

Centre for Aeronautical Military Studies "Giulio Douhet" (CESMA)

**"THE FUTURE OF ROTARY WING"**

Seminar, Rome, 22 November 2012

**Lessons Learned and Future Operational Requirements**

**The German Air Force View**

The Bundeswehr (German Armed Forces) and the Luftwaffe (German Air Force) have gained helicopter experiences in several operations, the recent ones in KFOR and ISAF. Especially the experiences in ISAF are most essential for the future.

Talking about Luftwaffe helicopter experiences in ISAF is literally wrong. The Bundeswehr has several CH-53GS<sup>1</sup> stationed at Mazar-e Sharif (MeS) Air Base in Regional Command North, operated by Heer (German Army) personnel and integrated together with C-160 TRANSALL and UAS HERON 1 into Air Wing MeS, led alternating by a Luftwaffe and now a Heer Colonel.

The mission of the CH-53GS in ISAF is logistical Air Transport and Tactical Air Medical Evacuation (TacAirMedEvac). With its Max Take Off Weight of 19.050 kg, ECM equipment, ballistic protection, additional external fuel tanks, armament of cal 12,7mm or 7,62mm, night vision capability and SatComm the CH-53GS is a high value air asset in RC North in the 20 ton helicopter class and supplements the US CH-47. Due to size and weight it cannot be compared to the UH-60. The CH-53GS gained high reputation especially in the TacAirMedEvac mission. Germany always operates it with a physician and up to two assistants.

On the other hand the CH-53GS is handicapped in the tactical scenario due to its weight and downwash by being vulnerable to brown out, which makes training and proper landing zone assessment vital. Night vision capability is effected by weather conditions. The tight inspection interval – also directed by special dust and sand measures - creates a bottleneck and dictates rotations of aircraft in and out of the theatre.

Due to a cut back in flight hours Air Wing MeS in 2011 started to test combined TacAirMedEvac formations first with the US, then with the Swedish Super Puma detachment. Beside good results, national caveats, procedures and equipment compatibility remain an issue in direct international collaboration.

The Bundeswehr goes through the biggest and most ambitious restructuring in its history. Reasons are not only budget restraints, but to the same extent the widely changed security environment. The Luftwaffe holds the expertise in the third dimension. Counter Air remains the heart of Luftwaffe`s capabilities, but the focal points shift to the assistance of land and maritime operations, to ISR and space. Needless to say, that rotary wings play a special role in the assistance of land forces, but they remain also essential in the course of Counter Air operations, especially when it comes to Personnel Recovery.

From a concept point of view, rotary wings may not be reduced to manned systems. In fact there are rotary wing unmanned systems already in use in the Bundeswehr, but on the micro systems level (MIKADO). VTOL elements will become more and more a topic as stand alone or complementary addition to UAS. In this presentation unmanned systems will not be referred to again.

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<sup>1</sup> German Special

The future numbers of helicopter systems to be operated in the Bundeswehr have been cut under directive of the German MoD. There are several reasons to this cut, budget is one, but also structure, manning and procurement. Overall the Bundeswehr does a strict capability approach to new challenges in order to become more effective and efficient. A reduction of overheads, duplications and unnecessary gateways mark the way ahead.

The restructuring of the Bundeswehr, the new alignment of the Luftwaffe and the cut back of aircraft numbers opened the opportunity to an even broader approach in capability enhancement: Heer and Luftwaffe in accordance with the MoD agreed in 2011 to undertake a widespread capability transfer of rotary wing systems as soon as possible. In this course CH-53 will change in total from Heer to Luftwaffe. Luftwaffe will transfer their NH90 to the Heer.

From the capability perspective the Heer will have all means of mobility on the battlefield under its command, the Luftwaffe with the CH-53 a means of operational air transport and of most importance: for the time being the only asset in the Bundeswehr which in due time will be able to set up a partial capability in Personnel Recovery. Related to the future responsibility for NH90 the permanent military and ICAO - SAR mission over German territory will be transferred together with the NH90 predecessor UH-1D from Luftwaffe to Heer, too. Responsibility already has been shifted on 1st July 2012. CH-53, NH90 and UH-1D will be handed over to the sister service on 1st January 2013.

With the CH-53 the Luftwaffe gets closer to its understanding on Luftwaffe related rotary wing missions. The 20 ton class helicopter is capable of more than mobility on the battlefield. It will be the gap filler to fixed wing operative air transport in an AOO. It has proven this capability in AFG AOO already, as well as its live saving role in TacAirMedEvac.

Support to Special Operations Forces (SOF) is another pillar in the capability set, but requires advanced equipment of the aircraft, advanced command and control and advanced procedures and training. From the aircraft perspective the requirements of SOF Air and Personnel Recovery are closely related, but the mission is different. Last but not least Personnel Recovery – especially in its high end definition CSAR is core to air operations. The Luftwaffe always recognized CSAR as an essential part of air power, as well as CSAR always is understood as a Composite Air Operation. Personnel Recovery is not the sole reason and the sole future for rotary wings in the Luftwaffe, but it remains a focal point.

Before thinking about a capability transfer the Luftwaffe unfortunately had to learn, that the NH90 can not achieve CSAR capability in the timeframe that is needed to set up a national capability for ongoing and future operations. The asset now available is the CH-53, but due to basic restraints, e.g. size, it will not reach full CSAR capability. Never the less, its potential to generate a first operational capability in Personnel Recovery is one of the reasons, that the Luftwaffe is looking forward to the transfer from the Heer. With parts of the CH-53 fleet we will reach a partial operational capability in Personnel Recovery, which already may cover hot scenarios under certain conditions.

To gain the aircraft capabilities, that the Luftwaffe needs, the fleet of total 64 CH-53 (2 additional will be operated in the procurement branch) that we will operate, will consist of three basic types. Working horses will be 20 CH-53 GS, as they are used already in AFG, and 40 CH-53 GA<sup>2</sup>. 6 GE<sup>3</sup> are similar to GS but without external tanks. The remaining G have got an IFR upgrade but will be taken out of service by 2017.

The first GAs have already been delivered for training and testing and in 2013 we await the in service of the first GAs on operational wing level. The GA has new digital avionics, digital DASS, FLIR and new auto pilot modes to assist the crew in concentrating on the mission. So to speak it is a new aircraft in a robust and proven air frame.

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<sup>2</sup> German Advanced

<sup>3</sup> German Enhanced

So beside this aircraft and mission transfer and the upgrade of the CH-53 fleet, what is the Luftwaffe future view and vision on rotary wings? The vision derives from Luftwaffe's level of ambition in the Bundeswehr, that tells us: prepare for the likely and remain capable of the less likely. That means Air Transport and TacAirMedEvac in the AOO in crisis and stabilizing operations stay relevant as they are today. SOF Air will become of more and more importance but Personnel Recovery, especially CSAR remains a vital core of Air Power. With the CH-53 as a capable force multiplier the Luftwaffe will cover the present and the likely future missions and we will have a good step into Personnel Recovery by a partial capability.

Air Power is essential to operations, rotary wings are essential to Air Power. Without forgetting about the other missions, full CSAR capability remains the future vision of the Luftwaffe, even while it is not planned for procurement for the time being.