALUATOR TEAM



The evaluation covered the capabilities of planning, preparation and the conduct of special operations as well as preparedness for a full spectrum of special operations, including three basic tasks: special reconnaissance and surveillance, direct action and military assistance as a self-standing force or an assigned element. The focus was also on the capabilities of procedure establishment and the use of the equipment in the tactical-level air-ground integrations, multinational joint special operations on a 24-h basis in various settings and the implementation of non-lethal procedures.

We also evaluated the competence in planning, surveying and co-ordinating the infiltration and exfiltration with own means,

as well as of the integration of the required level of medical capability, and of the use of the available intelligence data and of the required level of force protection.

The 1st Special Force Group of the Special Forces and the staff officers of the Special Forces Command have invested major efforts into the preparation to be evaluated in compliance with the standards applicable for special forces (SOF EVALUATION) and displayed excellent preparedness. The Group has proved a high level of professionalism and motivation and was evaluated COMBAT READY, implying that it fulfilled the standards of the implementation of Capability Goals", said Colonel Kožić.

tions Platoon (support in non-lethal operation) and UAV of the Special Operations Division provided the support to the forces in the Exercise.

The first part of the Exercise and the evaluation was conducted in the "Drgomaj" Barracks in Delnice. Having received the assignment to take towards the area of operations, the Group marched to the Barracks "Josip Jović" at Udbina - the exercise site, where the three capabilities of the Group were evaluated – military assistance, direct action and special reconnaissance.

THE EXERCISE CONDUCTED IN REAL TIME AND CONDITIONS

The Exercise was conducted entirely in real time and in realistic operating conditions for the special forces. The most demanding was the the direct action, against a terrorist stronghold in an old ramshackle school building, at night. Nobody except the leaders of the special teams infiltrated into the area of operations knew which tactics would be employed and at what moment. The Tactical Operations Centre



was the only entity familiar with the movement of the teams, who reported to it from every control point on the way to the target.

The participants waited for some time before the action commenced. They first felt bone-chilling cold. The silence of the night was only broken by distant dogs barking. No sooner had we thought that we would remain there until dawn and quit thinking about the possible scenarios, then the shots heard from all around and occasional flashes of the weaponry were seen. "There is a wounded soldier", someone cried – a shot wound to the stomach". MEDEVAC is requested; the paramedic arrived in no time and prepared the wounded for transport. The helicopter has landed. The success of the action is in the seconds. The gunners of the MRAP M-ATV cover the procedure constantly by fire. Everything has been conducted as prescribed, well-timed and organised.

The Exercise Deputy Director, Captain Damir Miljković explains that the action was preceded by data collection, signal and mobile phone tapping,





LIEUTENANT COLONEL SANDOR FABIAN, SENIOR NATO MONITOR

Lieutenant Colonel Sandor Fabian, Senior NATO Monitor of NATO-ova Special Operations Hq, monitored the operation of the Evaluation Team of the General Staff of the Croatian Armed Forces, said the Croatian special forces demonstrated a high level of readiness and capability.

"The Croatian Armed Forces can be proud of the capabilities demonstrated in the Exercise. The Croatian special forces have made considerable progress, which took time but was worth it, because it yielded in high-level capabilities and the interoperability with NATO standards and requirements".

Colonel Fabian praised the Croatian Evaluator Team: "Two members of the Team graduated from the SOFEVAL Course at the NSHQ and had here the opportunity to demonstrate the knowledge they acquired. The Evaluator Team of the Croatian Armed Forces organised and implemented the evaluation according to NATO standards in a highly professional manner and I am satisfied and proud to be a member of the Evaluator Team". Lieutenant Colonel Fabian also said that he noted a number of procedures which he intended to use as examples of good practice and lessons learned from the exercises and evaluations. Despite being a small country, Croatia conducts professional evaluations to be followed by other countries, which he praised. "We were impressed by the engagement of the forces and the preparation and evaluation matrices prepared by the evaluators."



communications disruption and other actions of support from the Intelligence Support Division. The capabilities of the special forces were tested through a series of incidents that involved negotiating with the local superiors, the communication with the civilian population, the procedures to follow in the event of NBC attack, operating under the mask, procedures and reporting, requesting the demining

team; military assistance – the training of members of foreign countries' forces to prepare them to organise and conduct actions autonomously.

The tasks of the kind are reserved for the special forces, who underwent hardest trainings defying the limits of durability and merit being treated as elite units. To belong to the special forces is a privilege.

The Group has been evaluated "combat ready", by the Chief Evaluator of the General Staff of the Croatian Armed Forces. The evaluation is valid at NATO level, confirming superb preparedness and strict following of the high standards for the evaluation of special units.



CSEL DUTY

THE LEVEL

There are few senior duties in the chain of command. However, the peak of my career will be to pass the knowledge, experiences and contacts on my colleagues of the Croatian Armed Forces...

The officers and NCOS of the Croatian Armed Forces have been appointed to important duty posts in NATO for seven years – since Croatia's accession to the Alliance. However, the appointment of Sergeant Major Davor Petek as the ACO CSEL was the one that received a wide media attention in Croatia, probably as the appointment was not a regular succession in a post assigned to



IS CONSTANT, OF RESPONSIBILITY VARIES

a Croatian NCO but Sergeant Major Petek was selected for his professionalism and commitment, and for the contribution of the Croatian soldiers in NATO-led operations.

You have spent half a year in the post of ACO CSEL. What were your first impressions?

The first impressions were absolutely positive and for several reasons. The duty of ACO Command Senior Enlisted Leader (CSEL) was introduced in 2003, and all relative procedures, the administration and financial support as well as other factors for successful operation have been in place and clearly defined.

Sincerely, after a first moment I was alone in the new office, in front of heaps of docu-

ments, and a busy schedule of meetings and travels, I wondered why I had gone for that, but step by step, and thanks to the support from the team I picked up the threads and immersed into the job. All the more so I am fully committed to it, living without my family in Mons.

Now, with my present six-month experience as CSEL I have the impression that I have really been here for years already. A highly dynamic and demanding daily routine, either at the SHAPE in Mons or during the activities in other countries demand constant concentration and simultaneous survey of a number of activities. Sometimes you find yourself under information overload, but wise planning and readiness to dedicate every free moment you have to study, read and develop, it all becomes manageable. The job itself is highly demanding both in the physical and psychological terms, but it provides me with new knowledge and information, the contacts with enlisted soldiers and NCOs from a number of countries on a daily basis.

How long it took You to adapt to the new duty?

The fact my previous duty was the Croatian Armed Forces Command Sergeant Major and that I had an excellent co-operation with the NCOs throughout NATO facilitated the familiarisation with the duty. Of course, I spent my first weeks here studying intensively the documents, reports and plans to be able to communicate credibly at this strategic level. My predecessor, CSM Todd Small mentored me in all regular activities and initiatives from the moment my appointment was publicly announced to the completion of the duty handover, so I was well familiar with the moves and initiatives I was expected to launch or continue. The entire NCO team, including my closest associates in the office, to Senior NCOs of NATO Commands and partner nations have provided great support and enabled me to focus on the vital aspects.

What are the specificities of the duty of ACO CSEL? Is it more NCO or is it more about diplomacy?

It depends whether it is about the activities within the ACO and subordinate organisations, or about national activities and contacts. In ACO (and the subordinated organisations implied) I am more of a NCO as they have their own CSELs with whom I co-work in the same way I worked with my colleagues in the Croatian Armed Forces. The diplomatic aspect is well present as various nations are involved, with various historical, cultural and military heritage. In national contacts it is the diplomacy that prevails, as the purpose of the contacts is to procure common solutions to upgrade national NCO corps, education systems, regional co-operation and the influence of the national development on the level of preparedness of enlisted soldiers and NCOs assigned to NATO Command Structure, NATO Force Structure or NATO-led operations.

A highly dynamic and demanding daily routine, either at the SHAPE in Mons or during the activities in other countries demand constant concentration and simultaneous survey of a number of activities. Sometimes you find yourself under information overload, but wise planning and readiness to dedicate every free moment you have to study, read and develop, it all becomes manageable. The entire NCO team, including my closest associates in the office, to Senior NCOs of NATO Commands and partner nations have provided great support to me, and enabled me to focus on vital aspects.

Was the duty of the Croatian Armed Forces' Command Sergeant Major a good preparation for the duty of ACO CSEL?

Absolutely. The duty of the Command Sergeant Major or CSEL is always the same, only the level of responsibility and the area of operation vary. The experience gathered during the office in the General Staff of the Croatian Armed Forces, particularly co-operation with its various components, enabled me to continue co-operating with the DCOS and ACOS. The co-operation with the Chief of Staff is of paramount importance as he makes all decisions directly affecting the operation of the ACO staff personnel. I have to emphasise here the support from the ACO Chief of Staff, General Freers, for all initiatives related to the ACO.

The subject of enlisted soldiers and NCOs in the Croatian Armed Forces has been in focus of the majority of NATO nations and partners. Comprehending the influence of certain rules, guidelines and orders on the most junior levels in the Croatian Armed Forces has enabled me to receive concrete feedback - in direct contact with the forces engaged in operations and exercises - on the positive and negative outcome of the decisions made at top levels.

The work at the strategic level in the Croatian Armed Forces was of great help in the transfer from the national to multinational thinking and operation mode.

Can Your appointment as ACO CSEL be viewed as proof of the quality of the NCO Chain of Support in the Croatian Armed Forces?

My appointment to the duty rests on the efforts by the NCOs of the Croatian Armed Forces, but even more on the contribution of our soldiers in NATO-led operations. Namely, the criteria in the selection process include the achievement of the candidate's country and the armed forces equally as his personal accomplishments. The training and education system of the Croatian Armed Forces is excellent, as our soldiers and units have distinguished themselves in NATO structures, operations and international exercises, and these facts have contributed to my appointment.

Your term as the Croatian Armed Forces Command Sergeant Major was characterised by innovative proposals. Do you have the opportunity to express and realise them in the ACO?

Launching new initiatives in NATO is far more demanding than is the case in national systems. However, we did launch some initiatives that both SACEUR and I saw as contributing to improved operation within the ACO. One such initiative, now in a closing phase, is the improvement and updating of

the official job description for the ACO NCOs. There were several motives - the most important consist in clear outlining of main tasks, required qualifications, training and education background and the updated official duty titles. The idea was to clearly indicate that the NCOs of NATO Command Structure carry out much more important and demanding duties than suggested by the previous job descriptions.

By clearly stating the required courses and education background we intended to enable the NCOs continue their professional development during the office at NATO so that on their return enriched with new competences and experience and thereby further upgrade the national NCO Corps.

We are currently in the process of reviewing of NATO NCO Bi-SC Recommended NCO Guidelines, which is one of the main documents defining the required competences and knowledge of candidates for NATO posts. We intend to state clearly the expectations related to the duties of enlisted soldiers and NCOs in staffs, commands and operations as well as the NCOs' leadership. I must emphasise the excellent co-operation with the ACT CSEL, Command Chief Master Sergeant Jack Johnson in this process. We have upgraded the existing system of professional development in our Command with new elements, such as the courses administered by NATO Schools' Mobile Training Team which offer those unable to attend NATO School the opportunity to take the training. The graduates from the courses become active participants of our professional development plan as mentors, lecturers, instructors and the like. We have introduced the CSEL's Quarterly Hours, which is an occasion to present the updated information on ACO activities, the proposed schedule for NCOs and their families as well. The CSEL Quarterly Hours are important as they gather the top-level officers and give us the direct liaison with the decision makers within the different NATO Commands (SACEUR, DSACEUR, COS, VCOs) and the opportunity to openly discuss some issues related to the life of the NCOs and their families.

My appointment to this duty is a reward for the efforts by NCOs of the Croatian Armed Forces and even more for the contribution of our soldiers in NATO-led operations.





Furthermore, we have introduced the "Battlefield Tour" – i.e. the guided tours to familiarise the NCOs with the military history of this part of Europe. There are more other initiatives some of which have found practical application while others are stand-by pending the national military and political endorsement.

What is the view of SACEUR (General Breedlove) on today's role of the NCOs in modern Armed Forces?

General Breedlove is the biggest advocate of the importance and the role of NCOs and young officers. Since his appointment as SACEUR he made it one of his principal objectives to enhance and develop NCO and young officers. His "3+1" Strategy has sent a clear message to all NATO nations and partner countries on his plans for the future role of NCOs in the Alliance. The phrase he inaugurated – the "untapped goldmine" – has become a synonym for the potential contained in NCO Corps. I would like to quote Gen. Breedlove's words as I think they reflect his view of the role of NCOs best: "I am sure NATO in its mission of providing collective security to its members, deterrence of conflicts and overcoming the opponent can rely on NCOs to a significant extent. Further development of NCO capabilities through the exercises, training, experience gathering and professional training enhance our nations' combat readiness. For NATO and partner nations alike the NCO Corps is a goldmine of capabilities which we must learn to employ and direct more efficiently".

Do you see the room for greater engagement of command sergeants major in their units and armed forces at the global level? What are your suggestions in that regard?

Not just command sergeant majors, I think that applies to all NCOs. Today's operations are not the way they used to be. We see small units, composed of a small number of officers and a much larger share of NCOs and enlisted soldiers, conduct their tasks daily. Direct leadership and decision-making in the field, in training and exercises is with NCOs. The decision making competence, initiative, resourcefulness, comprehension of higher goals combined with the skills in the conduct of tactical operations are increasingly in the job description of NCOs, as well as the skills in maintenance of the assets and weaponry, daily head-

quarters operation, the conduct of a larger number of assignments with the same or reduced resources necessitate wiser management. Those skills are found in NCOs. Investment into their development and training is at the same time the investment into the national defence system and by extension into NATO itself. We recently conducted a comparison between officer vs NCO subject matter experts which revealed higher competence of NCOs in some specialist domains. It is a result of the different career paths as senior NCOs have 15-20 years of experience, unlike young officers. Some assignments hereto reserved for officers should be gradually delegated to NCOs, but we must not neglect the development of young officers and have to offer them the opportunity to gather career-relevant knowledge.

Are you still involved in promoting junior NCOs? Does your present duty leave you time in that regard?

One of my main tasks within the ACO is indeed the spotting, shaping and directing of the potential, and enabling junior NCOs to take the initiative and more responsibility. In ACO it is not difficult as we all direct our efforts towards common goals. Although the ACO CSEL is the leading authority for most activities related to professional development within the ACO, I delegate some of them to junior NCOs who evinced professionalism and the commitment to take on extra duties. What we achieve by doing so is to ensure their self-development and to enable them to carry out tasks of strategic importance, with the support from ACO CSEL and from senior and more experienced NCOs. Our goal is to maximise the chances for success offer them the opportunity to prove themselves. As for the development of enlisted soldiers and NCOs in individual nations' defence systems, we constantly emphasise its importance in all contacts, meetings, visits, conferences and advise national defence authorities on the modalities for the development of their soldiers and NCOs and on the tools offered by NATO to assist them in that regard.

A considerable number of programmes administered by NATO, the EUCOM or bilateral partners in the domain of the development of NCOs, ranging from basic training programmes to the drafting of national legislations on careers, promotion, education and the like. One of my responsibilities is the co-ordination with other NATO commands on the support to member and partner nations. The progress we are making is perceivable on a daily basis. A recent example is the Kingdom of Norway, which amended its legislation following the disbandment of NCO Corps in 1975 to re-introduce NCOs into its Armed Forces and is preparing the legislative frameworks towards the full integration.



Direct leadership and decision-making in the field, in training and exercises is with NCOs. The decision making competence, initiative, resourcefulness, comprehension of higher goals combined with the skills in the conduct of tactical operations are increasingly in the job description of NCOs.

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USS "HARRY

From 5-9 December 2015 the U.S.S. "Harry S. Truman" (CVN-75) moored in Split on its way to the Middle East. The carrier accommodates 74 aircraft and 19 helicopters and provides maritime support in the 5th and 6th U.S. Fleets' areas of operation...

ANCHORS

The U.S. S. "Harry S. Truman" (CVN-75) on 5 December entered the Croatian territorial waters and anchored in Brač Channel. It departed from the Naval Station Norfolk on 16 November heading for the Middle East to provide support to the activities of the U.S. and the allies.

"Harry S. Truman" has been in service since 1996, as the eighth of ten Nimitz class nuclear-powered aircraft carriers. Its overall length is 332.85 meters, the flight deck width 78.34 meters and has a crew of 5,000.

The carrier entered the Adriatic along with the USS Anzio guided-missile cruiser USS "Anzio", which anchored in the Lora Navy Port, and four destroyers moored in other locations in the Adriatic.

The Carrier Strike Group (CSG-8) consists of a total of 12 vessels and submarines. The carrier itself accommodates several air squadrons with 74 fixed wing and 19 rotary wing aircraft. The Group's air strike (Carrier Air Wing Seven CVW-7) are the F/A – 18C Hornet and F/A – 18 E/F Superhornet fighter aircraft, the MH-60R Seahawk and MH-60S Knighthawk helicopters, the E-2C Hawkeye electronic reconnaissance aircraft and the C Hawkeye aircraft and the EA – 18G Growler electronic attack aircraft.

The carrier is fitted with the Sea Sparrow and the Phalanx CIWS (consisting of a radar-guided 20 mm gatling gun mounted on a swiveling base) for air defence.

During the four-day visit to Croatia, the USS "Harry S. Truman" received a number of journalists aboard. A short walk across the deck and talking to most kind crew gave us a deeper

insight into the carrier. The smooth operation is ensured by co-ordinated performance of the teams, each in charge of a separate duty and wearing a distinct recognisable vest and helmet colour – the seamen in yellow vests are in charge of the launching of the aircraft, the white-vests are responsible for safety, medical care and signalling; the teams in blue attend to the lifts, the seamen in purple to the refuelling, the team in green are the maintenance personnel, the red for search-and-rescue while the captains and aviation officers are recognisable in brown.

The Carrier's structure includes four lifts, capable of elevating two aircraft up from the hangar bay to the flight deck within seconds, and four catapults, with launch rate 40 to 60 seconds day and night, and the aircraft reach the speed up to 265 km/h within two minutes. The landing is enabled by the aircraft tailhooks snagging one of the four arresting wires at a surface less than 100 m long.

The crew took a four-day leave and visited the town. The Commanding Officer of the Carrier, Navy Captain Ryan Scholl said they were glad to have the opportunity to visit the country which was "like a beautiful painting" with its nature and culture. He especially praised the professionalism demonstrated by the members of the Croatian Navy, the partnership and the possibility of joint practice and the exchange of the experience.

Some seventy aircraft aboard the carrier include 44 fighter aircraft operated and attended by 94 pilots and 1,800 servicemen, says the Commanding Officer of the Carrier Air Wing Seven CVW-7, Navy Captain Frederick Luchtman. Each aircraft is armed with the air-to-air missiles and com-



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The Commanding
Officer of the
Carrier, Navy
Captain Ryan Scholl



The carrier was named after the 33rd President of the United States, Harry S. Truman, in office after the World War II. The ship's callsign is "Lone Warrior".

Author: Vesna Pintarić, Photos: Tomislav Brandt, Stjepan Brigljević

CROATIAN MILITARY MAGAZINE

S. TRUMAN" OFF SPLIT

The Harry S. Truman Carrier Strike Group consists of the aircraft carrier and several auxiliary Navy vessels (the Ticonderoga-Class USS Anzio guided-missile cruiser (CG-68) and guided-missile destroyers USS Gravelly (DDG-107), USS Bulkeley (DDG-84), USS Gonzalez (DDG-66) and USS Ramage (DDG-61). The Group is commanded by Rear admiral Bret Batchelder.



pletely fit for any assignment and highly flexible. We met a Croatian among the crew of "Harry Truman" – a 21-aged Zagreb-born Alen Samardžić, who told us he was very pleased to be in Croatia. He said serving on a vessel of the kind was an achievement and made him very proud to be a member of its crew. Our brief familiarisation was concluded with a tour of the conning tower, which offered an impressive view of the sunset over Brač Channel.



We met a Croatian in the crew of the USS "Harry Truman" – a 21-aged Zagreb-born **Alen Samardžić**, who told us he was very pleased to be in Croatia. He said serving on a vessel of the kind was a major achievement and made him very proud to be a member of its crew.

OPERATION "TRITON"

"ANDRIJA RESCUES MORE

THE CROATIAN NAVY'S TRAINING SHIP "ANDRIJA MOHOROVIČIĆ" IN EARLY NOVEMBER RETURNED TO ITS HOME PORT LORA IN SPLIT FROM THE THREE-MONTH SERVICE IN THE EU-LED OPERATION "TRITON". DURING THE MISSION THE CREW OF 54 (49 MEMBERS OF THE CROATIAN ARMED FORCES AND FIVE MEMBERS OF THE BORDER POLICE) SAVED THE LIVES OF MORE THAN 2,500 MIGRANTS...

The homecoming ceremony for the Croatian Navy's Training Ship "Andrija Mohorovičić", which spent three months in the EU-led Operation Triton saving migrants. The mission was completed by berthing in the Sicilian port of Catania on 30 October 2015. The 1st Croatian contingent to Triton was commanded by Lieutenant Commander Vlado Zoko and the Ship by Lieutenant (N) Stjepan Giljević. During the mission the crew (composed of 49 members of the Croatian Armed Forces and five members of the Border Police) rescued more than 2,500 migrants. Welcoming the crew back the Defence Minister Ante Kotromanović expressed the satisfaction over the remarkable service in the Operation demonstrating Croatia as a well-organised country capable of

managing the risks in the national territory and in the Mediterranean. The Croatian Armed Forces are manned by highly competent officers who can carry out any task and who prove military efficiency combined with enviable humanity, the Navy personnel here and the Army personnel handling the migrants along the land routes.

"I have heard the commendations from the Operation's commanders. The participation in the Operation "Triton" is a valuable experience for the Croatian Navy and the Armed Forces and a major incentive to increase the investment into Navy's capabilities", said Minister Kotromanović.

The Commander of the Croatian Navy, Commodore Predrag Štipanović said that during the three-month deployment a large number of people (among whom elderly people and children) were rescued, testifying

Author: Petra Kostanjšak, Photos: J. Kevrić, P. Kostanjšak, T. Brandt



to the professionalism and the ability of the mission conduct.
“On departure I called on the crew to act as professionals but foremostly as humans, the last ray of hope to the migrants and to assist them in the best possible way. We may be soldiers, Navy officers and professionals but in the situations of the kind it was humanity that counted”, said Cdre Stipanović. Asked to describe the difficult situations during the deployment the Commander of the 1st Croatian Contingent to Operation Triton 2015, Lieutenant Commander Vlado Zoko recalled the episode of rescuing over 300 migrants,

“MOHOROVIČIĆ” THAN 2,500 MIGRANTS





INTERVIEW – THE COMMANDER OF THE

LIEUTENANT (N) STJEPAN GILJEVIĆ



On the return of the Ship her Commander, Lieutenant (N) Stjepan Giljević described the three months spent in the Operation Triton.

This has been the first participation of a Croatian Navy in an international operation; under Your command; how does it feel?

To have been a commander to the crew who saved more than 2,500 human lives is a most touching experience. I am therefore very proud to have spent the three month aboard with these seamen, and I shall remember it for life. It really made it easier to carry out the responsibility and to command the ship.

What were the assignments of "Andrija Mohorovičić" in the Operation Triton? Did you face any extraordinary and unpredicted situations?

Our daily assignment was to patrol along the outer border of a designated zone. Upon detection of the position of the vessels with the migrants signalled from the Operation Headquarters our Ship headed fast towards the spot and launched the rescue operation. We anticipated each new rescue case to be the hardest. The dispatching a team to transfer the migrants was a difficult and risky task you never knew what you could expect in an encounter with depleted people and who might be aboard those vessels as well. Fortunately, we never experienced any resistance from the migrants, but there were extremely hard cases of rescue, which lasted for hours, at night time on agitated sea. The transfer of migrants found in precarious health and physical condition seems virtually impossible; it takes a lot of patience, psychological stability, stamina and the determination to assist people in need. And the members of my crew, the Croatian Navy members evinced all these qualities, for which all of us in Croatia have to be proud of. They acted bravely and humanly, assisting the people who found themselves in perilous situation beyond their guilt.

How did the communication and the co-operation with ship commanders of other participating countries run?

In a few cases we executed the rescue mission jointly with the crews of other institutions (Financial Police,



when one family got separated and the crew had aboard two children without the parents to look after; however professional we are human beings foremostly and we were shaken with the experience", said Lt.Cdr. Zoko.

The "Andrija Mohorovičić" Training Ship was assigned with daily patrolling in the Ionian Sea along the 200 nm east off Sicily; the crew rescued the migrants from the vessels coming from NE coast of Libya and from the Middle East. Upon detection of the position of the vessels with the migrants signalled from the Operation Headquarters the Ship headed towards the spot and launched rescue operation. The rescued migrants were provided care aboard the Ship and transported to the port of debarkation, where they were taken care of by the respective services in charge.

"ANDRIJA MOHOROVIČIĆ" TRAINING SHIP

Coast Guard, Navy) of the United Kingdom, Sweden, the air crews of Portugal, the Netherlands, Italy and in a few cases with the crews of merchant ships. We had excellent co-operation with them, they are top professionals who left a great impression on me. Some of these crews had more experience with the migrant crisis on which we could rely. We devised and adjusted our tactics according to their experiences. Likewise, we were later able to transfer our own experiences on the crews who took part in the operations of the kind for the first time.

Is there any task and experience that You would single out as particularly memorable?

There is. In August we were sent to rescue some 350 migrants from the vessel whose engines broke down and the sea poured into. Our ship was dispatched to the spot, alongside two smaller vessels of the Italian Coast Guard. We arrived late in the evening and managed to transfer our team aboard the migrant vessel but it was impossible to transfer the migrants by operations vessels due to the adverse weather conditions. Our embarkment team mended the engines and operated from the flank of the tanker sailing not far off and enabled safe transfer of migrants onto the workboats from which they were subsequently transferred onto our ship, which took hours to complete because of the conditions at sea. Unfortunately, one migrant had died earlier that day due to the lack of insulin, and we had her body transferred aboard "Andrija Mohorovičić" too.

Would You and the crew members take part in the Operation or in a similar one again?

Certainly, I am sure we all feel the same about it. The Operation had a humanitarian character, we were saving human lives and that is an experience to remember for life.



The crew of the Croatian Navy Training Ship "Andrija Mohorovičić" were the recipients of the "Vjesnik Blue Ribbon" for saving the lives of more than 2,500 migrants in the Mediterranean in the EU-led Operation "Triton". It was presented to them in Dubrovnik on Saint Nicholas Day (6 December) 2015, and was soon followed by another honour – the title of the "Pride of Croatia" (Ponos Hrvatske), which they received at a formal ceremony in Zagreb on 28 January 2016. The recognitions show the respect of the public in Croatia for the importance of the executed mission.



CROATIAN AIR FORCE AND AIR DEFENCE

The helicopters will be stationed in the 93rd Air Base, which has used Bell-206B Jet Ranger helicopters since 1997, which is an experience required for the operation of OH-58D.

The U.S. air technical team, a trial flight pilot team and instructor team will arrive to the Zemunik Air Base directly to administer training for our air technician personnel and the pilots to enable full operational use of the helicopters. The training will take six months for the technicians and pilots (in that order). The training completed – in summer 2017 – the first eight pilots will be fully combat-prepared.

KIDWA

SOON IN THE CROATIAN

800,000 COMBAT FLYING HOURS AT 90 % AIRWORTHINESS

The years-long employment of Kiowa Warrior helicopters by the U.S. Army in Iraq and Afghanistan has revealed the helicopters are versatile and cost-efficient. The manufacturer - Bell Inc. in 2013 publicly presented the statistics on 800,000 combat flying hours performed on the OH-58Ds at 90% airworthiness maintained.

The OH-58D Kiowa Warrior is a robust variant of the Bell-406 and a high-modified successor of Kiowa's OH-58A/C designed on the Bell-206. It has undergone several upgrades since the introduction into service and is the first U.S.-manufactured Army helicopter equipped with the Glass Cockpit with mobile target guidance and warning indicators, thermal and night imaging and the Aviation Night Vision System (AVNS).

It is a single-engine four-blade light reconnaissance helicopter equipped with precise target acquisition system enabling precise detection and acquisition of targets by its own armament or handing them to other armed platforms, operational headquarters and other aircraft in the area of operations.

A core element of the Kiowa helicopters is the Mast Mounted Sight above the main rotor, consisting of optical boresight, thermal imaging sensors, television sensor and laser range finder/designator, enabling it operate in any weather conditions, day and night.

The main armament includes a 12.7-mm machine gun (aiming at 2 km range), the hydra 70-mm unguided rockets, the Hellfire modular missile system (8 km range) and air-to-air missiles (5 km range). The configuration includes armoured plating and crashworthy crew seats. It is also fitted with electronic survivability such as infrared jamming and warning of enemy radar scans and laser detecting set.



The helicopter performs scout and attack mission. Its combat use ranges from anti-armour warfare and close air support, convoy escort and protection, artillery fire correction and precision guidance to urban warfare. The versatility, MMS, sophisticated communications systems and high firepower of OH-58D Kiowa Warrior helicopters make it a high-value asset for the performance of tasks throughout the territory of the Republic of Croatia, in adverse weather conditions, at day and night. They are also welcome in peace operations for aerial support, escort and protection.

THE HELICOPTERS OH-58D KIOWA WARRIOR WILL SOON ENTER THE SERVICE IN THE CROATIAN AIR FORCE AND AIR DEFENCE. AS STIPULATED BY THE AGREEMENT WITH THE U.S. GOVERNMENT 16 KIWAS WILL BE AIRLIFTED (IN THREE PHASES) DIRECTLY TO THE "ZEMUNIK" AIR BASE. THE HELICOPTERS ARE DESIGNED AS COMBAT PLATFORMS AND WILL BE DELIVERED WITH THE SYSTEMS, SENSORS AND ARMAMENT...

Known as air cavalry in the U.S., the Kiowa helicopters are the "Army's eyes and ears" and will soon be in the arsenal of the Croatian Armed Forces as well. Colonel Davor Tretinjak, Chief of Staff and Deputy Commander of the Zemunik Air Base and responsible for their introduction into service in the Croatian Air Force and Air Defence. He was in the team which recently visited the United States where he performed a trial flight on one of the two helicopters assigned for delivery to the Croatian Armed Forces.

WARRIOR

AIR FORCE FLEET

CROATIAN ARMED FORCES EXPERT TEAM TO THE U.S.

An expert team composed of the members of the Croatian Ministry of Defence and of the Croatian Armed Forces paid an official visit to Fort Bragg and Redstone Arsenal in Alabama to execute a detailed technical survey of the OH-58D Kiowa Warrior helicopters and other assets donated by the U.S. Government to Croatia. The team also selected three simulators to be used for the training of technicians and pilots, a simulator for engine maintenance technicians, a complex simulator for the training of technicians and pilots in all helicopter systems and a simulator for the training of technicians on flight controls, transmission and engine systems. The U.S. offered a substantial number of OH-58D and the Croatian team selected 16 helicopters of the War Replacement Aircraft (WRA) programme replacing the operational losses.



"As stipulated by the agreement with the U.S. government 16 Kiowa helicopters are to be delivered to the 'Zemunik Air Base directly', explained Colonel Tretinjak. The helicopters are of a recent date – manufactured between 2010 and 2012, introduced into service between 2012 and 2015. "The helicopters are easy to operate and maintain – the aircraft for the 21st century and require no urgent upgrade. They are designed as combat platforms optimising the fire power of the air force and particularly of the army, as they are utilisable for anti-armour combat", said Colonel Tretinjak.

When first presented, Kiowa helicopter was a reconnaissance aircraft employed to guide other combat aircraft and Army weaponry. It was later converted into a Warrior and fitted for operation (detecting, recognising and destroying the target autonomously).

"It is very similar to the helicopter Bell-206B, only more robust and with shorter landing gear. It is fitted with armour plating and I found no difficulty flying it. It is heavily equipped, though, and fitted with Glass Cockpit Display Control System instead of the classical analogue instruments and requires highly-skilled operator and pilot; it is flown by two pilots indeed – the right seat pilot operating the aircraft and the left operating the MMS and guiding against the targets. It is therefore very important that the helicopters be delivered along with the systems, sensors and some combat armament" explained Colonel Tretinjak.



Colonel Davor Tretinjak, Chief of Staff and Deputy Commander of the Zemunik Air Base responsible for introduction of Kiowas into the Croatian Air Force and Air Defence

The helicopters will be stationed in the 93rd Air Base, which has used Bell-206B Jet Ranger helicopters since 1997, which is an experience required for the operation of OH-58D. The experienced pilots means shorter and less costly training – the training planned to take place in 2016 and 2017 will be 2-3 months shorter. "The U.S. air technical team, a trial flight pilot team and an instructor team will arrive to the Zemunik Air Base directly to administer training for our air technician personnel and the pilots to enable full operational use of the helicopters. The training will take six months for the technicians and pilots (in that order). The agreement also stipulates the delivery of simulators and spare parts; the technicians' training will be immediately followed



The helicopters will be utilised for combat reconnaissance, combat operation and the support to the land forces in a broad range of conditions, at day and night time alike. As precised by Colonel Tretinjak, they can also be used for civilian purposes – such as search-and-rescue or border control, in support to the Coast Guard and a series of other support activities.

by that for the pilots“, says Colonel Tretinjak. Following the training – in summer 2017 - first eight pilots will be fully combat prepared and the Croatian Armed Forces will be considered capable of maintaining the capabilities of Kiowa helicopters.

The helicopters will be utilised for combat reconnaissance, combat operation and the support to the land forces in a broad range of conditions, at day and night time. As precised by Colonel Tretinjak, they can also be used for civilian purposes – such as search-and-rescue or border control, in support to the Coast Guard and a series of other support activities. “Kiowa helicopters are an Army asset used in support to the land forces, and we expect that in future they will be integrated with other combat support systems. The helicopters possess a laser target recognition and destruction capability, enabling them to perform the task autonomously or link the data to other forces to engage the targets. The Kiowa Warrior helicopters are configured with the Mast Mounted Sight enabling the projection of the environment onto Digital Cockpit at any weather conditions, day and night, at 8 km range. A supporting agreement stipulates the maintainance of all systems (including MMS, the engines and the armament) conducted in the Zemunik Base.

“Our U.S. partners have been highly co-operative and provided the answers to all questions we addressed to them a month earlier“. Colonel Tretinjak also said that Kiowa was the right and a long-term acquisition for the Croatian Air Force. The project also opens the co-operation with the European partners, as several other countries consider acquiring Kiowa helicopters. The training simulators will also be installed at Zemunik, the air personnel from other countries may be sent to Croatia for training, which in time could grow into an international training centre. The dynamic plan of the introduction of Kiowa helicopters entails the refurbishment of the hangars, but apart from that the helicopters do not require any special conditions and the equipment, the tools and spare parts will be delivered along with the helicopters. The adaptation will imply more personnel though, and force generation has been initiated to establish a new and larger squadron. The flying and technician personnel of the Squadron is enthusiastic and is looking forward to jumping aboard a new helicopter - a true challenge for any military pilot!

Major Krešimir Ražov, the Commander of the Bell-206B Jet Ranger Helicopter Squadron briefed us on the ongoing planning and re-organisation, with regard to the future task – the provision of new helicopters will convert the Squadron's mission and assignment into combat. “We are preparing for our future missions and tasks at the existing platforms Bell-206B III which are the main precondition for flying Kiowa Warrior helicopters,” says Major Ražov. Major



The project entails the equipment of the Croatian Armed Forces with a squadron of OH-58D Kiowa Warrior combat reconnaissance helicopter from the U.S. surplus will provide them with new helicopter capabilities. The U.S. donation comprises 16 helicopters and three training simulators, as well as the respective goods and services. The project's worth (including the VAT on donated equipment and the cost of extra goods and services) is 286.5 mil kuna (VAT totalling 84 mil kuna), a portion of which will be funded through the U.S. Government support funds (cca 100 mil kuna) and the rest from the Croatian State Budget (in the section of the Ministry of Defence for the period 2016 to 2020).

goes on to inform us that the focus is presently on nighttime flying with the use of night vision goggles. The Squadron's personnel logged the respectable number of flying hours and trained the pilots and flying instructors for basic and advanced NVG flying, enabling them to focus on more demanding tactics and procedures in combat situations. The Squadron also received an additional donation of a U.S. model of night vision goggles suitable for combat operation with the donated helicopters. The goggles are upgraded for the ANVIS Display Symbology System (ADSS), providing basic flight information into the pilots' vision field, which gives them advantage which is critical in real time combat situations.

“Human factor is critical in this job, and we are highly motivated to work hard to acquire the relevant knowledge and skills and to transfer them on the young pilots of the Squadron” concludes Major Ražov.



IN THE FIRST QUARTER OF 2016 THE "CROMIL" MAGAZINE VISITED FOUR MAJOR CROATIAN DEFENCE MANUFACTURERS - HS PRODUKT, ĐURO ĐAKOVIĆ SPECIAL VEHICLES, ŠESTAN-BUSCH AND DOK-ING. THEIR SUCCESS AND REPUTATION REST ON THEIR SUPREME QUALITY...

NOVELTIES IN DEFENCE

According to the figures presented by the Government Agency Alan to the Croatian media, in 2015 the exports of the Croatian defence industry in armaments, military equipment and services totalled cca 1.5 billion kuna, nearing the 2014 figures. The progress recorded in 2014 compared to the previous one, which had seen a 20% decrease, was not accidental or a statistically significant development and displays Croatia's respectable defence industry, judging even by the European standards.

The visits to HS Produkt, Đuro Đaković Special Vehicles, Šestan-Busch and DOK-ING convinced us that their success and reputation rest on their supreme quality!

HS PRODUKT EXPANDS ITS CAPACITIES

The year 2015 was the year of business records for HS Produkt, a reliable and already world-renowned small arms manufacturer, which made an excellent deal with exporting its HS 2000 (XD) pistol to the U.S. despite an unpromising beginning, given the changed conditions in the U.S. market (which accounted for 95% of total exports), says Director Željko Pavlin. Having reached the allowed maximum range of exports, even for the U.S. standard, the firm then revised its policy and diversified the product range and expanded its exports to other countries. The revised exports policy led to the 30% exports to other countries. The HS 2000 pistol was no longer the sole export product, and a substantial share of the profits came from the sale of the versions of the VHS guns and grenade launchers.

The firm has continuously expanded its capacities (the working facilities and the machinery alike) over the past 15 years. In 2013 and 2014 it had new production halls (more than half of the total facilities)



built, bought off cca 30,000 m² land to provide nearly 40,000 m² of the factory ground. The HS production plant offers a modern eye-catching sight, thanks to the current international criteria of urban and land development adhered to in construction.

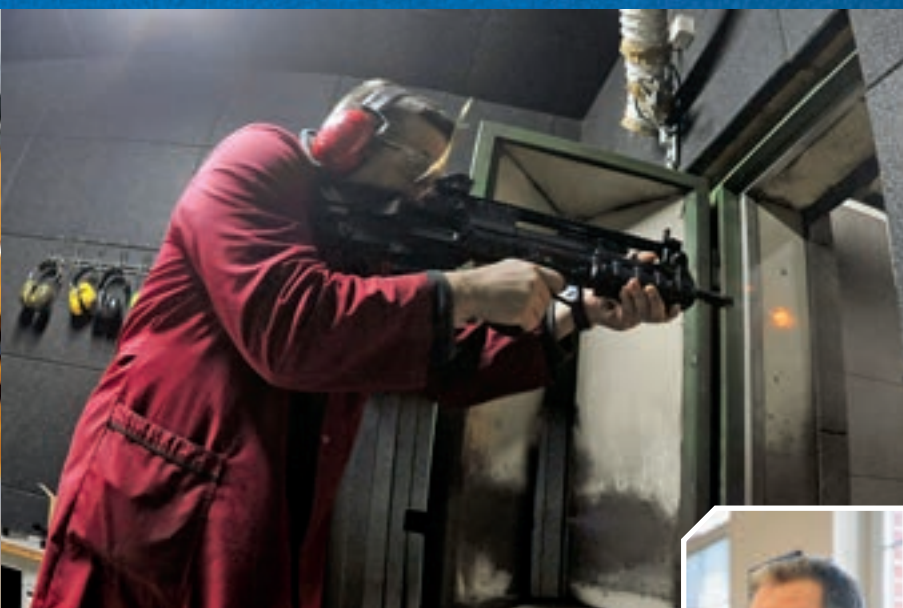
The continuous flat sound of modern machines in the protective housing echoes in the hall, coupled with futurist buzzing of robots. Robotic process automation is the goal – the plans for 2016 foresee more robots along with the steady personnel quotas (1,800) to increase production.

DEVELOPMENT AND PATENTING OF GRIP ZONE

The CROMIL magazine team visited Karlovac a few days before the Shot Show 2016, a famous U.S. can



THE CROATIAN INDUSTRY



small arms fair in Las Vegas, which also launched three latest versions of HS pistol - Model 2.

The models were presented to us - the standard XD-9 Model 2 Service, XD-9 Model 2 Sub Compact and XD-9 Model 2 Tactical. They bear a large ergonomic innovation developed and patented by HS Produkt in 2014 - the Grip Zone. The designers analysed the texture of the hand (which joins with the pistol while handling it) focussing on the fact that not all parts of the handle are gripped on with equal force or held in hand. The folds - the micro-structures called the grip zone - divided into three basic groups were studied in order to balance the force from three parts of the hand. We mapped the hand onto a gun: this is an innovative approach to the pistols and the gripping technique; the handling

is now more comfortable and the slipping is prevented", says Director Pavlin proudly.

THE SALES OF THE VHS GUNS

The VHS-2 guns were first presented at the Adriatic Sea Defense and Aeronautics Exhibition in Split in 2013, and two years later were carried by the members of the Croatian Armed Forces marching columns at the Military Parade commemorating 20th Anniversary of the Operation Storm, as it was gradually introduced into the service. A few months earlier, in late 2015 the Company wrapped a deal with Iraq on export of the VHS-2 guns as the only officially disclosed foreign buyer. The co-operation between the Ministry of Defence and the Croatian Armed Forces with HS Produkt has been most productive throughout this time. In 2015 the firm supplied 3,968 VHS-K2 and VHS-D2, along with some VHS -BG grenade launchers and optical vision. The co-operation with the Government Agency Alan, who provides support to HS Produkt in foreign promotion and sales (particularly in the deals with exporting the gun for the police and armed forces) has also been important.

The production of the first version of the VHS gun came to a close in late 2014. However, the firm continues to provide servicing to the buyers, and stores the supplies, as it still receives the requests for provision. "The VHS and VHS-2 still find customers, who appreciate the price and the simplicity of operation, and we will continue selling them".



Željko Pavlin,
Director in HS Produkt

IN THE TENDER FINALS FOR THE EQUIPMENT OF FRENCH ARMY

The HS Produkt's VHS-2 is one of the products most seriously considered for the equipment of the French Armée de Terre with an assault rifle and the related equipment and ammunition, alongside the Belgian FN Herstal (FN SCAR-L), the German

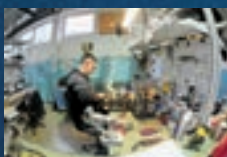
Heckler & Koch (HK416A5), the Swiss SIG-a (Type 550) and the Italian Berette (ARX160). Although the tenderers are not allowed to disclose any related details, Pavlin expressed satisfaction over the deal, and said that the firm intends to take part in more international tenders.

We asked the HS Produkt executives about the design of new gun models and calibers, whether they envisaged development of assault rifle of another caliber in addition to 5.56, or possibly the caliber conversion or the upgrade of semi-automatic rifle? We learned that there was a clear marketing strategy for certain models within the following two years. Other plans?

"We do not consider developing the products that are in low demand, such as the machine guns. It costs a lot of money, and we cannot rely on the Croatian market as is the case with the HS 2000 pistol and VHS and VHS-2. But we do plan to develop new rifle models and upgrade the existing ones, and maybe of different calibers. The VHS-2 is not our final word".

"ĐURO ĐAKOVIĆ" EXPECTING AN IMPORTANT DECISION

Having closed what was the largest ever project of the Croatian Armed Forces (the construction, equipment and delivery of Patria armoured modular vehicles), Đuro Đaković Special Vehicles has now turned towards new military projects. The Company is anticipating the decision from the Kuwait authorities on the award of the procurement of combat armoured vehicles, where it applied to the tender as the holder of the overall deal, with the support from its strategic partners - the Finnish Patria and the Norwegian Kongsberg. As we learned, it has made to the tender finals.



The decision is also expected on the upgrade of the M - 84 AB which were purchased from Đuro Đaković itself.

The Long-term Development Plan of the Croatian Armed Forces 2015-2024 entails the modernisation of tanks manufactured by Đuro Đaković to be launched by late 2020.

THE M-84 TANK UPGRADE

The enumerated projects are still hypothetical, the project of the upgrade of all M-84 tanks used by the Croatian Armed Forces, initiated in 2013 and continued to this day has been a valid motive to visit the factory hall in Slavonski Brod. The upgrade is of equal importance for the Croatian Armed Forces and for Đuro Đaković Special Vehicles, not only from the finance point of view. "The deal preserved the unique capabilities of Đuro Đaković Special Vehicles at the national and the regional level - e.g. fire control system with which the M-84 tanks is fitted is not found in any version of the T-72 (the prototype for the M-84) and it can only be upgraded in our plant", says Darko Grbac, member of the Management Board of the ĐĐSV.

Throughout the period of the operational use of the M-84 tanks by the Croatian Armed Forces, since the delivery of the last new vehicle in 2003 there have been few repairs and maintenance works. The Company has managed to maintain the upgrade capability, which have now, with the M-84 tank upgrade deal been fully restored. Thanks to the intensification of the project of construction of AMVs the age structure of the personnel has been optimised.

The upgrade deal restored to operation the ma-





Darko Grbac, member of the Management Board of the ĐDSV

chines that have not been in function after the last of 700 tanks left the assembly lines, and led the company acquire the technologies outside its initial designation, which now qualifies it as a thorough-service provider, as it owns the entire tank construction, assembly and inspection-related documentation. Hundreds of previously implemented technology procedures and working instructions related to the production of the T-84 tank have now been complemented with some 260 new ones.

The new technological procedures refer primarily to the the activities of the upgrade of assemblies that the Company does not have experience with. The upgrade is carried out on the optoelectronics, the fire control system etc. The elements that had earlier been procured from factories throughout ex-Yugoslavia are nowadays provided by Croatian subcontractors, duly certified and evaluated and experienced with the AMV projects. In conclusion, Đuro Đaković Special Vehicles can trade the M-84 tanks in the third markets autonomously, with Croatian capacities and know-how.

Mirko Siničić, B.Sc. in Mechanical Engineering expained the technical details of the upgrade: following the reception of a tank of the Croatian Armed Forces for the upgrade , the personnel conduct stationary defect-detecting followed by entry defect testing in the Kindrovo Training Range near Slavonski Brod.

The condition of durable parts is checked and they are repaired or replaced as necessary. The tank is only re-assembled after thorough inspection of all parts, and the assembly is carried out in much the same fashion as the new tanks. "It is a necessary

precondition to ensure full one-year guarantee for the tank". The following procedure is a rigorous outdoor testing; upon its successful completion the tank is returned to the factory for maintenance works (cleaning of oil, lubrication, adjustment etc), finish coating and the delivery to the customer. The process is of uniform duration for any tank, optimally two months.

The upgrade line is much like the assembly line, except that it begins and ends with the assembled tank. What catches the eye most is how a section, such as a hull of the tank, looks before and after the upgrade. A long period of the outdoor use and the mileage consumes the assembly and lays mud, oil, tar and dirt into the smallest pores. Furthermore, the M-84 tank upgrade is a deal requiring hundreds of pages of documents, and the Đuro Đaković Special Vehicles staff files every detailed procedure from the tiniest detail to the transmission system, the hull, turret and the gun. In the side halls the staff performs more sophisticated repairs with the aid of computers and optoelectronics. The Company furbished a new painting hall, which render the tanks the final upgraded appearance.

MODERNISATION PLANS

We concluded the visit with the conversation on the projects of tank modernisation for the Croatian Armed Forces and Kuwait respectively. The modernisation deal depends on a series of factors, such as the tactical and technical requests, the available funds, the number of the tanks to be modernised. What is important is that the tank has to meet the preconditions for modernisation, which can extend

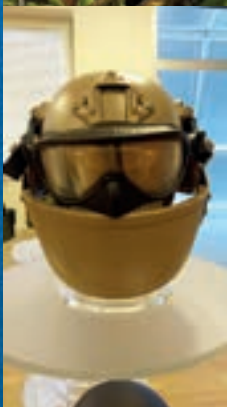


its life-cycle for 10 and 15 years and longer, upgrade its performance and enhance effectiveness.

"The deal of modernising the fleet of tanks for a company-sized unit is interesting for us too; we consider ourselves capable of providing the best quality and of fulfilling the agreement with the Ministry of Defence. We applied the western-origin NATO compatible systems on the modernised prototype, unlike the systems used by the competitor companies on the T-72 tanks," says Darko Grbac.

Šestan-Busch – a synonym for top-quality helmets. The year 2015 was a record year for Šestan-Busch, the Croatian helmet and other protective gear manufacturer from Prelog, whose name is associated with top-level quality.

"The circumstances were highly favourable – our expanded range of products corresponded with the market exigencies at the time. It was a year of records for our firm – we produced more than 80,000 helmets, and delivered the record quantities of the helmets and the associated equipment – and it will be difficult to repeat", emphasises the owner and the founder of Šestan-Busch – Alojzije Šestan and his associates, Božo Bujanić and Snježana Mikec. They now look forward, refusing to rest on laurels of great business statistics. The firm engages to at-



tract two to three new major customers a year and reach out for new markets, the focus in 2016 being on Africa and South America. "We are focussed on striking deals with the African and South American markets, as they belong to the future; few tenders are opened in Europe."

The most active market at the moment is the Asian – primarily the countries around the Persian Gulf, particularly the tenders organised by the United Arab Emirates and Saudi Arabia. The firm does business with Egypt and communicates with the Azerbaijan, Kazakhstan and Turkmenistan.

NEW DEVELOPMENT PROJECTS

The staff is dedicated to some new development projects as well, namely the white polyethylene helmet, which provides significantly higher protection in accordance with the V 50 ballistic parameter and has become a trend in the equipment.





The promotion of the prototype is due in the middle of the year, following the intense works. The firm is developing polyethylene plates for protective vests. Furthermore, it manufactured a new combat helmet BK-M3 (the BK-ACH) customised to the requests from the United Arab Emirates, which has incorporated a number of extra devices [camera handle, battery operated lamps, night vision systems]. We had the conversation at the time of the delivery of the first 700 helmets, which will help Šestan-Busch win other markets. The difference between the BK-ACH and the competitors' (primarily from the U.S.) helmets consisted in integrated interior equipment known as SHOTECK, patented by Šestan-Busch. "BK-ACH does not possess higher protective value, only the blast-induced trauma is lesser minimised thanks to the absorption by SHOTECK, and it is also more advanced ergonomically and more comfortable to wear" say the Šestan-Busch's executives.

ŠESTAN-BUSCH - A SYNONYM FOR TOP-QUALITY HELMETS

The firm won a tender for helmets in Egypt, among a large group of renowned manufacturers. The tender entailed a small quantity of our products but it opened the door for us", says Mr. Šestan, who says the helmet quality is the key to winning tenders as it provides the safety for the humans. "It is our mission and responsibility", declares the owner of Šestan-Busch.

The firm has achieved considerable progress in the project of the head-to-toe safety, which it presented a while ago. Šestan-Busch is working on it and presenting it jointly with another Croatian manufacturer - Croshield - which produces ballistic vests. They won the tender for the equipment of police forces in Tunisia.

Furthermore, the modular Croatian helmet, usable in military and police operations, as well as special forces operations, is to undergo further upgrades to add to its polyvalence and stay ahead of the competitors, on which we will have to work for a year more".

MODERN-EQUIPPED TESTING LABORATORY

A number of Šestan-Busch staff have been included in two new projects: the helmet and other anti-



Alojzije Šestan,
owner and the founder
of Šestan-Busch

ballistic products testing and the used helmets and other protective items recycling plant.

The equipment of the laboratory has advanced further and we were given the opportunity to see the hall which by now certainly is ready for the reception and the instalment of the required equipment. The opening is due in late spring or in early summer. "We do have a laboratory for industrial production testing and a 5-m testing tunnel; our new facility will contain a 30-m tunnel and a complemented laboratory. The project will be accessible to the electronic engineering, computing and mechanic engineering faculties that we co-work with. Our wish is to design an accredited laboratory to provide services to outside users, primarily the faculties, the Ministry of the Interior, the Ministry of Defence, private security companies, foreign clients and the like" says Mr Šestan and goes on to say that the laboratory will apply the experiences of the years-long co-operation in testing the products with renowned European and the U.S. ballistic institutes and laboratories. The co-operation with medical schools and the related institutions are envisaged in a second phase of the laboratory development, given the intent of Šestan-Busch to achieve the best results in the testing of the effects of the blast into helmets. "To our knowledge Šestan-Busch helmets provide the best protection against small projectiles and reduce maximally the trauma associated, but we wish to learn more" is the inception idea for the laboratory.

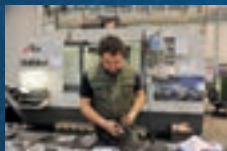
PULPA - THE RECYCLING PILOT PROJECT

Šestan Busch is serious about the recycling plant as well, although the firm does not have at the disposal the sufficient quantity of the recycling material to sustain it. It soon intends to make another innovative step and invite its customers to dispose of the used helmets in a recycling facility, which has already been constructed and will certainly give a new momentum to the firm. The project will include research institutions, in order to address the issue of housing the recycled material, which is not re-used for new helmets but can serve other purposes. A recycling pilot project by Šestan-Busch and partners, titled Pulpa, designed to use the recycled material for fillers in tyre manufacturing, optical cables reinforcing, sealant and even carpets manufacturing.



MULTI-PURPOSE DOK-ING MINE CLEARANCE MACHINES

As much as 98 % production by the DOK-ING, a Croatian firm which has gained international reputation with its robotic mine clearance system, is exported, and along with the headquarters in Zagreb it has branch offices in Slunj and abroad - in the Republic of South Africa and in the United States. Every corner of the factory hall reflects the orientation towards innovation and progress – for instance, the courtyard contains a parking lot whose roof is a large solar panel absorbing the energy for vehicle recharge. Your attention is instantly caught by the assembly of the powerful desert sand-painted MV-10 machines assembled for a customer. The machines have surpassed their original mine clearing function, as the new tools fitted onto them and



the new and sophisticated performances have converted them into multi-purpose military engineer machines.

The clean and newly assembled vehicle looks impressive. The customer requested a “catalogue model” which will not undergo field testing but will be subjected to testing by a device applying hydraulic pressure on the vehicle chassis.

The smaller derivate of the MV-10 is also exhibited – the light category MV-4; as well as XLP Dozer, as a very low profile remote-controlled machine for underground mining and the MVF-5 designed for fire fighting purposes and other crisis situations. In the DOK-ING halls you can see various prototypes of electric vehicles exposed in all development phases, from scooters and delivery vans to automobiles succeeding the famous XD vehicle. Some 80 electric delivery scooters to be exported to Spain are stored in the basement hall pending the assembly.

IDEAS AND INNOVATIONS

The competence of the staff is proved by the many job offers from the EU countries, from welding operators to engineers.

“The profits in the year 2015 were inferior to other years with better business statistics; this came as a result of the general trends in the market on the one hand and failed deals with Russia due to the embargo imposed by the EU on the other” concludes Vjekoslav Majetić, the founder and the owner of DOK-ING. Early 2016 brought more optimistic outlook, however and we re-actualised some deals from the past year. “Our export deals are running well” says Majetić. „We are negotiating with a number





Vjekoslav Majetić,
the founder and the
owner of DOK-ING

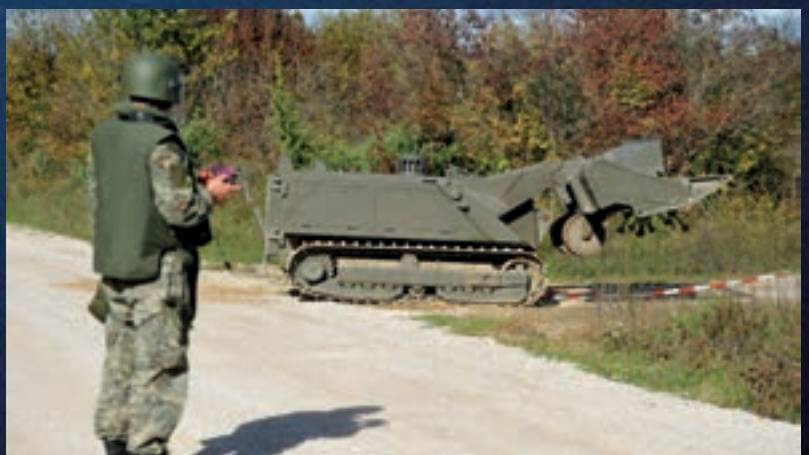
of clients worldwide, wherever there is need for our machines and our reputation implies new possibilities for improvement in the machines, which are also used for clearing the shrubs and weeds. Engineer Majetić follows the motto that DOK-ING has to be "The most innovative manufacturer in the line and to use the state-of-the-art technology, including the robotisation".

CURRENT DEVELOPMENT PROJECTS

The DOK-ING earned international reputation mostly through the co-operation with the U.S. Government. The DOK-ING machines contributed significantly to the safety of the U.S., the Allied and partner forces and bases in Afghanistan and Iraq. At one moment more than 60 machines were used in the field. Director Majetić's optimism is based mostly on the continued co-operation and the current 9 mil USD-valid contract in force, entailing the supply of reserve parts and other support services. Presenting the DOK-ING's development projects, Mr Majetić underlines the one conducted jointly with the Croatian Mine Action Centre's Testing, Development and Training Centre, testing detector of lethal explosive devices pull- or remotely activated. If it proves useful, it will be offered as a part of the system on DOK-ING robotic vehicles. As for the civilian programme, the firm counts a lot on the development of CBRN technology on its machines, which it intends to offer to nuclear power plants, refineries and chemical installations to use whenever the operation is hazardous for the humans. Among its projects is the project of coalminer vehicle in the Republic of South Africa, including the dozers but also the electrical robotic drills and other under-

ground demining machines. DOK-ING is presently working on more than 30 projects, which may be costly but in some of them it relies on the successfully absorbed EU funds.

We also asked Mr Majetić about a new military technology subject: the combat (armed) unmanned land vehicles. He saw a number of these at defence industry fairs, and their operational use seems a logical step into the future and does not think it too demanding in terms of technology. He shared an interesting view: as the world's leading mine clearance vehicles manufacturer (whose production accounts for 60 % of all light machines), DOK-ING cannot be two steps ahead of the rest of the manufacturers as the clients hardly accept the solutions that appear too revolutionary. While the completed and promoted projects may not be too much ahead of others, it definitely applies to more than 30 existing development projects.



The experts of the Faculty of Electronic Engineering and Computing of the University of Zagreb have co-operated intensively with renowned international universities related to combat stress, particularly the Posttraumatic Stress Disorder in soldiers/combatants. They have gradually gained new findings in computer technology and its application in treating psychological problems...

The aim of the project was to gain an insight into the genetic, epigenetic, physiological and other

The science has been searching for new medication, treatments and procedures to cure anxiety disorders and depression, but quite few researchers have introduced computer-assisted methods and technologies in the treatment of patients with PTSD

Author: Snježana DUKIĆ

CROATIAN MILITARY MAGAZINE



Photo: U.S. Army

COMPUTERS

processes ongoing in the personnel exposed to combat stress, particularly in NATO-led operations and missions. The researchers aim to detect multidisciplinary risk factors to provide an insight into the psychological condition of the combatants and to predict their resilience and vulnerability to stress. The programme is envisaged to be incorporated into the training programmes of members of the armed forces and the police for deployments in missions and combat operations, and will comprise the exposure to stress situations and simulated combat training, which should predict their readiness for missions and operations.



The proposed project aims to detect multidisciplinary risk factors that could be used as predictors of the resilience or vulnerability of combatants to stress situations, to gain insight into the combatants' psychological condition and the pathophysiology of stress and to enhance their resistance to the mission/operation-related symptoms, the post-traumatic stress disorder (PTSD).

INVISIBLE WOUNDS

The experts of the Faculty of Electronic Engineering and Computing have already developed the models to administer computer-assisted cognitive-

behavioural therapy and training on the military and police personnel deployed in peace operations and missions. The focus in those cases is placed on prevention and identification of resilience to stress and stress situations to act preventively to avoid pathological conditions.

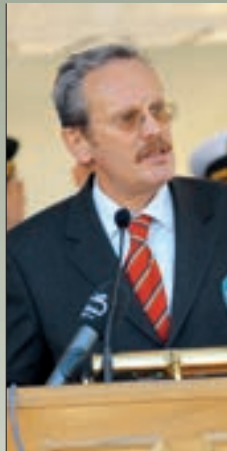
The project envisages a training programme focussed on enhancing mental resilience and on maintaining normal psychological and physical readiness, in order to prepare the combatants to return to normal life following intense stress or trauma.

The team has planned to develop a large database and measured data to predict the risks involved to prevent the chronification of acute stress reactions. The stress associated with the redeployment affect the mental health of the combatant, and by extension the readiness of NATO forces as well, but it can also have social repercussions in the contributing countries (e.g increased treatment costs, unemployment and marital problems) - they are the invisible wounds of soldiers' exposure to combat stress.

A CROATIAN PROJECT CO-ORDINATOR

NATO authorities hope that successful completion of the project will introduce the methodology usher in the methodology to decrease the high percentage of mental health disorders following the deployments in NATO-led missions and also enhance the readiness of NATO forces.

The project co-ordinator – Lieutenant General (Ret.) Krešimir Ćosić of the Faculty of Electronic Engineering and Computing – has conducted a decade-long multidisciplinary research in changes induced by intense combat stress in human brain and body. The subject of the research ranges from the molecule- and cell-level changes, the mutation of genes and the gene expression alteration, the changes in the endocrine and the immune system,



Professor Ćosić has applied research methods and technologies from other disciplines and an innovative approach to PTSD. His objective is to shape concrete program treatment solutions and methods by means of computer technology

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cognitive and emotional changes to behavioural changes, which in extreme cases end in a suicide. The impetus for the research and for programming new PTSD treatment technologies came from the increased incidence of PTSD in Croatian defenders in the wake of the Homeland War.

Professor Ćosić and other experts of the Faculty incepted an intense co-operation with renowned international universities conducting the research on combat stress, particularly the research on PTSD: They have gradually gained new findings in computer technology and its application in treating psychological problems. Professor Ćosić even envisages future psychiatry as a computer science and an increasingly important role of computer-aided diagnostics through the concepts of Big Data. "In the present context the individual physician (particularly psychiatrists') capacities for analytical survey of the course of illness at a multidisciplinary level (the level of large quantities of data which change in an unpredictable pattern) are restricted", says Professor Ćosić, who underlines new concepts in medicine with high potential in predicting of the course of illness and more effective preventive therapy. The Professor claims that future medicine will rest increasingly on artificial intelligence, computer-based learning and analyses of large databases in real time, known as the concept of Big Data.

The science has been searching for new medication, treatments and procedures to cure anxiety disorders and depression, but quite few researchers have introduced computer-assisted methods and technologies in the treatment of patients with PTSD, as Professor Ćosić, who has dedicated much of his academic career to the problem. The Professor emphasised that recent research has suggested that anxiety disorders and depression are whole-body illnesses, induced by a deregulation of a organic systems, in the peripheral systems and in the central nervous system. Pharmacotherapy is still a dominant method of treating mental disorders, despite its potentially harmful side-effects (the risk of dependency and the influence on other organic changes).

INNOVATIVE APPROACH

Professor Ćosić notes that world science is still lacking the insight into the complexity and the phenomenology of mental diseases, PTSD included. In view of these facts, the available medications are far from optimal, as they cannot selectively work on certain groups of neural networks responsible for specific neurological dysfunction either on molecular or genetic level. Professor Ćosić has applied research methods and technologies from other disciplines and an innovative approach to PTSD. His objective is to design concrete programme treatment solu-



Photo: U.S. Army



Photo: U.S. DoD

tions and methods by means of computer technology. The approach includes a range of different methods and disciplines, and computing disciplines such as artificial intelligence and the concepts of Big Data. Of particular interest are the computer methods for elicitation and automated analysis of emotions expression, change and manifesting under acute stress. Following the principle of integrated multidisciplinary systematic knowledge, a number of experts have been included in the research and the development of state-of-the-art computer technologies – psychiatrists, psychologists, neuroscientists, molecular biologists and geneticists.

“What we are working on basically is the Computer-Aided Cognitive Behavioral Therapy, which is about the respondent (the patient) learns to shape and change his/her brain’s neuroplastic structure through thinking and reasoning processes and to enhance and accelerate the processes through multimodal elicitation, estimation and regulation of emotions. The new technology we are employing has a critical role in the approach”, says Professor Ćosić. What is the mechanism behind the computer technology surveying the development in patients undergoing cognitive-behavioural therapy?

“The moment when a patient, through his/her unstructured thoughts and associations, consciously or unconsciously, enters into a chaotic and traumatised space of the associative cortex, which stems from the interaction of several neural structures of human brain, is a chaotic condition, as he/she re-experiences the trauma. The ANS (autonomous nervous system) is activated through amygdala, the hypothalamic-pituitary-adrenal axis is activated too, the prefrontal cortex is suppressed, all of which leads to the expression of specific stress hormones and release of inflammatory proteins. The overall bio-regulatory dysfunction can leave anent brain damage and alter the connectivity of neural structures and networks, characteristic of chronic illness”, explains Professor Ćosić.

“The conditions of the kind can and have to be prevented timely, i.e. in the phase of increased resilience to stress and in the acute stress phase. The intention is to enable the patient autonomously regulate the molecule and biological processes, by establishing the balance between the medial prefrontal cortex and the limbic system, or by enhancing the role of cognitive processes and their synaptic inhibition potential on amygdala, the HPA axis and the autonomous nervous system. This is achieved by means of Stress inoculation or Mental readiness training and can be very useful in the

NATO authorities hope that successful completion of the project will introduce the methodology usher in the methodology to decrease the high percentage of mental health disorders following the deployments in NATO-led missions and consequently enhance readiness of NATO forces

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The experts of the Faculty of Electronic Engineering and Computing have developed the models to administer computer-assisted cognitive-behavioural therapy and training on the military and police personnel deployed in peace operations and missions. The focus in those cases is placed on prevention and identification of resilience to stress and stress situations to act preventively to avoid pathological conditions.

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treatment and prevention of serious mental disorders resulting from long exposure to stress or sudden and unpredicted traumatic events”

The multimodal feedback and the recommended cognitive-behavioural strategies, which are presently employed solely by the Faculty’s Laboratory for Interactive Simulation Systems, could significantly improve the system of treatment of PTSD and other mental disorders.

The Faculty staff asserts the patients’ awareness



Photo: SEC

NEW TECHNOLOGIES

of the processes can help them initiate self-healing processes and prevent serious pathogenic changes. The modern technology developed by the Faculty can detect some characteristic changes in the voice suggesting illness or progress in therapy. The system is set to automatically recognise the changes in characteristic face movements and physiology (e.g. the breathing, heart beats etc.) typical of certain illnesses.

The so-called multimodal bio/neurofeedback is a result of focussed multimodal stimulations generated by computer systems during the therapeutic sessions, enabling the survey of hundreds of acoustic, facial or physiological effects underlying the experienced trauma. The therapist shapes the cognitive behavioural strategy through the computer-assisted "cognitive emotion regulation" as a method of stress treatment.

Vicious circle

"At the moment of trauma a cycle of neurons connects through synapses in a characteristic way. The higher the repetition of the content, the more intense the connection, which becomes a dominant neural circuit in the brain. Put otherwise, any time a person sees a content, an image, a scene from a film and any other stimulus related to the traumatic experience, he/she re-experiences the stress which accumulates and the associations put



Photo: U.S. National Center for PTSD

him/her into a vicious circle that becomes dominant", says Professor Ćosić. The idea of the project was to repress and suppress the neural networks and their effects on hormonal and immunological reactions in the body through the indicated cognitive therapeutical processes. The trauma treatment method adopted by the experts of the Faculty (in co-operation with clinical psychologists) is based on personalised medicine (personalised computer-assisted psychotherapy), featuring individualised approach to each patient.

The initial step was the general multimodal stimulation, imagery and contents, such as the images from war conflicts, whereby the associative complex of an individual is searched. When the computer detects a characteristic change at the level of multimodal neurofeedback (e.g. the respondent reacts to a content by breathing faster, by a changed speech pattern, facial expression, blinking or head movement), it suggests the stimulus has a context, semantics and emotions in the root of a trauma. The encounter with the trauma in the virtual space, guided by the psychotherapist is repeated during the sessions to induce the patient activate his/her cognitive defence mechanisms to overcome the undesired reactions of the experienced stressful situation. The cycle takes minimally three to four months and is repeated at certain intervals to prevent the recurrent episodes.

The Croatian-Israeli-American project is highly up-to-date - in late February the Croatian media reported on the meeting of experts related to the project

Multi-disciplinary Metrics for Soldier Resilience Prediction and Training in the Hadassah Hebrew University Hospital in Jerusalem. The amount of 394,000 EUR assigned by NATO over a three-year period testifies of the Alliance's support for the project.

Photo: U.S. National Center for PTSD



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THE EVOLUTION OF PERSONAL ARMOUR

A new book - **The evolution of personal armour** - was published in early 2016, edited by the Croatian Military Publications Department and follows the evolution of personal protection of soldiers from pre-historic times to this day and covers a wide range of topics from the early use of shields to the modern-day combat vests and protective helmets. The 120-page book is divided into seven chapters presenting history timelines and technical descriptions and containing a number of images, photos and schemes.



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<http://www.hrvatski.vojnik.hr>
e-mail: hrvojn@morh.hr

Editor-In-Chief:

Željko Stipanović (zeljko.stipanovic@morh.hr)

Deputy Editor-in-Chief:

Vesna Pintarić (vpintar@morh.hr)

Journalists:

Leida Parlov (leida.parlov@morh.hr),
Domagoj Vlahović (domagoj.vlahovic@yahoo.com)
Lada Puljizević (ladapuljizevic@yahoo.com)
Petra Kostanjšak (petra.kostanj@morh.hr)

Photographer:

Tomislav Brandt

Translation and proofreading:

Dubravka Marić

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Marketing and finance:

Igor Vitanović (igor.vitanovic@morh.hr)

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