



# TP 2010: Roadmapping the Future Warrior's Development

The next step on the path to the Finnish Warrior programme is the TP2010 channelling research work into developing three distinct systems

***"Because the Finnish Defence Force (FDF) relies on a conscript system, the Future Warrior system needs to be simple and accessible enough for conscripts," said Major Tapio Saarelainen, an officer on the programme. However, at the same time we must meet all the requirements set by the military. This is huge challenge, our army is not built with professionals, it is a conscript army and this challenge is huge."***

The Finnish Army has a mobilised strength of 350,000 with forces divided between two main task based groups: less mobile, defensive units and more agile and mobile offensive units. Within those tasks there are three main groups: general purposes troops, Special Forces and troops designed to operate on international operations with 1000 Finnish troops currently deployed on operations abroad

In 2009, work on Finnish Future Warrior (FFW), concentrated on an initiative know as SAWUI, or Supporting Situational Awareness in demanding operating conditions through wearable multi-modal user interfaces.

Major Saarelainen said that this work has focused on providing soldiers and first responders with the means of detection, identification and localisation for themselves

and others via inter and intra unit communications. The project has undertaken both conceptual design and development as well as prototype systems and evaluation.

Outlining the way ahead, Major Saarelainen said that the work now is defining the different paths of research that have to be carried out the FFW and we are purchasing for the right gear, for the right purposes at the right time while avoiding equipping to simply fight the last war.

## Protection

A key feature of the FFW concept is for a modular design, which also applies to individual subsystems such as protection, with the main protection areas being ballistic protection, and chemical biological protection.

Major Saarelainen said, "The protection levels and necessary equipment changes, depending on the threat level and task involved. Obviously ensuring the agility and mobility asks for lighter and easily obtainable protection systems. There are different levels of warrior in the Finnish army. Therefore we have to pick the right gear for the right warrior."

The current ballistic protection system is based around a systems brought in during 2005 and this is

designated M05 with ballistic protection, comprising three main elements, the helmet, Bulletproof Vest and Fragmentation Vest. The helmet features a quick release buckle, mounted on the left side and is designed to meet NATO STANAG 2920 with a V50 rate of 580m/s. The bullet proof vest M05 consist of layered aramid or equivalent material with a ceramic strike face.

The FDF's ballistic panels are made of different levels of aramid or equivalent material, providing protection according to NIJ IIA-IV and with a total weight with full protection of 5.23Kg.

The Fragmentation Vest M05, provides 360 degree protection and provides 500m/s protection in a 3.07Kg package.

At the lowest level of protection is the Tactical Vest, which maximises mobility and agility and is considered by the FDF as being suitable for peacekeeping forces and police, military counter-insurgency, and elite group.

CBRN protection is based around using several layers of clothing with the combat battledress and rain garment. Usability features include the ability of user to drink through their M05 gasmasks from their drinking bottle through a hose system.

Finland's Army are currently divided into three

► categories: Operative Warrior, Territorial Combat Soldier and Special Force Warrior. The Operative Warrior consists of the m/2005 Combat Uniform and Carriage Systems, body armour, m/95 assault rifle with red dot sight, m/2000 image intensifiers, ballistic eyewear and CBRN equipment. The Territorial Combat soldier is equipped with the m/95 assault rifle, Kevlar helmet, the earlier m/91 Combat Uniform, web belt and backpack. The Special Force Warrior is the most complex, consisting of Nomex protective clothing, m/2005 uniform and carriage systems, bullet proof vest, the m/95 assault rifle with red dot sight, tactical flash light and laser point, H&K MP5, image intensifiers m/2000, m/2007 night vision goggles, Kevlar helmet, short range radio, knee and elbow pads, CBRN equipment and thermal sights for sniper rifles.

#### TP2010

The major research and development effort in the near future is the Technology Programme 2010 (TP2010) which is intended to provide lightweight and power saving solutions to produce a guide to the future procurement of FFW. TP2010's goal will concentrate to a large extent on a C4I2 and Weapon Systems which together will represent a node in the network as part of Finland's Network Enabled Capability.

Work on FFW is currently funded until 2017. This takes in the three year TP2010 followed by further work under the heading of TTK-Warrior. In addition, from 2013 to 2017 there is scheduled work on the Local/Territorial Warrior solution.

Beyond 2017, further work is planned with work on

the development of the Operative Warrior scheduled to begin at this point.

TP 2010 is divided into four work packages; S1 or Integration solutions planned to be undertaken by Savox which will act as the main industrial partner in the process with its main effort being to inform on what subsystems and component systems can be produced within Finland and which may have to be imported. S2 covers situational awareness which is to be undertaken by Insta and Savox and which has two elements planned, known as Information Systems for the Warrior and C4I2 solutions. S3 or Night Vision and Target Acquisition is allocated to Millog and with two planned elements; daylight optics and electronic sight. S4 Communications and platform Solution for Territorial Solutions for Territorial Troops will be undertaken by Nethawk and Insta with work focusing on Concept and Systems Integration and measurement tolerances.

While S1-3 offer similar capabilities, S4 is noteworthy for the use of mobile phone and mobile network systems.

Major Saarelainen said, "We think the cell phone could be a device which can be utilised by Territorial troops because we have lots of mobile technology which has been tested in different operations such as in Kosovo in a 2003 and 2004. According to my understanding normal mobile phones have enough capability to meet the needs of territorial troops regarding information and data distribution."

"We have the technology to cover the territorial troops and according to the scientists, by putting a

network system into the card you will have range of five miles where the cellular calls are functioning even though [the infrastructure] is being devastated or destroyed. " He notes that emission levels are low and difficult to detect.

Simulation systems are widely used in Finland for training and these are also being used for FFW. Current systems include the TASI and KASI which allow feedback and after action reports. Another system is known as Tracker which uses a mobile phone to track users and is already widely used in the commercial sector in Finland by hunters to monitor their position. Major Saarelainen said that position location reports can be set from ten seconds to ten minutes, "It's very functional. We have been using the systems for four years. It's reliable and our study got lots of information that wouldn't have been gained without using those systems." ■

*Major Tapio Saarelainen was speaking at IQPC's Soldier Survivability and Personal Protection conference*