

GUNS AND BUTTER

Reframing South Africa's arms industry

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Having developed an arms industry of extraordinary depth and breath of capacity, the advent of the De Klerk presidency in 1989 dramatically affected the South African military establishment and its defence industry as budgets were slashed, procurement came to a standstill and the industry was reorganized. Subsequent majority rule did not auger well for the defence industry, yet, a decade later, by 2004, the armaments industry was not only thriving, but had managed to embed itself in the long-term security vision of the state. Key moments in this process was the inclusive and consultative development of the South African White Paper on Defence in 1996, the Defence Review in 1998, and a White Paper on South African Defence Related Industries the following year. Today the relationship between the industry and the government is again close and South Africa's arms producers constitute an interesting combination of intertwined public and private sector entities, ranging from Armscor, Denel and Defencetek in the public sector to private arms producers embedded in large industrial groupings and a heterogeneous host of smaller autonomous enterprises.

Introduction

South Africa's history in the latter half of the 20th century is complex and fraught with circumstances of wrenching social change. For the four decades prior to 1990, the country's decisions about 'security' were the prerogative of a small group of relatively unaccountable senior officials. Until 1989, this meant exclusion of the majority of the population from opportunity and access, a struggle against liberation movements in the region, and participation in the front lines of the Cold War against the Soviet Union and its proxies. The

quest for security made South Africa one of the handful of states in the developing world willing to bear the economic burden of developing not only a massive conventional arms industry but also nuclear weapons and a space programme (the latter two being dismantled in the early 1990s). Still, South Africa's recent history bequeathed it an armaments industry like no other in Africa.¹

With the advent of majority rule in 1994, South Africa overcame some of the most unfortunate baggage of its past, but it also faced many difficult choices. One was the disposition of a highly sophisticated arms indus-

try—an important pillar of the thoroughly discredited former government. Given the diversity of political voices and agendas in South Africa at the time, little could be taken for granted. Yet after a decade of majority rule, the industry not only had survived the political transition, it had established a respected position as a key government partner. South Africa had become a global actor in the international arms market, having carved out significant high-technology niches where its products compete effectively.

This article describes how the industry adapted to survive the political trauma of the 1990s. It ascribes that feat to a remarkable process of consultation among key stakeholders in government, industry, academia and civil society, beginning in the early 1990s, that redefined the role of the South Africa arms industry. The paper calls attention to the emerging partnership that now assures indigenous industries will maintain ‘strategically essential technologies’ over the long term and provide considerable economic benefit to the nation as a whole. This reflects a process of change in which members of a society overcame significant historical and ideological obstacles to attain noteworthy agreement about key issues relating to their security, as well as overcoming the resentments of the past in a deliberate series of collective choices to shape a desirable future. Almost equally important is the fact that the South Africans rehabilitated an institution originally created to protect sectarian interests to serve the needs of the larger society.

A time for change

At the end of the apartheid era, the South African military had an extraordinary amount of state-of-the-art materiel developed exclusively for its unique requirements and produced by its own arms enterprises. United Nations (UN) embargos had resulted in an industry, possessing in Heitman’s words, “extraordinary depth and breadth of capability”² and South Africa’s home-made arms clearly brought the country “a useful measure of strategic independence”.³

During the apartheid years, South Africa’s

arms industry had developed into a complex and intertwined system of public and private sector producers. The public part was the Armaments Corporation of South Africa (Armcor); an umbrella managerial entity with more than a dozen subordinate production and testing enterprises (all wholly government owned) and the Council for Scientific and Industrial Research (CSIR).⁴ Armcor itself was a component of the Department of Defence, and in addition to managing the production of its daughter companies, supervised all of the country’s military materiel acquisition—whether from abroad or from private sector producers.⁵ By the end of the era, 3,000 private sector enterprises serviced some aspect of the industry as contractors, subcontractors or suppliers.⁶ The economic importance of the industry had become as significant as the weaponry. Arms producers accounted for fully 9% of the country’s employment in manufacturing. Armcor alone was the 15th largest employer in the country.⁷ Arms comprised 6.6% of all South African manufacturing output and 1.5% of the country’s gross domestic product.⁸

The advent of the De Klerk presidency in 1989 dramatically affected the South African military establishment and its defence industry. The state’s defence budget was reduced by over 40% between 1989 and 1993,⁹ and defence procurement by 60%.¹⁰ Arms production as a percentage of South Africa’s manufacturing output shrunk from a high of 6.6% in 1989 to 4.5% by 1994.¹¹ According to Cawthra, “[defence industry] employment fell from 150,000 in 1989 to just over 70,000 in 1993, while the share of defence R&D [research and development] as a proportion of the country’s total R&D fell from 48% to 18%”.¹² South Africa also discontinued its nuclear, biological warfare and strategic missile programmes.¹³

One of the more interesting changes during this period was the devolution of the public sector arms industry, specifically Armcor.¹⁴ While it remained the acquisition arm of the Department of Defence, Armcor gave up its production role.¹⁵ A new, state-owned enterprise, Denel, was incorporated in 1992 to manage the various production parastatals along with some of the test facilities, and though still

government owned, Denel transferred to the Department of Public Enterprises.¹⁶ The decline in the defence budget between 1989 and 1994 also had a significant impact on private sector arms producers.¹⁷ After a traumatic series of rationalisations, downsizing and failures, the industry by 1994 was significantly smaller and less capable than it had been in 1989.¹⁸

Despite the trauma, not all the news for the arms industry in the early 1990s was unfavourable. To the surprise of many in South Africa and elsewhere, newly elected South African President Nelson Mandela publicly defended the country's arms industry and promoted its products on his overseas trips.¹⁹ The new civilian leadership of the Department of Defence echoed his enthusiasm.²⁰ Then in May 1994, the UN lifted the apartheid era embargoes on supplying arms to South Africa and buying arms from it.²¹ The radical decline of the domestic market motivated the industry to seek export opportunities. Batchelor and Willett note that the value of arms exports grew by an impressive 160% (in real terms) between 1989 and 1993, rising in that period from a mere 0.3% of total exports to 1.1%.²²

Still a sober assessment in 1994 probably would have concluded that the advent of majority rule did not bode well for the defence industry. European and North American arms producers dominated the large overseas markets for military goods, and were determined to maintain their advantages. Prospective customers did not have confidence that South Africans could provide the large-scale or long-term service of the large, established defence industries. Some of South Africa's new leaders had ideological or moral qualms about an international arms trade in any event.²³ Diversification into civilian products also proved much more difficult than anticipated.²⁴

The future of the country's arms industry was plunged in further doubt by scandal in September 1994. The new government was rocked by an international uproar when the world press revealed covert arms deliveries to Yemen, a country with a deplorable human rights record in the throes of a civil war.²⁵ At that point, no one could confidently have pre-

dicted that the South African arms industry would survive over the long term.

Yet, a decade later, by 2004, the armaments industry was not only thriving, but had managed to embed itself in the long-term security vision of the state. South Africans, with a few prominent exceptions, no longer seemed to question the industry's relevance to the future of their country. Not only had the industry assumed a critical and growing role in the nation's exports, but was playing an increasingly important role in other aspects of national industrial development as well. The armaments industry had entered the international arms market in significant partnerships with foreign arms industries, and had become more dependent on exports than upon domestic sales. The external partnerships had developed to the point that armaments offered by major Western firms increasingly featured state-of-the-art technology developed and built in South Africa. How could all this possibly have occurred in one decade? The answer lies in the contributions of a number of key individuals that played critical roles in a process of transformation. That transformation itself was mediated by a remarkable series of consultations—perhaps the most profoundly democratic process of defence decision-making in modern history.

Defining an arms industry for the new South Africa

For some years prior to the advent of majority rule in 1994, African National Congress (ANC) intellectuals had been debating the nature of the security establishment appropriate to a new South Africa.²⁶ They now endeavoured to apply insights from academia to South Africa's unique situation and circumstances.²⁷ Despite a diversity of views, an influential group of ANC political 'insiders' arrived at essential agreement about the kind of military needed after 1994.²⁸ Their model assumed a place for the structures and equipment already in place, and emphasised a 'primary function' for the defence forces—preservation of national sovereignty and territorial integrity—requiring the maintenance of a conventional military estab-

ishment much like the one already in existence, but under firm civilian control and suited to a broadened variety of missions.²⁹ This emphasis subsequently was embedded in the interim constitution of 1993, the ANC manifesto of 1994, the permanent constitution of 1996 and follow-on official documents.³⁰

Several different groups played key roles. The ANC intellectuals provided a general vision for the new security institutions, but two key political actors guided the vision through a difficult and complex political transition: Minister of Defence Joe Modise and his deputy, Ronnie Kasrils. With his background as former commander of the ANC's military arm, Modise had impeccable 'liberation war' credentials, position and influence within the ANC, along with the personality and vigour to pursue an aggressive agenda. Kasrils, former chief of intelligence for the ANC, was uniquely sensitive to many of the concerns of political actors and groups, particularly those in Parliament, and was able to convey the impression of departmental sympathy to their agendas and equities.³¹ The transition of both defence and the defence industry probably would not have worked without the active co-operation of two other key groups: South Africa's senior military leaders and the top managers of industry. Neither group was completely unanimous. There were individuals in each that worked against the changes, but both groups as a whole sought to reassure the emerging new ANC political leadership of a genuine willingness to be effective contributors to a new South Africa.³²

The transformation itself was mediated though genuine, wide-ranging consultation within the country. The new South African government that came to power in 1994 was committed to stakeholder buy-in, and sponsored a series of conferences that defined both the military establishment and the associations between the government and the defence-related industries. National consultations between 1996 and 1999 developed a consensus that ultimately led to three policy documents that specified and documented the new connections. The documents are the:

- South African White Paper on Defence (1996);

- South African Defence Review (1998); and
- White Paper on South African Defence Related Industries (1999).

A brief discussion of each of these key documents should serve to highlight their significance, starting with the White Paper on Defence.

One of the early challenges faced by the new government was a plea from the military for substantial recapitalisation. Soon after the advent of the new government, leaders of the military establishment, both civilian and military, began lobbying for extensive re-equipping of the armed forces.³³ Parliament responded by demanding that the Defence Force first define itself and its role, demonstrating how it would embody the priorities of the new South Africa.³⁴ The Department of Defence in turn launched an extraordinary, wide-ranging series of consultations with scholars, practitioners, civil servants and members of the attentive public. During these discussions, several different agencies offered competing drafts of a white paper, but it was the vision of the ANC intellectuals that prevailed.³⁵ The result was the White Paper on Defence published in 1996.³⁶

The White Paper was a clear articulation of a new philosophy of national defence. Its authors tried hard to capture the essence of fundamental transformation they believed was required in South Africa. They started by redefining national security, characterising it in the broadest possible terms.³⁷ The White Paper went on to specify that the new South African National Defence Force (SANDF) would be a "balanced, modern, affordable and technologically advanced military force" and that its "primary role [would] be to defend South Africa against external military aggression".³⁸ It went far in addressing core interests and concerns of the new ANC-dominated government, and provided a philosophical framework for the nature of the new South African military. However, it left open a number of questions about the size, structure and equipping of the force.

With the initial White Paper in hand, by 1996 the Department of Defence could turn to the details of the new military establishment. Again, it initiated an extraordinary process of

consultation resulting in the publication of a Defence Review approved by Parliament in late 1998. The Minister of Defence at the time claimed these consultations to be the “most inclusive and transparent” process of its kind ever undertaken; a boast difficult to contest despite its somewhat self-serving tone.³⁹ The Defence Review built upon the foundational White Paper, specifying in some detail the nature and role of the new SANDF, addressing force design, doctrine, deployment and issues of resources and accountability. However, for the purposes of this paper, the most interesting part of the Defence Review dealt with acquisition management. It defined the South African defence industry and specified how it would work in tandem with the government to maintain technological capability.⁴⁰ Equally important, it noted conditions under which foreign industries could market military materiel in the country.⁴¹

The Review stated that the country “should not strive for self-sufficiency in arms development, but only limited self-sufficiency in key areas”.⁴² However, the Review clearly implied that the country would maintain an indigenous capacity to meet its strategic requirements.⁴³

The acquisition policy specified in the Defence Review bore a resemblance to the close ties that existed between government and industry in the era before majority rule. There were, however, some key differences: much more of the defence industry would consist of private sector enterprises than was the case in the past, when parastatals produced much of South Africa’s military materiel exclusively for South African use. The country now would even more aggressively market its defence technology abroad, and foreign defence industries would play a key role in South Africa’s arms purchases. The Defence Review offered a clear recognition that South Africa required relationships with external defence industries. The country no longer would seek self-sufficiency in armaments: its military materiel would be supplied from foreign sources as a matter of routine. The document also articulated the value of partnerships for technology transfer and access for South African industries to the world market, including substantive two-way

partnerships that would permit foreign access to South Africa’s defence technology.

The third document in the series was a study of the defence industry itself published in late 1999: a White Paper on the South African Defence Related Industries. An important objective of this paper was to define how the country would maintain essential strategic capabilities. The new White Paper was not the result of the same kind of widely publicised, multi-sector consultative process of its predecessors, but the document was compiled by a working group of representatives from government, industry, academia and non-governmental organisations.⁴⁴ It publicly analysed the South African arms industry, offering a comprehensive overview of the history and status of the South African defence industry; a sector itself never previously exposed to such public scrutiny. It also provided a very detailed policy framework defining the interests and involvements of the South African government in the industry. The White Paper unambiguously declared that the government “has a duty to exercise control over any product or technology which can be termed an armament”.⁴⁵ It recognised defence-related industries as an “integral part of South Africa’s defence capability”⁴⁶ and expressed a willingness to support them with government resources, though with the caveat that the South African government “will be very selective of which technologies are to be retained”.⁴⁷ But perhaps more important than any other feature was the fact that this document gave the armaments industry the opportunity to collaborate with government in defining its role in the new South Africa, and tied the industry into a comprehensive national security vision.

The White Paper looked internally at South Africa’s security needs and externally at its export opportunities. It devoted considerable attention to the future roles and materiel needs of the SANDF, and considered defence industry restructuring, including a treatment of privatisation of Denel and various issues of labour relations and affirmative action. It also discussed the marketing and export of South African arms, addressing issues of non-proliferation and specifying the need for a government

partnership with public and private sector producers. The paper prescribed “strategies” for South Africa to safeguard its “essential defence technologies”, including government investment in private sector research, special projects and “advanced technology demonstrators”.⁴⁸ It included the designation of preferred suppliers and centres of excellence within South Africa.⁴⁹ For all of its significance, the new White Paper was much less prescriptive and more descriptive than the earlier documents, offering few recommendations at the end. Cawthra attributes this to the differing perspectives and agendas of the groups represented on the steering committee, which made agreement on specific recommendations problematic.⁵⁰

Taken together, the two white papers and the Defence Review illustrate comprehensive and careful efforts on the part of the South Africans between 1994 and 1999 to define their military establishment and provide for its material needs. While the South African government now would serve as a fully engaged partner in promoting arms exports, the documents assume the existence of continuing close ties between the arms producers and the South African security establishment. They unambiguously announced South Africa’s intention to maintain certain key security-related technological capacities within its industries, even if these required government subsidy, and gave every indication of a government intention to play a major role in all the activities of the country’s defence-related industries, whether in maintenance of certain key technologies, purchase of its products, oversight of its R&D, or overseas marketing and sales of its products. One significant implication of these documents, taken together, is the degree to which South Africa justified the maintenance of an arms industry by citing its own defence needs. This was captured in a locally popular phrase early in the debate: “No defence industry means no defence force.”⁵¹

Each of the three documents captured evolving South African thinking on security issues in the late 1990s, and each left a number of unanswered questions. None of the aforementioned documents, for instance, explain how a high-technology defence force organised

primarily for conventional, high-intensity conflict along the country’s borders would provide the wherewithal most appropriate to the articulated range of future roles, particularly against threats at the low end of the technological spectrum, including the challenges of various peace operations.⁵² (Although Heitman argues that recent history provided an ample rationale for retaining a substantial conventional force. In his view, the South African decisions were significantly influenced by memories of the rapidity with which the East Bloc was able to deploy large numbers of conventional forces to African contingencies in the 1970s.)⁵³

Whether or not the South Africans actually will require substantial conventional capabilities to deal with future threats, they have identified essential strategic capabilities and state clearly in their official documents that they would seek to maintain them by direct government subsidy if necessary. But it is as yet unclear if they possess the resources and requisite political will over the long term to follow through on their published intention. At present, the indications are ambiguous for, in fact, the issue of resources continued to be a troubling one as the 1990s progressed.⁵⁴ A key feature of the South African arms industry in the apartheid era was generous government funding of R&D. By the 1990s, the government no longer provided much in the way of R&D funding, and the industry itself has not been able to divert sufficient resources to guarantee its own ability to maintain state-of-the-art expertise across a range of capabilities. Industry insiders view this as a serious potential problem.⁵⁵

Still, the three documents represented collective South African thinking about the present and future strategic needs of the nation. Much of that thinking had to do with the kind of armed forces they would retain, the roles and missions of those forces, and the materiel needed for those roles. As a key part of this effort, however, they also were obliged to address the role of the indigenous arms industries, and the result was a public acknowledgment of the importance of those industries to the security and economy of the nation. They were, in fact, provided a public context in the

new South Africa. So it is appropriate now to look briefly at the industry, note its ties to government and summarise its capabilities.

The industry–government partnership

The defence industry is connected to the government at various levels, though the most important aspect of the relationship is the close partnership between the two. This relationship bears some similarity to the apartheid years, but there are significant differences in the new affiliation. Both parties now openly acknowledge the relationship. And more importantly, the industry now contributes to the mutual agenda as a full partner. The close relationship between government and the arms industry is epitomised in two different (but related) organisations: the South African Aerospace, Maritime and Defence Industries Association (AMD) and the South African Defence Export Support Organisation (SADESO). While AMD is a private sector entity with close linkages to the public sector, SADESO is a public sector entity with close connections to the private sector.

AMD is an industry advocacy group, created by the defence industry leadership in the waning years of the apartheid era. Virtually all of South Africa's significant defence-related corporate actors (in both the public and private sectors) now are affiliated with AMD. It exists to provide its members with research, marketing information, access, venues for industry co-ordination and resolution of disputes.⁵⁶ AMD's most important role probably is that of connecting, facilitating and conserving the networks of industry insiders and civil servants that traditionally have supervised the country's arms industries.⁵⁷

AMD's role is complemented by SADESO, an official instrument of the state chartered in 2004 to develop and facilitate a South African arms export strategy.⁵⁸ In the words of one corporate insider, SADESO is "really a representative body for the South African Military-Industrial Complex".⁵⁹ There is little subtlety in South Africa's published intention to be a serious player in the international arms

market or in the intensity of its drive to achieve government–industry co-operation in this effort.

South Africa's defence-related industries form a community that is much smaller and far more externally oriented than it was at the end of the apartheid era. This community also is more sophisticated, competitive and secure, having largely defined its role in the new South Africa. As has always been the case, much of it is concentrated in Gauteng, in the region around the two major population centres of Johannesburg and Pretoria. However, a surprising amount now is distributed elsewhere, including particularly the Western Cape region. Employment and other economic benefits derived from the industry extend to a considerable proportion of the country. Many of the old structures and organisational cultures still are evident, but both have evolved in significant new ways. The government still co-ordinates the industry's efforts to serve national priorities—a legacy of the years before majority rule. However, the motivation of the current ANC government is quite different. It admits to facing no immediate external military threat, yet seeks to safeguard defence industries both to preserve strategic capabilities and at the same time provide jobs for citizens and economic benefit to the state through arms sales and trade agreements.

South Africa's arms producers themselves still are an interesting combination of intertwined public and private sector entities. Those in the public sector now consist of three major actors: Armscor (a component of the Department of Defence); Denel (subordinate to the Department of Public Enterprises); and Defencetek, a quasi-public sector subsidiary of the CSIR. The private sector industries are quite diverse with some of the arms producers imbedded in larger industrial groupings while others comprise a heterogeneous host of smaller autonomous enterprises. To understand South Africa's current arms production capability, it is useful to have a grasp of the diversity of the country's defence industry, starting with the public sector entities.

Defence-related industries in the public sector

The presence of Armscor and Defencetek in South Africa's contemporary public sector is a continuation of policies established early in the apartheid years. However, the devolution of Armscor in 1992 resulted in a new entity—Denel—that assumed most of the arms production role formerly played by Armscor.

Armscor

Armscor remains both an industry actor and a component of the South African Department of Defence. As has been the case since its founding in the 1960s, it still is a corporation wholly owned by the government of South Africa.⁶⁰ It has retained strong, continuing linkages to other defence industry actors in a variety of roles. Armscor's core function remains defence acquisition; a role it plays for the South African military establishment and other public sector security agencies.⁶¹ Its mandated responsibilities include management and execution of Department of Defence R&D, control of the tender process for defence acquisition, execution of acquisition programmes, disposition of defence materiel, management of strategic facilities, co-supervision of the South African defence industry as a whole (with the Department of Trade and Industry), marketing for the defence industry and management of the defence 'industrial participation' programmes (see below).⁶² Armscor no longer has a significant production role (having given that up to Denel).⁶³ It is now mainly concerned with research, development, testing, evaluation and technical consulting. It maintains world-class facilities and technical staff for these roles.⁶⁴ Armscor continues to play a role in marketing South African defence technology.⁶⁵

Denel

A second major public sector entity in South Africa's defence industry is Denel, founded in 1992 by separating Armscor's production subsidiaries from its other activities.⁶⁶ With some 20 subordinate enterprises, it is by far the largest corporate actor within South Africa's

defence-related industries,⁶⁷ producing a large spectrum of air, ground and naval combat equipment, ranging from weapons systems, to avionics, to high technology command-and-control, to electro-optical and laser applications.⁶⁸ It still is a state-owned company, but seems likely to undergo some degree of privatisation in the future.⁶⁹ The organisation has undergone considerable restructuring and changes in the decade since its establishment, shedding a number of former Armscor enterprises, closing down others altogether and consolidating still others.⁷⁰ It has been subjected to a continual and disruptive process of rationalisation and personnel reduction and is engaged in a variety of affirmative action programmes.⁷¹ For some years after the transition to majority rule in 1994, Denel struggled to achieve profitability, vigorously pursuing export opportunities,⁷² and its efforts have seen growing success. In its 2003 annual report, it claimed an increase in export sales of almost 20% over the previous year, noting that export sales had risen to 56% of total sales, a 4% increase in one year.⁷³ Denel has sought out relationships with various external defence firms.⁷⁴

Defencetek

A third public sector entity amongst the defence-related industries is Defencetek; a subsidiary of the CSIR, an organisation with a long relationship to South Africa's military.⁷⁵ According to its director, Defencetek has a variety of security-related research interests, though it currently views itself primarily as a consultative body on issues of sophisticated technology. In that role, it uses its expertise and facilities to provide 'smart buyer' and 'smart seller' advice to clients, particularly (as this is written) within the South African public sector—and including the military and police. It also offers advice on counter-trade issues, both to the South African government and to foreign and domestic clients in the private sector.⁷⁶

Major defence-related industries in the private sector

The public sector defence industry entities—Armscor, Denel and Defencetek—are a complex reality, but they are simple compared to the pri-

vate sector. Here, the industry is a diverse and constantly shifting kaleidoscope of corporate consolidation, divestment, renaming and restructuring. Today's private sector defence industry includes corporate groups of defence-related companies,⁷⁷ and a variety of small, independent enterprises. Larger private sector defence actors include:

- African Defence Systems (ADS)—specialising in electronic, simulator and weapons command-and-control equipment.⁷⁸ This firm is foreign owned, a member of the Thales Group International (a French-based multinational);
- Advanced Technologies and Engineering (ATE)—a world leader in systems integration of advanced components and weapons for aircraft (including remotely piloted vehicles) and ground combat vehicles;⁷⁹
- Alvis OMC—South Africa's major corporate actor in the production and refurbishment of wheeled and tracked ground force vehicles, and an acknowledged world leader in mine-protected applications that has pioneered the study of mine effects on vehicles.⁸⁰ Much of Alvis OMC is foreign owned;⁸¹
- Grintek Limited—an electro-technology conglomerate with deep roots in defence production in South Africa.⁸² Grintek's contemporary interests range across a spectrum of private sector telecommunications and electrical power applications. Several of its subordinate enterprises are heavily engaged in building state-of-the-art signals intelligence, electronic warfare, communications and other electro-optical equipment. Grintek is an acknowledged world leader in the miniaturisation of aircraft communications. Its high-technology equipment is sold around the world in European-produced military aircraft and ships;⁸³ and
- Reunert Ltd—a South African conglomerate with a long history of military materiel production in a variety of fields.⁸⁴ It remains a large-scale producer of sophisticated fuses for artillery, rockets and guided missiles. Reunert also builds search and tracking radars and offers logistics support for artillery and fire control systems. Most of its armament production is exported.⁸⁵

Other defence-related industry actors

In addition to the larger arms producers noted above, many small South African firms offer goods or services with military applications.⁸⁶ Botha characterises these as “skills-based, entrepreneurial companies that live off contracts from the majors”, since many of the smaller defence-related enterprises function as sub-subcontractors for larger enterprises like Denel. Botha calls attention to a substantial decline since 1993 in their overall number, but the quantity of enterprises engaged in some form of security research and production still is little short of incredible for a developing nation. His study indicates that the successful firms tend to be highly export oriented.⁸⁷ One evident aspect of the South African defence-related industry, including particularly the smaller enterprises, is the heavy representation of cyber, simulator and high-end communications-electronics applications.⁸⁸ Other producers span a considerable range of different applications. Some offer high-quality avionics equipment, components and aircraft upgrading options.⁸⁹ South Africa's defence-related production includes exotic materials like advanced polyurethane wheel technology for combat vehicles, specialised lubricants and special-purpose boats. Small companies also offer a rich inventory of conventional products ranging from military clothing to weapons systems of various kinds.⁹⁰

South African military technology

A key question still remains: just how effective is the security-related technology and materiel available from South African sources? This question is easier to pose than to answer. The South African advantages are more in capability and potential than fielded materiel and more in adaptation and partnership than truly cutting edge technology, though they have produced some of the latter. South Africa probably will not achieve a dominating role in any domain of armaments production in the foreseeable future—nor has it expressed any intention to do so. However, it is poised to play effective niche roles. The South Africans themselves have identified ‘core products’

they consider competitive on the world market,⁹¹ and others they deem economically viable and worth a continuing investment.⁹² But their listing alone does not do justice to their capabilities.

There are a few limited areas of fielded military technology in which South African materiel is cutting edge and many in which it is state-of-the-art. One area for the former is that of tactical communications/electronics, electronic warfare and electro-optical applications. European partnerships now assure that South Africans can keep up with latest advances in communications/electronics and electro-optical applications, and can compete effectively in niche applications such as miniaturisation.

Another South African niche advantage is in the design and production of special-application wheeled combat and special purpose vehicles.⁹³ South African industries also are widely recognised as world leaders in the production of mine-resistant and environmentally protected technologies—a key feature of their latest ground combat vehicles. The country also is increasingly visible for its de-mining expertise and has fielded some effective equipment now used around the world.

Another area in which the South Africans themselves recognise a special capability is in the production of tactical weapons systems, to include missiles, artillery, projectiles and explosive ordnance. Their tactical missile systems are, in general, state-of-the-art and their growing partnerships with American and European armaments industries probably will assure that they maintain interest and expertise. South African R&D has pushed into some novel areas: for instance, in the development of ultra-violet guidance for air-to-air missiles to attenuate the effect of background noise.

Artillery has been something of the poster child for South African arms exports since the 1980s, when the country began selling its G-5 155 mm extended range gun. The G-5 represented a quantum leap in ground-based indirect fire capabilities for South Africa, and it also reflected state-of-the-art technology.⁹⁴ The South Africans seem determined to remain competitive in field artillery—their innovative new G7 light 105 mm gun/howitzer is likely to

be an industry leader in this niche.

While communications/electronics/electronic warfare/instrumentation equipment, mine-resistant combat vehicles, and tactical crew-served weapons are areas of particular expertise, the South Africans can service a variety of niche markets. Several South African firms are conducting research on non-lethal weapons and it seems likely that South Africa could compete in that market.

A significant characteristic of South African industries is a willingness to tailor products to the needs of specific consumers, even for limited product runs. Defence industry spokesmen still express an eagerness to tailor products,⁹⁵ an ability that cuts across industries (and across sectors).⁹⁶ The South Africans place considerable emphasis on modularisation of military systems. This emphasis is backed by an arms industry very comfortable with extensive subcontracting, which on relatively short notice can produce tailored packages of components such as gun systems or communications and electronic warfare systems for installation in consumers' major end items, displaying broad expertise in systems design, engineering, integration and equipment upgrading.⁹⁷ The South Africans are very good at taking state-of-the-art components from a variety of industries and integrating them into tailored packages in order to enhance the performance of Cold War era weapons systems.

Excellent test facilities and human resources enhance South Africa's capabilities. The country maintains world-class ranges and test facilities on a scale astonishing for the developing world. Their quantity, breadth and depth contribute to a continuing South African capacity for rapid development and testing of prototypes. In addition to the excellent R&D facilities, South Africa has a surprisingly large number of organisations (and individuals) that might be described as 'technology enablers'. These include sophisticated consultants on security issues and enterprises seeking to serve as interfaces between military consumers and developers or producers. Enablers particularly include experts in cyber applications.

The complexities of the current relationship between the South African government and the

country's arms industry are illustrated by two interrelated programmes that together offer as a useful case study of the developing partnership: the counter-trade 'offsets' and the South African 'defence packages' first announced in late 1998—purchases that touch most of the issues and actors of particular interest in this paper.

Offsets and packages

South Africa is one of a number of countries that require counter-trade offsets in trading relationships with external sellers.⁹⁸ The basic idea is that the seller 'sweetens the deal' for the buyer by agreeing to mechanisms in which the buyer can attenuate the costs of outright purchase. Such arrangements are common even among developed nations such as the United States (US) and its North Atlantic Treaty Organisation (NATO) partners.⁹⁹ The actual advantages from such arrangements are a topic of continuing debate among economists.¹⁰⁰ However, South Africa ultimately implemented its own offset requirements—its industrial participation programmes—and the country has been astute in their use. There are actually two of them: the National Industrial Participation Programme (NIPP) managed by the Department of Trade and Industry; and the Defence Industrial Participation Programme (DIPP) managed by Armscor on behalf of the Department of Defence.¹⁰¹ The South African Cabinet implemented the first of these programmes in late 1996.¹⁰²

The NIPP requires a foreign supplier in any single South African government contract exceeding \$10 million to invest at least 30% of the contract value in South Africa's economy. (This obligation rises to 50% in the case of defence contracts.) The NIPP investment generally must be placed in enterprises other than the defence-related industries.¹⁰³ South Africa applies a second offset protocol, the DIPP (over and above the NIPP), to foreign suppliers of defence-related materiel in any single contract exceeding \$2 million. Unlike the NIPP, this programme requires investment in the defence industry.¹⁰⁴ The importance of the counter-trade offsets to South African industry cannot be overemphasised.¹⁰⁵ The South

African defence packages (first announced in 1998) offer a graphic illustration of the impact of the country's offset policies.

As early as 1994, the South African military had developed and publicised listings of its critical needs, and several foreign countries began lobbying the South African government for the right to provide new military materiel, interested particularly in establishing sole-source strategic alliances.¹⁰⁶ The government finally reacted in September 1997 by issuing requests to 11 countries for technical information on military equipment.¹⁰⁷ It had made its final selections by the time of a November 1998 Defence Exhibition in South Africa, when it published its intention to acquire five (later reduced to four) distinct packages of military materiel.¹⁰⁸ The contracts for the packages were signed a year later, in December 1999, and with a price of just over \$4 billion, comprised the largest ever arms purchase by South Africa.¹⁰⁹ The new equipment included Swedish multi-role fighter aircraft,¹¹⁰ British jet trainers,¹¹¹ Italian light utility helicopters,¹¹² German corvettes¹¹³ and German patrol submarines.¹¹⁴

The arms purchases were controversial at the time of their announcement in late 1998, and became even more so over the following years.¹¹⁵ Continuing allegations of financial impropriety and graft swirled around key defence and party officials involved in the decisions, and such suspicions probably were inevitable given the large sums of money involved and the intensity of foreign and domestic competition for defence contracts.¹¹⁶ Yet despite the controversy, the weapons purchases were not the arbitrary choice of a corrupt autocrat, nor were they indicative of an out-of-control military establishment. Rather, they were one step in a remarkable process of democratic decision-making following a rational assessment of long-term defence needs, reflecting deliberate strategic choices and prioritisation of national interests. They also illustrated one country's struggle both to define its security ends and its choice of the ways and means to achieve them.

One feature of the arms packages that initially tended to be lost in the controversies was the extensive offset benefits South Africa

reaped from its purchases, with benefits both to the defence industry and to a wide range of other economic enterprises. Many of these came directly from related offset agreements. The competition for South Africa's business was so fierce that South Africa used the offset offers to discriminate among the bidders. The DIPP offsets alone ultimately amounted to about 60% of contract value of the foreign arms, and the NIPP offsets an astonishing 350%. The total value of the offsets was some \$16.4 billion, vastly exceeding what South Africa had committed to pay for the weapons themselves.¹¹⁷

The growing impact of the defence packages on the South African economy was clearly evident by mid 2003, when some 45 NIPP projects already had gained South African government approval, carrying a prospective value of \$6 billion.¹¹⁸ The offsets were paying substantial dividends to the South African economy in general, and investments by the foreign industries may have been approaching the point where the economy's most lucrative near-term investment possibilities were saturated.¹¹⁹ But it is the South African defence industry that is deriving the greatest long-term benefit from the policy. The benefits can be categorised in a variety of different ways.

Clearly, the extensive use of South African subcontractors by the successful defence package bidders provides an immediate, tangible investment in the South African defence sector. The subcontracts span a broad spectrum.¹²⁰ But the direct infusion of funding for the defence package weapons is overshadowed by a host of additional indirect benefits. These range from a substantial DIPP investment by the foreign arms producers in South African defence industries, to the purchase of shares in other South African defence companies, to the outright acquisition of some South African companies by European-based defence conglomerates. The benefits extend to the transfer of personnel and expertise between South African and European firms, significantly facilitating two-way movements of defence technology. They include access to otherwise inaccessible markets for South African armaments, and a visibility in international arms

markets that otherwise would not have been possible. The defence packages highlight, as perhaps nothing else does, the current status of the South African armaments industries. These industries, typically in partnership with European producers, have surged onto the international scene with products marketed both to high-end and low-end consumers around the world.

The DIPP agreements also illustrate another important point: South Africa's arms industry could not rise to its full potential until it had relatively unrestricted access to the technology and markets of the wider world through associations with European and North American arms producers. This it gained through vigorous pursuit of foreign partnerships since the mid 1990s. For any country seeking to maintain state-of-the-art armament production capabilities, there really is no substitute for access to the broader currents of global technology. And even with the foreign partnerships, South Africa's success in marketing its arms has depended on an ability to discern and exploit niche roles in co-operation with foreign partners.

Whether or not investment in defence industries is the best use of national resources, the South African use of offsets in arms acquisitions has proven a clever way of forcing foreign investment in South African industry, and an ingenious way of mandating technology transfer. Offset agreements may not be a solution to every country's arms acquisition dilemma, but the South Africans have proven that they can be significant benefactors to an economy as a whole and to defence industries in particular.

Some concerns

The developing partnership between the South African government and the country's arms industry is a remarkable achievement, holding a promise of significant future benefits for the whole national economy; but it is not free of current problems and future dilemmas. These include the ongoing turbulence in the state-owned enterprise, Denel, associated with a seemingly endless process of rationalisation and reorganisation. As the country's major

arms producer, Denel is a prime source of contracts for much of the rest of the arms industry. The apparent volatility of this key organisation casts a pall of uncertainty over many other decisions about arms production in South Africa.¹²¹ Another current problem is the state infrastructure, set up after the scandals of the mid 1990s, to vet and approve arms exports.¹²² According to industry insiders, this has developed into a sclerotic bureaucracy whose slowness in providing export approval has cost the country significant opportunities.¹²³ Still another concern with longer-range implications (discussed earlier) is the government's inability or unwillingness to fund significant defence-related R&D.

An important advantage that South Africa enjoyed over its Cold War opponents from the 1960s to the late 1980s was the sophistication of its human resources. Well-trained young scientists and engineers, many with military experience, populated the arms industries. They were given considerable creative latitude.¹²⁴ The country's engineers and technicians were (and are) world class. For the past 30 years, as a group they may have been more capable than any analogous community of quickly designing materiel specifically suited to local military requirements. It is useful to ask whether or not this will be a continuing phenomenon. In other words, is the current nature of the South African arms industry a transitory historical anomaly or does it reflect an enduring organisational culture? Posed another way, will the industry's institutional norms survive its current members? South Africa now celebrates its multicultural heritage and is making strenuous efforts to empower formerly disadvantaged communities. Much of this effort consists of affirmative action programmes. These programmes have been controversial; many qualified young white scientists and engineers are seeking opportunity outside South Africa. At the same time, many non-white South Africans still view the pace of change as far too slow.¹²⁵ How the South African government handles affirmative action will have a very tangible long-term impact on South Africa's defence-related industries. While the increasing diversity doubtless will bring benefits of its own, it

remains to be seen if the organisational values of today's industry will survive the present cohort and if today's advantages will characterise tomorrow's industry.

A key lesson from the South African experience

South Africa's current leaders apparently see in a sophisticated arms industry the opportunity to pursue two objectives: limited strategic autonomy; and national economic development. However, these two goals may be at least somewhat mutually exclusive. South Africa's defence-related enterprises increasingly are connected to multinational defence industries; a trend likely to increase rather than decrease. The greater the degree of South African partnership with foreign arms producers, the better access it has both to state-of-the-art technology and to the international arms market; circumstances that are economically desirable, yet these same connections also bring a degree of foreign influence—even control—over South Africa's industries that limits the country's options. Perhaps a gradual loss of strategic autonomy is the price of the increasing integration into the global economy.

Still, on security issues, South Africa since 1994 can take credit for broader consultation, greater accountability and more substantial transparency in its security-related decisions than most countries. Very much in contrast to the example of the apartheid years, South Africa's post-1994 national consultations about security issues sets a high standard for the rest of the world and could profitably be emulated elsewhere. South Africa's attentive public and policymakers seem to have mutually examined the defence industry and, after prolonged debate, elected to wager on its future benefits rather than sustain the resentments of the past. The results of this consensus so far have been the preservation of a capable industry and the promise of substantial future economic benefits. This example suggests that substantial cultural and ideological differences need not preclude agreement on basic themes of national security if the consultation is sufficiently broad.

Notes

- 1 This paper will continue to refer to a South Africa arms industry, but the South African government does not view the country's arms producers as a distinct industrial sector, arguing with justification that these are imbedded components of a larger economy and that the same industries sell products to non-military consumers. In describing that portion of the economy that produces armaments, the South African government prefers the phrase 'defence-related industries'. White Paper on the South African Defence-Related Industries, December 1999, p 2, <www.gov.za/whitepaper/1999/defence.htm>.
- 2 H Heitman, unpublished draft describing the South African defence and defence production establishment, 2003, p 65.
- 3 Ibid.
- 4 The CSIR was created by Parliament in 1945 to advance South African science in general, mainly through pure science and research. Since at least the early 1950s some of its research effort has been directed to military applications. Information based on author's interviews with Andre Nepgen, director, Defencetek (CSIR), 20 June 2003 and Alan Holloway, vice chairman of AMD and managing director of ANSYS, 7 June 2004. See also D G Kingwill, *The CSIR—The first 40 years*, CSIR, Scientia Printers, Pretoria, 1990; and <www.csir.co.za>.
- 5 For details, see *inter alia*, P Batchelor & S Willett, *Disarmament and defence industrial adjustment in South Africa*, Oxford University Press, London, 1998; G Cawthra, South Africa, in R P Singh (ed), *Arms procurement decision making: Volume II: Chile, Greece, Malaysia, Poland, South Africa and Taiwan*, SIPRI Publication, Oxford University Press, London, 2000; S Landgren, *Embargo disimplemented: South Africa's military industry*, Oxford University Press, London, 1989; J P McWilliams, *Armcor: South Africa's arms merchant*, Brasseys, London, 1989.
- 6 White Paper on South African Defence Related Industries, op cit, Chapter 2, para 15.
- 7 Ibid, p 17.
- 8 Batchelor & Willett, op cit, p 81.
- 9 Ibid, p 67.
- 10 D Botha, *South Africa's defence industry: Charting a new course?*, Institute for Security Studies (ISS) Occasional Paper, 78, September 2003, p 1.
- 11 Batchelor & Willett, op cit, p 81.
- 12 Cawthra, op cit, p 147. See also Batchelor & Willett, op cit, pp 70-71.
- 13 South Africa has continued to develop and produce a range of state-of-the-art tactical missiles. For an analysis of the discontinuance of the biological warfare programme, see S Burgess & H Purkitt, *The rollback of South Africa's chemical and biological warfare program*, Maxwell AFB, AL: USAF Counterproliferation Center, Air War College, 2001; for the nuclear programme, see F W de Villiers, R Jardine & M Reiss, Why South Africa gave up the bomb, *Foreign Affairs* 72, Nov-Dec 1993, pp 98-109; J Shearer, Denuclearisation of Africa: The South African dimension, *Disarmament* 16(2), 1993, pp 171-185; D Howlett & J Simpson, Nuclearisation and denuclearisation in South Africa, *Survival* 35(3), 1993, pp 154-173; F W de Klerk, *The last trek—A new beginning*, St. Martin's Press, New York, pp 273-274; and Batchelor & Willett, op cit, pp 71-72.
- 14 For a detailed description of this process, see Batchelor & Willett, op cit, pp 85-101.
- 15 Botha notes that part of the pressure to divest Armscor of its production capability was the fact that it was expressly forbidden by law to produce non-military goods for the civilian market. *South Africa's defence industry*, op cit, p 2. The 1992 divestment was accomplished by executive fiat and did not change Armscor's legislative mandate established in 1968 (Armaments Development and Production Act, Act No. 57 of 1968). This would cause a variety of problems until a new act of Parliament redefined Armscor's role in 2003 (Armaments Corporation of South Africa, Limited Act, 2003).
- 16 White Paper on South African Defence Related Industries, op cit, Chapter 2, paras 25-27.
- 17 According to Botha, the government had no industrial transition programme and the industry found itself "restructured in an ad hoc, market driven and largely chaotic way." *South Africa's defence industry*, op cit, p 2.
- 18 Ibid. However, Botha argues that it had become much tougher and more competitive on the world market
- 19 Batchelor & Willett, op cit, p 146.
- 20 R Kasrils, The future of South Africa's defence industry: The government's perspective, in W Gutteridge, *South Africa's defence and security in the 21st century*, Dartmouth Publishing Company, Brookfield, VT, 1996, pp 117-126.
- 21 These were UN Security Council resolutions 418 and 558 respectively.
- 22 Batchelor & Willett, op cit, p 80.
- 23 Ibid, pp 113-120.
- 24 Author's interview with Arthur J R Oates, director of Business Development, Denel, 24 June 2003. See also D Abrahams, Defence conversion in South Africa: A faded ideal?, ISS Occasional Paper, 51, July 2001, pp 2-3, <www.iss.co.za/Pubs/Papers/51/Papers51.html>. Botha notes that the only significant conversion of defense technology to civilian usage was in aircraft components and mine-protected vehicles. He also provides a useful overview of the reasons for widespread failure to diversify. *South Africa's defence industry*, op cit, p 9. See also White Paper on South African Defence Related Industries, op cit, Chapter 2, paras 53-56.
- 25 In the resulting scandal, Mandela felt constrained to appoint an investigating commission headed

- by an eminent South African jurist, Edwin Cameron. The Cameron Commission's first report in June 1995 excoriated Armscor, suggesting a number of measures to improve the oversight of arms exports. A second report in March 1996 went much further. It recommended parliamentary review (and veto authority) over arms sales and questioned the propriety of South African involvement in international arms trade altogether. The South African Cabinet reacted in March 1995 by appointing a ministerial commission headed by Minister of Defence Joe Modise to examine the issue of arms exports with a mandate to recommend ethical guidelines and general policy. Batchelor & Willett, *op cit*, pp 146-150.
- 26 These included scholars like Nathan Laurie, Jakkie Cilliers, Greg Mills, Gavin Cawthra and Rocky Williams. See, *inter alia*, Ready to govern: ANC policy guideline for a democratic South Africa, adopted at the National Conference, May 1992, <www.anc.org.za/ancdocs/history/ready-to.html>; L Nathan, Beyond arms and armed forces: A new approach to security, *South African Defence Review*, 4, 1992, pp 12-21; and B Fanaroff, A trade unionist perspective on the future of the armaments industry in South Africa, *South African Defence Review*, 7, 1992, pp 10-14.
- 27 The South African professional literature at the time reflected a rich ferment in thinking about new definitions of 'security'. See, *inter alia*, M van Aardt, Doing battle with security: A Southern African approach, *South African Journal of International Affairs* 3(2), Summer 1996, pp 13-28; and H Solomon, From marginalised to dominant discourse: Reflections on the evolution of new security thinking, in H Solomon & M van Aardt (eds), *Caring security in Africa*, ISS Monograph, 20, February 1998.
- 28 Much of their effort was focused in the Military Research Group, a rather loose collaboration of academics and intellectuals that coalesced in the early 1990s and became essentially the ANC think tank on security. The Military Research Group was co-ordinated by South African scholar Gavin Cawthra and included other academics like Laurie Nathan, Jackie Cock and Rocky Williams. It disbanded by about mid 1995. Interview with Gavin Cawthra, 22 June 2004. See also M Shaw, Biting the bullet: Negotiating democracy's defence, in S Friedman & D Atkinson (eds), *South African Review 7: The small miracle. South Africa's negotiated settlement*, Ravan Press, Johannesburg, 1994, pp 228-256.
- 29 Cawthra observes that maintenance of the large, conventional military was partly motivated by a desire to placate the existing military establishment. Gavin Cawthra, interview, 22 June 2004. See also R Williams, Defence in a democracy: The South African Defence Review and the redefinition of the parameters of the national defence debate, in R Williams, G Cawthra & D Abrahams (eds), *Ourselves to know*, ISS, Pretoria, 2003, p 212.
- 30 Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996). See particularly Chapter 11, para 200: "The primary object of the defence force is to defend and protect the Republic, its territorial integrity and its people ..."
- 31 Author's interview with defense analyst Len le Roux of ISS (a retired South African Air Force Major General) who served at senior level in the Defence Force headquarters during this period of transition and had regular contact with the actors he described), 11 March 2004.
- 32 A number of individuals are remembered as particularly influential in mediating the transition, although particular credit probably goes to retired Air Force Major General Julius Kriel, who rose in this period to the leadership of the key arms industry advocacy group. Interviews with Reginald Ngwenya, director of AMD, 21 June 2004, Alan Holloway, vice chairman of AMD and managing director of ANSYS, 21 June 2004, Paul J Gerber, group manager for Business Coordination and Counter-trade, Grintek Group Limited, 21 June 2004.
- 33 By 1994, the military establishment was still there, but all of the services were facing severe problems of obsolescent materiel and declining capital investment. L le Roux, The South African National Defence Force and its involvement in the Defence Review process, in Williams et al, *op cit*, pp 155-156.
- 34 South Africans had widely differing expectations on almost any issue—including security—and to make matters worse, a relatively large number of government officials at all levels had little preparation for their new roles and responsibilities. Cawthra, *op cit*, pp 142-143.
- 35 The new official white paper was remarkably similar to ideas published earlier by University of Cape Town scholar Laurie Nathan. See L Nathan, *The changing of the guard: Armed forces and defence policy in a democratic South Africa*, HSRC Publishers, Cape Town, 1994.
- 36 <www.gov.za/documents>.
- 37 Security was now an "... an all-encompassing condition in which *individual citizens* live in freedom, peace and safety; participate fully in the process of governance; enjoy the protection of fundamental rights; have access to resources and the basic necessities of life; and inhabit an environment which is not detrimental to their well-being." (emphasis added), White Paper on Defence, *op cit*, p 3. The White Paper explicitly stated that the armed forces comprise "... an important security instrument of last resort ... [but not] the dominant security institution." *Ibid*, pp 3,4.
- 38 At the same time, the White Paper was very careful to emphasise that the new military establishment would have a "primarily defensive orientation and posture", and that South Africa's foreign policy would emphasise "regional security" and "military co-operation with Southern

- African states in particular". Ibid, p 4.
- 39 Key figures in drafting this paper were Air Force Major General Len le Roux and Army Colonel (Dr) Rocky Williams, both at the time active members of the SANDF. Thandi Modise and Zou Kota, both members of the Joint Standing Committee on Defence, significantly assisted their efforts. Interviews with Major General Len le Roux (South African Air Force, retired) 11 March 2004 and Helmoed Heitman, 23 June 2004. The consultation itself "... featured three National Consultative Conferences, a host of Regional Workshops in all provinces, Public Hearings in Parliament ... It drew together a wide range of interest groups, including: academics, clergy, *industrialists*, media, *pacifists*, Parliamentarians, and members of the defence establishment ..." (emphasis added), Defence Review, op cit, p vi.
- 40 Ibid, p 121.
- 41 Ibid, p 129.
- 42 In the Defence Review, domestic industries were distinguished by category as "strategically essential", "cost-effective local sourcing and export" or "non-strategic". Ibid, p 127.
- 43 Ibid, p 133.
- 44 White Paper on South African Defence Related Industries, op cit, Introduction, para 11. The Steering Committee was chaired by the Chief of Defence Acquisition (Shamin 'Chippy' Shaikh) and in addition to the government and industry representation, included academics Laurie Nathan (University of Cape Town) and Gavin Cawthra (University of Witwatersrand), scholars prominent in earlier consultations on defence restructuring. Another academic, Peter Batchelor, did much of the actual drafting of the paper. Interviews with Gavin Cawthra, 22 June 2004 and Helmoed Heitman, 23 June 2004.
- 45 White Paper on South African Defence Related Industries, op cit, Introduction, para 10.
- 46 Ibid, para 9.
- 47 After recounting the history and surveying the status of South African defence-related industries, the White Paper identified the special capabilities of these industries in the mid 1990s. It specified areas in which South Africa's industries exhibit a "core competency", or put another way, areas in which the South Africans saw themselves as having a special advantage. Ibid, para 66. The areas are: electronics; weapons systems; and communications. It identified six "strategically essential defence technologies and capabilities" that South Africa would seek to establish or maintain for its own security needs, whether or not they had further commercial viability. These technologies would maintain "... independence in key strategic areas or certain niche areas [and reduce] supply vulnerabilities". The essential technologies are: logistic support, repair and maintenance of equipment and systems; systems integration (defined as "the ability to design, specify, procure, assemble and test the sub-systems, their interfaces and the resultant major system"); command, control and communications systems; sensors, signal processing and data processing; combat systems software and support (emphasising cyber applications); and simulation systems and war gaming. White Paper, op cit, Chapter 4, paras 32-52.
- 48 Ibid, paras 53-61.
- 49 Ibid, para 62.
- 50 Author's interview with Gavin Cawthra, 22 June 2004.
- 51 L Englebrecht, Developments in the South African Defence Industry: Interational alliances, summary of NIC/IISS Conference, Transformation in global defence markets and industries, 4-5 November 2000, <www.armsdeal-vpo.co.za/special_items/reading/developments_sa_defence.html>.
- 52 South African scholars like Rocky Williams and Peter Batchelor have called attention to this apparent contradiction. It also was publicly recognised in 2003 by the commanding officer of the South African Army who implicitly criticised the limitations of the White Paper on Defence. See Batchelor & Willett, op cit, pp 135-137; R Williams, Defence in a democracy: The South African Defence Review and the redefinition of the parameters of the national defence debate, in Williams et al, op cit, pp 205-223; and S Nyanda, The South African National Defence Force and peace missions in Africa, paper presented at the African Dialogue Series, University of Pretoria, 27 February 2003.
- 53 Heitman, personal communication, 12 June 2004.
- 54 The armed forces themselves were in increasing difficulty, facing serious shortfalls in funds for training, maintenance and equipment replacement. According to Cilliers, the Air Force in late 1997 had been obliged to halt flight activity except in cases of emergency and the Army lacked sufficient resources to continue normal training. As part of the political settlement that produced majority rule in 1994, the South Africans were obliged to integrate the old South African Defence Force with personnel from two liberation armies and the military establishments of the semi-autonomous black 'homelands' in the former apartheid state. This was an enormously difficult and traumatic process of change, costly and politically fraught. J Cilliers, *Defence acquisitions—Unpacking the package deals*, ISS Occasional Paper, 29, March 1998, p 3, <www.iss.co.za/Pubs/PAPERS/29/Paper29.html>
- 55 Interviews with Reginald Ngwenya, 21 June 2004; Alan Holloway, 21 June 2004; and Paul J Gerber, 21 June 2004; interview with Helmoed Heitman, 25 June 2004.
- 56 <www.amd.org.za>
- 57 This argument is based on the comments of numerous mid-level South African arms industry insiders in conversations with the author in 2003 and 2004.

- 58 This new organisation essentially performs the function attributed to a proposed Marketing Support Board in Chapter 5 of the White Paper on South African Defence-Related Industries. For additional information, see Botha, *South Africa's defence industry*, op cit, p 4, and the Armscor promotional literature, <www.sadid.co.za/SADID_7/edition7/armscor/armscor.html>.
- 59 It is a formal partnership between the Department of Defence, Armscor and AMD, with representation from various other government departments. The Secretary for Defence chairs it. Information provided by Paul J Gerber, 22 April 2004.
- 60 By law, the Minister of Defence "exercises ownership ... on behalf of the state". Armaments Corporation of South Africa, Limited Act, 2003, Section 2. In 2003, a 12-person board of directors chaired by an investment banker oversaw Armscor. Armscor Annual Report, 2002-2003, pp 8-9, <www.armscor.co.za>.
- 61 These include the South African Police Service and Department of Correctional Services. Armscor Annual Report, op cit, pp 18-19.
- 62 Armaments Corporation of South Africa, Limited Act, 2003, Section 4. See also White Paper on Defence Related Industries, op cit, Chapter 3, paras 35, 36.
- 63 See Batchelor & Willett, op cit, pp 84-101 for a description of this separation. The new 2003 legislation now has specifically empowered Armscor to seek additional commercial opportunities so it could conceivably engage in future production and more aggressively market its research and testing resources to private sector actors. See Armaments Corporation of South Africa, Limited Act, 2003, Section 4.
- 64 For additional data, see <www.armscor.co.za/DefenceScienceTechnology/ListCompanies.asp>.
- 65 This includes facilitation of arms exhibitions such as the biennial African Aerospace and Defence show. The next, in September 2004, will be staged at Waterkloof Air Base just outside of Pretoria. See <www.aadexpo.co.za> and Armscor Annual Report, op cit, p 5, <www.armscor.co.za>.
- 66 For detail, see Denel Annual Report, 2002, <www.denel.co.za>. See also Batchelor & Willett, op cit, pp. 84-101.
- 67 Denel Annual Report, 2003, <www.denel.co.za>.
- 68 Although Denel's subsidiaries retain sophisticated production facilities, they also depend heavily on subcontracting from private sector producers. And its subsidiaries produce sub-assemblies on contract for other defence industry consumers, continuing the private-public sector linkages that evolved in the apartheid years. Ibid.
- 69 A 15-person board of directors supervised Denel in 2003, with an 11-member executive committee to oversee day-to-day operations. The chairman of the board was an investment banker. Denel Annual Report, 2003, op cit, pp 14-17, 38-39.
- 70 For details, see Botha, *South Africa's defence industry*, op cit, pp 9-10.
- 71 Ibid.
- 72 P Batchelor & P Dunne, Industrial participation, investment and growth: The case of South Africa's defence related industry, paper prepared for the Centre for Conflict Resolution, Cape Town and Middlesex University Business School, UK, February 2000, p 4.
- 73 Denel Annual Report, 2003, op cit, p 24. In conferences with US officials, Denel's representatives have indicated that in the past decade, their production emphasis has shifted from 90% domestic sales and 10% exports to the exact reverse, an amazing transformation. Interview with Duncan Lang, contractor to the US Department of Defense, 11 March 2004.
- 74 In 2002 Denel claimed strategic partnerships with 13 foreign arms enterprises. Denel Annual Report, 2002, op cit, pp 15, 36-68. By 2003 Denel was less specific in its claims and its annual report did not offer a specific number of foreign associations.
- 75 Most of the CSIR's focus is on non-military issues, with current interests ranging from the environment to mining to building technology to advanced cyber applications. For organisational details, see <www.csir.co.za>.
- 76 Author's interview with Andre Nepgen, director, Defencetek, 20 June 2003.
- 77 Batchelor & Willett, op cit, p 38.
- 78 Among its products are a state-of-the-art artillery fire control system and training simulators for weapons, aircraft and vehicles. For additional details see <www.amd.org.za>.
- 79 <www.ate-aerospace.com>
- 80 <www.alvisomc.co.za>
- 81 75% ownership is held by the UK-based multinational Alvis plc, the remaining 25% by a South African BEE investment firm.
- 82 <www.grintek.com>
- 83 Author's interviews with Paul J Gerber, June 2003 and June 2004.
- 84 <www.reunert.co.za>
- 85 One of its defence-related subsidiaries is partially owned by the European aerospace multinational EADS.
- 86 See <www.armscor.co.za> and <www.amd.co.za> for a more comprehensive listing and description.
- 87 Botha, *South Africa's defence industry*, op cit, p 12.
- 88 See, *inter alia*, <www.ansys.co.za>; <www.ariel.co.za>; <www.cci.co.za>; <www.cybersim.co.za>; <www.emss.co.za>.
- 89 See, *inter alia*, <www.ams.co.za>; <www.aerosud.co.za>; <www.tellumat.com>.
- 90 For additional detail, see <www.amd.org.za> and <http://www.armscor.co.za>>.
- 91 According to Botha, *South African defence industry*,

- op cit, p 7, these are: the G-5 and G-6 artillery systems (to include ammunition and propulsion); turrets and gun systems for ground combat vehicles (including ammunition and propulsion); aircraft observation and sighting systems; air-ground tactical missile systems; laser range finders and periscopes; mine-protected vehicles; missile launch warning systems and low-cost radar warning receivers; health and utilisation monitoring systems for avionics; and electronic fuses for artillery and aerial bombs.
- 92 These include manufacture of airframe sections and aircraft gearboxes, aircraft engine maintenance, aircraft upgrading and weapons integration (to include the systems engineering and project management) and general systems engineering, project management, upgrading and reconditioning of military equipment. *Ibid*, pp 7-8.
- 93 Alvis OMC, for instance, has sold multi-role environmentally protected vehicles to several police departments in the US. Author's interview with Brigadier Tony Savides (South African Army, retired), director of International Marketing, Alvis OMC, 18 June 2003.
- 94 Its advantages were not so much the brilliant technological advances of the individual components—gun tube and chassis, fire control, base-bleed extended range ammunition or warhead lethality—but the synergy of having the best of each in one highly compatible system. The entire package was so good that 20 years after first fielding, with product improvement, it still is as advanced in its intended role as any equivalent system on the market.
- 95 Based on the author's interviews with mid-level officials in Denel, Grintek and Alvis OMC in mid 2003. As an example, while the author was touring the Alvis OMC plant near Johannesburg in June 2003, he was shown a prototype command vehicle being built for US special operations forces in Iraq.
- 96 This is illustrated in the G-6 self-propelled gun. Here, by way of example, the South Africans build a system with a gun and turret by LIW (Denel), ammunition by Naschem (Denel), a chassis and propulsion system by Alvis OMC, a fire control system by ADS and (conceivably) a remotely piloted vehicle for targeting furnished by Denel or ATE, all in one seamless package.
- 97 Botha, *South African defence industry*, op cit, p 7.
- 98 For the rich and growing literature on this topic, see, *inter alia*, Offsets information website, <www.plymouth.ac.uk/politics> (maintained by the University of Plymouth, UK); S Martin (ed), *The economics of offsets*, Amsterdam, 1996; and G T Hammond, *Countertrade, offsets and barter: An international political economy*, Pinter Publishers, London, 1990.
- 99 Offset agreements have appeared in an array of different forms including joint production by seller and purchaser, licensed production in the purchaser's country, or even seeking a more indirect impact through investment by the seller in the economy of the purchasing country.
- 100 Batchelor & Dunne, op cit, pp 4-6.
- 101 Details for the NIP and DIP programmes are drawn from D Botha, *Offsetting the costs of SA's strategic defence package*, ISS Occasional Paper, 75, July 2003, p 5, <www.iss.co.za/Pubs/Papers/75/Paper75.html>, and Heitman, unpublished draft, op cit, pp 80-83.
- 102 This was the National Industrial Participation Programme (NIPP). Botha, *Offsetting the costs*, op cit, p 1. Botha notes that Armscor actually had required counter-trade offsets since 1989, though presumably as a more informal industry-to-industry arrangement.
- 103 *Ibid*.
- 104 It is designed to promote defence industry jobs, capabilities and marketing opportunities. Management of the DIP is a joint responsibility of the Department of Trade and Industry and the Department of Defence. *Ibid*, pp 3-5.
- 105 R A Bitzinger, *Towards a brave new arms industry?*, IISS Adelphi Paper, 356, Oxford University Press, New York, 2003, p 46.
- 106 Botha, *Offsetting the costs*, op cit, p 9.
- 107 These were Brazil, Canada, the Czech Republic, Denmark, France, Germany, Italy, Russia, Spain, Sweden and the UK. Conspicuous by its absence in the list was the US. Relations on issues of arms trade between the US and South Africa were poisoned in the mid 1990s. This stemmed from the US indictment in 1991 of Armscor (later including Denel) and Fuchs for conspiring to evade US export control laws in the apartheid era. The criminal and civil cases were settled in 1997, but full relationships and privileges were not restored until 2004. Details provided by Johan van Rensburg, commercial specialist with the US Commercial Service, Johannesburg, 4 June 2004.
- 108 Heitman, unpublished draft, op cit, p 93.
- 109 Botha, *Offsetting the costs*, op cit; Cabinet Decision on Strategic Defence Procurement, 15 September 2000, <www.gov.za/papers/procurement/cabinet.htm>.
- 110 These will be the JAS -39 *Gripen* manufactured by a BAe/Saab Consortium in Sweden. The original package included 48 of these aircraft, but the number subsequently was scaled back to 28. Delivery of these aircraft was scheduled for 2007-2011. Flight trials for the first South African *Gripen* in Sweden are scheduled for 2005, with subsequent South African flight tests and equipment certification in 2006. *Ibid*, p 5; see also <www.gripen.com>.
- 111 This is the BAe *Hawok*. A total of 24 was ordered with delivery scheduled for 2005-2009. Botha, *Offsetting the costs*, op cit, p 5.
- 112 These are the Agusta-Bell A-109. A total of 30 would be acquired. The first several were to be assembled in Italy, the rest in South Africa by Denel. *Ibid*, personal communication with Helmoed Heitman, 12 June 2004.

- 113 Ibid. These are Meko A200 ships manufactured by the German Frigate Consortium. See also <www.naval-technology.com/projects/meko> and <www.StrategyPage.com> (10 November 2003). Four were ordered. The first (SAS Amatola) was delivered in November 2003 although none of the corvettes will be fully operational until 2007.
- 114 Three were ordered. These are Type 209 1400 manufactured by Ferrostaal in Germany. Botha, *Offsetting the costs*, op cit, p 5.
- 115 For a useful overview, see D Botha, The arms deal controversy, *African Security Review* 12(3), 2003, pp 99-103.
- 116 Including, among others, Minister of Defence Joe Modise, deputy ministers Ronnie Kasrils and Max Sisulu, Department of Defence Arms Procurement Chief Shamin (Chippy) Shaik (whose brother directed one of the beneficiary companies in South Africa) and even the governing ANC parliamentary party whip Tony Yengeni, resulting in his arrest in 2001. By 2003, charges were swirling around South African Deputy President Jacob Zuma, resulting in the arrest of his financial advisor. SADC report Modiso's dynamic drawn into SA arms scandal, *Financial Times* (Cape Town), 6 April 2001; SA politics: Ambassadors quizzed over arms procurement kick-back claims, *Financial Times*, Information Southscan Global News Wire, 15 November 1999. See also Botha, The arms deal controversy, op cit, pp 102-103.
- 117 The Saab/BAe contracts alone were characterised as providing "proportionately ... the largest offset clause in defence industry history". Botha puts these sums in perspective by noting that 1999 South African spending on defence capital was a mere \$225 million. Botha, *Offsetting the costs*, op cit, p 5.
- 118 Ibid. Botha points out that this represents fully 40% of the \$14 billion NIPP commitments, a remarkable accomplishment after only three years since the contracts were signed.
- 119 Ibid, pp 5-6.
- 120 Ibid, pp 6-7. These subcontracts alone are worth more than \$200 million for South African producers.
- 121 Interviews with Reginald Ngwenya, 21 June 2004; Alan Holloway, 21 June 2004; and Paul J Gerber, 21 June 2004.
- 122 See Batchelor & Willett, op cit, pp 146-150 for details. The export approvals are vetted in a tiered structure headed by the National Conventional Arms Control Committee (NCACC).
- 123 Interviews with Reginald Ngwenya, 21 June 2004; Alan Holloway, 21 June 2004; and Paul J Gerber, 21 June 2004; interview with Gavin Cawthra, 23 June 2004; interview with Helmoed Heitman, 25 June 2004.
- 124 Author's interview with Johan van Rensburg, 23 June 2004.
- 125 This is not only true of the non-white community. A prominent (white) South African businessman recently argued in a prominent media forum that "the children of today's captains of commerce and industry have no future in South Africa unless in our second decade of democracy, white sharing is at least equal to black forgiveness in the first." M Lambert (CEO, Massmart), Whites must offer fair share, *Sunday Times Business Times*, 7 March 2004, p 3.