

SENSORS & COUNTERMEASURES: An Updated Armscor Perspective

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- **Introduction – Recap of May 2006**
- **Overview of Current Systems and Technologies**
- **Future Focus (Capabilities)**
- **Potential New Systems**
- **Personal Thoughts**
- **Summary/Conclusion**

***Disclaimer:** Please note that the contents of this presentation do not necessarily reflect the official views of Armscor, the SANDF or the DoD.*

- **What did I tell elements of the SANDF in May 2006:**
 - We are already doing most of what we are supposed to be doing
 - No revolutionary leap envisaged for sensors & countermeasures
 - No large scale local system developments envisaged for the SAAF – niche developments for SAN & Army
 - Capability retention is going to be the key for future execution

INTRODUCTION (2/2)

- More local cooperation & consolidation is required – inter company & inter service
- SANDF Sensors & Countermeasures cannot be seen in isolation – common technologies & expertise benefit the whole country (SAPS, SARS, DEAT)
- Focus was and is mainly on RF sensors
- There is nothing here that you do not already know – **sorry, maybe something next time..**
- Only a high level overview (was) provided

CURRENT SYSTEMS OVERVIEW (1/2)

- **SAN Sensors:**
 - MRR, ORT (including EOT), Scanter-X, ESM
- **SAN Countermeasures:**
 - Active Jammer, IR & RF decoy rockets, ECCM
- **SA Army Sensors:**
 - Thutlwa, Page, Squire, COMINT
- **SA Army Countermeasures:**
 - COMMS jamming, ECCM (LPI)

CURRENT SYSTEMS OVERVIEW (2/2)

- **SAAF Combat Airborne Platforms:**
 - C130, Rooivalk, Oryx, LUH, HAWK, Gripen, Lynx

- **SAAF Airborne Sensors/Countermeasures:**
 - Gripen and Lynx Radars + IFF
 - RWR, Self Protection Systems (active and passive, RF and IR), UV MAWS, Elint

- **Ground Based Sensors:**
 - Umlindi (AR3D), TMR, PAR, AFRAS

- **Product support**

- platform/product characterisation & improvement
- Specification of mid-life upgrades

- **Reduced Reaction Time**

- Techniques & algorithms

- **Greater Sensitivity**

- Early small target detection, LPI detection

- **Decision support**

- Better utilisation of assets and sensors to improve reaction time

- **SAR**

- Image processing, target recognition

- **Digital Techniques & ECCM**

- Receivers, jammers

- **Technology Transfer**

- Gain as much knowledge as possible on bought-out systems

- **Interoperability**

- Data formats, information flow, data displays

- **Areas of Importance highlighted by National Government and DoD:**
 - VIP Transport
 - Border Control
 - Maritime Surveillance
 - Space Based Sensors

- **Increase in platform numbers and Asset value**
- **High degree of early warning and self protection required – possibly limited by ICAO restrictions?**
- **Sensors and effectors will always be highly classified but might include:**
 - ESM, Commjam, SATCOMMs
 - MAWS,
 - DIRCM

- **Limited budget and manpower for impossible task**
- **Technology is required to cleverly assist decision making for field commanders with limited resources (command and control)**
- **Could include:**
 - Sensors for wider area surveillance – either more or higher
 - Intelligent networking and fusion of sensors (active RF and passive IR)
 - Decision support aids (intent estimation)

● **SAN:**

- OPVs and IPVs: moderate budget – limited sensors and effectors
- A fairly capable main radar with a focus on Comint and AIS

● **SAAF:**

- MSA with a very capable sensor suite – Radar, ESM, Comint, AIS, EO/IR, etc. – depending on affordability
- Significant network required to disseminate information in real-time

SPACE – The final frontier.. (7/7)

- **Initiative originated with DST in the establishment of the SA National Space Agency (SANSA)**
- **Analysis of African scenario dictates that the use of satellites is almost non-negotiable**
- **Satellite based AIS already being used by SA Maritime Safety Authority (SAMSA)**
- **SA should strive for:**
 - Enhanced resolution on indigenous EO and RF sensors (<1m)
 - Ability to effectively manage (control) and process data from space sensors
 - Countermeasures – satcomm jamming, interception, SAR/AIS interference, GPS jamming, etc.

- **Outside of the technology domain, there will be less requirement for developments at L3 and even L4:**
 - Technology base for L3 exists
 - More clever ways required to process data quicker and do more intelligent “data mining” – more value added at L4 and L5
 - DoD policy to contract at L5 => Partnerships with potential L5 suppliers are critical for future survival
 - Capability should be retained (technology) to ensure that we as a nation are knowledgeable buyers

- **The emphasis is swinging from Countermeasures to Intelligence:**
 - Technologically advanced and sophisticated threats in Africa are diminishing
 - If there is a credible threat, we don't go there (what we need to know before the time) – assets and lives are too valuable
 - Asymmetric threats use low tech to achieve their aims – we have to be ready to detect and identify them early enough to counter them
 - Improved national co-ordination of sensors and vast amounts of data are required

- **Some Hi-tec systems do not and will not work in Africa:**
 - We do not need to hide our presence – sophisticated ESM systems are unlikely to be encountered outside of large capital cities
 - There is insufficient parasitic infrastructure to make passive radars a viable technology (radio and TV transmitters)
 - Cannot rely on a low-tech threat to provide an adequate active source for reliable detection
 - Sometimes a low-tec threat needs a low-tec solution

SUMMARY/CONCLUSION

- **Make maximum use of DIP and Local Content opportunities to participate in upcoming acquisitions (including mid-life upgrades)**
- **Current technology budget cannot sustain the entire industry – we cannot afford to use this money on technologies not fit for the SANDF and its missions and priorities**
- **Future focus is somewhat different to past conventional threat definition**
- **More local cooperation & collaboration is required – inter-company, inter-service & inter-department (e.g. AOC and SARIG)**

THANK YOU