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In the focus: NATO Alliance Ground Surveillance System

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NATO plans to acquire an Alliance Ground Surveillance (AGS) system that will give commanders a comprehensive picture of the situation on the ground. NATO's operations in Kosovo, Afghanistan and Libya showed how important such a capability is. A group of Allies intends to acquire five unmanned aerial vehicles (UAVs) and their associated command and control base stations. NATO will then operate and maintain them on behalf of all 28 Allies.

At the May 2012 NATO Chicago Summit there were several important topics discussed. The broader public learned the Smart Defence and Alliance Ground Surveillance System (AGS) expressions as frequently repeated issues in the politico–military environment. This paper shall highlight the AGS's necessity, to be set up as a Joint NATO capability giving historical background as well as creating a state of the art Intelligence, Surveillance, Target Aquisition and Reconnaissance (ISTAR) solution for the Alliance.

Keywords: Alliance Ground Surveillance System, Electronic Intelligence, Synthetic Aperture Radar, Ground Moving Target Indicator.

Introduction

At the Chicago NATO summit in May 2012 there were several important issues discussed. The wider public has learned the terminology of Smart Defence and Alliance Ground Surveillance System (AGS), frequently mentioned in the military. In this paper I would like to introduce AGS, underlining its necessity, historical background as well as its possible technical implementation.

Since the end of cold war era NATO transformation has been an ongoing process in order to meet future challenges. Recently this has been a painful road, highly affected by the global financial crisis. There are only three member states[2] in the Alliance to fulfill the expected 2% of Gross Domestic Product (GDP)[3] spending on military.(NATO, 2012a) In Hungary this figure would be constant at 0,8 %, until 2015. This figure, guaranteed by the Government, gives us only a minor scope for action in order to develop the HUN MIL systems. Several allies of ours are facing the same problems and barriers. For the Alliance's sake the EU Pooling and

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2 In 2011 USA (4,8%), UK (2,6%), Greece (2,1%)

3 "Gross Domestic Product is the market value of all officially recognized final goods and services produced within a country in a given period of time. GDP per capita is often considered an indicator of a coutry's standard of living." http://en.wikipedia.org/wiki/Gross_domestic_product (downloaded: 12 01 2013)

Sharing[4] (Möllig, 2012) and NATO Smart Defence (SD)[5] (NATO, 2012b) comprehensive approaches have been introduced.

In Chicago, NATO member states aggreeded on a document called the Summit Declaration on Defence Capabilities: Toward NATO Forces 2020 to aim an enhanced, better manned and equipped structure based on SD concept.

According to the 4th point of that concept: "We are deploying a highly sophisticated Alliance Ground Surveillance system, so that our forces can better, and more safely, carry out the missions we give them; in this regard, a number of Allies have launched an important initiative to improve Joint Intelligence, Surveillance and Reconnaissance (JISR) more broadly." (NATO, 2012c)

Why does NATO need JISR capabilities?

Originating from the Defence Planning Committee in 1992, the AGS programme was defined as a capability acquisition effort in 1995, when the NATO Defence Ministers agreed that the Alliance should pursue work on a minimum essential NATO–owned and operated AGS core capability, supplemented by interoperable national assets.

The AGS programme was to provide NATO with a complete and integrated ground surveillance capability that would offer the Alliance and its nations unrestricted and unfiltered access to ground surveillance data in near–real–time and in an interoperable manner. It was to include an air segment comprising airborne radar sensors and a ground segment comprising fixed, transportable and mobile ground stations for data exploitation and dissemination, all seamlessly interconnected and linked through high–performance data links. (Sondergaard, 2012)

From the outset, the AGS capability was expected to be based on one or more types of ground surveillance assets either already existing or in development in NATO nations, an approach that later also came to include proposed developmental systems based on US or European radars. However, all those approaches failed to obtain sufficient support by the NATO nations to allow their realisation. In 2001, the Reinforced North Atlantic Council (NAC[R]) decided to revitalise AGS through a developmental programme available to all NATO nations and a corresponding cooperative radar development effort called the Transatlantic Cooperative AGS Radar (TCAR). (NATO, 2013)

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4 Sharing: One or more countries provide their partners with capability or equipment (such as airlift) or undertake a task for another country. If this occurs on a permanent basis, the partners can cut this capability – and save on costs. For example, Germany provides maritime surveillance for the North Sea, thus relieving the Netherlands of this task. NATO states take turns to police the Baltic airspace so that the Baltic countries can save the cost of having their own air forces.
Pooling: Here too, national capabilities are provided to other countries. A special multinational structure is set up to pool these contributions and coordinate their deployment. The European Air Transport Command is one such example. Pooling can occur in the development, procurement or subsequent operation of shared equipment. This enables countries to either obtain a higher number of units or to co–acquire a capability that a state could not supply alone for cost reasons. Examples of joint procurement and operation include AWACS aircraft and NATO's command structures.

5 Smart Defence: It is a renewed culture of cooperation that encourages Allies to cooperate in developing, acquiring and maintaining military capabilities to undertake the Alliance's essential core tasks agreed to in the new NATO strategic concept. That means pooling and sharing capabilities, setting priorities and coordinating. Smart defence is based on capability areas that are critical for NATO, in particular as established at the Lisbon summit in 2010. Ballistic missile defence, intelligence, surveillance and reconnaissance, maintenance of readiness, training and force preparation, effective engagement and force protection.

In 2004, the Alliance decided to move forward to choose a mixed–fleet approach. The air segment was to include Airbus A321 manned aircraft and Global Hawk Block 40 UAVs, both carrying versions of the TCAR radar, while the ground segment was to comprise an extensive set of fixed and deployable ground stations. (NATO, 2013)

Due to the global financial crisis, that has stricken European defence budgets, NATO decided in 2007 to rethink the mixed fleet approach and a simplified AGS system where the air segment was based on the US Global Hawk Block 40 UAV and its associated multi–platform radar technology insertion program MP–RTIP[6] sensor instead. The ground segment, which would largely be developed and built by European and Canadian industry, remained virtually unchanged as its functional and operational characteristics were largely independent of the actual aircraft and sensor used.

"In February 2009, the NATO nations participating in the AGS programme started the process to sign the Programme Memorandum of Understanding (PMOU). This was a significant step forward on the road towards realising an urgently required, operationally essential capability for NATO. NATO Alliance Ground Surveillance System Management Agency[7] (NAGSMA, 2010) was established in September 2009, after all participating nations had agreed on the PMOU. The PMOU serves as the basis for the procurement of this new NATO capability.

Another important milestone for the AGS programme was the 2010 Lisbon Summit, where the strong operational need for a NATO owned and operated AGS capability was re–confirmed with NATO's new Strategic Concept. AGS also featured in the Lisbon Package as one of the Alliance's most pressing capability needs." (NATO, 2013)

The year of 2011 was an important and enlightening period for the Alliance itself facing severe military, political, economical challenges because of the Arab Spring. Based on the No. 1970, No. 1973 UN Resolutions, NATO and its wider temporary Allies, such as Qatar, interfered in Lybia to protect the civilian population from Gaddafi's militias terror. In the very beginning (with no full NATO consensus) the USA, UK and France took care of the No Fly Zone over Lybia with OP Odyssey Dawn.

At the end of March 2011 NATO took over responsibility to launch Operation Unified Protector (OUP). Supreme Headquarters Allied Powers Europe (SACEUR) delegated his rights to lead OUP to Joint Forces Command (JFC) Naples' Commander. Intentionally stepping back the USA let NATO do the business without major US support. After the very first

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6 "MP–RTIP — TheMulti–Platform Radar Technology Insertion Program, a U.S. Air Force project led by contractor Northrop Grumman to develop the next generation of airborne air–to–air and air–to–ground radar systems. While initially planned for multiple platforms, the MP–RTIP is currently intended only for the RQ–4B Global Hawk UAV. The MP–RTIP is a "modular, active electronically scanned array radar system" designed to be scaled in size in order to fit on board different platforms. The system is being developed from earlier Northrop–Grumman radar systems, including the Joint Surveillance Target Attack Radar System (JSTARS) and the existing Global Hawk system. The next–generation system will improve the Air Force's ability to track slow–moving ground vehicles and low–flying cruise missiles. The primary improvements are a dramatic increase in resolution and an ability "to collect ground moving target indicator imagery and synthetic aperture radar still images simultaneously." The Global Hawk, which currently is an air–to–ground radar platform, was originally due to receive air–to–air capability through the MP–RTIP. That capability was subsequently removed from the test program's budget, however, in a reversal, funding for air–to–air capability is being restored." http://en.wikipedia.org/wiki/Multi-Platform_Radar_Technology_Insertion_Program. (downloaded: 12 01 2013)

7 "As NATO's newest agency, the NATO Alliance Ground Surveillance System Management Agency (NAGSMA) is responsible for procuring the NATO AGS core. NAGSMA was set up in September 2009, after all 15 Participating Nations had signed the Programme Memorandum of Understanding. NAGSMA is a growing agency and will, once fully manned, comprise more than 60 staff."

days of OPS there were several serious insufficiencies, such as poor intelligence, air refuelling capacity as well as running out of precision guided missile stockpiles very soon. The USA needed to give NATO the free run of its inventory to mitigate the case.

European Command US Forces (EUCOM – Stuttgart, Germany) and African Command US Forces (AFRICOM – Stuttgart, Germany) increased intelligence efforts to provide information to NATO. There were also several national caveats and the lack of interoperabilty causing delay to share info and minor confusions. The dinamic operational environment simply overwrote the peacetime regulations to prove their inflexibility in crisis. Simply there was not enough time for sanitization[8] so the raw intell material was delivered to customers in its original form.

These lessons learned (and recent regional conflict managements such as in Kosovo Afghanistan, Iraq etc.), led to the conclusion that NATO would speed up to get an AGS Joint ISR capability as an Alliance's asset.

"On 3 February 2012, the North Atlantic Council (NAC) decided on a way ahead to collectively cover the costs for operating AGS for the benefit of the Alliance. The decision to engage NATO common funding for infrastructure, satellite communications and operations and support paves the way for awarding the AGS acquisition contract by 13 Allies. In addition, an agreement was reached to make the United Kingdom Sentinel[9] system and the future French Heron[10] TP system available as national contributions–in–kind, partly replacing financial contributions from those two Allies." (NATO, 2013)

The AGS system is expected to be acquired by 13 Allies (Bulgaria, Czech Republic, Estonia, Germany, Italy, Latvia, Lithuania, Luxembourg, Norway, Romania, Slovakia, Slovenia and the United States), and then will be made available to the Alliance in the 2015–2017 timeframe. This important procurement contract was signed by 13 participant nations representatives (Bulgaria, Czech Republic, Estonia, Germany, Latvia, Lithuania, Luxemburg, Norway, Romania Slovakia, Slovenia, Italy and USA) and Northrop Grumman officials at the Chicago Summit in May 2012.

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8 Sanitization: Revisition of a report or other document in such a fashion as to prevent identification of sources (e.g. HUMINT, SIGINT, IMINT etc.) or of the actual persons and places with which it is concerned or of the means by which it was acquired usually involves deletion or substitution of names and other key details to protect information sources. (writer)

9 The Raytheon Sentinel is Bombardier Global Express modified as an airborne battlefield and ground surveillance platform for the British Royal Air Force. Originally known as the ASTOR (Airborne STand–Off Radar) programme the aircraft is operated by a RAF squadron manned by both air force and army personnel. The Sentinel is interoperable with other allied systems such as JSTARS and the NATO Alliance Ground Surveillance (AGS) system. The UK government's Strategic Defence and Security Review (SDSR) announced its intention to "withdraw the Sentinel airborne ground surveillance aircraft once it is no longer required to support operations in Afghanistan. Sentinel has supported the British Army in Afghanistan." One Sentinel aircraft was deployed to assist the French military in Mali on 25th January 2013."
http://en.wikipedia.org/wiki/Raytheon_Sentinel (downloaded: 12 01 2013)
There was a new outcome for Sentinel's high performance in Lybia that forced UK officials to revise 2010 SDSR. It may as well be that RAF Sentinel would remain in the UK in order of battle for performing ISTAR.

10 Heron: The IAI Heron (Machatz–1), is a medium altitude, long endurance unmanned aerial vehicle (UAV) developed by the Malat (UAV) division of Israel Aerospace Industries. It is capable of Medium Altitude Long Endurance (MALE) operations of up to 52 hours' duration at up to 35,000 feet. It has demonstrated 52 hours of continuous flight, but the effective operational maximum flight duration is less, due to payload and flight profile. There is a new version, Heron TP, also known as IAI Eitan. On 11 September 2005, it was announced that the Israel Defense Forces purchased US $50 million worth of Heron systems. France operates its own special version of the Heron, called Harfang.
http://en.wikipedia.org/wiki/IAI_Heron (downloaded: 12 01 2013)

"The NATO owned and operated AGS core capability will enable the Alliance to perform persistent surveillance over wide areas from high altitude, long endurance, unmanned aerial platforms operating at considerable stand–off distances and in any weather or light conditions. Using advanced radar sensors, these systems will continuously detect and track moving objects throughout observed areas and will provide radar imagery of areas of interest and stationary objects.

The main operating base for AGS will be located at Sigonella[11] Air Base in Italy (Northrop Grumman Corporation, 2012), which will serve a dual purpose as a NATO Joint Intelligence, Surveillance & Reconnaissance (JISR) deployment base and data exploitation and training centre.

Just as NATO's Airborne Early Warning & Control (NAEW&C) aircraft – also known as AWACS – monitor Alliance airspace, AGS will be able to observe what is happening on the earth's surface, providing situational awareness before, during and, if needed, after NATO operations. (NATO, 2013)

According to AJP 2.1 NATO Intelligence Procedures, (NATO, 2002) intelligence is every member nation's independent responsibility on its own. Each of the allies needs to have an intelligence system as a nation's asset. NATO has limited JOINT capacities as Allied assets.

Northrop Grumman will be the prime contractor of the 1.3 million Euro project for the NATO AGS program, and build five (5) Global Hawk High Altitude Long Endurance (HALE) UAVs, supporting systems and payloads including the MP–RTIP radar, which is capable of detecting and tracking moving objects as well as providing radar imagery of target locations and stationary objects.

The company's primary industrial team from the 13 nations will include Cassidian, Selex Galileo and KONGSBERG, as well as leading European defense firms such as EADS Deutschland GmbH (Cassidian), ICZ, A.S., Retia, A.S., Aktors OÜ, Komerccentrs DATI group, Elsis LTD., Konstrukta–Defence, A.S., ComTrade D.O.O., BIANOR, Technologica, Zavod Za Telefonna Aparatura Ad (ZTA AD), SELEX ELSAG, Elettra Communications, UTI Systems and SES. (Northrop Grumman Corporation, 2012)

The ground element, which provides real–time data, intelligence and target identification to commanders within and beyond line of sight, will be exclusively produced by European industry, offering direct work in the program for the participating nations.

France as well as UK still havestrong intentions to join the program later on (2015–17) with their national ISTAR systems (HERON, Sentinel).This will be supplemented by additional interoperable national airborne surveillance systems from NATO nations, tailored to the needs of a specific operation or mission conducted by the Alliance. So it means that the system itself can integrate several other systems's outputs via NATO C2 channels. Not only airborne but ground based ISTAR assets can join AGS. The figure below depicts the system architecture after set up.

11 "Sigonella, Sicily (Italy), NATO AGS will be co–located with the U.S. Air Force Global Hawks and the U.S. Navy Broad Area Maritime Surveillance unmanned aircraft systems, further advancing synergies across the three programs in operational capability, life cycle logistics and sustainment."

AGS overviewfor JISR

The AGS will be an integrated system consisting of an air segment, a ground segment and a support segment. The Figure 1. is displaying how essential elements attach each other to maximize system power. As it seen not only AGS core elements can work as a whole but there are several other national systems possibility to join via NATO standardized communiation means. The final result is a Recognised Surface Picture (RSP) that gives players an outstanding possibility to see a common real time 'screen shot' for a joint situational awareness.

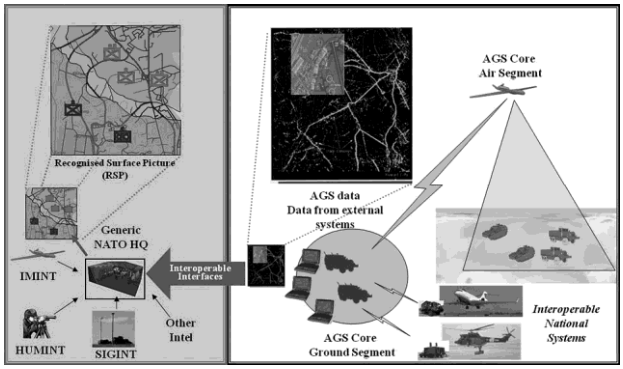

Figure 1. The essential elements of the AGS architecture (NATO C3 Agency, 2010: 3)

The air segment consists of five Global Hawk Block 40 high altitude, long endurance UAVs. The UAVs will be equipped with a state of the art, multi–platform radar technology insertion program (MP–RTIP) ground surveillance radar sensor, as well as an extensive suite of line of sight and beyond line of sight, long range, wide band data links. The air segment will also contain the UAV flight control stations. (NATO, 2013)

Global Hawk Block 40

The Northrop Grumman (formerly RyanAeronautical) RQ–4 Global Hawk (known as Tier II+ during development) is an unmanned aerial vehicle (UAV) used by the United States Air Force and Navy and the German Air Force and soon NATO as a surveillance aircraft.[12]

12 http://en.wikipedia.org/wiki/Portal:Robotics/Featured_robot/5 (downloaded: 12 01 2013)

The Global Hawk is able to provide high resolution synthetic aperture radar[13] data (SAR) – that can penetrate cloud cover and sandstorms – and electro–optical/infrared (EO/IR) imagery at long range with long loiter times over target areas. It can survey as much as 40,000 square miles (103,600 square kilometers) of terrain a day.[14]

It is used as a high–altitude platform for surveillance and security. Missions for the Global Hawk cover the spectrum of intelligence collection capability to support forces in worldwide military operations. According to the United States Air Force, the capabilities of the aircraft allow more precise targeting of weapons and better protection of forces through superior surveillance capabilities.[15]

RQ–4B[16]

General characteristics

- Crew: 0 onboard (3 remote: LRE pilot; MCE pilot and sensor operator)
- Length: 47.6 ft (14.5 m)
- Wingspan: 130.9 ft (39.9 m)
- Height: 15.3 ft (4.7 m)
- Empty weight: 14,950 lb (6,781 kg)
- Gross weight: 32,250 lb (14,628 kg)
- Powerplant: 1 × Allison Rolls–Royce F137–RR–100 turbofan engine, 7,600 lbf (34 kN) thrust

13 "Synthetic–aperture radar is a form of radar whose defining characteristic is its use of relative motion, between an antenna and its target region, to provide distinctive long–term coherent signal variations, that are exploited to obtain finer spatial resolution than is possible with conventional beam scanning means. It originated as an advanced form of side looking airborne radar (SLAR). SAR is usually implemented by mounting, on a moving platform such as an aircraft or spacecraft, a single beam forming antenna from which a target scene is repeatedly illuminated with pulses of radio waves at wavelengths anywhere from a meter down to millimeters. The many echo waveforms received successively at the different antenna positions are coherently detected and stored and then post–processed together to resolve elements in an image of the target region.
Current (2010) airborne systems provide resolutions to about10 cm, ultra–wideband systems provide resolutions of a few millimeters, and experimental terahertz SAR has provided sub–millimeter resolution in the laboratory. SAR images have wide applications in remote sensing and mapping of the surfaces of both the Earth and other planets. SAR can also be implemented as "inverse SAR" by observing a moving targetover a substantial time with a stationary antenna."
http://en.wikipedia.org/wiki/Synthetic_aperture_radar (downloaded: 12 01 2013)

14 http://en.wikipedia.org/wiki/Northrop_Grumman_RQ-4_Global_Hawk (downloaded: 12 01 2013)

15 Ibid.

16 Ibid.

Figure 2.
A German Global Hawk RQ–4E (EUROHAWK)[17] [18]

Performance

- Cruise speed: 357 mph (310 kn; 575 km/h)
- Range: 8,700 mi (7,560 nmi; 14,001 km)
- Endurance: 28 hours
- Service ceiling: 60,000 ft (18,288 m)[19]

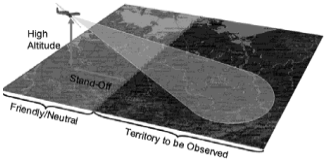

Figure 3.
Air segment in use in general (NESSE, 2007: 1)

The air segment will be equipped with state–of–the–art MP–RTIP and ground moving target indicator (GMTI)[20] radars. The communications will provide connectivity even beyond line of sight with broadband data link.

The AN/APY–2 MP–RTIP radar uses active electronically scanned array (AESA) technology and commercial off the shelf hardware to deliver long range, very high resolution SAR, GMTI capabilities and air target tracking. Fundamental to the radar is its modular scalable design, which allows it to be applied to multiple airborne platforms.

17 Earlier the German Strategic Recconnaissance Command (Trier) used to operate Dassault Breuget Atlantic 1150 (Old Lady) recce aircraft. In 2009 Global Hawks (RQ–4E, Eurohawk) were introduced. SIGINT payloads are being produced by EADS.
http://en.wikipedia.org/wiki/File:Luftwaffe_99-01_RQ-4B_EuroHawk_ILA_2012_1.jpg (downloaded: 12 01 2013)

18 http://en.wikipedia.org/wiki/File:Luftwaffe_99-01_RQ-4B_EuroHawk_ILA_2012_1.jpg (downloaded: 12 01 2013)

19 http://www.northropgrumman.com/Capabilities/NATOAGS/Pages/default.aspx (downloaded: 12 01 2013)

20 Ground Moving Target Indicator is a mode of operation of a radar to discriminate a target against clutter. In contrast to another mode, stationary target indication, it takes advantage of the fact that the target moves with respect to stationary clutter. The most common approach takes advantage of the Doppler Effect. For a sequence of radar pulses the moving target will be at different distance from the radar and the phase of the radar return from the target will be different for successive pulses, while the returns from stationary clutter will arrive at the same phase shift.
http://en.wikipedia.org/wiki/Moving_target_indication (downloaded: 02 02 2013)

MP–RTIP will provide war fighters improved combat identification, target tracking and time critical targeting, while adding an impressive new air–to–air capability to support cruise missile defense. This powerful combination can aid commanders in developing predictive battlespace awareness and targeting solutions.

Figure 4.
A SAR image of an urban territory of Southern France[21]
and an example of GMTI (HONG et al., 2004) imaging.

The ground segment will provide an interface between the AGS Core system and a wide range of command, control, intelligence, surveillance and reconnaissance (C2ISR) systems to interconnect with and provide data to multiple deployed and non–deployed operational users, including reach–back facilities remote from the surveillance area.

The ground segment component will consist of a number of ground stations in various configurations, such as mobile and transportable, which will provide data–link connectivity, data–processing and exploitation capabilities and interfaces for interoperability with C2ISR systems. (NATO, 2013)

Figure 5. A Ground Control Station (MQ–1) (CRYPTON, 2012)

21 http://www.onera.fr/onera-offre/005-radar-surveillance-observation.php (downloaded: 02 02 2013)

The AGS Core support segment will include dedicated mission support facilities at the AGS main operating base (MOB) in Sigonella, Italy.

The composition of the AGS Core system and these contributions–in–kind will provide NATO with considerable flexibility in employing its ground surveillance capabilities.

The engagement of NATO common funds for infrastructure, communications, operation and support will follow normal funding authorisation procedures applicable within the Alliance. (NATO, 2013)

Data distribution: Alongside the aerial and ground segment data distribution it is important in the whole system to deliver pieces of information to whom it may concern.

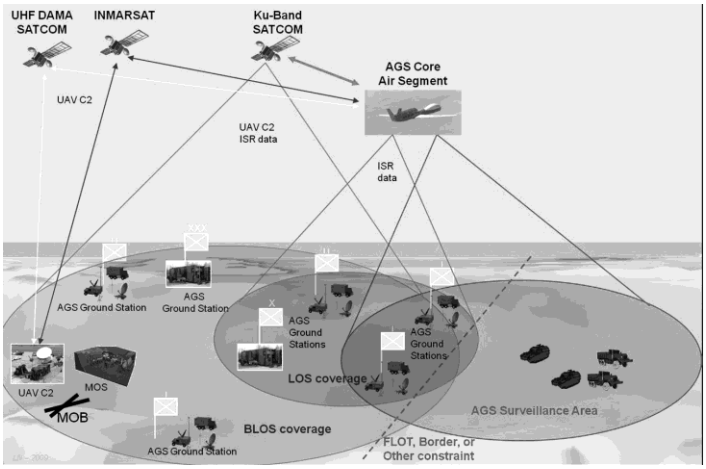

Figure 6. AGS CORE Internal Dissemination (NATO C3 Agency, 2010: 2)

The mission of the AGS Core is to support civilian and military authorities at multiple echelons with continuous information in NRT in order to enhance situational awareness concerning friendly, neutral, and opposing ground forces with a level of quality adequate to support targeting operations.

The AGS Core will be an integral part of the Combined Joint Task Force (CJTF) or NATO Response Force (NRF) commander's intelligence, surveillance, and reconnaissance (ISR) battle plan at the operational and tactical levels.

Collection requirements apportioned to the system will include standing, ad–hoc and dynamic requirements. The AGS Core will be expected to provide information for processes ranging from intelligence to targeting, and to simultaneously support multiple commanders. (NESSE, 2007)

How Hungarian Defence Forces (HDF) would be benefited by AGS?

Since 2006 the Hungarian Defence Forces has been working to adapt NATO advice on ISTAR[22] capabilities for brigade level such as:

22 EL 0583 — NATO 2006 force proposals for Hungary 2006–2016.

- C2[23], later C4I[24]ability;
- interoperable data gathering and evaluation panel (ASI[25] FUSION Cell);
- Recconaissance troops;
- SOF[26] teams;
- tactical HUMINT troops;
- moving target radars (indicator);
- unattended ground sensors;
- groundbased and airborne EW[27] assets;
- Counter RC–IED[28];
- SIGINT (COMINT, ELINT)and frontline analysis tools;
- IMINT MALE[29] and LAME[30] UAV–teams;
- Target Aquisition solutions.

Due to the budgetary situation Hungary is just slowly introducing elements of that proposal. Recently, HUN MoD has aquired LAME UAVs (Skylark) with the IMINT system (day and night optic), which is not satisfactory for operations through a full spectrum. In addition to HUN MoD subordinated firm HM. EI. Zrt's[31] subsidiary company called Currus Rt. has developed two UAVs Bora and Ikran. Those are based on the experience of former Meteor 3MA and dedicated to only IMINTpurposes. Considering the parameters of those they could mean a national solution (equivalent) to Skylark not meeting MALE and HALE requirements.

Figure 7. HUN HM EI Zrt. developed UAV's (Ikran) landing[32]

23 C2 — Command and Control
24 C4I — Command Control Communication Computer and Intelligence
25 ASI — All Source Intelligence
26 SOF — Special Operation Forces
27 EW — Electronic Warfare
28 RC IED — Radio Controlled Improvised Explosive Device
29 MALE — Medium Altitude Long Endurance
30 LAME — Low Altitude Medium Endurance
31 HM EI. Zrt — Honvédelmi Minisztérium Elektronikai, Logisztikai és Vagyonkezelő Zártkörűen Működő Részvénytársaság
32 http://www.hmei.hu/images/rendezvenyek/Robotrepulo/IMG_7832.jpg (downloaded: 22 03 2013) Despite being a small step Bora and Ikran are important outcomes of a joint think thank to create internal solutions for IMINT.

Despite this small achievement we can say there are no adequate ground based nor aerial sensors for IS(TA)R[33] in the HDF. There are adventages to be a part of NATO AGS such as:

- AGS would bridge our technical gaps temporarily until we get full national ISTAR capability;
- spares money to meet Pooling and Sharing and Smart Defence's challenges;
- provides crucial information on AGS targeted areas we had no prior access to;
- gives unique HALE UAV solution for strategic interest and gathering experience.

Knowing these ideas the proposals are follows:

- to spend money to join AGS program (e.g. instead of maintaning HUN contribution to NATO Sealift program);
- to participate in different EUR workshops to develop UAV payloads (e.g. German led Eurohawk SIGINT sensor project);
- to take into consideration to send desk officiers to Sigonella;
- to support national solutions to develop MALE UAVs to be able to carry IMINT, SIGINT as well as SAR payloads in order to join AGS in the future;
- to set up a National Intelligence Fusion Center and subordinated elements to be interoperable to NATO C4I–systems.

Nowadays, we (Hungary) have been suffering under from budgetary restrictions. In these days it is extremely important to address military needs towards politicians in order to gain subsidies. I would like to emphasize that UAVs (LAME, MALE, HALE) can serve not only military but civilian purposes as well. For example:

- fight against terrorism;
- maritime surveillance;
- airport security;
- infrastructure resource protection;
- border surveillance (eg. Schengen communities);
- humanitarian relief protection;
- damage assessment (fires, floods, storms, earthquakes etc.);
- law enforcement purposes etc.

These facts may convince decision makers to support our efforts to create national, dual use answers to domestic challenges as well as international requirements such as NATO's.

Recognizing the advantages of being a part of NATO AGS Polish Minister of National Defence Tomasz Siemoniak declared Poland's participation in AGS – NATO Alliance Ground Surveillance system at NATO ministerial in Brussels in October 2012

"From Poland's point of view, joining AGS Program will be very significant for increasing its meaning and strengthening its position in NATO structures. We will be among 14 NATO states building capabilities within that system and at the same time we gain the possibility to strengthen cooperation with countries leading in modern technologies.

33 According to the HDF Standing Branch Workshop's decision (Fegyvernemi Állandó Munkacsoport) the Target Aquisition (TA) refers to Artillery. So TA is not a part of ISTAR in HUNMIL terminology. That is why TA is in brackets.

Moreover, participation in AGS will enable Polish Armed Forces to complement the military capabilities of conducting image reconnaissance and will allow to use it in the future for realisation of national needs or in allied cooperation e.g. during joint exercises." (Jorge, 2012)

Following the Polish intention I strongly advise HUN MoD officials to revise their non–attendance decision of AGS.

Summary

As one of the most important procurement programs AGS (signed in May 2012 Chicago) is a major step towards NATO Joint ISR. The natural disasters of the last 20 years (e.g. Haiti earthquake, Pakistan flood etc.) as well as armed conflicts (Yugoslavia, Iraq, Kosovo, Afghanistan, Arab spring etc.) have highlighted the fact that it is a necessary and urgent issue to provide a state of the art solution as an Alliance asset for growing information need.

Despite the fact that Hungary is not a part of the 13 (15 by 2017) member nations' initiative later on it would be benefited by the system's future performance. In the very early phase of the program our mother land was involved in the feasibility plan but later we came out because of growing expected expenses.[34]

Creating our national ISTAR (ISR) capability it is highly important to become interoperable with NATO systems such as NATO JISR, no matter the size of our defence forces and its possibilities.

Lessons learned in Afghanistan made us think that even a piece of tactical information would have strategic impact. That is why we would not be disheartened to see the size differences between our and bigger NATO nations' Armed Forces. Frequently, our contribution would be so vital and cruical that even the bigger needs the smaller one's completition to the whole Common OperationalPicture (COP) puzzle.

NATO considers AGS an extremely important project to meet challenges of the 21th century. On 16 October 2012General Sir Richard Shirreff — NATO Deputy Commander Supreme Allied Command Europe — stated that in a briefing at the Hungarian National University of Public Service. He also noted that in spite of the exisiting difficulties (e.g. decrease of military budgets) NATO may continue to be the only effective solution and opportunity for giving a successful joint response to the currently transforming security challenges, risks and threats.[35]

No later than 2017 will NATO Alliance Ground Surveillance System reach Full Operational Capability.

34 According to the former COS of Hungarian Defence Forces General (ret.) Zoltan Szenes' recall the feasibility plan cost 80 000 Euro and further 2–2.5 million Euro need to join AGS

35 Personal participation in the Conference

Figure 8. NATO AGS Global Hawks at Sigonella (Artist Concept)[36]

The AGS system will provide real–time data, intelligence, and even target identification to NATO users within and beyond line of sight. This solution demonstrates a truly transatlantic approach to NATO's requirements and will provide significant work share directly in the program for national industries of participating nations.

The Alliance Ground Surveillance System definitely will contribute to the collective security of allied nations by providing timely, accurate and reliable pieces of information to handle crisis situations better than ever.

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