Airborne Operational Surveillance and Target Acquisition in a Time of Declining Budgets

By LTG Ronald L. Watts
U.S. Army retired

The recent debt-ceiling crisis and the continuing discussions regarding the Department of Defense’s share of spending cuts over the next 10 years has once again reminded us of what can happen when some say, “Defense has to take larger cuts.” One need only look at history as a reminder of how the armed services could suffer serious degradations in warfighting capabilities. Defense spending may decline $40–50 billion and could decline as much as $100 billion per year for at least the next 10 years. Within DoD there is an ongoing “mini-QDR” that is reviewing service capabilities, roles and missions. One indication of where this review may be focusing is a statement by Army Vice Chief of Staff GEN Peter W. Chiarelli about the redundancy and overlap of intelligence, surveillance and reconnaissance (ISR) programs and his call for the services to “sit down … take a look at what we’ve got … and see if we have economies of scale.” This is clearly a good idea.

New system starts appear unlikely in the new budget environment. DoD may turn more to improving current systems rather than developing new systems to replace existing capabilities. An example is the Joint Surveillance Target Attack Radar System (JSTARS) high-demand, low-density aerial surveillance aircraft (E-8C). During JSTARS production, the Boeing 707 aircraft was completely refurbished and restored to an “almost new” status. The JSTARS fleet has an estimated remaining life of 20 to 30 years or more. It is the newest of all the USAF 707 aircraft fleet. Improving the JSTARS fleet with new engines, enhanced radar and an improved communications suite can be done for a small percentage of the cost of designing, building and fielding a totally new system and can increase the longevity of the current system even further.

Operations over the past decade have proven the critical importance of joint, layered, aerial surveillance and reconnaissance systems to provide the best possible situational awareness and target acquisition. Operational necessity caused the services to field new systems resulting in superb aerial intelligence platforms but with overlapping capabilities. Thus the Army Vice Chief of Staff’s desire to evaluate current capabilities is in order.

Unmanned aerial vehicles (UAVs) provide highly detailed imagery in real time directly to soldiers. This “bird’s-eye view” is an important advantage our warfighters currently have over our adversaries. While UAV electro-optical (EO) and infrared (IR) sensors provide excellent detail of the areas inside their relatively small field of view,
physics dictates that their fields of regard will remain relatively small. Those who have been deployed to Iraq or Afghanistan tell us that the hard part is often determining where to point the UAV high-resolution sensors with their narrow field of view. JSTARS plays a key role in helping commanders focus UAV sensors in priority areas with its wide-area surveillance capabilities. It seems appropriate for the Army leadership to make clear that the Army is a partner in JSTARS.

The E-8C Joint Surveillance Attack Radar System carries a large AN/APY-7 surveillance radar mounted in a 40-foot-long “canoe” below a modified Boeing 707 aircraft. Unlike the EO/IR “soda straw” sensors on many UAVs, the APY-7 is able to detect and track moving objects on the ground (trucks, tracked vehicles and individuals walking) from more than 150 miles away at altitudes up to approximately 40,000 feet. This capability is known as Ground Moving Target Indicator (GMTI), and JSTARS provides the majority of GMTI capability to deployed U.S. forces. Unlike smaller field-of-view EO and IR sensors, the JSTARS radar is not affected by clouds, smoke or rain. It far surpasses other platforms’ wide-area-surveillance capabilities by continuously monitoring and recording movement over a large area (about 50,000 square kilometers).

JSTARS was designed from the outset to support Army operations and carry Army crew members on every mission. It has the ability to rapidly point Army units, other Joint ISR, or attack assets to potential trouble before it happens. In other words, JSTARS is a “force multiplier” that supports warfighters across the spectrum of conflict. As budgets decrease and new programs become unaffordable, the “very broad area” surveillance capability of JSTARS will become even more critical to warfighters.

The Army has deep roots in the JSTARS program stretching back to its inception in the 1980s, although the system is owned and operated by the Air Force. Combat command and operational commanders have testified in recent congressional posture hearings to the importance of JSTARS in helping meet their number-one ISR shortfall—wide-area GMTI. The Air Force, however, has been reluctant to provide upgrades to JSTARS that would improve station time to support ground forces and improve the quality of JSTARS capabilities. These upgrades would provide better data links, wider distribution of sensor data via broadcast, sensor improvements, and so on; add greater time on station (via new engines); and enhance capacity to surge additional platforms to support troops in the fight. Warfighters need these capabilities now and will need them even more as budget pressures, troop withdrawals from Iraq and Afghanistan, and potential flare-ups in hot spots like Korea or Iran stretch U.S. airborne ISR capabilities to the limit. Despite Army equities and service agreements on the JSTARS platform, the Army does not appear to be insisting on upgraded JSTARS capabilities and more dedicated JSTARS support to the warfighters.

In an era when greater efficiencies are needed for warfighting and cost savings are needed by the government and taxpayers, JSTARS is essential to providing the ISR economies of scale GEN Chiarelli is seeking—and at a fraction of the cost of adding new systems or programs. In the spirit of “jointness,” it is time to sit down and improve efficiencies and cut costs through JSTARS upgrades, rather than possible new starts, to provide the wide-area surveillance capabilities. Our warfighters need the JSTARS wide-area surveillance to provide situational awareness and to assist in focusing reconnaissance, surveillance, target acquisition assets.

LTG Ronald L. Watts, USA Ret., is the former commander of 1st Infantry Division and VII Corps.