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Adapting and Managing Logistics for Expeditionary Forces in Africa: A Private Military View

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Executive Outcomes

Abstract

The study on which this article is based, examined the approach adopted by the private military company, Executive Outcomes, to adapt, manage, and position its logistical requirements for sustainable offensive, defensive and containment operations in Africa. The logistical approach and doctrine of the pre-1994 South African Defence Force, despite its efficacy, was inadequate to ensure the force sustainment requirements of Executive Outcomes. Incorporating numerous lessons learned from the operations of the South African Defence Force in Angola, as well as engagements by Executive Outcomes in Angola (1993–1996), Sierra Leone (1995–1996), Uganda (1996), and Indonesia (1996), several adaptions were required to support and sustain operations in Africa, including the 72 Mobile Strike Force operations by the Nigerian Army against Boko Haram – a violent Islamist group – in 2014–2015. This deployment covered a distance of approximately 7 500 kilometres from the home base of Executive Outcomes in South Africa. The 72 Mobile Strike Force comprised both Nigerian Army members and private military contractors, and operated as an independent and self-contained unit. As the spearhead of the operations by the 7 Infantry Division of the Nigerian Army across Borno State, the approach of the strike force along with its logistics doctrine contained numerous lessons learned by Executive Outcomes in Angola and across other theatres of conflict and war.

Keywords: Force Sustainment, Logistical Requirements, Private Military Company, Intelligence, Offensive Operations, Defensive Operations, Containment Operations, Principles, Supply Chains

Introduction

United States (US) Army General Omar Bradley is attributed with the adage, 'Amateurs talk about strategy, professionals talk about logistics.'[1] In 1980, General (Gen.) Robert H Barrow (Commandant of the US Marine Corps)[2] noted, that 'Amateurs talk about tactics, but professionals study logistics.'[3]

These maxims were already well known – and applied – in the ancient world.[4] Logistics has been the lifeblood of strategic, operational, and tactical sustainment throughout centuries of conflict and war. Without adequate, well-managed and planned and sustainable logistical support, no successful military campaign or conquest would have been possible.

Sun Tzu discussed logistics and its criticality, 'Bring war material with you from home, but forage on the enemy. Thus the army will have enough for its needs.'[5] The logistical burden required to sustain the men and horses of Genghis Khan's hordes – who were often expected to forage for themselves – was considerable. One hundred thousand (100 000) men and 23 000 horses required substantial amounts of food, forage and water.[6] Baron De Jomini advised, 'The art of war, as generally considered, consists of five purely military branches, – viz.: Strategy, Grand Tactics, Logistics, Engineering and Tactics.'[7]

The above views reflect the necessity for effective and efficient logistical planning, warehousing or storage, supply chains, including transportation and distribution, and force sustainment during domestic, cross-border and expeditionary operations. The examples are however all related to historical European and Eastern approaches to logistical support during operations.

Combat operations in contemporary Africa, be they offensive, defensive, containment, or expeditionary, are faced with numerous unique challenges.[8] Force sustainment and operational momentum and tempo are dependent on efficient logistical supply chains. Logistical deficits as a result of a lack of realistic forward planning and investment into African logistical structures and systems have affected forces engaged in combat operations negatively. Degraded, destroyed or ill-maintained road and rail infrastructure amplified these deficits.

In the early to late 1990s, Angola, Sierra Leone and several other African governments found themselves in the unenviable position of having to counter armed threats and rebellions[9] while lacking the ability to project sustainable domestic hard power. Having been abandoned by foreign powers and governments, under-siege and sanctioned African governments were forced to turn to private companies they believed could assist and support them in overcoming their domestic and regional threats.

Deployments by the South African (SA) private military company (PMC), Executive Outcomes (EO), into Africa in support of under-siege governments[10] necessitated an urgent reassessment of the operational approaches by the South African Defence Force (SADF) to doctrine and logistical sustainment. Faced with a myriad of operational challenges, it became evident that African government forces lacked coherent, intelligence-driven and informed campaign strategies. These forces, furthermore, made use of foreign military doctrines not suited to the African areas of operations (AOs), along with a lack of equipment standardisation, inadequate command and control, poor intelligence – especially actionable intelligence – inadequate investment in logistical support and supply chains, poor medical support and evacuation procedures, and poorly trained troops.

Several African governments were also under international restrictions and sanctions preventing them from procuring and/or maintaining their required defence needs. This negatively affected their abilities to secure peace and security. Ironically, the armed threats they were facing were often not subjected to the same, and in some instances, these threats were both overtly and covertly supported by foreign governments and aid agencies.[11,12]

The military campaigns of EO in Angola and elsewhere, and later STTEP[i] International[13] in Nigeria, provide some insight into the criticality of military logistics during expeditionary operations in Africa. They also address the hard power deficits experienced by many African countries engaged in containing and neutralising armed anti-government forces and hostile regional incursions.

The Criticality of Military Logistics

Military logistics is the golden thread that ensures the sustainment of any military force.[14] It enables the movement of forces and their equipment to a combat zone, supports the forces with their ongoing requirements such a fuel, oil, and lubricants (FOL), ammunition, rations, water, medical supplies and support. Military logistics further guarantees the control over and management of such requirements.

Conducting expeditionary operations across numerous and varied terrain and vegetation requires an adaptable and focussed approach to supporting and sustaining forces in foreign or remote AOs.[15] This approach equips them to be ready for combat at all times. It enables their rapid deployment across environments where infrastructure is either lacking or non-existent. Successful expeditionary operations are dependent on real-time intelligence, coherent campaign strategies, and the development, control, maintenance, and management of efficient supply chains.

The Allied invasion of Europe during World War II was crucial to defeating Nazi Germany and her allies – known as the Axis forces. The invasion remains an example of the largest expeditionary operation in modern warfare. Without a sustainable and efficient logistical backbone and adaptive and well-managed supply chains, the Normandy landings on 6 June 1944, codenamed Operation Overlord*,* would have failed.[16] To succeed, Overlord required a well-planned and well-managed large-scale expeditionary logistical operation to support the offensive and defensive Allied actions. The Allied forces exploited their air, ground and naval delivery assets. The effect on the outcome of the war was extraordinary, and the planning of the logistical support to underwrite the invasion forces took several years of planning and preparation.

The South African Defence Force (SADF) demonstrated its logistical prowess during numerous high-tempo mechanised operations in Angola in the late 1970s and 1980s.[17] These offensive operations required enormous amounts of FOL, ammunition, rations, medical support, and the other requisites of war. It was the logistical effectiveness that enabled the SADF to keep its adversaries off balance and maintain its operational tempo and momentum. These lessons appeared to have been discarded by the post-1994 South African National Defence Force (SANDF)[18] during its recent deployments into the Democratic Republic of Congo (DRC) as part of a sub-regional peacekeeping and intervention force (Southern African Development Community Mission in the DRC or SAMIDRC).[19]

[i] STEPP is an abbreviation for Specialised Tasks, Training, Equipment and Protection.

Conducting expeditionary military operations in Africa can be challenging.[20] The diverse and vast operating environment; road and rail infrastructure deficits or the lack of such infrastructure; a lack of aircraft; threat-held and ungoverned areas; popular local support to adversarial or hostile forces; the enemy and his weapon systems; and long distances amplify the challenges – and create new ones. The ability or inability to deploy expeditionary forces is inextricably linked to the ability of a government to project sustainable hard power.[21]

Logistical Challenges in African Armed Forces

The greatest challenge to any logistician and his supply chain system, and management of it is guaranteeing the requisite equipment, materiel and/or stores are available at the correct place and time to allow the combat forces to maintain and sustain operational momentum and tempo.[22] This presupposes a coherent and realistic intelligence-driven and informed campaign strategy where the requisite means are available.

Many under-siege African governments lack credible actionable and predictive intelligence, and are, therefore, unable to develop either coherent or realistic, intelligence-driven campaign strategies.[23] Institutional, economic, and political impediments create their own unique challenges that must be overcome.

Furthermore, many African logistics compartments are antiquated, inadequately staffed and trained, and they lack functional requisition and supply procedures, equipment and assets to develop and sustain operations domestically. Resultant from a lack of investment, they are unable to respond rapidly to the needs of the armed forces[24] and are poorly controlled and managed. This has severe consequences for the levels of logistics: strategically, operationally, and tactically. The lack of investment in military logistics and enabling technologies, in turn, had a negative effect on the mandate of government forces to deploy and engage in domestic combat operations, foreign or regional peacekeeping operations, or possible expeditionary operations either in remote areas or beyond their national borders.

The lack of or deficit in supplies and materiel can adversely affect both the morale and fighting spirit of the combat forces. Consider for a moment forces deployed in torrential rains without any rain protection, getting by with a shortage of food and ammunition, and facing an adaptive, well-armed, and intent-driven enemy – their morale and will to fight will be seriously eroded while affording the enemy numerous advantages.[25]

The majority of African armies are clones of their former colonial masters or later Cold War allies.[26] Their orders of battle (ORBAT) and tables of organisation and equipment (TOE) are aimed at mimicking those of either the East or the West – and in some instances, contain elements of both. These ORBATs and TOEs are inadequate for African domestic and/or regional combat operations.

The armed forces that follow the Soviet bloc structures along with their combat and logistical doctrines are too centralised to enable rapid action, thereby positing them as reactive forces as opposed to proactive forces. The forces that have adopted the European or North Atlantic Treaty Organization (NATO) force structures and logistical doctrines are unable to conduct high-tempo combat operations due to the logistical sluggishness and cumbersome logistical tailback. Furthermore, these forces have asset deficits, inadequate training, a lack of investment, a shortage of delivery assets, inadequate command and control, a lack of investment, and poor stores management.

In addition, modern African armies are given notoriously bad advice and poor training by their so-called "international partners" regarding logistical support.[27] The infrastructure on the continent is neither that of Europe nor of the United States. African armies do not possess the same horizontal and vertical delivery assets as their so-called "international partners". Nor do they have comparable assets, budgets, means, resources, and infrastructure.

Very little emphasis is given to the art and science of military logistics, its criticality, and control over supply chain systems. It serves no purpose to train logisticians in the art of air supply when both aircraft and parachutes are lacking.[28] Substandard foreign training, domestic asset deficits, and a lack of actionable intelligence have a negative influence on domestic and/or sustained combat transnational operations and logistical support to expeditionary combat units.[29] The above were typical challenges and problems experienced by EO during its deployment into Angola in 1993.[30]

Angola: Laying the Foundation for the Future

Following rapid Angolan decolonisation,[31] the country erupted in a civil war that pitted the three major Angolan political parties against one another. The warring parties comprised the MPLA (*Movimento Popular de Libertação de Angola*), UNITA (*União Nacional para a Independência Total de Angola*) and the FNLA (*Frente Nacional de Libertação de Angola*).[32] Ultimately, the MPLA took control over Angola and its government while UNITA, despite its initial Maoist ideology, and later support from South Africa and the United States, continued fighting. The FNLA all but disappeared.

The conflict attracted foreign governments, especially Cuba and its Soviet allies, intent on gaining control over the Angolan political trajectory along with its tapped and untapped resources. The United States provided propaganda and political support to UNITA and supplied it with Stinger surface-to-air missile systems.[33]

Despite the ongoing armed conflict, the Angolan MPLA also provided a safe haven and support to two SA adversaries: the South West African People's Organisation (SWAPO), its military wing (PLAN)[34] and the African National Congress (ANC).[35] This resulted in the SADF conducting numerous offensive operations in South West Africa (now Namibia) and later in Angola.[36] These operations were well supported by an efficient SADF logistical structure and supply chain.

The withdrawal of the SADF from Angola and Namibia later was the result of the negotiations (the New York Accords) concluded in New York. Signed by Angola, Cuba and South Africa on 22 December 1988,[37] the negotiations made provision for the withdrawal of SA forces from Angola – a process that had already been completed by 30 August 1988.[38] The negotiations furthermore called for the withdrawal of South Africa from Namibia, Namibian independence, and the staged withdrawal of Cuban forces from Angola.

The implementation of the New York Accords demonstrated the SADF logistical prowess to support a planned withdrawal and to transport its military personnel and the majority of its equipment from the Angolan and thereafter from the Namibian operational areas back to South Africa. It was hoped that, with the ending of hostilities, Angola would find peace and stability. Entering a period of national recovery following the devastating three-decades-old civil war interspersed with numerous offensive SADF operations, strikes and raids into its territory,[39] the Angolan armed forces[40] were operationally exhausted and economically and logistically constrained.[41]

The 1991 Angolan Peace Accords, known as the Bicesse Accords, made provision for a ceasefire agreement, the establishment of peace in Angola, resolving the issues still pending between the government and the rebel forces, and the Protocol of Estoril. The latter made provision for elections, the transition to a multi-party democracy, military monitoring, internal security, political rights of the rebels, administrative structures, and formation of the new Angolan Armed Forces.[42] This resulted in a shaky ceasefire between the Angolan armed forces and UNITA.

The MPLA-led Angolan government held the first national elections in the country in 1992. The rejection by UNITA of the election results reignited the civil war, further hampering the recovery of both the government and the newly reconstituted Angolan government forces (FAA or *Forças Armadas Angolanas)*.[43] Having unsuccessfully called on the international community for assistance to bring about an end to the renewed post-election armed hostilities, both the government and the FAA were forced to seek assistance elsewhere.

The National Union for the Total Independence of Angola (i.e. UNITA), led by Dr Jonas Savimbi,[44] comprised both a political and military component. It was supported by both the West and the East. It had "diplomatic offices" in several European and United States (US) cities. The movement had a formidable media capability and was able to disseminate its own propaganda and press releases via European and SA media houses. The SA Military Intelligence Division exploited its agents in the media houses to propagate attacks on the MPLA government while praising the actions by UNITA. One principal UNITA advisor was an SA businessman[45] who was also an advisor to President Thabo Mbeki, SA civilian and military intelligence agencies, the De Beers mining house, and the US State Department.[46] This provided UNITA easy access to selling its illegally mined diamonds, while simultaneously presenting it with numerous disinformation and misinformation

options. The international diplomatic presence of UNITA further gave it a legitimacy the MPLA government lacked.

The UNITA military forces, supported by several foreign governments, were able to inflict heavy losses on the Angolan government forces. Comprising almost 90 000 men under arms, it was equipped with a variety of East bloc weapons and weapon systems. It had its own armoured forces as well as artillery, anti-aircraft, engineering, and logistics elements. Its approach to defeating the Angolan forces consisted of semi-conventional, guerrilla, sabotage, and propaganda actions and operations. Its US-supplied Stinger surface-to-air missiles posed significant dangers to the National Air Force of Angola (FANA).[47] Its foreign suppliers made use of both air and sea delivery methods. Mmabatho International Airport[48] served as a major supply hub for air delivery of equipment and materiel from South Africa to UNITA-controlled airfields in Angola. The northwestern Angolan seaport of Soyo,[49] under control of UNITA, was used as its safe harbour. Both air and sea assets were used to deliver military equipment and to transport diamonds sold by UNITA to international markets, including to South Africa.

The renewed UNITA offensive in mid-1992 was able to seize the diplomatic and military initiatives, inflict heavy losses on FAA, and take control of much of Angola. By early 1993, the MPLA government and FAA estimated that UNITA controlled most of the Angolan countryside along with numerous cities and towns. The FAA general staff believed that more than two thirds of the country (approximately 800 000 square kilometres) had been lost to UNITA.

By mid-1993, the Angolan government contracted the private SA military advisory company,[50] Executive Outcomes (EO), to assist, advise, train, equip and mentor a newly envisaged mechanised infantry brigade[51] in order to reclaim territory lost to UNITA and bring about an end to the reignited post-election armed conflict.[52] The contract EO entered into with FAA required training and mentoring the new brigade. The training of the brigade had to make provision for offensive, defensive and containment operations against an agile, well-equipped, well-trained, foreign-supported, battle-hardened and successful enemy.

The FAA was able to provide much of the offensive requirements of the brigade, such as ammunition, uniforms, base facilities, weapons, and an assortment of vehicles. The logistical constraints and deficiencies of the FAA however necessitated the procurement of equipment and supplies from South Africa, Germany, the United Kingdom, Russia, Ukraine, the Czech Republic and elsewhere. Equipment, such as ballistic body armour, helmets, personal loadbearing equipment, medical supplies, daily ration packs, infantry fighting vehicles (IFVs) and even utility helicopters had to be procured and shipped to a primary facility for both the training and operational deployment of the brigade. A rapid casualty and medical evacuation (casevac and medevac) procedure had to be developed and implemented to ensure injured and wounded soldiers, and sick EO personnel could be rapidly evacuated to hospitals in South Africa.

If the brigade had to conduct high-tempo combat operations successfully in order to unbalance the enemy, regain the initiative, and impose its will on UNITA, it would require an intelligence-driven and informed campaign strategy. Such a strategy would, in turn, require a restructured logistical system and supply chain to ensure maintenance of the momentum of the brigade.

The brigade, however, lacked numerous of the essential components required to project rapidly and to sustain hard power.

Assessing the Situation

Housed at the old Cuban airbase at Cabo Ledo,[53] approximately 80 kilometres south of the Angolan capital city Luanda, it became apparent that EO would need to ensure the brigade was independent in terms of command and control, operational planning, selection and vetting of troops, training programmes, logistics and engineering. It was critical that the brigade was postured to conduct rapid horizontal and vertical manoeuvre operations, augmented by clandestine and pseudo-operations. Its attainment of mission success would require the brigade to apply, align and synchronise all of its elements of combat power, which were defined as:

- Mobility and manoeuvre;
- Firepower (direct & indirect including airpower);
- Force preservation;
- Command and control;
- Communications;
- Technologies;
- Intelligence; and
- Logistics.[54]

Despite the ongoing conflict with UNITA, the FAA had neither a sustainable campaign strategy for the pending deployment of the brigade, nor a realistic vision of what the brigade could and/or should do. Lacking a campaign strategy, several unforeseen challenges were obvious as the envisaged brigade – later designated 16 Brigade – had neither the manpower nor the means with which to conduct its as yet unknown mission(s).

The EO premise remains that intelligence drives and informs strategy, and strategy determines structure. The brigade structure, coupled to terrain and the enemy, would determine its ORBAT, its doctrine, its TOE, and standard operating procedures (SOPs), the challenges that could be anticipated, and how best to sustain combat operations with a very reduced logistical footprint.

Lacking a clearly defined mission, EO interpreted its primary function as preparing the newly constituted 16 Brigade (16 Bde) to ensure the smooth deployment drills of the unit, i.e. to rapidly guarantee the correct manpower, at the correct place and time, correctly trained, equipped and supported to do battle[55] with the enemy, UNITA. An agile, flexible, adaptable, efficient and well-managed logistical rear area and supply chain would be critical to sustain any planned combat operations.

It was evident that sustaining the brigade logistically would present numerous challenges, as the existing Soviet approach of the FAA to logistics was both limited and disconnected from the realities of an African battlefield. It lacked control and logistics management, and was sluggish. Sustaining operations against an elusive enemy over a large AO had become problematic for FAA. If the logistical requirements of 16 Bde and EO had to be met by both current Angolan means and beyond, it would necessitate incorporating elements of expeditionary logistics to ensure an agile, flexible, rapid, and smooth functioning system. Left unattended, these shortcomings would deny the brigade the ability to exploit its combat power while providing UNITA with numerous battlefield advantages and giving it the initiative.

Given the uniqueness of EO operations across Africa, it was apparent that the SADF logistical doctrine (according to which EO initially worked) would require numerous adaptions and adjustments to cope with the diverse operational challenges in different theatres of conflict and war. These changes included adapting the fighting (F) echelon into an echelon that could operate for longer durations, along with forward stacking of FOL and ammunition, and air delivery of FOL and other requirements to guarantee operational tempo and momentum.

The hurriedly approved, jointly developed FAA–EO campaign strategy confirmed the ORBAT and TOE of the brigade. To execute the campaign strategy, 16 Bde required two mechanised battlegroups, its own air support (helicopters and strike aircraft), air assault elements, pseudo teams, indirect fire support teams, a rapid reaction force, along with combat engineer, intelligence, communications (signals), medical support and logistics elements.[56]

The broad campaign strategy, as illustrated in Figure 1, made provision for:

- An airlanded operation launched from both Cabo Ledo and Luanda to insert a fully equipped, combat-ready joint FAA–EO combat team rapidly into the FAA garrison at Saurimo in the eastern Angolan province of Lunda Sul;[57]
- A two-pronged advance from both Luanda and Saurimo to retake the UNITA-held diamond fields in the Lunda Norte province; and
- The retaking of the UNITA-controlled harbour town of Soyo in northwestern Angola.

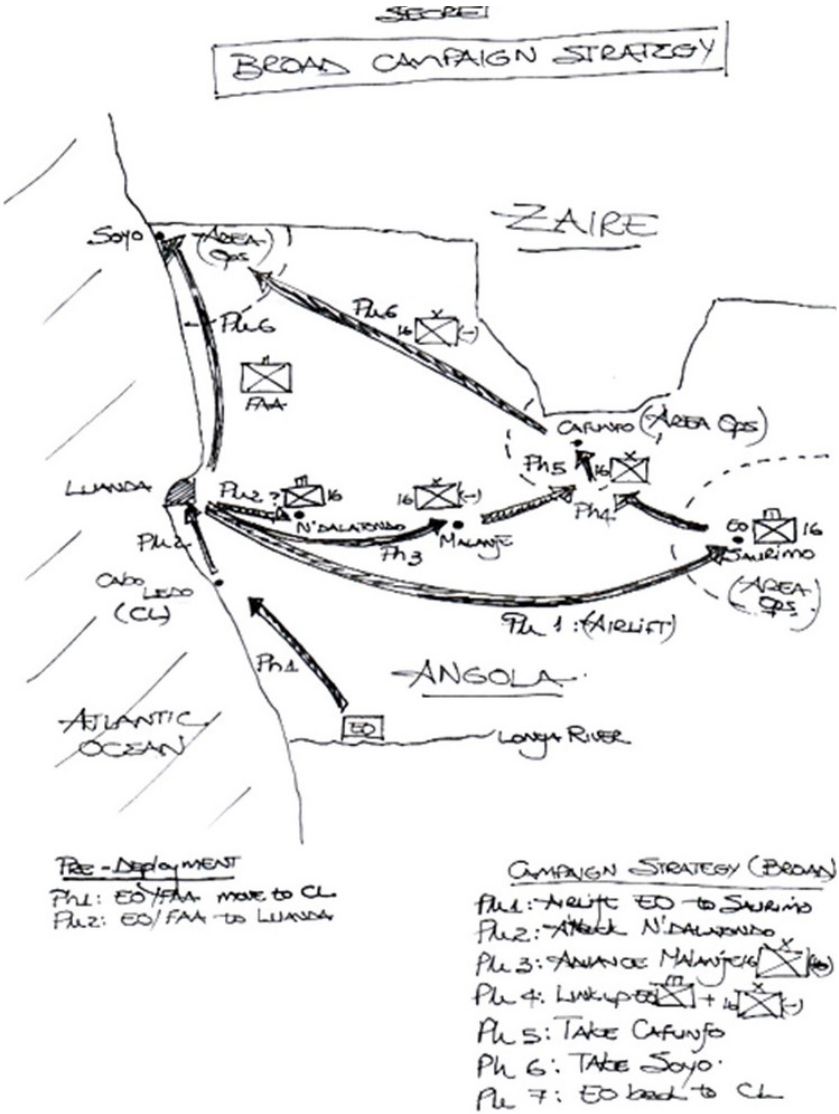

Figure 1: EO hand-drawn broad campaign strategy.[58]

The campaign envisioned the brigade conducting intelligence-driven, high-tempo combat operations over large distances with an efficient and flexible yet significantly reduced logistical footprint. To maintain operational momentum and tempo and to endure in its mission, 16 Bde required agility, firepower, manoeuvrability, force protection, and sustainability. These critical factors required investigation into and the adjustment of the available logistical means to guarantee campaign success. The enemy, time and distance, coupled to terrain and vegetation related to logistical support posed several significant challenges to the brigade. Procuring war materiel and supplies from beyond Angola to Cado Ledo and Luanda had a time implication and required a minimum delivery distance of approximately 2 400 kilometres. Due to the lack of FAA logistical support vehicles, contracted private contractors and resources needed to be engaged.

Whereas Cabo Ledo would initially serve as a main logistical depot and supply point, equipment and materiel needed to be supplied rapidly to the brigade forces operating considerable distances from the proposed Cabo Ledo hub to the Lunda Norte and Lunda Sul provinces of Angola. Ensuring the requisite combat requirements were available to the brigade and its battlegroups at all times, necessitated adaptions to the traditional first line, first-line reserves and second-line logistical requirements. It also necessitated identifying and establishing forward supply bases as well as resupply points during an advance.

The logistical doctrine to sustain the SADF forces in their combat and support operations in Angola could not be used in its entirety as a template. The FAA logistical systems were both inadequate and impractical for high-tempo composite warfare operations[59] across a fluid battlefield against an elusive, mobile and successful enemy and over considerable distances.[60] In addition, the road and rail transport infrastructure was severely degraded and neglected, destroyed, mined or not available. Air delivery would require flying through a gauntlet of UNITA anti-aircraft guns and missiles.[61]

Mission success required a reassessment and reconfiguration of the existing and predicted logistical support, supply depots and chains, resupply points, and management systems from Cabo Ledo to the Lunda. During the unfolding of the campaign, numerous additional lessons were learned relating to the resupply of ammunition, FOL and rations as well as medevac and the treatment of FAA and EO casualties. Forward supply areas needed to be established and protected. As medical facilities in Angola were dilapidated, under-equipped and understaffed, EO and FAA casualties would require immediate casevac by helicopter – often under direct and indirect fire by UNITA – to an EO medical post at Saurimo. Whereas FAA would ensure its casualties were medically evacuated (medevac) to Luanda, EO casualties were flown from Saurimo to SA hospitals by Boeing 727 aircraft.

As one of the EO combat team commanders would later relate:

> Flying re-supply mission after re-supply mission, our pilots were keen to make sure that we had everything we needed. Apart from this, everyone knew that a casevac was literally only minutes away, so if anyone was wounded our pilots would fly in to take them to

> a hospital. Knowing that the company was willing to ensure the best medical treatment at a private hospital in South Africa was great for moral.[62]

The lessons learned in Angola would become part of the EO approach to logistics and force sustainment, and were later elaborated on during deployments to Sierra Leone and Indonesia. In later years, the approaches, methods and techniques of logistical sustainment used by STTEP in Nigeria (discussed later in this article) became part of the planned anti-Boko Haram campaign.[63] The EO campaigns in Angola and elsewhere were, however, not explicitly expeditionary in nature. They always formed part of larger state-sanctioned military campaigns where the armed forces of the governments under siege were (and are) engaged in countering armed anti-government forces, proxy forces, or hostile regional military forces – and, at times, included cross-border operations.

Operating semi-autonomously came with both advantages and disadvantages. As an independent brigade, the battlegroups were able to execute their operational designs with speed and therefore dictate the tempo of operations. This allowed 16 Bde to seize the battlefield initiative rapidly. A major disadvantage was having to rely on the logistical capacity of the FAA, which was often unable to supply the brigade with its requirements. As an example, the EO campaign strategy made provision for the establishment of medical posts for the local population in areas retaken from UNITA. As medical support by the FAA was generally poor, medicines were donated to EO by private SA hospitals and flown to the Angolan AOs.[64] The approach and methodology adopted by EO to support government military campaigns were based on what later become known as "composite warfare".[65]

The fighting concept relied on small highly mobile combat teams supported by utility helicopters and strike aircraft. Intelligence feeds and targeting relied on human agents recruited by EO within the UNITA ranks as well as on reconnaissance and pseudo-teams and the local population. Longer-range aerial reconnaissance was conducted with an EO-modified King Air aircraft equipped with forward-looking infrared (FLIR)[66] sensors. These assets identified UNITA deployment areas, camps and supply dumps, as well as potential helicopter landing zones for future resupply points.

Having been deployed into numerous African conflicts, elements of the deployments can be viewed as "expeditionary" as they were mostly conducted into either remote ungoverned areas or areas under occupation of hostile anti-government forces. Nonetheless, the company was and is always integrated into the armed forces of the contracting government where, if possible, use is made of logistical supply chains and distribution systems of the military of the relevant government. Unencumbered by restrictive procurement procedures, EO was able to rapidly advise on the procurement of personal equipment, medical supplies, ration packs, and even commercial technologies, such as rangefinders and, infrared sensors.

EO was and is, however, a PMC based in South Africa, owned by South Africans, and staffed by Africans. The company is located far from the conflict areas and zones, and possesses no military equipment or vehicles. It must utilise what is available in a particular country, advise on essential requirements if government funding allows and/or improvise where possible. This presents some unique challenges, uncertainties, and a loss of operational momentum and tempo.[67]

Prior to the deployment of 16 Bde, the following operational challenges that would affect logistical sustainment were identified:[68]

- A lack of actionable operational and tactical intelligence created numerous challenges in terms of predicted ammunition expenditure and FOL, rations, medical support and water requirements;
- A lack of transport infrastructure would necessitate the brigade moving cross-country and, where necessary, constructing improvised bridges to cross large water obstacles;
- The attitude of the local population and their perceived support to UNITA could hamper the resupply of forces by laying mines, constructing obstacles, and providing intelligence to UNITA forces;
- The availability and willingness of private transport companies to assist and support the movement of stores and supplies when the brigade had insufficient vehicles to resupply its forces;
- Access to anti-aircraft gun and missile systems and barrel and rocket artillery by UNITA and using it could prevent the horizontal and vertical delivery of stores and supplies; and
- The decision by the post-1994 SA government not to sell critical equipment to the FAA necessitated the sourcing of critical materiel and equipment elsewhere[69] thereby creating delivery and time challenges.[70]

The Uncertainties of the First Logistical Test

Given the superiority of UNITA in terms of manpower, equipment and international support, and the influence thereof on both the AO and the operating environment, any campaign strategy had to enable the brigade to regain the initiative and unbalance UNITA forces. As UNITA controlled more than two thirds of the country, it provided them with operational flexibility across a large and fluid battleground. The campaign strategy therefore had to force them into static defensive positions while simultaneously degrading their forces. It furthermore had to force UNITA to divide its forces and increase their vulnerability to the combat power of the brigade.

The approved joint FAA–EO campaign strategy consisted briefly of the following phases:

Phase 1: Take, hold, secure, stabilise, and expand Saurimo[71] in northeastern Angola;

Phase 2: Develop Saurimo as a primary logistics depot or hub and supply point;

Phase 3: Attack and capture the primary UNITA logistics base at N'taladando;[72]

Phase 4: Commence with two-pronged advance on Cafunfu[73] from Luanda and Saurimo;

Phase 5: Assault on Cafunfu;[74]

Phase 6: Consolidate, exploit and expand hold over Cafunfu and environs;

Phase 7: Advance on the UNITA-held harbour town of Soyo;[75]

Phase 8: Assault, take and hold Soyo and thereafter return to Cabo Ledo.[76]

The campaign strategy focussed on degrading and neutralising the UNITA trinity of gravity:[77]

- altering and shaping the perceptions of the local population to support FAA and reject UNITA;
- cutting off the UNITA diamond mining income and their safe harbour; and
- systematically annihilating the UNITA military forces.

The first phase of the campaign strategy to impose the will of the Angolan government on UNITA required the deployment of an independent, self-sustaining combat-ready combat team consisting primarily of EO members from Cabo Ledo and Luanda to Saurimo. This allowed securing and expanding the AOs at and responsibility of Saurimo (see Figure 2). Both Luanda and Saurimo would serve as the start of a two-pronged advance on the UNITA stranglehold over the diamond fields at Cafunfu.[78] Both locations would also serve as primary logistics hubs for the two-pronged advance.

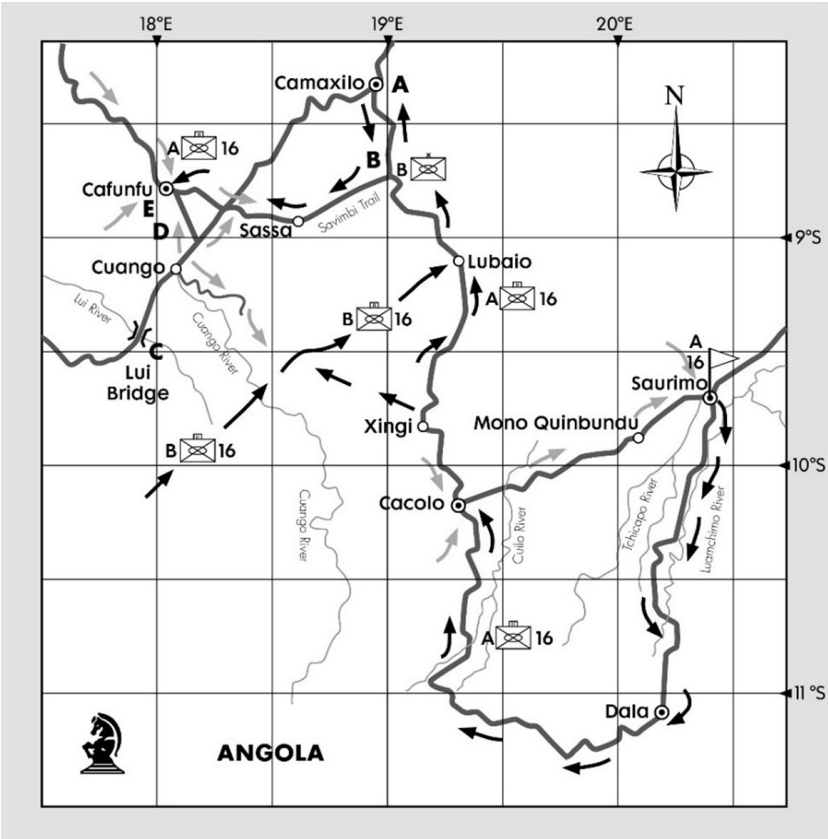

Figure 2: The campaign strategy for the FAA 16 Brigade in Lunda Sul and Lunda Norte provinces.[79]

The roads between Luanda and Saurimo were severely degraded and heavily mined, and provided numerous options for UNITA road ambushes. The initial deployment to Saurimo was by air to secure the garrison and its airfield, establish an air bridge, and reinforce and then sustain the garrison. The airlanded deployment required speed and surprise to unbalance and deceive UNITA. A secure Saurimo enabled the build-up of forces to execute the first phases of the campaign.

The subsequent air bridge from both Cabo Ledo and Luanda to Saurimo allowed ammunition, FOL, rations, medical equipment and other vital requisites to be prepositioned at Saurimo. Once achieved, the other phases of the operation could be executed. The subsequent phases of the campaign strategy were successfully accomplished within a few months.

Given the uncertainties of multiple offensive and other events during any military campaign, EO logisticians were forced to make numerous assumptions to support and sustain the campaign and its subsequent operations. These assumptions related to the availability and/or lack of controlled FAA procurement processes, equipment, stockpiles or supply dumps, reserves, lines, recovery of equipment, defence-related supportive industries, and the protected movement of stores and supplies. It also extended to the condition of roads and bridges during inclement weather, vegetation, other critical infrastructure, along with seasonal variations and the impacts thereof on both the participating forces and the supply chains.

To validate assumptions and overcome the uncertainties and the fogginess of the supply chain, logisticians were granted access to classified intelligence data relevant to their area of operation as soon as possible. They were also engaged during all phases of planning the campaign strategy. This guided them in terms of logistical planning and aided them in overcoming uncertainties of what combat units could expect, where, and when. This allowed them to make sound predictions and to anticipate the potential requirements, dangers and risks, and possible supply lines and points.

The success of the campaign relied on EO logisticians guaranteeing operational sustainment. The final logistics plan was lean, fast, and robust – and, above all, practical – and enabled effective and efficient implementation under adverse and trying conditions over disparate terrain and great distances. Exploiting both horizontal and vertical delivery assets, the logistics plan supported all elements of the doctrine of the brigade and the phases of the operations. The plan was tightly controlled to prevent losses and shrinkage. This enabled the brigade to achieve a successful strategic outcome that resulted in UNITA accepting the November 1994 Lusaka Protocol.[80] Despite the protocol, UNITA continued to violate the ceasefire and the FAA 16 Brigade continued with its operations.

The lessons learned in Angola relating to force sustainment were encapsulated in the approach by EO and later STTEP to logistical support in Nigeria. The delineation of the logistical lines of support, the principles of composite warfare logistics and supply chains, and approaches to supply chain delivery were successfully applied in Sierra Leone, Indonesia, Uganda and the DRC, the Central African Republic, and later in Nigeria and elsewhere.

The input of EO logisticians remains crucial from the initial development stages of any campaign strategy or operational design. Their input is considered vital throughout the implementation phases of the campaign or operation. They are mandated to veto operational designs if they believe they are unable to sustain operations.

Logistical Lines of Support in Nigeria

Although the Christian and Muslim communities in Nigeria[81] generally co-exist peacefully, there have been frequent religious riots. In 2002, numerous ethnic-related clashes took place, mainly between Christians and Muslims.[82] Despite President Goodluck Jonathan's

election victory in 2011, he was faced with a mounting Islamist problem, a problem that had already intensified in July 2009. In that year, an Islamist movement known as Boko Haram launched a campaign of violence across the northeast Nigeria, killing hundreds of people – Christian and Muslim alike.

The mass kidnapping of 276 mostly Christian female students by Boko Haram from their secondary school in the town of Chibok, Borno State, during the night of 14 April 2014, shocked the Nigerian government and the international community.[83] Faced with severe criticism for its slow response to the kidnapping, the Nigerian Army (NA) subcontracted an EO offshoot known as STTEP International to assist in training and mentoring an NA hostage rescue force to secure the release of the Chibok girls.[84] The subcontract was for three months. It required the deployment of STTEP personnel to the Nigerian School of Infantry (NASI) at Jaji, Kaduna State during December 2014–January 2015. In this case, STTEP was to select and train a hostage rescue force to secure the release of the kidnapped girls.

Shortly after the training commenced, Boko Haram began an offensive in the neighbouring Borno State and was threatening to overrun the headquarters of the NA 7 Infantry Division (7 Inf Div) in Maiduguri.[85] If Boko Haram were successful in capturing Maiduguri, it would signal a massive defeat to the Nigerian Army. This would undermine the faith of the citizens in the government and the Nigerian Army, as well as give Boko Haram access to the weapons and equipment of the division. A victory would further incentivise Boko Haram as well as provide them with numerous propaganda options and enable them to recruit new members to its cause. The renewed Boko Haram offensive resulted in STTEP being asked to discard its Chibok girl rescue mission and instead to deploy to Maiduguri to support the division.

This sudden posture change necessitated a highly mobile force capable of striking deep into Boko Haram-controlled areas. Such a force, comprising selected NA and STTEP members, would require both horizontal and vertical assets. It would need to operate autonomously across Borno State. To give the force both agility and flexibility and to enable it to apply its combat power to maximum effect, it would need to control its own logistics to sustain the force.[86]

The formation of 72 Mobile Strike Force (MSF) as an independent, self-contained NA unit attached to 7 Inf Div was hurriedly approved. This gave credibility to the logistical lines of support defined in earlier EO campaigns. Similarly, EO principles of logistics and the approaches to supply chain delivery were found to be applicable to both low-intensity and high-tempo combat operations. These operations spanned the gamut of desert, jungle and urban warfare.

The 72 MSF was structured according to the tenets of a composite warfare combat team.[87] It was composed of four mine-resistant ambush protected (MRAP)[88]-mounted strike teams, each team consisting of four MRAPs, along with an MRAP-mounted indirect fire support team. It had its own air wing comprising an MI-24 attack helicopter, two modified Gazelle

attack helicopters along with a single UH-1D and a Puma helicopter. The Nigerian Air Force would deliver air-to-ground strikes if called on. Casualties would be immediately evacuated to its own medical centre at its forward operating base (FOB) at Maiduguri. The FOB would serve as 72 MSF launchpad to conduct operations against Boko Haram as well as serve as its logistical hub.

Despite lacking critical equipment, such as radio communications, night vision and thermal equipment and unmanned aerial vehicles (UAVs), it was a highly mobile, agile manoeuvre force. Its mission was to act as the tip of the spear for 7 Inf Div, and to locate and strike Boko Haram forces in Borno State. The MSF did not hold ground but paved the way for 7 Inf Div to hold and exploit terrain and areas retaken from Boko Haram.

Supporting the 72 MSF with its logistical means and resources during high-tempo operations to implement its mandate successfully was challenging. It required convincing the hierarchy of the Nigerian Army that force sustainment based on numerous antiquated and irrelevant foreign doctrines from the United Kingdom, the United States, France and Israel held numerous disadvantages for the strike force. The NA hierarchy finally accepted that logistics is a costly and ever-evolving process that must be studied, adapted, refined, implemented and controlled by professional logisticians. Approaches and doctrinal adaptions to the approach followed by the NA to logistics were therefore crucial.

Acting as advisors to 7 Inf Div headquarters, senior personnel of STTEP were able to formulate a campaign hurriedly to adopt an offensive posture and take the fight to Boko Haram. The campaign strategy was simple. Codenamed Operation Anvil, it made provision for three broad phases as illustrated in Figure 3:[89]

Phase 1: Aim – to divide the Boko Haram AO by driving a wedge between them. To achieve this:

- 72 MSF had to retake and secure the Mafa–Dikwa–Ngala access route;
- The strike force had to exploit ten kilometres beyond Dikwa and Ngala, while 7 Inf Div occupied Ngala; and
- Elements of 7 Inf Div had to secure and patrol the wedge actively.

Phase 2: Aim – retake and dominate Boko Haram strongholds south of the wedge:

- 72 MSF had to retake Bama and Gwoza;
- 7 Inf Div had to occupy and dominate key areas and key terrain (elements of STTEP had to become embedded with those elements to train them in defensive warfare and area operations);
- 72 MSF had to conduct strike operations, and locate and annihilate Boko Haram in the area south of the wedge, including sweeping the Sambisa Forest area; and
- Elements of 7 Inf Div had to dominate the area with listening posts and mobile patrols, supported by NA air assault units.

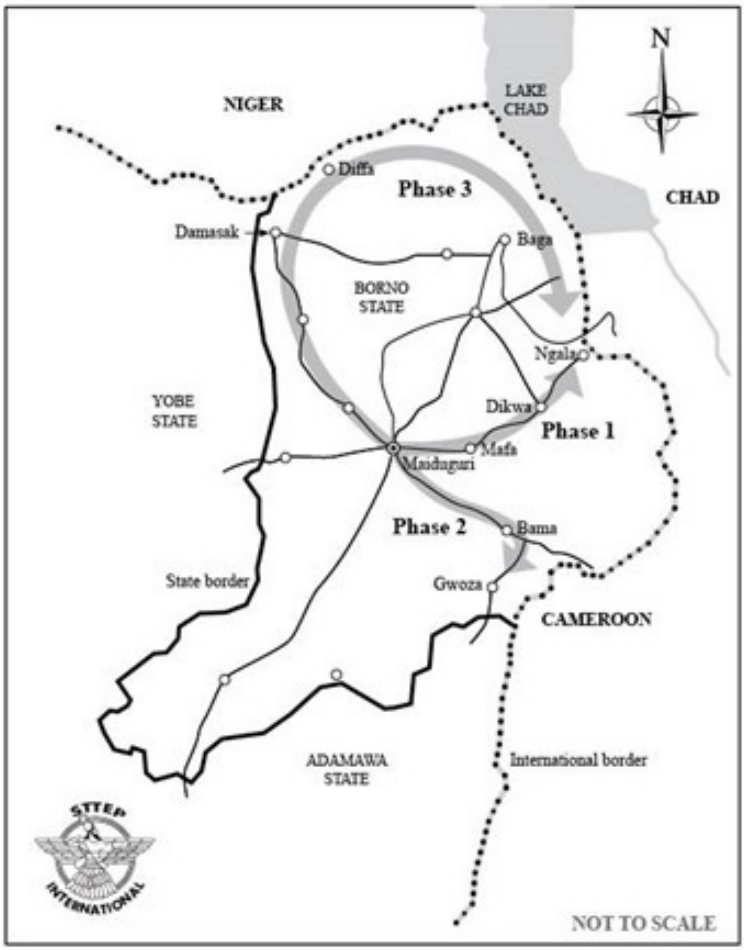

Figure 3: Broad strategic intent of Operation Anvil in Borno State, Nigeria[90]

Phase 3: Aim – retake and dominate Boko Haram strongholds north of the wedge:

- 72 MSF had to retake Damasak, Giri and Bosso to be occupied and defended by elements of 7 Inf Div;
- 72 MSF had to strike south and retake Baga, Doro Gowon and Gambaro;
- 72 MSF had to conduct area operations, and locate and annihilate Boko Haram elements in the northern sector of the "wedge"; and

- Elements of 7 Inf Div had to dominate the area with listening posts and mobile patrols, supported by NA air assault units.[91]

Preparing the equipment-deficient 72 MSF, along with the poor equipment delivery schedules of the Nigerian Army, the strike force had one month left in which to conduct anti-Boko Haram operations. It was realised the MSF would not be able to carry out the entire campaign strategy in that space of time. Despite the lack of critical equipment, it was argued that once the strike force and division started achieving operational success by destroying Boko Haram elements and retaking ground held by the Islamists, the government would allow the strike force to continue with the campaign strategy.

The recommended flow of logistics was formulated according to the lessons learned by EO in Angola and Sierra Leone. It was, as illustrated in Figure 4, structured according to line, echelon, and assembly area or headquarters-based support, and is generally structured as follows:

- First line: allocated to the fighting element (F echelon), this includes all stores (ammunition, FOL, rations, water, and medical) required for immediate combat operations, and was intended to last for three days.
- Second line: As there was no first line reserve, the second line fulfilled this role as African armies were unable to sustain the large logistical tailback required to enable the traditional A and B echelons.[92] This line included all stores and equipment not required for immediate battle. It was intended to last for five days, and these requirements had to be able to replenish the F echelon immediately. This line was kept at the Battle Group FOB. Battle-damaged equipment was recovered and delivered to the third line. Equipment that could not be recovered had to be destroyed *in situ*.
- Third line: kept at the Combat Operations Group (COG) assembly area (COGAA) or COG headquarters (COG HQ). This included all logistical requirements to maintain and repair recovered battle-damaged equipment, and replenish the equipment and stores drawn from the second line. The requirements of this line were held at the division assembly area (DAA) or HQ, and were intended to last for seven days. Battle-damaged equipment that could not be repaired at the COGAA was delivered to the fourth line.
- Fourth line: the division headquarters (Div HQ) functioned as an intermediate rear area for its forces. It held and provided all logistical requirements necessary to replenish the equipment and supplies of the division. It was kept at the Army Group assembly area (AGAA) or HQ, and was intended to last for fourteen days. If battle-damaged equipment could not be repaired at the AGAA, it was delivered to the fifth line, in effect, the rear area.
- Fifth line: this included all in-country defence-related and supportive industries. The fifth line provided the equipment and stores to replenish the AGAA or HQ, and on demand. Battle-damaged equipment that could not be repaired at this line, was disposed of.

- Sixth line: this encompasses all equipment, materiel, spares and such that had to be sourced, purchased and imported from foreign sources. It was at the sixth line that African governments usually fund themselves under foreign sanction, supply-lethargy, and/or sabotage.

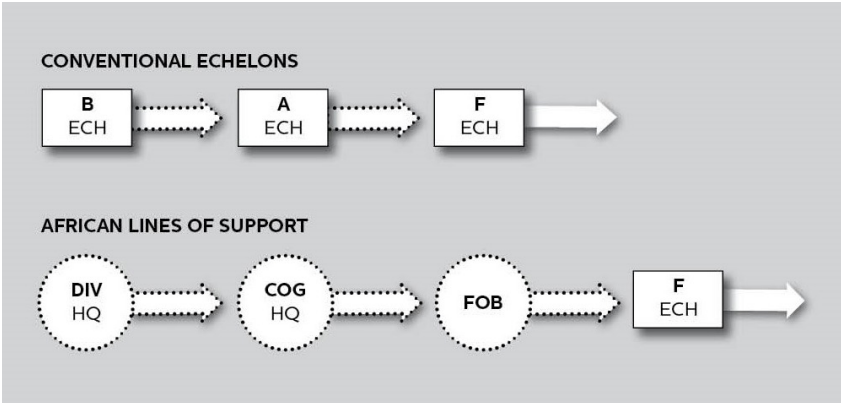

Figure 4: Comparative lines of support as employed by EO[93]

To sustain expeditionary military operations related to war (MORW) and military operations other than war (MOOTW), the logistical and supply chain system was based on a "use-and-replace" approach: As the F echelon expended its ammunition and other stores, it immediately replenished its outgoing stocks from the FOB. These, in turn, were replenished from the COGAA who was replenished from the DAA or the AGAA. The AGAA received its equipment and stores from the fifth- and sixth-line depots, factories, and warehouses.

To ensure an adequate fifth line, advance campaign planning and equipment and stores anticipation were critical to enable materiel to be identified, assessed, purchased, imported, and warehoused for future defence and/or pending operations. To ensure the immediate flow of logistics along the supply chain, logisticians had to ensure the delivery of:

- The correct equipment and/or materiel;
- At the correct amount;
- At the determined date and time;
- At the correct place;
- To the correct unit(s);
- In a usable condition; and
- In a cost-effective manner.

It was essential, during the campaign planning phase(s) and operational design development, that logisticians –

- Were granted access to classified intelligence data relevant to their area of operation;
- Were given sufficient early warning;
- Had clear guidelines for planning along with restrictions; and
- Were mandated to veto operations if they were unable to guarantee sustainment.

Logisticians therefore had to have a comprehensive understanding of the enemy, their weapons and weapon systems along with their obvious or predicted intent. They furthermore had to know how the enemy was supported by aid agencies, foreign governments, multinational corporations, and/or the local population.

Principles of Composite Warfare Logistics and Supply Chains

To sustain composite warfare campaigns and operations in Africa, regardless of whether they were expeditionary or not, were offensive, defensive, or containment-related, were being planned or already unfolding, the successful PMC supply chain, at a minimum, had to adhere to the following twelve basic principles:[94]

- **Expeditionary structure:** intelligence drives and informs strategy and strategy determines structure. The mission, ORBAT and TOE of the expeditionary force should determine what its logistical requirements will be. The supply chain structure, doctrine, staffing, training and leadership must ensure that all logistical requirements are met as rapidly as possible to sustain the operations.
- **Planned anticipation**: engagement during the initial development stages of campaign strategies, operational designs, and courses of action will enable logisticians to anticipate or predict the logistical requirements of the force – from ammunition to toilet paper – and be responsive. The engagement of logisticians from the outset and during the development of all campaign strategies, operational designs and courses of action is crucial to logistical sustainment of the forces. Anticipation can enable pre-stacking and resupply points to speed up the supply chain. During clandestine or pseudo-operations, extensive use must be made of caches. Planned anticipation can only be achieved by enabling access to available intelligence and intentions.[95]
- **Movement**: the logistical supply chain must have access to both horizontal and vertical mobility assets to enable it to integrate with the mobility of the expeditionary forces. It must ensure rapid logistical supply and replenishment and not hamper or slow down the operational momentum and tempo. Transportation assets must align with the operation and enemy threats – ground and air – as well as with terrain, local population challenges, infrastructure, and vegetation. This includes movement control, and the requisite protection and escorts where

necessary. Logistical night movement and replenishment can be extremely difficult if control is lacking.

- **Storage**: all anticipated logistical equipment requirements and stores must be stored safely and securely in the correct place and manner to ensure longevity, protection, and safety. Correct storage enables ease of positioning and replenishment. Storage areas can include rear area bases, staging areas or bases, and FOBs. Field storage and supply points must be considered. These areas must be protected from attacks by enemy air, artillery, and first-person view unmanned aerial platforms (FPV UAPs). Ammunition and explosives must be stored below surface level to ensure blast containment.
- **Adaptability**: the logistical supply chain system must transition rapidly to changing conditions, environments and situations. It must adapt to operational phase transitions without losing logistical momentum and the tempo of the resupply and replenishment of combat and other forces. Inclement weather conditions, vegetation, and day and night operations must not disadvantage or retard the supply chain.
- **Flexibility**: the supply chain command and control systems must be flexible and consider all approaches, challenges and problems that may be encountered. Overcoming logistical challenges and problems requires mental agility and improvisation. Flexibility is enhanced by utilising FOBs and other forward-staging areas from which to initiate the supply chain. It also entails locating and exploiting competent and vetted private contractors when there is a government or military transport deficit.
- **Simplicity**: the entire supply chain command and control system must be simple and allow for ease of rapid replenishment. Complex logistical systems are challenging and difficult to implement under arduous, dangerous and stressful conditions. Simplified request, replenishment, and stock control procedures and policies must be put in place – and adhered to.
- **Efficiency**: the flow of equipment and stores across all logistical lines must be efficient and rapid. Adaptable and robust supply chains add to efficiency. Speed or velocity control and oversight add to supply chain control and efficiency, in turn adding to sustained operational momentum and speed.
- **Responsiveness**: the supply chain must be responsive and able to cope with both emergencies and contingencies. Logistics can be prepositioned at staging areas and FOBs to enhance speed of supply chain efficiency. Field stacking may at times become necessary.
- **Control**: all equipment and stores must be controlled prior to and during all phases of MORW and MOOTW. Good administrative procedures ensure that logistical supplies are controlled from the point of origin to the point of consumption or the end user. Good control ensures the efficacy and rapidity of the supply chain. On campaign or operational termination, all issued and unused stores must be recovered and transported back to the originating HQ. Where repositioning of equipment and stores cannot be accomplished as a result of enemy pressure, such must be destroyed *in situ*.

- **Speed**: all delivery methods must be considered, and all routings must be assessed to ensure rapid delivery of critical materiel and items. Route and storage protection must be guaranteed. Delivery can be via vehicles, aircraft (including air supply), boats, civilian contractors, all-terrain vehicles, unmanned ground platforms, UAPs, and even mules and donkeys.
- **Recovery**: all stores not used during the campaign or operation must be recovered and transported back to the main logistics centres. Hazardous items that cannot be recovered or transported must be destroyed *in situ* without creating collateral damage to civilians and their properties or allowing their use by adversarial forces.

These twelve principles are proven EO guidelines that govern the planning, implementation, delivery and distribution of logistics to the forces that require them. These principles, originating from 1990s EO campaigns in Angola, Sierra Leone, Indonesia and elsewhere became the guiding logistical tenets for STTEP and are again being applied by the re-established EO.

Approaches to Supply Chain Delivery

As a PMC operating alongside and as part of the armed forces of a government – whether for domestic, cross-border or expeditionary operations – it is critical that the logistical supply chain is adapted to ensure rapid delivery under varying conditions and situations. To ensure adaptable and rapid supply chain flexibility and responsiveness, the following can be used and are used:

- Road delivery by the logistical units of the armed forces;
- Road delivery using civilian contractors;
- Airlanded delivery using the cargo aircraft of the air force;
- Airlanded delivery using civilian aircraft;
- Delivery by helicopter;
- Delivery by air-drop supply;
- Utilising the local population to assist with delivery;
- Harnessing government departments to effect delivery;
- Delivery by using naval or riverine forces;
- Utilising the military reserves or even militia forces to collect stores at field-stacking areas for delivery to frontline units.

Command and control during road movement from the logistical hubs to the combat zone is overseen by either the military police or by law enforcement or traffic officers. Where relevant, private security contractors may be employed to add value to the protection and flow of logistics.

On arrival, logisticians and their staff must immediately take control of all stores and their distribution. As stores are issued to units, new requests to replace outgoing stores must

be submitted to ensure rapid replenishment where necessary, especially on fast-moving items, such as ammunition, rations, water, FOL and medical supplies. This ensures that the logistical lines of support remain controlled, intact and functioning.

Where road movement is used, traffic control points must be deployed to monitor the flow of the movement and progress of the supply chain. Traffic control indicating time-past point (TPP) is essential to enable combat units to plan the receipt of equipment and stores timeously without affecting the tempo of operations negatively. During high-intensity operations, all supply chain road movement must occur on roads parallel to the main axes of the forces to ensure roads in use by the F echelon do not become clogged with traffic.

Conclusion

The engagement of EO by under-siege governments to assist in countering armed anti-government and hostile neighbouring forces across Africa and beyond compelled the company to reassess and adapt doctrines to numerous domestic and foreign challenges and hostile conditions. To support the offensive doctrines further necessitated adaptions and control mechanisms to support offensive operations. On occasion, this required the prepositioning of logistical requirements for sustainable offensive, defensive and containment operations.

Always integrated into the armed forces of a government and allowed to operate autonomously during operations, EO ultimately developed its own approach to warfare and its logistical support. This approach, as illustrated in Figure 4, has enabled African government forces to deploy and sustain combat forces with great success. Composite warfare has also confirmed that the projection of military force or hard power, along with the foundations of force sustainment during any expeditionary campaign is five-fold: intelligence, structure, mission, doctrine, and logistics.

An adaptable, efficient and well-structured, planned, correctly staffed, and controlled logistical system – as well as its associated supply chains – enables the continuance of campaign and operational momentum and tempo. This adds to force preservation, and reduces the fog and friction of combat.

The joint government–private military campaigns and operations in which EO and STTEP participated all achieved rapid and successful outcomes. Without planned logistics approaches, methods and techniques, success would have been impossible. A successful logistical system and its associated supply chain must be intelligence-driven and simple, and must avoid complications. Good logistical and supply chain administration ensures system simplicity along with the sustainment of the domestic and expeditionary forces.

Without a well-managed and efficient logistical structure and its supply chains, no PMC operation can add value to the campaign strategy of an under-siege government. It remains the most crucial element for force sustainment during expeditionary operations.

Endnotes

[*] The author served in conventional, clandestine and covert units in the SADF from 1974 to 1989. He established Executive Outcomes (EO) in 1989, and served as its chairman and chief executive officer (CEO) until 1997. He was the chairman of STTEP International Ltd from 2011 to 2020. After vacating the STTEP chair, he was requested by several African governments to re-establish EO. He is currently the chairman–CEO of the rebirthed EO.

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[41] In contrast, it was the logistical structure and supply chain, along with a coherent logistics doctrine, that enabled the SADF to sustain its combat operations in northern Namibia and into Angola. These operations cost the Angolan forces dearly in terms of matériel and manpower.

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[51] This brigade became known as 16 Brigade, and it spearheaded all FAA offensive operations against UNITA.

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[56] The FAA battlegroups were not clones of the SADF battlegroups. Their structures were later adapted as operations unfolded and culminated in a battlegroup structure encapsulated in Barlow, *Composite Warfare* (2nd ed.).

[57] The combat team was to develop Saurimo into a jumping-off point for later operations while simultaneously conducting area operations in the east of Angola while awaiting the arrival of the remainder of the combat teams of the battle group.

[58] Barlow, *Executive Outcomes*, 238.

[59] Composite warfare is an intelligence-driven, 'whole-of government' approach that integrates multiple domains of warfare, such as land, air, sea/riverine, intelligence, information and cyberspace, along with the pillars of state, to achieve a desired national strategic outcome. It is applicable to all offensive, defensive, and containment military operations related to war (MORW) and military operations other than war (MOOTW). It utilises and exploits a variety of approaches, tactics, techniques, technologies and procedures (TTTPs) and manoeuvre options to create a force that is greater than the sum of its parts. By leveraging the powers and strengths of each domain, composite warfare aligns and synergises all government agencies and departments along with relentless combat power to provide a decisive advantage on the battlefield. Underpinned by horizontal and vertical manoeuvre and firepower, feints, ruses and other deception measures, it is used to counter and deceive/destroy/neutralise a host of violent and non-violent threats, including an enemy invasion and an anti-government force (AGF) campaign. Combining elements of conventional, unconventional and covert activities, actions and TTTPs, it can triumph over guerrilla warfare, irregular warfare, asymmetric warfare, hybrid warfare, criminal warfare, insurgencies and such like. Correctly applied, it can destroy an enemy, compel an enemy to make decisions that disadvantages their forces or unintentionally expose their intentions. See Barlow, *Composite Warfare* (2nd ed.).

[60] The logistical supply chains would require covering distances in excess of 1 000 km (Cabo Ledo to Saurimo, Lunda Sul province) and 1 500 km (Cabo Ledo to Cafunfu, Lunda Norte province).

[61] UNITA was able to deploy 12,5-mm, 14,5-mm and 23-mm anti-aircraft guns along with Soviet-era SAM-7 missiles and US-supplied Stinger missiles.

[62] Barlow, *Executive Outcomes*, 744.

[63] At that time, the author was the chairman of STTEP International Ltd.

[64] A small medical clinic established at the town of Cacolo to treat the local population soon exploded into more than 5 000 people arriving daily for medical treatment. This initial disadvantage also provided advantages to the battlegroup, as the local population were keen to provide intelligence information on UNITA deployments and activities, enabling numerous pre-emptive strikes against UNITA forces.

[65] Barlow, *Composite Warfare* (2nd ed.).

[66] Forward-looking infra-red.

[67] Further hampering these unique challenges was a weaponised media aimed at vilifying government forces and incentivising restrictive international sanctions related to the sale of military equipment.

[68] Barlow, *Executive Outcomes*.

[69] Both the FAA and EO were subjected to a mass disinformation campaign run by agents of influence in the legacy media.

[70] The refusal by South Africa and Western governments to sell infantry fighting vehicles, artillery systems and ammunition to the FAA resulted in the government turning to Russia and China for such equipment.

[71] Situated in eastern Angola, Saurimo was an isolated and logistically starved FAA garrison. Located approximately 950 km from Cabo Ledo and Luanda, large tracts between Luanda and Saurimo were under control of a well-armed and equipped UNITA.

[72] Located approximately 190 km from Luanda, Vila Salazar was renamed N'dalatando in 1975.

[73] R Snyder, 'Exploring Cafunfo: Angola's Remote Diamond Mining Town', *Shun Culture*, 29 August 2024. <https://shunculture.com/article/is-cafunfo-in-angola> [Accessed on 9 June 2025].

74 The town served as UNITA's primary diamond mining hub.

75 Seabay Logistics, 'Port Codes'.

76 Barlow, *Executive Outcomes*.

77 Barlow, *Composite Warfare* (2nd ed.).

78 Barlow, *Executive Outcomes*.

79 Barlow, *Executive Outcomes*, 311.

80 University of Notre Dame, 'Cease Fire: Lusaka Protocol', Kroc Institute for International Peace Studies, n.d. <https://peaceaccords.nd.edu/provision/cease-fire-lusaka-protocol> [Accessed on 8 June 2025].

81 Following independence in 1960, the West African state of Nigeria has developed into Africa's largest economy. It has, however, experienced a plethora of assassinations, *coups d'états*, attempted coups, the suppression of dissent and the looting of state coffers.

82 DJF Jacobs, *Islamist Insurgency in Northern Nigeria, 2009–2020* (MMil Thesis, Stellenbosch University, Stellenbosch, 2024), 54.

83 CK Onah, '#BringBackOurGirls: Transnational Activism and the Remediation of the 2014 Chibok Girls' Kidnapping in Nigeria', *African Studies Review*, 67, 2 (2024), 295–296.

84 The contract was resultant from EO's highly successful hostage release operation on Indonesia's Irian Jaya. See Barlow, *Executive Outcomes.*

85 The Editors, 'Maiduguri: Nigeria', *Encyclopaedia Britannica*, 2025. <https://www.britannica.com/place/Maiduguri> [Accessed on 10 June 2025].

86 The Editors, 'Maiduguri: Nigeria'.

87 A composite warfare combat team has a very different organisational structure when compared with the typical SADF combat teams.

88 MRAP, an acronym for Mine Protected Ambush Resistant vehicle. MRAPs provide armoured protection from small arms force and ensure survivability in the case of a landmine explosion. Typically, MRAPs are used by motorised infantry forces.

89 The campaign strategy required a period of three months to achieve its ends. However, foreign political interference prevented phases 2 and 3 from being implemented.

90 Barlow, *The War for Africa*.

91 STTEP File/Nigeria: Campaign Strategy/Op design Operation *Anvil*.

92 Whereas the F-echelon comprises the forces and their equipment needed for immediate battle, the A-echelon comprises the immediate combat service support such as ammunition and FOL. It is usually located a tactical bound behind the F-echelon to enable immediate force sustainment. The B-echelon is less mobile and is located further behind the A-echelon. It conducts extensive maintenance, resupply and personnel recovery. It supports the A-echelon.

93 Barlow, *Composite Warfare* (2nd ed.).

94 Barlow, *Composite Warfare* (2nd ed.).

95 Logisticians must have the power to veto operations if they are unable to sustain them.