Ground Based Air Defense

Manpads

StarStreak (by Thales)

Due to its dual use (has also an anti-armor capability as well), this ManPad would be the most preferable for Georgian Army. Certainly, in case of unavailability, other types of ManPads can be used as well.

For dramatic shortening of reaction time the usage of certain type of ManPads coordination assets would be preferable:

AMADS device (by Rheinmetall Defence)

VSHORAD Systems

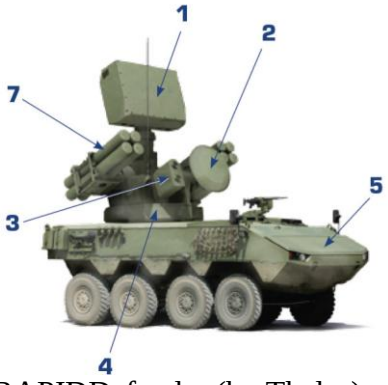
Not to use at all.

We mean that because as a rule VSHORAD systems have not longer range than ManPads and at the same time vehicle based systems in comparison to separate soldier (or ManPad team) can be recognized and detected easier and therefore are less survivable, more preferable is to saturate deployed forces with ManPads instead of VSHORAD systems.

SHORAD Systems

Preferable Systems

SL AMRAAM (by Raytheon)



RAPIDDefender (by Thales)

Or if decision will be made on usage as a platform of smaller then 8x8 vehicles (e.g. for helitransportability), RAPIDDefender system may be split on two different types of vehicles (first - surveillance radar carrier and the second – the fire unit) (on picture below shown RAPIDDefender's predecessor – the older Crotale system)

In case of unavailability of mentioned systems the purchase of Taiwanese Antelope may be considered as well. This system would be quite effective if will combined with e.g. Improved Sentinel Radar (or/and be included into entire sensor command-control net).

Improved Sentinel (by ThalesRaytheon)

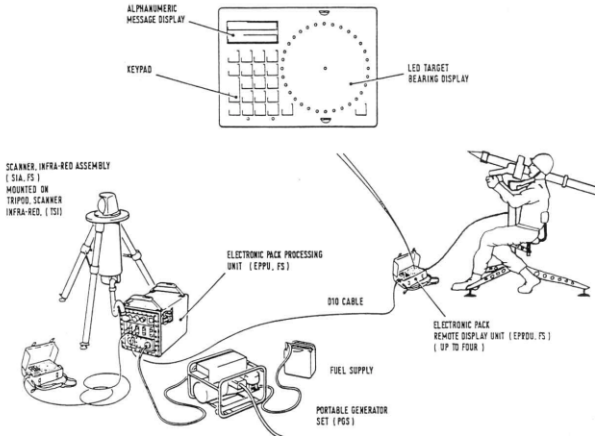
Antelope Firing Unit (Taiwan)

Long Range High Altitude Coverage Air Defence
(Systems like Patriot, SAMP-T, etc.)
By economical reasons not to use at all.
All non ballistic targets flying at a higher than e.g. 8-10 km altitude may be engaged by described above Heliborne Air Defense Units (Air Defense Helicopters).
While lower altitude targets should be destroyed by SHORAD systems (up to 10-15 km of altitude coverage) and ManPads (up to 3-3.5 km of altitude coverage).
As an option also the usage of USA origin ESSM missiles which already are integrated in SL AMRAAM (NASAMS 2) system by Raytheon Company can be considered.

And because anti-ballistic capabilities mean that ground based radars should be plugged (switched-on) permanently and therefore will be rather vulnerable, for Georgian conditions there is only one **passive** way for Ground Forces how to avoid destruction by hostile artillery and Tactical Ballistic Missiles (TBM) – **masking, high mobility of units and wide usage of inflatable decoys.**
And as an active way we can propose only the detection & recognition of hostile firing positions with their further destruction with the help of friendly long range artillery. For this role AEW Helicopters would be very useful because Thales SearchWater radar provides such capability too.
But no attempts to create systems capable destruction of already fired/launched ballistic missiles.

Other Sensors (Distributed Passive Sensors)
AEW Helicopter will detect & recognize targets flying at a high altitude at near 100% probability (practically at 100%).
But detection probability of targets using the so called "following terrain tactics" (very low flying targets) will be much smaller.
And usage of "ambush tactics" by firing units means that ground defense systems' radars normally are switched-off.
So, for detecting of this type of targets the net of certain passive sensors is needed.

Those sensors are:



AIR DEFENSE ALERTING DEVICE (ADAD) (Used by British military)

FIRST – Fast Infrared Search and Track Reconnaissance Sensor (Rheinmetall Defence)

There are also the universal devices used by Forward Artillery Observers & Air Controllers.

Those devices allow tracking air targets too with real-time providing of cuing data to combined Fire Control Center or to Separate Firing Unit by C2I link.

For example, Swiss company “Vectronix” produces the “VECTOR 21 AERO” with maximum range of 12 km and elevation capability to 90 deg.

This device is offered also e.g. for ornithology scientists and therefore in all probability its licensing would not be a problem.