

# **Mission-Tailored EW**

## **Meeting the Dual Challenge of Modern War**

Helmoed Römer Heitman  
Association of Old Crows, September 2011

### **Introduction**

There is a quaint belief among civilian strategists and, sadly, also among soldiers, that there is a new world out there, one in which there will no longer be ‘real wars’, but only ‘asymmetric, intra-state conflicts’ that involve fighting ‘amongst the people’ – and that this renders heavy weapons and much ‘high-tech’ equipment irrelevant.

Nothing could be further from reality: None of the forms of war being experienced today are in any real way new; all of them can be lethal to the soldiers who have to fight them; and there is nothing to suggest that humanity has outgrown old-fashioned inter-state war. Armed forces will continue to need to prepare for a range of challenges and threats, and they need to accept that even ‘low intensity’ conflicts can become very intense at the tactical level. There is, thus, no excuse to use this supposed trend away from major war to appease the civilian bean counters by abetting their salami-slicing of defence budgets.

It is immoral to send soldiers to war without the best equipment the country can provide. That will, in most cases, include electronic warfare equipment.

Finally, there is no evidence that the era of inter-state wars, ‘real wars’, has come to an end. If anything, the rise of new major powers and the competition that will arise among them and between them and existing powers - commercial, political and over resources - seems likely to sow the seeds for future wars. Wars are, after all, fought when national interests clash.

### **Asymmetric Warfare**

‘Asymmetric warfare’ has become almost an icon for many people involved in defence who should know better, and therein lies a great danger to armed forces.

The military is often accused, with some justice, of ‘planning for the last war’, with the result that it is caught flat-footed by the challenges of the next war.

The military also, however, has another potentially fatal habit: Becoming so fixated with a current conflict that no thought is given to the likelihood of the next one being quite different. Civilian strategists are even more prone to that fault.

This, latter, tendency is clear to see in the South African context: There is much talk of South Africa never again needing infantry combat vehicles let alone such outlandish things as tanks, the Rooivalk, fighters or submarines. We are, after all, only going to be doing peacekeeping, and that will see our soldiers facing nothing more than semi-trained people in gumboots.

That would be great if it were so, but not only is that not so today, it is much less likely to be so tomorrow. Those who delight in pointing to the gumboots tend to overlook or ignore:

- The tanks that both Rwanda and Uganda deployed in the DRC and that Uganda has had to deploy to Mogadishu to deal with al Shabaab;
- The well-orchestrated Angolan mechanised/air assault operation that recaptured Kitona after the Rwandans had captured it in a daring 1800 km air-landed operation;
- The speed with which Eritrea and Ethiopia upgraded from MB-339s to MiG-29s and later Su-27s, and from MiG-21s and 23s to Su-27s after they went to war in 1998;
- The fact that it was attack helicopters, fighters, bombers, smart weapons and even main battle tanks, that made the current nature of operations in Afghanistan possible; and
- The fact that the casually garbed and eccentrically armed Libyan rebels succeeded only because NATO fighters and EW aircraft had crippled the government forces.

Yes, asymmetric challenges have proved difficult to overcome. But the answer has not been to adopt *only* similarly low-intensity and low-tech tactics and techniques. What has proved to be effective has been to over-match the ‘asymmetric’ opponent with heavy weapons and with high-tech, and then to go over to typical counter-insurgency concepts.

*The successful approach has mostly been to take a gun to the knife fight.*

Nor should this be surprising. Asymmetric warfare is not new; it is as old as warfare itself – the weaker party to a conflict has always been tempted to adopt guerrilla warfare, sabotage or terrorism as the strategy to defeat the stronger opponent. And most of them, throughout history, have failed. Generally it is the ‘big battalions’, with the heavy weapons and with the high-tech, who win.

To take one example from military history that is ‘politically incorrect’ in the company of most historians and strategists: The Viet Cong did not defeat the United States or even South Vietnam; South Vietnam fell to a conventional invasion by North Vietnamese divisions using tanks and other conventional weapons.

The scene for that defeat was set not by guerrilla warfare in Vietnam but by a largely self-inflicted psychological defeat in the United States, one that had almost nothing to do with the reality in the theatre of operations.

The fact is that asymmetric warfare is not new; and that it is something that works both ways.

*There is nothing quite as asymmetric as a tank driving over an infantryman.*

Finally it is worth bearing in mind that even irregular forces are increasingly inclined to make use of modern equipment and weapons:

- Bandits in the Sahel use GPS, night vision goggle and satellite telephones.
- Pirates in Somali waters use GPS and satellite telephones and some have SA7s boats.
- Terrorists develop increasingly sophisticated IEDs.

- Guerrillas in Afghanistan use cellular and satellite telephones and of radios.
- The Aum sect in Japan manufactured its own nerve gas.

*The 'irregular warrior' may often look like something from a comic opera, but can be lethal.*

*The fundamental principles of war still apply. And one of them is to make optimal use of any advantages one may have to surprise and quickly overwhelm the opponent.*

*There is no place in war for the concept of a 'fair fight'.*

### **Intra-State and Inter-State War**

A post-Cold-War trend that is new to the modern era is the emergence of intra-state conflict, ranging from relatively minor insurgencies to the violent break-up of a state (Yugoslavia) and even attempted genocide (Rwanda).

While intra-state war is, like asymmetric war, also as old as war itself, it is not something that has faced armed forces much in modern times, except in the form of guerrilla wars sponsored by major powers in countries allied to their opponents.

It is also, however, not something that invalidates the principles of war, nor does it rule out of use modern or heavy equipment. As always, the edge will lie with the side that best exploits its strengths. The Russian Army in Grozny presented a good case study on how not to do that, causing (and suffering) massive casualties and destruction to little effect. The US Marines in Fallujah demonstrated how it can be done, albeit also with massive destruction, which seems to be almost unavoidable in this context.

More to the point, it is far from certain that the trend away from inter-state war will continue for much longer. The rise of new major powers and the growing competition among them for both influence and commodities may well trigger a new era of serious inter-state competition and conflict, and some of that conflict will be armed, and some of that seems likely to play itself out in Africa – the only major region in the world where it is safe to play power games, because most sub-Saharan countries are economically, politically *and militarily* too weak to prevent such adventures in their neighbourhood.

The beginning competition in Africa between the United States and China is an indicator of the future.

This is not to warn of Indian marines storming across some East African beach. It is to warn that the major powers will support their favoured governments, opposition parties, guerrilla, bandit and pirate groups, and in some cases even terrorists. And that support will range from providing weapons through to providing or financing 'advisors'.

There is also real risk of further inter-state conflict – perhaps by means of proxy guerrillas as among Chad, the CAR and Sudan – and war between African states over resources, borders or even political squabbles that grow out of differences between their various major power 'friends' or sponsors. Uganda and the DRC have already exchanged fire on Lake Albert over

who owns which bit of the lake and its oil reserves, and Egypt is hardly likely to quietly let its agricultural sector die if countries to the south use more of the Nile's water.

One must also keep in mind the expanding role and power of the multi-national corporations, many of which are quite capable of forming and deploying their own armed security forces, as we can see in the Angolan and Nigerian oil fields, and some of which may not hesitate to use less than legal and less than peaceful means to access and hold onto key resources. There is ample reason to believe that much of the conflict in the east of the DRC is due to the fact that it is cheaper to buy coltan and other commodities from groups that mine them illegally, than it would be to buy them from companies that operate legally.

The bottom line here is twofold:

- *Intra-state war may not involve large conventional forces, but will often involve heavy equipment and sophisticated equipment.*
- *There is no guarantee that the age of inter-state war, and the capable forces used to fight such wars, is past for ever.*

### **War Amongst the People**

A trend related to both of those discussed above is the shift towards fighting “amongst the people”, and particularly amongst the people in towns and cities rather than in rural areas as in classic guerrilla warfare.

This is in large part a result of two factors:

- Weaker forces seeking to conduct asymmetric warfare will find that modern technology makes rural guerrilla warfare a very dangerous pursuit, the urban environment offering a far more conducive setting in which to exploit the advantages of asymmetric warfare – not least because most major governments are very loathe to risk casualties or to risk the death and injury of even enemy civilians.
- In many developing countries, where most future wars will be fought, towns and cities are the only parts that have real value to, and are actually controlled by the government, making them the prize to be fought over.

Any study of recent campaigns shows just how complex, dangerous and fraught fighting in the urban environment can be: Grozny, Fallujah and Gaza are just three examples:

- ***Complex battlefield geography*** – short sight-lines, high-rise buildings, power lines that can present a risk and that hamper the use of some guided weapons, sewers that provide concealed routes, reinforced concrete buildings that hamper radio communications and landline telephones used for tactical communications are just some of the complicating elements.
- ***Complex human battlefield geography*** – resident civilians, refugees, combatants dressed as civilians, hostile civilians, criminal gangs exploiting the situation, etc.

- *The CNN factor* – every action by soldiers can be captured by TV or photographers and will be analysed in detail by commentators with little or no experience of what it is like to be in combat; and every mistake will be exploited by propagandists.

One nice example is the Israeli use of flechette rockets in Gaza, which Judge Goldstone held out as a particularly brutal example of the Israeli military's 'could not care less' attitude to the civilian population. In fact the choice of flechette warheads rather than fragmentation or even simple explosive warheads will have greatly reduced the number of civilian casualties – flechettes will only hurt what is in front of them, not scatter fragments to the side.

Another example from the same operation resulted from the reported Israeli use of dense inert metal explosive (DIME) warheads in some munitions: There was an outcry that this was yet another brutal action, causing traumatic amputations and with the carbon fibre casing holding the potential to cause cancer twenty years later if fragments (almost dust) penetrated the skin. The fact is that if you are close enough for a DIME warhead to tear a leg off, a conventional warhead would have shredded you; close enough for carbon fibre dust to penetrate the skin, a conventional warhead would have vaporised you.

Given the choice between being turned into a 'pink mist' or perhaps developing cancer some twenty years later, I know which warhead I would rather be exposed to.

*Like it or not - and most really do not - armies are going to be dragged into fighting in built up areas, and air forces are going to have to support them there.*

### **Terminal Naiveté**

The worrying thing is the terminal naiveté displayed by so many civilian strategists and even by experienced soldiers who should know better.

The fact that the SANDF is today engaged almost exclusively in peace support operations – a few stand-by situations for evacuation operations and Operation Copper notwithstanding – does not mean that it will for ever be required only to conduct such operations.

Nor, for that matter, is it safe to assume that a peacekeeping situation cannot deteriorate into a peace enforcement situation.

What if General Laurent Nkunda, supported by Rwandan T-55s, had decided to take Goma? There is not much our motorised infantry with only its small-arms and a few machineguns could have done to save itself, let alone protect the town.

There were some very senior officers in the early 1970s who held, quite seriously, that it was "logistically impossible" for an outside power to operate a division-sized or larger force in Sub-Saharan Africa. All the Army would ever need as one colonel (later brigadier) assured me as late as 1977, was "Land Rovers and .303s".

Quite clearly neither the Soviets nor the Cubans understood this, as they deployed a multi-division force in Angola from 1975 onwards and two divisions in Ethiopia in 1977, in both cases with extensive supporting air force elements. Perhaps if they had just asked the SADF, it could have been explained to them that this was impossible, and we could all have saved ourselves a lot of expense and trouble.

Today one hears SANDF officer saying that:

- There will never be any conventional threat;
- We will never have to airlift armoured vehicles anywhere (because “we never did it in the past”, which is, of course not true);
- We do not need landing ships (because “we will never land more than a company”);
- Any landing ships will not need a dock well or full-length flight deck (because “we will not go where we are not wanted”, and so we can unload in a harbour); and
- Buying fighters and submarines, wanting to buy the Badger and keeping the Rooivalk are all just things done or being done to facilitate corruption.

No doubt none of these strategists and officers have fire extinguishers in their houses or keep their insurance up to date – after all, how often have their houses caught fire?

I will not argue for adopting a ‘worst possible case’ approach; but I do expect some measure of understanding that war is not something that happens when and where it suits you and in the particular form you prefer.

War is an unannounced ‘come as you are’ event, and the invitation is often one that cannot be declined or ignored.

That is why the 1998 Defence Review at least insisted on keeping key capabilities alive at a “core” level – sufficient to handle likely contingencies and to serve as the basis for expansion should that become necessary. Unfortunately under-funding has left that core looking rather more like a wormy apple core than a core force.

It remains to be seen whether government will in future take a more realistic attitude to the relationship between roles and missions on the one hand and funding on the other.

## **Electronic Warfare**

What has all this got to do with electronic warfare, the business of the Old Crows?

The point is that war has not gone away, nor even permanently changed its nature. War is still a form of human endeavour in which the side that most efficiently exploits its advantages has a good shot at winning; the other party to the conflict does not come an honourable second.

More to the point, there is no guarantee that conventional war is something of the past, and it is a known fact that forces engaged in ‘operations other than war’ will in some situations find themselves faced with conventional warfare equipment: The French troops attacked by Su-25 ground-attack aircraft of the Cote d’Ivoire Air Force; the European troops in Bosnia, shelled and sometimes faced with armour; the UNAMID troops in Darfur, ambushed by forces with APCs; and the MONUSCO troops in the DRC who may well find themselves encountering up-armoured T-55s in some future clash. On the flip side, it is important to note the growing role of MBTs in Afghanistan and the Ugandan Army’s use of tanks and ICVs in Mogadishu.

The upshot of this is that the SANDF will need to hold onto the ‘core force’ approach – even if it will take some time to recreate the core – and will need to ensure that that core is kept up to date in its capabilities.

An essential part of that ‘core capability set’ will be the ability to conduct effective electronic warfare operations of many if not all kinds – offensive and defensive.

Equally important will be to have the capability to counter the different electronic threats and opportunities that the different forms of war will present. The key here will lie in maintaining and keeping up to date a range of capabilities, and being able to put together a package that is suited to the requirements of a particular mission – constabulary, peacekeeping, discouraging an attack by one country on another, post-conflict stabilisation, et al.

Having said that, I will not attempt to teach you what EW entails, which would be more than a little presumptuous – even for an infantry officer who, by the nature of being an infanteer, knows everything about everything.

I will, however, set out a few examples of the role EW has played in two current conflicts:

### **Afghanistan**

A casual observer of the war in Afghanistan would be surprised by the number of electronic warfare systems that are being employed – static, airborne (aircraft and UAVs) and mobile.

It may be a guerrilla war, but the guerrillas use electronics, making them vulnerable, and ISAF is exploiting the technological edge that major regular forces have over irregular forces. They are using EW assets mainly in three roles:

- COMINT is playing a startlingly important role in operations against the Taliban, who are aware of the risk but have little alternative to using voice communications, be it by radio or cellular or satellite telephone. COMINT is being used:
  - At a strategic level, essentially for traffic analysis to build the intelligence picture;
  - At an operational level:
    - To develop operational plans to engage identified Taliban elements;
    - To identify and avoid likely ambushes of logistic movements; and
    - For psychological operations.
  - At a tactical level, to gain an edge in contact by:
    - Eavesdropping on their command channels (usually PTT);
    - Spoofing and psychological operations;
    - Using their messages to identify targets for air strikes; and
    - Jamming

- ELINT is playing an important role in neutralising the threat of IEDs by:
  - Identifying the RF-based remote detonation systems being used, so that counter-measures can be developed; and by
  - Detecting the testing of remote detonation systems, warning of a likely ambush.
- ECM is playing a mainly protective role in the form of:
  - Self-protection systems aboard aircraft;
  - Using high-power microwave systems to disrupt the circuitry of IEDs.

For their part the Taliban have also been carrying out some psychological operations, mainly aimed at the Afghan forces and Afghan personnel operating with ISAF, and have tried their hand at tactical jamming.

## **Libya**

Much is being made of lightly armed rebels having won, *but the real victors in this conflict were the fighter and EW aircraft deployed by NATO.*

They shut down the air defence system and the air force, and then made it almost impossible for the Libyan Army to use its armour and artillery or to resupply deployed forces.

Without that NATO air power the Libyan rebels would have been crushed in short order by government forces. All the rebels would have been, is shadows on the road from Benghazi.

In fact, what is really interesting about the Libyan campaign is that it replicated the initial US operation to defeat the Taliban: Small Special Forces teams provided precision air attack for lightly armed semi-regular forces, enabling them to defeat the better armed Taliban. In Libya this approach has been successfully used against a vastly better-armed and equipped enemy.

This may be one form of warfare that will become more general, and that will lend itself to being used by major powers seeking to further their ends in Africa.

## **Iraq**

A brief reference to Iraq is also relevant: The use of EW systems and techniques during the invasion and afterwards has been covered quite widely in the professional journals.

But one aspect that has not yet received much attention is the Iraqi use of GPS jammers, which is believed to have caused some ‘smart’ weapons to go astray.

This also holds real implications for future operations ‘amongst the people’: A bomb aimed at a key target in a populated area need merely fall somewhere else in the area to cause damage or civilian casualties, creating an opportunity for propaganda.

## Conclusion

The bottom line of all this is that war has not gone away, and nor has the need for a range of capabilities to deal with the varied threats that will be presented by an ever-evolving strategic environment.

Armed forces must continue to maintain a balanced set of capabilities and they must continue to focus on exploiting their strengths.

Electronic warfare capability one edge that regular forces can enjoy over both other regular force and over the irregular forces they are likely to engage over the next decade and more. It will have the potential in some situations to be a war-winner.

And let us not forget 'cyber war'. Perhaps not electronic warfare as generally understood, but is it really so far removed from this environment?

To close, let me quote an officer of the SAAF, keeping his name out of it lest non-EW people take offence, and asking you to bear in mind that what applies to air forces today also applies to the other services:

*“EW is what separates a 1<sup>st</sup> rate air force from a 3<sup>rd</sup> rate air force”.*

## **Abstract**

There is a quaint belief among civilian strategists and, sadly, also among soldiers, that there is a new world out there, one in which there will no longer be ‘real wars’, but only ‘asymmetric, intra-state conflicts’ that involve fighting ‘amongst the people’ – and that this renders heavy weapons and much ‘high-tech’ equipment irrelevant.

That is simply not true. There are new trends in conflict, key among them being asymmetric warfare, war amongst the people and, particularly, in the urban environment, but:

- Those forms of warfare can be exceedingly complex and violent.
- Even peacekeepers and stabilisation forces will encounter conventional weapons.
- The era of conventional war has not passed for ever.

The upshot of this is that armed forces, and the SANDF is no exception, must maintain and keep up to date a range of capabilities, to enable them to meet the threats that will be thrown out by the ever-evolving strategic environment.

Electronic warfare is going to be a part of most conflicts, asymmetric or conventional, and it will be essential to stay ahead of the opposition.