DRAFT: Not for quotation

Defence Industry Globalization: The Case of South Africa[1]

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1. Introduction

South Africa is one of the developing world's most innovative defence producers, the country's defence industry having been built up largely in isolation under the shadow of a mandatory UN arms embargo.[2] However, since the early 1990s the domestic defence industry has experienced a dramatic process of downsizing and restructuring due to substantial cuts in the country's defence budget associated with the demise of the Cold War and the ending of Apartheid. In recent years, and mainly since 1994, the local industry has become increasingly globalized, largely through increased export sales and transnational interactions with foreign defence firms. This process has been actively encouraged, and supported, by the South African government.

This paper describes the globalization of South Africa's defence industry, and in particular how the South African government and the country's local defence firms have responded to the challenges and opportunities of globalization. For the purposes of this paper globalization is understood as 'government sponsored and/or firm-led initiatives and activities intended to encourage and exploit transnational production links and inputs of foreign resources (money, technology) in the process of designing, developing, manufacturing and marketing military equipment'. Defence industry globalization can include teaming arrangements, joint ventures, sub-contracting, technology sharing and transnational mergers and acquisitions.

Section 2 considers the current state of the local defence industry, and describes the outcome of the processes of rationalization and restructuring that have taken place in the industry during the last decade. Section 3 analyses the globalization of South Africa's defence industry, and describes how the South African government and the country's defence firms have responded to the challenges and opportunities of globalization. Section 4 provides some tentative conclusions.

2. The current state of South Africa's defence industry

Today South Africa's defence industry is smaller, more concentrated and more globalized than ever before. It has also become more internationally competitive, particularly in a number of sectors and sub-sectors (e.g. long range artillery). This is a function of the dramatic events of the last decade, particularly the ending of Apartheid in 1994, and the opening up of the country's defence market to international competition. The country's domestic defence industry was established in the early 1960s, but expanded rapidly in the 1970s and 1980s during the period of the UN mandatory arms embargo, which was imposed in 1977 and only

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[1] An earlier version of this paper was presented at a conference on 'Defence Industry Globalisation', organised by the Atlantic Council of the United States, 16 November 2001.

[2] Various studies by Brzoska & Ohlson (1986), Ross (1989), Brauer (1991), Krause (1992), Anthony (1993), and Bitzinger (2000) have attempted to categorize the South African defense industry in relation to the world's major defense producers. There is still some debate as to whether South Africa should be classified as a second-tier producer (see Bitzinger, 2000) or a third-tier producer (see Ross, 1989, Krause, 1992 and Anthony, 1993).

lifted in 1994 (Batchelor & Willett, 1998). During this period the country was officially cut off from most of the world's major defence suppliers. As a result, the local industry developed a high degree of self-sufficiency, and a well-developed indigenous design, development and manufacturing capability. This self-sufficiency came at a huge price, both in terms of direct resource costs, and in terms of opportunity costs (Batchelor & Dunne, 1998). However, it has given South Africa a high degree of strategic independence, including a 'smart buyer' capability.

In the last decade South Africa's defence industry has undergone a radical process of rationalization and restructuring. This has included a dramatic downsizing of its workforce, exit from certain areas of production, and the increasing consolidation and concentration of the local defence market. Since the late 1980s South Africa's defence expenditure has declined quite significantly. Between 1990 and 2000, the budget of the South African National Defence Force (SANDF) was cut by more than 40 % in real terms (with an average annual decline of 5% per annum). Defence spending as a share of total government expenditure declined from nearly 13% in 1990 to less than 6% in 2000, and as a share of Gross Domestic Product (GDP) from 3.6 percent to 1.6 percent during the same period (see Table 1). In 2000, after many years of decline, the defence budget witnessed a significant increase (22%). This was largely as a result of additional resources being made available to fund the SANDF's procurement package.

Table 1. South Africa, Defence Budget, 1990-2000
Figures are in Rand million in constant 1990 prices.
Figures in italics are percentages.

Year	Defence Budget	% change	Total/Total Govt. Exp	GDP/GDP
1990	10070	*-11.9*	*12.4*	*3.6*
1991	8094	*-19.6*	*9.8*	*3.0*
1992	7605	*-6.0*	*8.4*	*2.8*
1993	6589	*-13.4*	*6.8*	*2.4*
1994	7153	*8.6*	*8.1*	*2.2*
1995	6249	*-12.6*	*7.0*	*1.9*
1996	6015	*-3.7*	*6.3*	*1.7*
1997	5675	*-5.7*	*5.9*	*1.6*
1998	5019	*-11.6*	*5.2*	*1.4*
1999	4795	*-4.5*	*5.0*	*1.3*
2000	5856	*22.1*	*5.9*	*1.6*
Average: 1990-2000		***-5.3***	***7.3***	***2.1***

Sources: Budget Review, 2001, Quarterly Bulletin (South African Reserve Bank)

Most of the cuts in the defence budget since 1990 have been funded through cuts in the SANDF's procurement budget. Between 1990 and 2000, total procurement expenditure, as managed by Armscor, the SANDF's procurement agency, declined by more than 60% in real terms, with an average decline of 5% per annum.[3] This expenditure is a proxy for the size of the domestic defence market. In 2000 total procurement expenditure increased dramatically (87%) as a result of the SANDF's procurement package (see Table 2).

[3] Armscor manages all procurement expenditure (including consumables) for the SANDF and the South African Police Service. Thus, the figures for total procurement expenditure are higher than the SANDF's procurement budget.

Table 2. South Africa, Procurement Spending, 1990-2000
Figures are in Rand million in 1990 constant prices.
Figures in italics are percentages.

Year	Total	% change
1990	5504	
1991	4202	-23.7
1992	3243	-22.8
1993	3162	-2.5
1994	2427	-23.2
1995	2167	-10.7
1996	1889	-12.8
1997	1384	-26.7
1998	1146	-17.2
1999	1173	2.3
2000	2195	87.2
Average: 1990-2000		**-5.0**

Source: Armscor Annual Report (various years)

In the 2000/2001 defence budget, procurement for the SANDF was allocated 33% of the total defence budget, down from nearly 60 per cent in the late 1980s (Budget Review, 2001). As a result of the cuts in procurement spending the SANDF had to cancel or postpone most of its major procurement projects during the 1990s until the approval of the strategic procurement package in late 1999. This had a dramatic impact on the local defence industry, given the high proportion of total procurement spending from domestic production.[4]

In response to the cuts in defence spending, and declining domestic demand, the local defence industry adopted a number of adjustment strategies. These included: i) rationalization (lay-offs, closures), ii) consolidation (mergers), iii) exit from the defence market, iv) niche production, v) diversification/conversion, vi) increased exports, and vii) globalization (international co-operation). A number of studies have analysed the adjustment experiences of South Africa's defence firms. See Batchelor (1998), Batchelor & Willett (1998) Batchelor & Dunne (1998) and Batchelor, Cock and McKenzie (2000).

Most local defence firms, whether state-owned, or private, pursued all or most of these adjustment strategies. In the early 1990s, in the context of very dramatic defence cuts, the most popular strategies included rationalization, consolidation, exit from the defence market, and diversification and conversion. In the mid-late 1990s, particularly after the lifting of the UN arms embargoes in 1994, the most popular strategies included increased exports and international co-operation (Batchelor & Willett, 1998).

As a result of rationalization and consolidation, the size of the local industry, in terms of numbers of companies, and employment, has declined substantially since the late 1980s. The industry has also become more concentrated. Six companies - state-owned Denel (which was created from Armscor in 1992) and 5 private companies - Reunert, Grintek, African Defence Systems (ADS), ATE and Vickers OMC and less than 20 small and medium-sized companies

[4] During the late 1980s it was estimated that more than 90% of the SANDF's procurement spending was spent on the domestic defense industry. However, many defense products that were procured locally still included a high import content, and thus the real value of domestic procurement was closer to 60% (Batchelor & Willett, 1998).

now dominate the domestic market. In 2000 these 6 firms accounted for roughly 90% of the turnover of the local defence industry on the first two levels of contracting (see Table 3). All of these firms have foreign equity partners, some as much as 100% (e.g. Vickers OMC).

Table 3. Major Local Defence Companies, Selected Financial Statistics

Company (parent)	Total Defence Sales (2000) *	% of Total Turnover	Employees (2000)	Foreign Equity Partners
Denel	R2,6 billion	54.9	10,375	BAE Systems Snecma/Turbomeca
ATE	R439 million	9.2		BAE Systems
Reutech (Reunert)	R422 million	8.8	843	EADS
Grintek Defence (Grintek)	R409 million	8.5	734	Celsius/SAAB AB
Vickers OMC	R210 million	4.4		Vickers
ADS	R200 million	4.2	324	Thales CSF
Others	R480 million	10.0		
Local Defence Ind: Total Turnover	R4,79 billion	100		

Sources: Company Reports, Financial Mail, 5 October 2001
Note: * current prices

In the early 1990s nearly 3000 firms were involved in some aspect of domestic defence production, either as contractors, subcontractors or suppliers (Batchelor & Willett, 1998). In recent years most of the larger companies have also pursued strategies of vertical integration, by reducing the amount of work they subcontract to other firms. This has contributed to many firms exiting the defence market, or being absorbed by the larger defence companies.

The total number of people employed in the local defence industry has declined from over 130,000 in the late 1980s to less than 50,000 at present. At least 20,000 are directly employed in defence production, including around 10,000 in Denel, the largest local company. Indirect employment (e.g. suppliers, subcontractors) accounts for a further 30,000 jobs (Batchelor & Dunne, 2000).

Most local defence firms have attempted to diversify or convert some, or all, of their defence activities (in terms of physical plant and products) in order to reduce their dependence on the domestic defence market. This strategy was pursued quite vigorously in the early 1990s, and included joint ventures, acquisitions, and/or mergers with civilian firms, the purchase of existing non-military product lines, and the development of civilian products using existing defence technology and production facilities (such as spin-offs) (Batchelor, 1998). However, since the mid-1990s the strategy of diversification/conversion has become much less popular, because it is perceived as difficult and expensive (Batchelor et al 2000). In the absence of explicit government support for a national diversification/conversion strategy, most local defence firms have pursued a 'market-led' approach to diversification and conversion. This has resulted in mass retrenchments, declining productivity and profitability, and a loss or wastage of scarce human, financial and technological resources. As a result most of the opportunities for defence industry conversion, which existed in the early 1990s, have disappeared (Batchelor et al, 2000; Abrahams, 2001).

Those companies that have survived the downsizing and rationalization of the local defence industry, and are still involved in some aspect of defence production have attempted to concentrate their activities on particular niche markets and/or products. Since 1994, as a result of the lifting of the UN arms embargoes and South Africa's political rehabilitation, defence firms' adjustment strategies have tended to focus on finding new export markets and pursuing international interactions with foreign defence firms.

3. The globalization of South Africa's defence industry

In the decade since the end of the Cold War world military expenditures have declined quite dramatically in real terms. However, in 1999 the global trend towards declining military spending bottomed out, and began to be reversed, fuelled by increased military expenditures in the US, and to a lesser extent in Russia, as well as by increases in military spending in some developing countries (BICC, 2001, p. 35).

These cuts in military expenditure led to a process of rationalization, consolidation and concentration in the global defence industry. Total employment in global arms production has declined by more than half since the late 1980s (BICC, 2001). Despite the fact that global military expenditures have begun to rise again in recent years, employment in arms production has continued to decline. At the same time the industry has become increasingly concentrated, as a result of mergers and acquisitions. For example, the world's five largest defence companies, ranked by defence sales, doubled their share of combined arms sales between 1990 and 1998 (SIPRI, 2000, p. 318).

Since the end of the Cold War, the global defence industry has become increasingly globalized, although the process of globalization in the defence sector is still much less advanced than in many other industrial sectors (BICC, 2001). This process of globalization has involved increasing transnational defence industry co-operation, and has been particularly marked within Europe, and between a number of European and US producers (BICC, 2001, SIPRI, 2001).

These global trends did not have much of an impact on South Africa's defence industry before the lifting of the UN arms embargoes in 1994. However, since then, their impact on the local defence industry has been fairly dramatic, both in terms of supply and demand.

On the supply side, for the first time in almost 20 years the SANDF has the option to purchase defence equipment from foreign suppliers, as opposed to relying almost exclusively on local suppliers. This had imposed significant cost premiums as a result of a lack of economies of scale in the domestic market. At the same time local defence firms gained access to foreign markets for imports (either off-the-shelf products or inputs/technology for domestic production).

On the demand side the declining defence budget has had a dramatic impact on domestic demand for defence products. However, the opening of foreign defence markets to local defence firms has offset to some extent the decline in domestic demand. While South Africa's defence firms have benefited from gaining access to foreign markets, they did so at a time when most global defence markets were significantly depressed. At the same time they also discovered the significant barriers to entering foreign defence markets, and that they would have to become much more competitive in terms of price, product and service if they wished to compete with well-established foreign suppliers.

3.1. South Africa's Response

Many of the global trends described above have been mirrored in South Africa, with some local variations, and with some time lags. In the last decade the country's defence industry has been through a painful process of rationalization, which has resulted in a more concentrated and consolidated local defence industrial base (Batchelor & Dunne, 1998). Since the mid-1990s the local defence industry has become more globalized, in response to both domestic and international developments, and it is now firmly part of the global defence industry. This process of defence industry globalization has been actively encouraged, and supported, by the current South African government.

3.2. Government Policy

Since the election of the African National Congress (ANC) in 1994, government policy on defence matters, including policy on the domestic defence industry, has evolved quite rapidly. Both the White Paper on Defence (1996) and the Defence Review (1998) contain significant references to the local defence industry. However, the most comprehensive statement of government policy towards the defence industry can be found in the White Paper on the South African Defence Related Industry (1999).

Government policy towards the local defence industry is aimed at promoting 'limited self-sufficiency' combined with drawing the maximum economic and social advantage out of defence expenditure. Using a range of policy measures, the government aims to encourage, and support, the globalization of the local defence industry, thereby helping to maintain many of the industry's industrial capabilities and technologies in the face of declining levels of defence expenditure, and other more pressing government spending priorities (e.g. education).

The South African government actively supports the globalization of the South African economy. During a speech in 2000 President Mbeki argued that globalization was not only 'irreversible' but could also offer developing countries an opportunity for faster growth and wealth creation (quoted in Engineering News, 14 July 2000). In this context the government also actively supports the globalization of the local defence industry. To this end it has developed a range of policies on: i) industrial participation, ii) exports, and iii) international interactions (e.g. joint ventures). All of these policies are aimed at encouraging and supporting the globalization of the local defence industry.

In addition, since 1994, South Africa has also signed 86 government-to-government defence agreements with more than 50 countries.[5] At least 20% of these agreements have a specific defence industry/defence technology component.

3.2.1. Industrial Participation

A key element of the South African government's efforts to support the globalization of the local economy, including the defence industry, has been the development of a policy on defence offsets, or 'industrial participation (IP), as it is officially referred to in South Africa. In April 1997 cabinet approved National Industrial Participation (NIP) policy and operating guidelines for all government departments and state-owned companies, to be administered by the Department of Trade and Industry (DTI). All government purchases or lease contracts (goods, equipment and services) with an imported content equal to or exceeding US$ 10 million (or the equivalent thereof) are subject to an IP obligation. The IP obligation must

[5] These figures are as at 1 October 2001. More than 70 government-government agreements are currently under development. Information from South African Defence Secretariat.

equal or exceed 30% of the value of the imported content of the purchase or lease and must be fulfilled within 7 years.

For Department of Defence (DoD) purchases, the value threshold is US$10 million (or equivalent). Unlike with other government departments the Defence Industrial Participation (DIP) obligation is 100% split equally between national (i.e. non-defence) and defence priorities and managed separately by DTI and Armscor. The DoD also has an in-house DIP programme, fully managed by Armscor, on all purchases between US$2 million – US$10 million. The DIP obligation for these purchases is 50% of the value of the contract above US$2 million, and 100% for purchases above US$5 million. The discharge period for all DIP obligations is 7 years. A penalty of 10% is levied on the unfulfilled portion of DIP obligations for contracts worth US$10 million or more. Armscor levies a penalty up to 30% on the unfulfilled portion of DIP obligations for contracts worth between US$2 million and US$10 million.

In late 1999 the South African government was able to implement this NIP policy with respect to the SANDF's procurement package, which included 5 components: corvettes, submarines, light utility helicopters, jet trainers and light fighters (see Table 4). The 6th component of the package, the procurement of 4 maritime helicopters for the corvettes was postponed (GCIS, 15 September 1999).

Table 4. SANDF Strategic Procurement Package, 1999

Programme	**Number of Units**	**Supplier**	**Cost**
Tranche 1:			
Corvettes (Meko A200)	4	Consortium (Germany)	
Submarines (Type 209)	3	Consortium (Germany)	
Light Utility Helicopters (Agusta A109)	30	Agusta (Italy)	
Jet Trainer (BAE Hawk)	12	BAE Systems (UK)	
Light Fighter (BAE/SAAB Gripen)	9	BAE Systems/SAAB (UK/Sweden)	
Total: Tranche 1			**R21,3b**
Tranche 2:			
Jet Trainer	12	BAE Systems (UK)	
Light Fighter	19	BAE Systems/SAAB (UK/Sweden)	
Total: Tranche 2			**R8,6b**
Total: Tranche 1& 2			**R29,9b**

Source: GCIS, 15 September 1999

The total direct cost of the procurement package is estimated at R29,9 billion (US$5 billion in 1999 prices and exchange rates) to be paid out over a period of at least 8 to 14 years.[6] The equipment will be delivered between 2000 and 2008. The total IP commitments (DIP and NIP) are valued at R104 billion (more than 300% of the total purchase price), although the actual economic benefits deriving from these commitments is expected to amount to almost R70 billion over a period of 11 years (GCIS, 15 September 1999).

[6] The figure for the procurement package in 2001 prices is now estimated at R37 billion, although some sources outside of government estimate the package to be worth R50 billion in current prices (Engineering News, 17 May 2001).

The IP commitments are divided into 3 categories:

i) **direct offsets**: defence related offsets (about 20% of the total, or R14,5 billion) including direct purchases from the local defence industry (R4 billion); technology transfers (R3 billion) and export orders for local defence firms (R7,5 billion);
ii) **indirect offsets**: counter-purchase by the foreign defence suppliers of non-defence goods and services from South Africa (about 45% of the total, or R31 billion);
iii) **inward investment**: into South Africa's defence and non-defence industries by the foreign defence suppliers and other companies associated with the suppliers (about 35% of the total, or R24 billion). (GCIS, 15 September 1999).

3.2.2. Exports

During the apartheid era South Africa acquired a reputation as an unscrupulous arms exporter (Batchelor & Willett, 1998). The country's success as an arms exporter was largely a function of the fact that it emerged as a 'willing exporter to a number of nations who for one reason or another (were) cut off from military business with the leading Western arms producers' (Landgren, 1989, p. 12). However, since 1994, the country has been forced to become a more responsible, and more transparent, arms exporter. As a result of the Apartheid legacy of embargo-busting, and a major arms trade scandal in 1994, the government has developed new policies and procedures to deal with arms exports. These have included the creation of a new 4-tier regulatory system that approves all import/export permits, and the establishment of a cabinet-level committee, the National Conventional Arms Control Committee (NCACC) to oversee and approve all South Africa's arms exports (Batchelor, 1999).

Government policy on arms exports is spelt out in the White Paper on Defence (1996) and the White Paper on the South African Defence Related Industry (1999). Both of these policy documents state that the local defence industry must have access to international markets 'in order to facilitate cost-effective performance and reduce the unit costs of producing items for the SANDF' (White Paper on Defence, 1996, Chapter 8, para 4). They also state that government has a role to play in supporting the industry's export initiatives.

These policy documents also contain specific principles and guidelines governing South Africa's trade in conventional arms. These principles include the UN Charter, international law, and a balance of economic, ethical, political, military and security considerations. New legislation, concerning the functioning of the NCACC, and including the principles and guidelines contained in the two White Papers, is currently being prepared. However, early drafts of the new legislation suggest that the government is trying to water down its previous commitment to transparency, and allow government to operate without parliamentary accountability when buying and selling weapons (Mail and Guardian, 1 September 2000). In terms of its current policy on transparency in armaments, South Africa makes regular submissions to the United Nations Register of Conventional Arms, and publishes an annual arms export report which gives the details (by value and destination) of South Africa's arms exports in a number of categories.

The current ANC-led government is an active supporter of the defence industry, and President Mbeki and various cabinet ministers often assist in the industry's export and marketing initiatives. The 1999 White Paper on the Defence Related Industry states that government will assist with the international marketing of armaments and support specific marketing initiatives by the local defence industry. State resources are also used to maintain the country's defence export infrastructure. A portion of Armscor's operating subsidy from the defence budget is used to provide international marketing support, to host local defence exhibitions, and to assist the participation of South African defence firms at international defence exhibitions. Cabinet ministers also use their overseas visits to promote South African defence products. A Marketing Support Organization (MSO) has been established at Armscor to assist with the defence industry's export initiatives. The MSO facilitates the loan and use of SANDF equipment and facilities, as well as the secondment of SANDF personnel to industry for marketing purposes (Armscor Annual Report, 2001).

While the government actively supports the defence industry's export initiatives, according to its own policy guidelines, it also has to exercise due restraint in the transfer of conventional arms by taking into account factors such as respect for human rights, South Africa's international commitments, the security situation of the recipient country, and the degree to which arms sales are supportive of South Africa's national and foreign interests. The practice, in recent years, has been for South Africa's national and foreign interests (mainly economic benefits and political leverage) to be the overriding factors when deciding whether to approve arms exports. In trying to balance its support for winning export orders, while at the same time exercising restraint and responsibility, government has often been accused of a lack of restraint and responsibility (Human Rights Watch, 2000).

3.2.3. International Interactions (joint ventures)

The ANC-led government has acknowledged that it does not have sufficient resources to maintain all the required strategic technologies and capabilities in the local defence industry, as identified in the 1999 White Paper. In this context, it has stated that the only way to sustain, or develop, these technologies and capabilities is through exports and international interactions. The 1999 White Paper therefore states that the South African government 'will encourage and support joint ventures between local and foreign defence firms.'

Government support for the local defence industry's international interactions is however, circumscribed. The government must approve all joint ventures between local and foreign firms, which involve the transfer or alienation of strategically essential technologies and capacities, as identified in the 1999 White Paper. The sale of South African defence firms (including equity sales) to foreign purchasers requires the prior written approval of the Minister of Defence, particularly if such sales will result in the transfer or alienation of state-owned technology from the South African industry to the foreign purchaser (White Paper, 1999, Chapter 7).

3.3. Industry Responses

South Africa's defence industry has become increasingly globalized in recent years, and since the mid-1990s local firms have embraced international interactions (e.g. joint ventures) as a key element of their adjustment strategies. For most firms the focus has been on finding new export markets, and increasing the depth and breadth of international interactions (inward investment, joint ventures, technology transfers, subcontracting) with foreign partners. All of these strategies have been given a massive boost by the IP obligations associated with the SANDF's procurement package. In addition to government, AMD, the defence industry association, has played a key role in facilitating local firms' foreign interactions.

3.3.1. Exports

Without exception, all of South Africa's defence firms have pursued export markets quite aggressively since the early 1990s, and particularly since the lifting of the UN arms embargoes in 1994. Armscor's international marketing efforts, the presence of South African defence firms at international defence exhibitions, and high level support from the ANC-led government have all helped with the industry's export drive.

The value of South Africa's arms exports has fluctuated quite widely since the early 1990s, largely as a result of the 'lumpiness' of export contracts (see Table 5). However, the value of arms exports witnessed average growth of nearly 40 percent between 1990-2000, compared to less than 10 percent for merchandise exports (Batchelor et al, 2000). In 1993 the country registered a surplus in its arms trade balance for the first time ever (Batchelor & Willett, 1998). During the period 1993-1996, the country was ranked as the world's 11th largest supplier of arms, based on the value of arms transfer agreements (Grimmett, 2001).

Table 5. South Africa, Arms Exports, 1990-2000
Figures are in Rand Million in 1990 prices.
Figures in italics are percentages.

Year	Total Arms Exports	% change
1990	163	-31
1991	700	329
1992	382	-45
1993	625	63
1994	550	-12
1995	613	11
1996	283	-54
1997	672	137
1998	307	-54
1999	490	60
2000	546*	11
Average 1990-2000	**485**	**38**

Sources: Armscor Annual Report (various years), NCACC
Note: * estimate

For many local defence firms, exports now represent a significant, and in some cases, dominant share of turnover, and profit. In 1992 17% of Denel's turnover was accounted for by exports (both defence and non-defence). By 2000 the figure had increased to 46% (Denel Annual Report, 2001). For a company like Fuchs (part of Reunert), exports account for 100% of turnover (Reunert Annual Report, 2001).

Since 1994 South Africa has supplied arms to more than 80 countries, and to the United Nations (for peacekeeping operations). Most of South Africa's exports are concentrated in a number of key areas: ordnance (small arms and light weapons, small and medium calibre ammunition), land systems (long range artillery, armoured personnel carriers, mine protected vehicles, mine-clearance systems), aerospace (RPVs, missiles) and electronics (avionics, electronic warfare, communication equipment). South Africa's largest export customer, by value, is India.[7] Other major customers, by value, in declining order include Algeria, Switzerland, United Arab Emirates, Colombia, Singapore, Thailand and Pakistan. The US has not been a major recipient of South Africa arms exports.

The SANDF's procurement package has had a significant impact on the value, and direction, of South Africa's arms exports. Some of the European suppliers have been 'encouraged' to purchase South African defence products in favour of their own products, despite criticism from their domestic defence industries. In reality most of these export contracts have helped the European suppliers to fulfil their DIP obligations. In addition to acting as 'recipients' of South African arms exports, many of the European suppliers have also helped local defence firms to bid for, and win, foreign defence contracts. Local firms are also hoping to use their 'foreign partners' to help them win export orders in new markets, and/or markets that have previously been closed to South Africa (e.g. the US). Some examples of recent export contracts are provided below.

In early 1999 Denel's Somchem division was awarded a R1 billion (US$200 million) contract to supply fuses for the AS90 155mm howitzer guns used by the British peacekeeping forces in Bosnia (Business Day, 6 January 1999). In late 2000 a similar contract was signed with Denmark for Somchem's M90 bi-modular charge system (BMCS) for the Danish Army's 155 mm gun-howitzers (Denel Corporate Affairs Department, 14 November 2000).

In September 2001 Denel's PMP division signed a contract worth R225 million (US$29 million) with RO Defence, a division of BAE Systems, to supply cartridge components for the manufacture of small and medium calibre ammunition over 5 years. The ammunition will be supplied to the British Armed Forces (Defence Systems Daily, 28 September 2001).

In late 1998 Grintek was awarded a R56 million contract to supply audio-management systems for the Gripen fighter aircraft (Business Day, 16 November 1998). This was followed by an export contract in March 1999 from Ericsson Saab Avionics worth R6,2 billion to develop and produce electronic sub-systems for the Swedish Air Force's next batch of 64 Gripens due for delivery in 2003 (Business Report, 26 March 1999).

Analysis, Management and Systems (AMS) were awarded a R10 million contract to supply health and usage monitoring systems (HUMS) for the sale of BAE Hawk jet trainers to the NATO flying school in Canada in 1999. This contract was a follow up to a contract to supply HUMS for Hawk jet trainers bought by the Australian Air Force in 1998 (Business Report, 27 August 1999). AMS is now also the preferred bidder for a HUMS system for Hawk jet trainers that are being offered to the Indian Air Force (Engineering News, 19 January 2001).

Despite some recent large export orders (e.g. Malaysia's recent purchase 22 G5 155m towed artillery systems worth US$50 million from Denel), the country's defence firms have to date not been forced to offer substantial 'offsets' to the recipients of South African arms exports. As a result of export contracts local firms might be obliged to sub-contract production to foreign firms, or purchase defence and non-defence goods and services from the purchasing country. If this proves detrimental to the South African economy, and the local defence industry, this may prompt government and local firms to re-evaluate the potential 'benefits' from arms exports.

[7] The local industry also has a number of large contracts that involve the upgrade of foreign weapons systems for foreign clients - e.g. ATE is involved in upgrading Spain's F1 Mirages.

3.3.2. Inward Investment

Since 1994 a number of foreign, mainly European, defence companies have invested in local defence companies. Most of this inward investment has involved equity purchases, rather than fixed investment in capital and plant, and has been concentrated in the 6 largest local defence companies - Denel, Reunert, Grintek, ADS, ATE, Vickers OMC and few other smaller companies. Since 1998 this inward investment has accelerated, largely as a result of the IP obligations associated with the SANDF's procurement package. Most of this investment has been concentrated in those companies that are directly linked (as sub-contractors or suppliers) to the arms purchases from countries such as Britain, Germany, Italy, and Sweden. However, in some cases it is also part of larger initiatives by European governments to promote increased trade and investment between South Africa and themselves.

BAE Systems, previously British Aerospace, is the majority shareholder in Paradigm Systems Technology, a Gauteng-based software company. In 1997 it acquired a 20% equity share in Advanced Technologies and Engineering (ATE), a Gauteng-based aerospace company (Business Day, 9 December 1998).

In February 1999 Altech sold the remaining 50% of its defence business (African Defence Systems) to the French company Thomson CSF (now Thales CSF), which had purchased an initial 50% equity in the company in March 1998 (Business Times, 28 February 1999). Thales CSF is now the majority shareholder in ADS, while a local company, Futuristic Business Solutions (FBS) is the minority shareholder.

In March 1999 Swedish company Celsius (now SAAB AB) purchased 49% of Grintek Avitronics, part of Grintek, for R30 million (Business Day, 1 March 1999). In 1999 DaimlerChrysler Aerospace (now EADS) acquired 33% of Reutech Radar Systems, which is part of Reunert. In late 1999 Vickers, the UK engineering firm, purchased Reumech OMC, the armoured vehicle division of Reunert (Business Day, 9 September 1999).

The most significant inward investment in the local defence industry took place in early 2002 as a result of the partial privatisation of Denel. In October 2002 the South African cabinet had approved BAE Systems, Snecma/Turbomeca and Pains Wessex Defence as Denel's preferred strategic equity partners.

In early May 2002 Snecma/Turbomeca purchased 51% of the equity in Denel Aviation's Airmotive division (Defence Systems Daily, 17 May 2002). The government will retain the other 49% equity plus a 'golden share'. The company, which will be renamed Turbomeca Africa, has an annual turnover of R300 - R400 million (US$30-40 million) and manufactures aero-engine parts for Turbomeca, General Electric, Rolls Royce and Volvo.

Later in the same month, BAE Systems Plc acquired a 30% strategic equity stake in the Denel Group (in both aerospace and ordnance divisions) for R375 million (US$37 million) (Defence Systems Daily, 17 May 2002). The government will retain the remaining 70% equity, plus a 'golden share'. At the time of the announcement, BAE Executive Director Stuart McIntyre stated "this strategic relationship with Denel brings the South African manufacturer into BAE Systems' broad-based aerospace and defence industrial family and represents a further expansion of BAE Systems' global presence" (quoted in Defence Systems Daily, 17 May 2002). Talks are still underway between government and Pains Wessex Defence of the UK becoming an equity partner for Denel subsidiary, Swartklip.

3.3.3. International Agreements (joint ventures)

Linked to this inward investment have been a growing number of international agreements, including joint ventures, between local and foreign defence firms. In 1996 the members of the South African Defence Industry Association (SADIA) had a total of 93 joint ventures and/or alliances with firms in over 20 countries, the majority with companies in the UK (26), France (12), the USA (9), Germany (9) and Malaysia (9).[8] In recent years, and particularly as a result of the SANDF's procurement package, the number of joint ventures has increased significantly. Most of the joint ventures are concentrated in the aerospace, telecommunications, electronics and naval sectors. European companies from France, Germany, Italy, Sweden and the UK are the dominant international partners for the local defence industry in these joint ventures.

The US remains largely absent as an international partner for the South African defence industry. This is because of the Armscor court case, in which a number of South African defence firms were accused of UN arms embargo violations in the US during the Apartheid era, and which was only resolved in 1998. As a result of this court case, the US arms embargo against South Africa remained in place until late 1998. Thus, US firms were barred from tendering for the SANDF's procurement package (Business Day, 13 December 1998),

Not all the defence industry's international agreements are with European companies. Denel Aerospace has developed a number of joint ventures with companies in Malaysia (e.g. Airod). Denel has also expressed interest in purchasing equity in Defence Industries Corporation of Nigeria (DICON) (Business Day, 21 February 2001).

Many of these joint ventures also involve technology transfers and technology sharing. This has allowed South African defence firms to become part of these foreign firms' global supply chains, as well as maintaining, and developing, their R&D and technology base. Some examples of these joint ventures are provided below. They highlight the dominant position of European companies such as BAE Systems and EADS.

In 1998 Grintek and GEC Marconi (now part of BAE Systems) entered into a joint venture, in which Grintek produces subsystem components for telecommunications products, which GEC-Marconi sells globally (Business Day, 7 May 1998). EADS (formerly DaimlerChrysler Aerospace), Reunert and Kgorong Investment holdings have a joint venture in Reutech Radar Systems (part of Reunert) which designs and manufactures land and sea based radar equipment. Since 1999 Grintek Comms (part of Grintek) has had a joint venture with EADS (formerly DaimlerChrysler Aerospace) to develop and market a new range of high frequency (HF) communication systems. Grintek Systems Technologies (part of Grintek) has a co-operation agreement with EADS subsidiary, Ewation GmbH, to develop and market a new signal intelligence system called MRCM. It also has a joint venture with EADS to develop and market electronic warfare products.

3.3.4. Local purchases/sub-contracting

[8] SADIA was renamed the South African Aerospace, Maritime and Defence Industries Association (AMD) in 1996. AMD represents approximately 95% of local defense firms on the first two levels of contracting in the system hierarchy.

For a number of years some local defence firms have been acting as sub-contractors to various foreign defence firms. In terms of their IP obligations, all the main European suppliers of the SANDF's procurement package have to purchase inputs (e.g. components, subsystems) from the local defence industry. As a result, some local defence companies, mainly in the maritime, naval shipbuilding and aerospace sectors and sub-sectors have become sub-contractors for the European suppliers. In some cases they have also become part of these companies' global supply chains, and thus sub-contractors or suppliers for other markets. Some examples of local purchases and sub-contracting are provided below.

Denel Airmotive has recently negotiated contracts with Rolls Royce plc (UK) and General Electric (US) to manufacture components for gearboxes for commercial and military aircraft engines (Engineering News, 23 March 2001). Denel Airmotive has been a risk and revenue sharing partner with Rolls Royce since 1993, and since then has delivered hundreds of aero-engine accessory gearboxes worth R245 million (US$24 million) (Defence Systems Daily, 7 February 2002).[9] ATE has a contract with Thales CSF to upgrade Spain's F1 Mirages.

Both the Meko A200 Patrol Corvettes, and the Type 209 submarines are being built in Germany. However, various local companies including ADS, Tellumat, Reutech Radar Systems, Grintek, M-Tek, Kentron, and LIW are involved as sub-contractors for both the corvettes and the submarines. ADS are responsible for the combat suites for the corvettes.

Local companies such as Denel Aerospace, Grintek, Tellumat and AMS are involved as sub-contractors for the BAE Systems/SAAB Gripen light fighter, which will be manufactured in Sweden, but will incorporate a number of local sub-systems (e.g. EW system, comms system). Some of the weapons systems (missiles, bombs) for the Gripen will be provided by local companies including Kentron (part of Denel) and Reutech Defence Industries.

A wide range of local companies, including Denel Aerospace, ATE, Sextant, Grintek, Reutech Defence Industries and Tellumat, are also involved as sub-contractors for the BAE Systems Hawk jet trainer, which will be manufactured in the UK. ATE is responsible for the avionics suite for the Hawks, under a R500 million contract with BAE Systems. Denel Airmotive (now Turbomeca Africa) will manufacture significant engine components for the Rolls Royce Adour engine, which will be used in the Hawks. As part of BAE Systems IP obligations, Turbomeca Africa will also test and assemble the Adour engine and provide specialist repair and overhaul services for the South African Air Force (Defence Systems Daily, 7 February 2002).

Many local companies, including Denel Aerospace, ADS, Grintek, Tellumat, and Kentron will be involved as sub-contractors for the Agusta A-109 light utility helicopter. The first 5 helicopters will be manufactured at the Agusta plant in Italy, with the remainder being manufactured in South Africa by Denel Aerospace.

By April 2001, foreign suppliers had given R1,6 billion worth of contracts to local defence companies for work associated with the SANDF's procurement package. This represents nearly 10% of the original DIP commitments, which were estimated at R14,6 billion in 1999 prices and exchange rates (Armscor Annual Report, 2001).

Section 3. Conclusion

[9] Rolls Royce plc signed a strategic partnership agreement with South Africa's Department of Trade and Industry in early 2000 as part of Britain's NIP obligations.

South Africa's defence industry cannot escape the global processes of rationalization, concentration and/or globalization that are underway in the global defence industry, and are likely to accelerate in the next decade. In the next 5-10 years South Africa's defence industry is likely to become smaller and more concentrated, as those firms that cannot win export orders, or are not involved in the SANDF's procurement package are forced to exit the market. It is also likely to become more integrated at a national level as most of the remaining defence firms, both big and small, work together almost exclusively on the SANDF's major procurement projects.

Finally, it is also likely to become more globalized, particularly as a result of the (partial) privatisation of Denel, the links with foreign strategic equity partners like BAE Systems and Snecma/Turbomeca, and the growing local presence of foreign firms such as EADS and Thales CSF. Despite becoming more globalized, it is unclear at this stage whether the local industry's links with the US defence industry will be strengthened, and what presence, if any, US defence firms will have in the local defence market in the coming years. Certainly, most South African defence firms are only likely to gain access to the US defence market through their European partners, particularly firms like BAE Systems.

The local defence industry, as a result of the SANDF's procurement package, which is likely to last for the next 8-10 years, will retain some of its core capabilities (e.g. systems engineering and systems integration for upgrading weapons systems), and will continue to produce some niche products, mainly at the sub-system and components levels. Some local firms will become integrated into the global supply chains of large multinational defence firms (e.g. BAE Systems, EADS), and in some cases will act as sub-contractors for these large firms. In this way the local defence industry will be able to maintain its access to foreign technology, and new technology developments.

A number of key challenges will confront South Africa's defence industry in the coming years. Internationally, defence firms are trying to reduce the growing size and complexity of defence offset arrangements, as the cost of offsets has spiralled out of control in recent years (Defence News, 29 October 2001). In South Africa there have been extensive allegations of corruption surrounding various aspects of the SANDF's procurement package.[10] These allegations have called into question the integrity of decision-making processes in the DoD and Armscor. Various local and foreign commentators have also questioned some of the purported economic benefits of the SANDF's procurement package (Batchelor & Dunne, 2000). As a result of these international and local developments, the government may be forced to re-evaluate its NIP policies.

Because of other government spending priorities, there is unlikely to be any more public money for large SANDF procurement projects in the next decade. As a result some of the industry's most internationally competitive capabilities, particularly in land systems, might be lost. In this context, the local defence industry, like in many other developing countries, may become more dependent than ever on the first-tier, or developed country, defence producers for critical technologies, components, capital and even jobs. This will certainly threaten the country's 'strategic independence' and undermine its 'smart buyer' capability. It may also transform the local industry as a whole into nothing more than part of the major European and/or US defence firms' global supply chains.

[10] For details of these allegations of corruption see www.idasa.org.za/pims

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