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PROBLEMS AND PROSPECTS OF THE MINING SECTOR OF THE S.A.D.C.C

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I. Introduction

Mining and the history of southern Africa have long been closely intertwined. The first widespread iron smelting occurred with the arrival in the region of the Bantu-speaking people two thousand years ago. Ancient iron slag heaps are to be found over the length and breadth of the sub-continent.

By the twelfth century the Archaean Schistbelts (Goldbelts) of Zimbabwe were supplying gold to the world market via the Arab traders on the East Coast and it is considered that the region was the world's largest source of gold at this time. For the next seven hundred years gold mining was an essential part of the Imperial economy of the Great Munhumutapas. During this period copper and tin mining and smelting were also fairly widespread.

Copper was mined and smelted in numerous locations on the Copperbelt of Zambia/Zaire as is borne out by the many ancient workings on oxidized deposits particularly in the Katanga (Shaba) area. By the 16th Century copper was being extensively traded as ingots in the form of a St Andrews Cross and it is estimated that over 100,000 tonnes of copper were produced before colonial exploitation commenced.

First written reference to mining on the Copperbelt was in 1591 by Filippo Pigafetta in Rome based on information from a Portuguese traveller, Edoardo Lopez. The ingots were traded via the Arabs on the east coast who had trading outposts as far down as Sofala (Beira) in Mozambique. This lucrative trade in copper, gold, ivory and slaves was later taken over by the Portuguese.

More recently, in the 19th Century, European colonial subjugation of the region was carried out primarily for access to the sub-continent's vast mineral wealth and in some cases huge areas were actually colonised by mining companies. The existing regional rail network still reflects the predominance of mining in the penetration and development of the region over the last century in that almost all of the railway lines connect mining areas with the coast (see map).

II. Background to the SADCC

Until 1975 the southern African region was dominated by the settler/colonial states of South Africa, which also occupied Namibia, Rhodesia and the two Portuguese colonies of Mozambique and Angola. The three ex-High Commission Territories of Lesotho, Swaziland and Botswana, were all tiny compared to the settler/colonial block (their total population was about two million) and in addition, they were totally tied into the South African economy through the SACU (Southern African Customs Union).

In April 1974, due to the economic pressure on Portugal brought about by its colonial wars, the fascist regime of Caetano in Lisbon was overthrown by the armed forces movement (MFA) which was followed by the independence of Mozambique and Angola in 1975, though not before a South African invasion of Angola, in August 1975, had been defeated with the help of Cuban troops. The geopolitical situation of the region had been irrevocably changed.

The first significant collaboration of the independent states of the region was the formation of a loose grouping called the "Frontline States" principally to coordinate efforts in the struggle to liberate Zimbabwe. This grouping was made up of Botswana (led by the late Sir Seretse Khama), Tanzania (under Julius Nyerere), Zambia (Kenneth Kaunda), Mozambique (the late Samora Machel) and Angola (the late Agostinho Neto).

The independence of Mozambique brought about a greatly increased area from which the Zimbabwean nationalists could infiltrate their country and consequently,the war against the rebel Smith regime escalated rapidly. Early in 1980 the Smith regime capitulated and Zimbabwe became independent. The independence of Zimbabwe was vital for the formation of the SADCC due to its location in the centre of the grouping with the most important rail routes going through it (see map).

In July 1989, southern Africa celebrated the tenth anniversary of the summit of Heads of State in Arusha, Tanzania, that laid the foundations for the formation of the Southern African Development Coordination Conference (SADCC). This regional initiative was formally established the next year in April at the Lusaka Summit in Zambia. The SADCC comprises nine southern African states namely, Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe. It is anticipated that the formal tenth anniversary of the SADCC will be celebrated in 1990 with the admission of its tenth member state, Namibia, when it is finally free of South African occupation.

The SADCC was a natural outgrowth of the regional cooperation that had been achieved to bring majority rule to Zimbabwe under the loose grouping of the "The Front Line States". At the Arusha meeting agreement was reached on the basic objectives of the

organisation which were later adopted as the "The Lusaka Declaration" of 1st April, 1980. The document,"Southern Africa: Towards Economic Liberation", outlines the fundamental aims of the SADCC. Four principal development objectives are set out:

1) The reduction of economic dependence, particularly, but not only, on the Republic of South Africa.

2) The forging of links to create a genuine and equitable regional integration.

3) The mobilisation of resources to promote the implementation of national, interstate and regional policies.

4) Concerted action of secure international co-operation within the framework of the strategy for economic liberation.

The formation of the SADCC in 1980 should also be seen in the light of South Africa's bid for regional hegemony at the same time with the launching of the CONSAS concept. The Constellation of Southern African States (CONSAS) was envisaged by the Apartheid regime as a means of increasing its control over the region through economic dominance and thereby curtailing the activities of the African National Congress (ANC), the principal South African liberation movement, in neighbouring territories. In addition they also hoped that CONSAS would give credibility to the South African "bantustans" as it was envisaged that the independent ones would be full members of CONSAS.

With the formation of the SADCC, CONSAS imploded into itself as all that remained of it was South Africa and its bantustans. Not even the SACU (South African Customs Union) states could be enticed to join. The South African, Development Bank of Southern Africa (Debsa), is a surviving remnant of CONSAS. It now funds projects in South Africa's bantustans, but was set up as the carrot to lure the independent states of the region into the CONSAS fold.

The first priority of the SADCC was the rehabilitation of the war-ravaged transport and communications sector, particularly the regional railway network and the ports, and to this end the Southern African Transport and Communications Commisssion (SATCC) was created, with its headquarters in Maputo, to coordinate the regional programmes. The independence of Zimbabwe was vital for the freeing of the regional rail system due to its geographic position (see map).

In general the SADCC has avoided the problems of earlier regional bodies by not creating a large and costly bureaucracy. The SADCC secretariat, located in Gaborone, is a small outfit comprising but a handful of full-time employees. Moreover, since its formation, the SADCC had created various sectoral

coordinating units, each the responsibility of one of the member countries, such as the SATCC in Maputo, the Industry Unit in Dar es Salaam, the Energy Unit in Luanda and the Mining Sector Coordinating Unit in Lusaka.

A number of strategic areas were identified within which activities for economic development could beneficially be undertaken on a regional basis and responsibility was allocated to individual governments for specific sectors. The particular government, to whom sectoral responsibility was allocated, as listed below, became the prime mover for SADCC programmes in that sector, including the establishment of consultative machinery with other governments and the procurement of appropriate technical expertise.

Country	Responsibility
Angola	Energy
Botswana	Agricultural research
Lesotho	Land utilisation, Soil conservation and Tourism
Malawi	Wild life, Forestry and Fisheries
Mozambique	Transport and Communications
Swaziland	Manpower
Tanzania	Industry
Zambia	Mining
Zimbabwe	Food security

A summit meeting is held annually and is attended by heads of state and government or their representatives. A Council of Ministers with representatives at ministerial level, is held at least twice a year. In addition, special meetings are held to coordinate regional policy in a particular field by, for example, the Ministers of Mines, the Ministers of Transport and Communications, etc...

III. The Regional Grouping

The SADCC grouping as a whole has experienced the worst economic crisis since the Second World War from the onset of the Global Crisis in the early eighties. This is due to the fact that their economies are *vertically* linked to the economies of developed countries, in that they are suppliers of *primary commodities*, principally *minerals*, and purchasers of *manufactured goods*, the most important of which are *capital goods*, particularly for the production of their primary commodities and their infant manufacturing sector. Due to this vertical linkage, their economies experienced more severe dislocation with the collapse of *real* prices of their primary commodities in the early and mid-eighties. During 1988 and 1989 prices have rallied somewhat, particularly for minerals.

In addition to the problems associated with the Global Crisis, the SADCC has also experienced a sustained undeclared war of *destabilisation* from the Apartheid Regime of the Republic of South Africa (RSA), particularly during the two terms of Ronald Reagan's presidency of the USA. Bandit groups have been sponsored by both the USA and the RSA to destabilise the region. This has caused the virtual collapse of the Mozambican economy, partial collapse of the Angolan economy, and severe strain on the interior states of the region.

It is within this context of crisis and destabilzation that we will look at the SADCC region as a whole and the role of the minerals sector within the regional economy and within the economies of the individual member states.

TABLE 1: SADCC, AREA & POPULATION 1980-88.

millions	AREA[1]	1980	1981	1982	1983	1984	1985	1986	1987	1988	Pop.D[2]
Angola	1247	7.6	7.8	8.0	8.2	8.4	8.8	9.0	9.1	9.4	7.5
Botswana	600	.9	.9	1.0	1.0	1.0	1.1	1.1	1.2	1.2	2.0
Lesotho	30	1.4	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.7	56.0
Malawi	118	6.0	6.2	6.4	6.6	6.8	7.1	7.3	7.5	7.7	65.6
Mozambique	799	12.1	12.6	12.9	13.3	13.6	13.8	14.2	14.5	15.1	18.9
Swaziland	17	.6	.6	.6	.6	.6	.7	.7	.7	.7	42.6
Tanzania	945	18.5	19.1	19.8	20.4	21.1	21.7	22.5	23.2	24.0	25.4
Zambia	753	5.9	6.0	6.1	6.2	6.4	6.7	7.0	7.3	7.6	10.1
Zimbabwe	391	7.4	7.6	7.6	7.7	8.0	8.2	8.4	8.6	8.9	22.7
SADCC:	4900	60.3	62.2	63.8	65.5	67.4	69.5	71.6	73.8	76.4	15.6
% Change			3.3%	2.6%	2.7%	2.9%	3.1%	3.0%	3.0%	3.4%	
Pop. Density people/km²		12.3	12.7	13.0	13.4	13.8	14.2	14.6	15.1	15.6	

[1]thousands of km², [2]population density. IMR SADCC Databank, 1989

The SADCC region stretches from the Equator in the north to the Tropic of Capricorn in the south and spans the breadth of Africa, from the Atlantic to the Indian Oceans. The total area of the grouping is just under 5 million km² (Table 1), more than twice the size of the EEC. Four countries, Angola, Tanzania, Mozambique, and Zambia, make up three-quarters of the SADCC land area and 73% of the region's population.

Since the formation of the SADCC in 1980, the regional population has increased by roughly 30% from sixty to nearly eighty million people with an annual increase of roughly 3% (Table 1). Overall population density has increased over the same period from 12 to around 16 persons per km². Within the region the density, in 1988, ranged from Malawi at 66 p/km² to Botswana at 2 p/km².

TABLE 2: SADCC, Gross Domestic Product[1], 1980-87

(GUSD)	1980	1981	1982	1983	1984	1985	1986	1987	GDP/c[2]	%[3]
Angola	3.6	4.1	3.6	4.2	4.7	4.8	3.9	5.2	569	195%
Botswana	.9	.9	1.0	1.2	1.2	1.1	1.3	1.5	1318	452%
Lesotho	.4	.4	.3	.4	.3	.3	.3	.4	222	76%
Malawi	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	173	59%
Mozambique	2.2	2.1	2.2	2.1	2.3	3.4	4.1	1.5	101	35%
Swaziland	.5	.6	.5	.5	.4	.3	.4	.5	753	259%
Tanzania	4.6	5.3	5.5	4.9	4.7	5.8	3.5	3.1	132	45%
Zambia	3.9	4.0	3.9	3.3	2.7	2.6	3.1	2.2	304	104%
Zimbabwe	5.5	6.2	6.8	6.1	4.9	4.7	5.3	5.8	675	232%
SADCC:	22.8	24.8	25.0	23.9	22.6	24.2	23.2	21.5	291	100%
GDP/capita:	379	398	391	365	334	348	325	291		
% Change		5.2%	-1.8%	-6.8%	-8.3%	4.2%	-6.9%	-10.2%		

[1]GDP at market prices, [2]GDP/capita, [3]% SADCC average for 1987.
Source: IMR SADCC Databank, 1989.

Gross Domestic Product (GDP) at market prices is presented in US dollars in Table 2 from 1980 through to 1987. It is calculated by converting the GDP in local currency to USD at the average exchange rate for that year. As several SADCC states have been forced to drastically devalue their currencies due to the economic dislocation brought about by the Global Economic Crisis, the yearly change in GDP in USD does not always accurately reflect the real value of their GDP in any one year, but the overall picture of economic stagnation, as depicted in Table 2, is still valid. Regional GDP in 1987, expressed in *current* USD, is lower than in 1980.

The average GDP per capita has fallen from 379 USD in 1980 to 291 USD in 1987. The variation between states is also considerable ranging from 1,318 USD/cap in Botswana (452% of the SADCC average) to 101 USD/cap in Mozambique (35% of the SADCC average).

TABLE 3: SADCC EXPORTS, TO RSA

(MUSD)	1980 Exports	1980 RSA	% RSA	1986 Exports	1986 RSA	% RSA
Angola	1883	0	0%	1300	0	0%
Botswana	527	35	7%	870	49	6%
Lesotho	60	25	41%	22	19e	86%
Malawi	281	9	3%	248	18	7%
Mozambique	281	31e	11%	79	4	5%
Swaziland	371	107	29%	269	90e	33%
Tanzania	574	0	0%	290	0	0%
Zambia	1298	7	1%	779	8e	1%
Zimbabwe	1442	246e	17%	1298	126	10%
SADCC:	6717	460	6.8%	5155	313	6.1%
% Change 1980-1986:			-11%			

eestimate Source: IMR SADCC Databank

As a region, the SADCC relies on the South African market for about 6% of their total exports. From 1980 to 1986 this export dependence on South Africa dropped marginally, by 11% (Table 3) with the highest proportion coming from Lesotho and Swaziland (both members of SACU).

TABLE 4: SADCC IMPORTS, FROM RSA

(MUSD)	1980 Exports	1980 RSA	% RSA	1986 Exports	1986 RSA	% RSA
Angola	1328	0	0%	524	0	0%
Botswana	725	630	87%	718	550	77%
Lesotho	430	417e	97%	343	333e	97%
Malawi	441	162	37%	257	75	29%
Mozambique	799	88	11%	542	56	10%
Swaziland	525	467	89%	304	274e	90%
Tanzania	1245	0	0%	792	0	0%
Zambia	1112	173	16%	1067	198e	19%
Zimbabwe	1284	354e	28%	981	210	21%
SADCC:	7889	2291	29%	5528	1695	31%
% Change 1980-1986:			+6%			

eestimate Source: IMR SADCC Databank

Dependence on South Africa for imports is five times higher than for exports, at roughly 30% (Table 4), with the highest being for the three SACU states. From 1980 to 1986 overall dependendence for imports actually increased slightly, by 6% (Table 4), but this was mainly due to an overall drop in exports caused by a fall in the value of Angolan oil exports.

Regional exports totalled 7.1 GUSD in 1987 (Table 5), dominated by Angola (mainly oil, 30% of the total), Botswana (mainly diamonds, 22% of the total) and a wide variety of commodities from Zimbabwe (20% of the total). Imports totalled 6.6 GUSD, principally manufactured goods, giving an overall, SADCC, positive visible trade balance of 0.5 GUSD (Table 5) due to the large surpluses from Angola and Botswana. Mozambique, Tanzania and Lesotho, on the other hand, registered large deficits.

TABLE 5: SADCC VISIBLE TRADE 1987

1987	Forex Rate ÑUSD	EXPORTS fob MUSD	% SADCC Export	IMPORTS cif MUSD	% SADCC Import	Trade Balance MUSD
Angola	30.0	2,151	30%	1,277	19%	873.9
Botswana	1.7	1,564	22%	852	13%	712.0
Lesotho	2.0	47	1%	484	7%	(436.9)
Malawi	2.2	277	4%	296	4%	(19.7)
Mozambique	289.4	97	1%	625	9%	(527.9)
Swaziland	2.1	343	5%	360	5%	(16.5)
Tanzania	64.8	286	4%	916	14%	(630.1)
Zambia	8.9	907	13%	746	11%	161.0
Zimbabwe	1.7	1,423	20%	1,045	16%	377.8
SADCC:		7,095	100%	6,602	100%	494

Source: IMR SADCC Databank, 1989.

Total regional long and medium term external debt was just under 20 GUSD in 1987, or 92% of regional GDP, up three-fold from 31% in 1980 (Table 6). This staggering increase in the regional debt burden was a direct result of the Global Crisis and the collapse of real export earnings. The worst affected states are Mozambique, Zambia and Tanzania. Only Botswana and Zimbabwe have managed to keep their debt under control.

TABLE 6: SADCC EXTERNAL DEBT, 1980-87

(GUSD)	1980	1981	1982	1983	1984	1985	1986	1987	Debt/GDP[1]
Angola	.62	1.43	2.07	2.11	2.28	2.45	2.46	3.80	73%
Botswana	.15	.16	.21	.18	.18	.33	.39	.51	33%
Lesotho	.06	.08	.12	.13	.14	.17	.18	.24	66%
Malawi	.65	.69	.70	.72	.73	.99	1.00	1.16	89%
Mozambique	.27	.23	.33	1.17	1.22	1.44	3.20	3.40	231%
Swaziland	.17	.16	.17	.18	.17	.18	.22	.27	51%
Tanzania	2.00	2.20	2.40	2.60	2.50	2.90	3.70	4.10	134%
Zambia	2.38	2.47	2.63	2.64	2.78	3.21	3.78	4.35	214%
Zimbabwe	.70	.79	1.22	1.50	1.52	1.53	1.76	2.04	39%
SADCC:	6.99	8.21	9.85	11.22	11.51	13.21	16.69	19.87	92%
Debt/GDP:	31%	33%	39%	47%	51%	55%	72%	92%	
Debt/Exp[2]	104%	130%	175%	205%	210%	242%	324%	280%	

% Change in overall debt, 1980 to 1987: 284%

[1]Debt as a % of GDP in 1987, [2]Debt as a % of exports.
Data converted from local currencies at average exchange rates.
Source: IMR SADCC Databank, 1989.

In 1980 the regional debt was about the same size as regional exports (104%), but by 1986 it was over three times the total SADCC exports (324%). The situation improved somewhat in 1987 when the ratio fell to 280%, mainly due to improved oil (Angola) and diamond (Botswana) earnings.

IV. Mining in the SADCC

The minerals sector of the SADCC region is almost entirely vertically integrated into the world economy and as such is particularly susceptible to global crises. Almost none of the mineral production is consumed within the region. Modern large scale exploitation of minerals was first undertaken by the colonial powers to supply their domestic industries with raw materials and this situation remains essentially the same today.

Due to this lack of integration into the local economies, the mining sector has suffered more than most from the falls in international commodity prices since 1980, except for precious metals and minerals (gold and diamonds). By 1986, the real unit value of most minerals was less than half the 1980 figure and in many cases mining operations were making severe losses or had been forced to close. This situation improved slightly in 1987 and 1988, but overall real values were still below those of 1980.

The contribution of the minerals sector to regional GDP is second only to that of agriculture and in 1986 was 9%, slightly down (-19%) on the 1980 proportion of 12% (Table 7). This drop was principally due to the fall in Angolan oil revenues in 1986 and the steady fall, from 1980, of base metal revenues for Zambia and Zimbabwe.

TABLE 7: SADCC GDP MINING, 1980 & 1986

(MUSD)	1980 M.GDP[1]	% SADCC	1980 % GDP[2]	1986 M.GDP[1]	% SADCC	1986 % GDP[2]
Angola	1203	46%	33%	797	37%	20%
Botswana	274	10%	29%	652	31%	49%
Lesotho	27	1%	7%	3	0%	1%
Malawi	0	0%	0%	0	0%	0%
Mozambique	0	0%	1%	0	0%	0%
Swaziland	18	1%	3%	9	0%	2%
Tanzania	40	2%	1%	13	1%	0%
Zambia	621	24%	16%	414	19%	13%
Zimbabwe	452	17%	8%	245	11%	5%
SADCC:	2636	100%	12%	2133	100%	9%
% Change 1980 to 1986:				-19%		

[1]contribution to GDP by the mining sector.
[2]% contribution to GDP by the mining sector.
Source: IMR SADCC Database.

The size of the mining sector in terms of GDP varies considerably from state to state, from around 40% for Angola and Botswana, to virtually nothing for Lesotho, Malawi, Mozambique, Swaziland and Tanzania (Table 7).

The principal role of the SADCC minerals sector is that of a *foreign exchange earner* and in this regard it generates more than any other sector. The region derives over sixty percent of its foreign exchange from mineral exports worth, in 1987, 4.8 GUSD (Table 8). Over this decade minerals have on average constituted 63% of total export receipts, including oil exports, and 35% excluding oil (Table 8). In 1987 the principal mineral exporters were, by value, Angola 40%, Botswana 29%, Zambia 18% and Zimbabwe 13% of total SADCC mineral exports (Table 8). Thus these four states constituted 99% of all the mineral exports of the region.

TABLE 8: MINERAL EXPORTS, 1980-87

(MUSD)	1980	1981	1982	1983	1984	1985	1986	1987	%[1]
Angola	1,713	1,710	1,398	1,721	1,937	2,152	1,224	1,901	40%
Botswana	429	255	307	489	590	615	710	1,401	29%
Lesotho	32	21	14	1	0	1	1	1	0%
Malawi	0	0	0	0	0	0	0	0	0%
Mozambique	13	12	6	2	2	1	3	1	0%
Swaziland	26	24	16	19	15	13	14	17	0%
Tanzania	37	65	42	39	15	16	12	9	0%
Zambia	1,250	1,039	981	800	618	495	678	839	18%
Zimbabwe	680	494	535	475	448	437	557	624	13%
SADCC:	4,181	3,619	3,300	3,547	3,626	3,729	3,200	4,793	100%
% Exports:	62%	57%	59%	65%	66%	68%	62%	68%	(63)[2]
excl. Oil[3]:	2,706	1,923	1,914	1,835	1,783	1,650	1,986	2,930	
% Exports:	40%	30%	34%	34%	33%	30%	39%	41%	(35)[2]

[1]% SADCC mineral exports in 1987. [2]average for 1980-87
[3]excluding oil exports. Source: IMR SADCC Databank, 1989

Mineral dependence varies dramatically from state to state, from virtually nothing for Malawi to 90% of exports and 49% of GDP for Botswana. This country, together with Zambia and Angola are virtual mono-mineral economies with one mineral accounting for from 60% to 95% of total export receipts. Four countries have almost non-existent minerals sectors, namely, Malawi, Lesotho, Mozambique and Tanzania, while Zimbabwe has the most "balanced" minerals sector, in terms of diversity and local offtake, and Swaziland has a small but important mining industry.

The total regional mining labour force stood at around 137 thousand workers in 1986 (excluding oil) with the highest being for Zambia at 57 thousand and Zimbabwe at 55 thousand (Table 9). These two countries alone constituted 82% of the total SADCC mining labour force. Mining is not a significant regional employer and in 1986 employment in the minerals sector, excluding oil, was only 4% of overall regional formal employment, with the highest being for Zambia where it was 16%.

TABLE 9: SADCC LABOUR FORCE, MINING LABOUR, 1986

Unit:	Labour Force k	Min. Prod.[1] MUSD	Mining Labour k	% SADCC	% lab[2]	MP/ miner[3] kUSD	Miners RSA[4] k	Remit-tances[5] MUSD
Angola	1,000[e]	1,267	na	7%	nap	nap	.0	.0
Botswana	130	671	9.5	1%	7%	71.0	21.0	25.9
Lesotho	50	1	1[e]	2%	2%	.9	123.6	277.1
Malawi	428	5	1[e]	0%	0%	5.1	20.0	12.2
Mozambique	700[e]	6	3[e]	2%	0%	1.9	58.8	49.5
Swaziland	92	16	2.4	2%	3%	6.4	14.9	6.1
Tanzania	749	15	8.9	6%	1%	1.6	0	0
Zambia	361	1,390	56.9	42%	16%	24.5	0	0
Zimbabwe	1,094	418	54.5	40%	5%	7.7	0	0
Total(avg):	4,603	3,789	137	100%	4%	18.5	238	371

[1]mineral production, [2]mining sector labour as a % of total formal labour force (excluding oil), [3]mineral production per miner (excluding oil), [4]migrant miners on South African mines, [5]remittances of the migrant miners. na: not available, nap: not applicable, [e]estimate. Source: IMR SADCC Databank, 1989

Regional mineral output per miner, excluding hydrocarbons, averaged 18.5 thousand USD, ranging from 900 USD in Lesotho to 71 thousand USD in Botswana (Table 9). Mining in both Botswana and Zambia is large scale and relatively capital intensive giving a high value of production per miner.

The total value of mineral production in Zimbabwe is less than one-third that of Zambia, yet it gives employment to roughly the same number of workers. This is due both to the existence of a large small-scale (labour intensive) mining industry in Zimbabwe and is also due to the fact that the processing of several minerals in Zimbabwe (such as chromite, iron ore, coal and apatite) is classified under manufacturing, meaning that value is recorded for the ore rather than the processed mineral/metal. In Zambia mining includes all smelting and refining.

In 1986 there were officially around 238 thousand workers from the SADCC states working on the mines of South Africa, constituting about 45% of that countries' total mining labour force. Hence there are almost twice as many SADCC citizens on

the mines of the RSA than on the mines of SADCC. The highest in the SADCC is Lesotho (123,600) where the migrant labour force is several times greater than the domestic formal labour force. The remittances of the 238,000 migrants totalled 371 MUSD in 1986, representing 1.6 thousand USD per worker. Total remittances from the RSA were 7% of total regional exports in 1986.

For further information on the mining industries of individual SADCC states, the Raw Materials Group (Stockholm) has published a series of papers on the SADCC minerals sectors since 1985 in their journal "Raw Materials Report" (see Bibliography).

V. Mineral Production

Four countries accounted for almost all (99%) of the value of the region's mineral production of 4.3 GUSD in 1987 (Table 10). These are Angola (48%, oil & diamonds), Zambia (22%, copper & cobalt), Botswana (19%, diamonds & copper/nickel) and Zimbabwe (11%, various minerals). In current US dollars the value of regional mineral output has fallen 6% since 1980. Excluding oil production, regional output fell 21% over the same period.

TABLE 10: SADCC, MINERAL PRODUCTION, 1980-87

(MUSD)	1980	1981	1982	1983	1984	1985	1986	1987	%[1]	MP/c[2]
Angola	1913	1943	1590	1900	2094	2228	1267	2068	48%	226
Botswana	409	328	451	562	739	542	671	804	19%	1163
Lesotho	32	20	14	1	0	1	1	1	0%	1
Malawi	11	9	7	8	8	6	5	6	0%	2
Mozambique	22	27	21	13	9	5	6	3	0%	0
Swaziland	25	24	17	22	15	13	16	19	0%	27
Tanzania	45	25	23	22	21	21	15	13	0%	1
Zambia	1495	1105	928	1000	851	991	1390	944	22%	130
Zimbabwe	658	549	501	464	418	392	418	489	11%	57
SADCC:	4610	4030	3550	3991	4154	4199	3789	4346	100%	59
MP/cap[2]:	77	65	56	61	62	60	53	59	(61)[3]	
Excl.Oil[4]:	2935	2226	2080	2184	2119	2002	2532	2317		
MP/cap[2]:	49	36	33	33	31	29	35	31	(35)[3]	

[1]% of SADCC total in 1987, [2]mineral production per capita, [3]average for 1980-87, [4]excluding oil. IMR SADCC Databank

Regional mineral production per capita was 59 USD in 1987, ranging from less than one in Mozambique to 1,163 USD in Botswana, and average output per capita from 1980 to 1987 was 61 USD for all minerals and 35 USD excluding the value of hydrocarbon production (Table 10).

Mineral production for the SADCC ranked by value in 1985 is displayed in Table 11. In that year oil from Angola was worth 1.8 GUSD, followed by copper, 750 MUSD, and diamonds, 533 MUSD. Together these three minerals made up 80% of the total value of regional output.

In terms of world output, the only minerals in the region with a significant share of global production are diamonds (21%) and cobalt (17%) though the proportions are higher when considered against "western" output only (Table 11). However, production data does not reflect the regional mineral resource base. The SADCC has significant resources, in global terms, of chromite, the platinum group metals, gold, titanium, tantalum, iron ore, coal and uranium.

TABLE 11: SADCC: PRODUCTION OF PRINCIPAL MINERALS

Mineral Units=kt	1970	1975	1980	1985	1986	1987	1988	%World 1987[1]	MUSD 1985[2]	Producer[3] 1988	%
Oil Mt	5.1	8.8	6.8	11.5	14.1	19.0	22.7	.7%	1778	Ang	100%
Copper	714.	695.	652.	522.	502.	521.	463.	6.0%	750	Zam	91%
Diamond[4]	3.7	5.1	5.8	14.1	13.6	14.3	16.4	16.1%	533	Bot	93%
Gold t	14.0	11.5	11.8	15.1	15.0	15.5	14.7	1.0%	154	Zim	97%
Nickel	8.6	15.6	30.5	29.4	28.7	26.9	34.0	4.3%	147	Bot	67%
Fe-Chrome	163	182	211	195	219	218	na	7.2%	130	Zim	100%
Cobalt	2.05	1.95	3.65	4.73	4.58	4.71	5.45	15.5%	128	Zam	92%
Steel	349	467	689	643	603	537	na	.1%	105	Zim	99%
Asbestos	221	299	284	199	187	219	209	5.3%	60	Zim	89%
Coal	4619	4972	4674	4173	4608	6131	6422	.1%	56	Zim	79%
Chromite	504	876	553	526	553	570	561	5.3%	21	Zim	100%
Zinc	53.5	46.9	32.7	22.9	22.5	21.0	20.2	.3%	18	Zam	100%
Tin	1.14	1.00	1.02	1.21	1.08	1.04	.86	.6%	14	Zim	99%
Iron Ore	9456	9090	1621	1100	1125	1328	1021	.1%	12	Zim	100%
Silver t	54.7	38.6	53.4	43.7	52.9	55.2	51.2	.4%	9	Zam	57%
Lead	27.3	19.1	10.0	8.9	6.7	8.0	6.4	.2%	4	Zam	99%

[1]SADCC output as a % of World production in 1987, [2]value of SADCC output in 1985 in MUSD, [3]principal SADCC producer & % of SADCC production, [4]Mcarats. Source: IMR SADCC Databank, 1989.

The most valuable regional minerals are hydrocarbons even though they are only produced in one country, Angola. In 1988 Angola produced 22.7 Mt of crude oil worth 2,220 MUSD, a 4.5 fold increase in volume over 1970 (5 Mt) and a 3.3 fold increase on 1980 (6.8 Mt). This spectacular increase is due to a well-conceived and executed petroleum development policy on the part of the Angolan government. In addition, due to their heavy investment in exploration (520 MUSD in 1985), the resource base has been constantly augmented.

In 1988 diamonds became the second SADCC mineral in terms of value of production when in that year 16.4 million carats were recovered worth 1,150 MUSD. Since 1970 ouput has gone up 3.4 times, almost all due to a massive 2512% increase from Botswana, all from the three De Beers opencast mines, Orapa, Jwaneng and Lethlakane, on kimberlite pipes (Table 12). Output from the rest of SADCC has stagnated over the same period, but with the independence of Namibia and the concommitant loss of South African support for the UNITA bandits, it is hoped that Angola will start to realise its enormous alluvial and kimberlite diamond mining potential, though the USA has pledged to continue backing the destabilisation of Angola by UNITA.

TABLE 12: SADCC DIAMOND PRODUCTION

(Mcarats)	1970	1975	1980	1985	1986	1987	1988	%[1]	Avg[2]	%Chg[3]
Angola	2.5	2.2	.4	1.2	.3	.9	1.0	6%	1.4	-60%
Botswana	.6	2.4	5.1	12.6	13.1	13.2	15.2	93%	6.3	2512%
Lesotho	.02	.00	.05	.01	.01	.00	.01	0%	.02	-100%
Swaziland	0	.00	.00	.02	.04	.10	.12	0.7%	.02	
Tanzania	.64	.48	.26	.24	.16	.11	.08	0.5%	.36	-87%
SADCC:	3.7	5.1	5.8	14.1	13.6	14.3	16.4	100%	1.6	340%

SADCC, % Change 1970-80: 54% SADCC, % Change 1980-88:185%

[1]% of SADCC total output, [2]average production 1970 to 1988, [3]% change 1970 to 1988. Source: IMR SADCC Databank, 1989.

Until the mid-seventies the premier mineral of the region was copper, but since then production has been on the decline due to falling real prices and dwindling high-grade reserves. Over 90% of regional output comes from Zambia where production has fallen 38% from 683 kt in 1970 to 422 kt in 1988 (Table 13) and the over the same period the average grade of ore treated has fallen from 2.7% copper to 2.0% (-26%). Zimbabean production has fallen from 50 kt in the mid-seventies to 16 kt in 1988 mainly due to reserves depletion, while in Botswana copper is mined as a byproduct of nickel and output has increased from 7 kt in 1975, when mining started, to 24 kt in 1988 (Table 13). Part of the copper/nickel matte from Botswana is refined in Zimbabwe at Eiffel Flats by RTZim.

TABLE 13: SADCC COPPER PRODUCTION

(ktonnes)	1970	1975	1980	1985	1986	1987	1988	%[1]	Avg[2]	%Chg[3]
Botswana	0	7	16	22	21	19	24	5%	13	nap
Mozambique	.5	.7	.2	.4	.3	.2	.1	0%	.3	-71%
Zambia	683	640	610	480	460	483	422	91%	597	-38%
Zimbabwe	30	48	27	20	20	19	16	3%	31	-46%
SADCC:	714	695	652	522	502	521	463	100%		-35%

SADCC, % Change 1970-80: -9% SADCC, % Change 1980-88:-29%

[1]% SADCC total production in 1988, [2]average for 1970 to 1988 [3]% change from 1970 to 1988. IMR SADCC Database, 1989

Almost all the region's <u>official</u> gold production comes from the Archaean Schistbelts of Zimbabwe where production has increased slightly from 13.8 tonnes in 1970 to 14.7 tonnes in 1988 (Table 14). All production is from small to medium scale mines and in

1988 there were over 600 producers. Tanzania has significant gold mining potential still to be realised and has a thriving artisanal "illegal" gold mining industry thought to produce anything from 2 to 8 tonnes per annum, which is smuggled out of the country.

The region has numerous low grade, large tonnage gold deposits that would be suitable for opencast heap-leaching operations as have been so successful over the last decade in Australia, Canada and the USA.

TABLE 14: SADCC GOLD PRODUCTION

(tonnes)	1970	1975	1980	1985	1986	1987	1988	%[1]	Avg[2]	%Chg[3]
Botswana	.00	.00	.00	.01	.03	.03	.03	0%	.01	nap
Tanzania	.24	.00	.00	.06	.09	.20	.16	1%	.05	-33%
Zambia	.17	.50	.33	.35	.06	.35	.26	2%	.30	54%
Zimbabwe	13.6	11.0	11.4	14.7	14.9	14.7	14.3	97%	12.7	5%
SADCC:	14.0	11.5	11.8	15.1	15.0	15.3	14.7	100%		5%

SADCC, % Change 1970-80: -16% SADCC, % Change 1980-88:25%

[1]% SADCC total production in 1988, [2]average for 1970 to 1988
[3]% change from 1970 to 1988. IMR SADCC Database, 1989

Due to the significant improvement in the price of nickel since 1987, the region's nickel mines have managed to avoid closure. Nickel is produced from two mines in Botswana (Selebi and Phikwe) and four in Zimbabwe (Trojan, Epoch, Shangani and Madziwa). Production from Selebi-Phikwe in Botswana has increased four-fold from 6.4 kt in 1975 to 22.5 kt in 1988, while output from the Zimbabwean mines has dropped from 15.1 kt in 1980 to 11.5 kt in 1988, mainly due to the closure of the Empress Nickel mine in 1983 (Table 15). There are two refineries in Zimbabwe, Bindura and Empress, the former mainly takes Zimbabwean concentrates whilst the latter refines matte from Botswana.

TABLE 15: SADCC NICKEL PRODUCTION

(ktonnes)	1970	1975	1980	1985	1986	1987	1988	%[1]	Avg[2]	%Chg[3]
Botswana	0	6.4	15.4	19.6	19.0	16.5	22.5	66%	12.2	nap
Zimbabwe	8.6	9.1	15.1	9.9	9.7	10.4	11.5	34%	11.8	34%
SADCC:	8.6	15.6	30.5	29.4	28.7	26.9	34.0	100%		296%

SADCC, % Change 1970-80: 255% SADCC, % Change 1980-88:11%

[1]% SADCC total production in 1988, [2]average for 1970 to 1988
[3]% change from 1970 to 1988. IMR SADCC Database, 1989

The Great Dyke of Zimbabwe, plus the nearby podiform chromite deposits supply the two ferrochrome smelters in the region, Zimasco in Kwe Kwe and Zimalloys in Gweru. Production of chromite peaked in 1975 at 876 kt before declining to 561 kt in 1988 (Table 11).

Since 1980 all chromite has been converted to ferrochrome before export and in 1987 218 kt were produced, up 35% on the 1970 figure of 163 kt. In addition to ferrochrome, in 1987 the Zimalloys plant produced 46 kt of ferro-silicon-chrome, part of which was used to make low carbon ferrochrome, 2.5 kt of ferro-manganese and 3.36 kt of ferro-silicon. The latter two were consumed by Zisco at Redcliff for steel making.

All SADCC cobalt output is as a byproduct of copper and nickel mining. Zambia produces over 90% from copper ores with small amounts coming from Botswana and Zimbabwe from nickel/copper ores. Production has risen from 2 kt in 1980 to 5.5 kt in 1988 (Table 16).

TABLE 16: SADCC COBALT PRODUCTION

(ktonnes)	1970	1975	1980	1985	1986	1987	1988	%[1]	Avg[2]	%Chg[3]
Botswana	.00	.09	.23	.22	.16	.18	.30	5%	.16	nap
Zambia	2.05	1.84	3.31	4.42	4.34	4.48	5.03	92%	2.77	145%
Zimbabwe	.00	.02	.12	.09	.08	.11	.13	2%	.06	nap
SADCC:	2.05	1.95	3.65	4.73	4.58	4.77	5.45	100%		166%

SADCC, % Change 1970-80: 78% SADCC, % Change 1980-88:49%

[1]% SADCC total production in 1988, [2]average for 1970 to 1988
[3]% change from 1970 to 1988. IMR SADCC Database, 1989

Currently all iron ore mining is in Zimbabwe, though both Swaziland and Angola used to have large operations (Table 17), the former ran out of reserves, while operations at Kassinga in the south of Angola ceased due to the security situation. The Kassinga mines are likely to reopen with the independence of Namibia and withdrawal of South African troops from the area. Regional iron ore production has fallen 89%, from 9.5 Mt in 1970 to 1 Mt in 1988 (Table 17). All of the Zimbabwean ore is converted to iron and steel at Zisco.

Zisco, in Zimbabwe, is the region's only true steelworks, producing 537 kt of hot metal in 1987, up 54% on the 1970 figure of 349 kt (Table 11). Angola, Zambia, Tanzania, Mozambique and Zimbabwe all have small arc-furnace foundries producing steel from billets/ingots, and scrap metal. All sheet metal is imported into the region as Zisco has no flats rolling mill for this purpose. A new mill is being installed and production of sheet metal should start in 1991.

TABLE 17: SADCC IRON ORE PRODUCTION

(ktonnes)	1970	1975	1980	1985	1986	1987	1988	%[1]	Avg[2]	%Chg[3]
Angola	6091	5604	0	0	15	0	0	0%	2168	-100%
Swaziland	2552	2240	0	0	0	0	0	0%	1031	-100%
Zimbabwe	813	1246	1622	1100	1110	1328	1021	100%	1046	26%
SADCC:	9456	9090	1622	1100	1125	1328	1021	100%		-89%

SADCC, % Change 1970-80: -83% SADCC, % Change 1980-88:-37%

[1]% SADCC total production in 1988, [2]average for 1970 to 1988
[3]% change from 1970 to 1988. IMR SADCC Database, 1989

The region has enormous coal reserves estimated at over 50 Gt. Unlike other minerals, almost all production is for the local, regional, market, for power generation, coke manufacture (metallurgy) and agriculture (tobacco and tea curing). Production has increased by 39%, from 4.6 Mt in 1970 to 6.4 Mt in 1988, almost entirely due to a 44% increase in Zimbabwean output from Wankie Collieries for the new Hwange power station (Table 18).

The Moatize Colliery in Mozambique used to be a major exporter of high grade coking coal (0.5 Mt/an), but production has ground to a standstill due to the destruction of the railway line to the port of Beira by South African sponsored bandits. The only mine curently exporting outside the SADCC region is Emaswati Colliery in Swaziland, which, in 1988, exported 131 kt to Kenya and 30 kt to South Korea.

TABLE 18: SADCC COAL PRODUCTION

(ktonnes)	1970	1975	1980	1985	1986	1987	1988	%[1]	Avg[2]	%Chg[3]
Botswana	0	71	371	437	500	579	613	10%	284	nap
Malawi	0	0	0	2	10	19	29	0%	3	nap
Mozambique	351	575	409	20	4	43	24	0%	261	-93%
Swaziland	123	127	184	166	172	165	165	3%	145	34%
Tanzania	3	1	7	7	5	3	3	0%	5	26%
Zambia	623	898	569	511	557	463	524	8%	654	-16%
Zimbabwe	3520	3300	3134	3030	3359	4858	5064	79%	3381	44%
SADCC:	4619	4972	4674	4173	4608	6131	6422	100%		39%

SADCC, % Change 1970-80: 1% SADCC, % Change 1980-88:37%

[1]% SADCC total production in 1988, [2]average for 1970 to 1988
[3]% change from 1970 to 1988. IMR SADCC Database, 1989

Coke is produced at two plants in Zimbabwe, one at Wankie Collieries (about 200 kt/an) and one at Zisco (540 kt in 1987) for steel production. Part of the Wankie output is exported to Zambia and Zaire. Both coke batteries have recently been rebuilt.

Zambia is the only producer of lead and zinc from the Kabwe mine which is nearing the end of its life. Production of zinc and lead have fallen from 54 kt and 27 kt, in 1970, to 20 kt and 6 kt, in 1988, respectively (Table 11).

TABLE 19: SADCC ASBESTOS PRODUCTION

(ktonnes)	1970	1975	1980	1985	1986	1987	1988	%[1]	Avg[2]	%Chg[3]
Mozambique	.2	.0	.1	.4	.1	.0	.0	0%	.3	-91%
Swaziland	33.1	37.6	32.8	25.1	23.1	25.9	22.8	11%	32	-31%
Zimbabwe	188	262	251	174	164	193	187	89%	220	-1%
SADCC:	221	299	284	199	187	219	209	100%		-5%

SADCC, % Change 1970-80: 28% SADCC, % Change 1980-88:-26%

[1]% SADCC total production in 1988, [2]average for 1970 to 1988
[3]% change from 1970 to 1988. IMR SADCC Database, 1989

The SADCC region used to be a major world producer of high-grade chrysotile asbestos, before it was perceived internationally as a health hazard, and during the sixties and seventies asbestos was Zimbabwe's premier mineral export. Regional production peaked in 1976 at 320 kt before falling to 209 kt in 1988, with 89% from Zimbabwe (Table 19). The market has improved recently with the realisation that the long fibre chrysotile asbestos does not constitute as much of a health hazard as previously thought. The small anthophyllite operation in Mozambique has been closed since 1986 due to South African sponsored banditry.

TABLE 20: SADCC SILVER PRODUCTION

(tonnes)	1970	1975	1980	1985	1986	1987	1988	%[1]	Avg[2]	%Chg[3]
Zambia	47.8	31.1	23.8	18.9	26.8	29.9	29.3	57%	27.6	-39%
Zimbabwe	6.8	7.5	29.7	24.9	26.2	25.4	21.9	43%	19.2	221%
SADCC:	54.7	38.6	53.4	43.7	52.9	55.2	51.2	100%		-6%

SADCC, % Change 1970-80: -2% SADCC, % Change 1980-88:-4%

[1]% SADCC total production in 1988, [2]average for 1970 to 1988
[3]% change from 1970 to 1988. IMR SADCC Database, 1989

In 1988 51.2 tonnes of silver were produced, 57% from Zambia and 43% from Zimbabwe, 6% less than in 1970 and 4% less than 1980 (Table 20). All production is as a by-product of base metal and gold mining.

Virtually all SADCC tin production comes from the Kamativi pegmatite in Zimbabwe, but cassiterite has also been mined intermittently in Zambia (Choma), Tanzania (Karagwe), Swaziland (Mbabane) and Mozambique (Inchope). Since the collapse of the price of tin in 1985, production has fallen to 860 tonnes (Table 11).

A wide variety of other minerals are mined in the region, such as phosphates (Zimbabwe and Tanzania), pyrites (Zambia and Zimbabwe), lithium minerals (Zimbabwe), tantalum (Mozambique), gemstones, ornamental stone, limestone and clays. In addition small quantities of selenium, antimony and arsenic are produced as a byproduct of other mineral processing.

Almost all oil production from Angola leaves the country in a crude form, though plans exist for the expansion of the Luanda refinery and for the construction of an ammonia/urea plant based on natural gas and possibly on their extensive phosphate deposits for the production of compound fertilizers.

For most of the region's minerals, great advances have been made over the last few decades in downstream beneficiation. Today almost no concentrate or alloy leaves the region. Most minerals are processed (refined) to their pure form before export onto the world markets in an attempt to retain value in the region.

All of the half-a-million tonnes of copper produced is refined before export, as is most of the gold. About half of the nickel production leaves the region in the form of matte while the other half is refined. Almost all of the region's tin, cobalt, zinc and lead are refined before export.

A minuscule amount of the region's large gem grade diamond production is cut in the region, though there are plans to increase cutting facilities. None of the asbestos produced in the SADCC (Zimbabwe and Swaziland) is further transformed before export, but the weaving of asbestos fibres is under consideration in Zimbabwe.

By far the majority of mining in the SADCC region is vertically integrated into the economies of the OECD countries. Less than 10% of the total value of regional mineral production is consumed within the region.

For most of the important minerals the percentage of local/regional consumption is between 0% and 10% of production with the notable exceptions of coal and coke, steel, zinc and lead. Several industrial and fertiliser minerals such as phosphates, pyrites, limestone/cement, bauxite, clays, glass sands and salt are entirely produced for local consumption, within the region.

VI. The 10th Member: Namibia

It is generally expected that if the South Africans do in fact withdraw from Namibia and allow democratic elections, it will become the tenth member country of the SADCC in 1990.

The SADCC can be crudely classified into high mineral dependence economies (Angola, Botswana and Zambia), low mineral dependence economies (Lesotho, Malawi, Mozambique and Tanzania) and economies with a medium level of mineral dependence (Swaziland and Zimbabwe). Using this classification Namibia fits clearly into the first category as it is highly mineral dependent, similar in most aspects to that of Botswana which is of similar size, population and minerals exploitation. This will evidently make the SADCC region as a whole even more mineral dependent.

TABLE 21: NAMIBIA, BASIC MINING SECTOR DATA

(RSA Rand)	unit	1980	1981	1982	1983	1984	1985	1986	1987
GDP (total)	G	1.56	1.51	1.79	1.88	2.11	2.76	3.17	3.13
GDP Mining	G	.68	.45	.47	.50	.55	.99	1.14	.77
% GDP Mining	%	44%	30%	26%	27%	26%	36%	36%	25%
GFCF[1], Mining	M		74.6	47.6	40.8	31.9	31.9	75.3	94.5
% Mining GFCF	%		17%	12%	12%	10%	9%	19%	21%
Min. Exports	G	.91	.66	.76	.72	.85	1.29	1.65	1.32
% Min.Export[2]	%	80%	69%	75%	76%	77%	81%	83%	73%
Mining labour	k	20.0	19.2	17.3	16.6	15.6	14.9	20.0	20.0
Mng Revenue[3]	M	183	151	55	48	87	133	242	282
% Mng Rev[4]	%			9%	7%	11%	13%	20%	18%

[1]Gross Fixed Capital Formation, [2]Minerals as % of total exports, [3]state revenue from mining, [4]% mining of state revenue.
Source: IMR SADCC Databank, 1989.

In 1987 the minerals sector of Namibia constituted 25% of GDP, 21% of Gross Fixed Capital Formation and contributed 18% of government revenues (Table 21). Minerals generally make up 70 to 80% of total export receipts, making the Namibian economy extremely vulnerable to international mineral prices, particularly those for diamonds and uranium.

The admission of Namibia as the tenth SADCC member will increase the volume of diamond production by 6% but by considerably more in terms of value as almost all of Namibia's production is gem grade. Regional copper output will increase by 9%, zinc production will more than double (171%) as will tin (137%), while silver, pyrites and salt production will all treble (Table 22). In addition, the SADCC will become a major uranium producer and will produce several new minerals such as tungsten, cadmium and arsenic (Table 22).

TABLE 22: NAMIBIA, MINERAL PRODUCTION, 1984-88

Mineral	Units	1984	1985	1986	1987	1988	Avg[1]	%SADCC[2]
Diamonds	Mcts	.931	.910	1.010	1.037	.938	.965	6%
Uranium	kt U	3.80	3.40	3.50	3.54	3.60	3.57	100%
Copper (blister)	kt	50.0	43.0	47.1	35.7	42.2	43.6	9%
Zinc	kt	29.9	30.5	34.1	39.4	34.6	33.7	171%
Tin	kt	.940	.994	.880	1.097	1.182	1.019	137%
Gold	t	.196	.194	.184	.172	.195	.188	1%
Silver	t	96	83	91	75	108	91	211%
Lithium minerals	kt	.90	1.87	.86	.92	.56	1.02	4%
Pyrites	kt S	104.5	87.2	94.7	60.1	113.3	92.0	249%
Arsenic (As_2O_3)	kt	2.50	2.47	2.21	1.86	3.00	2.41	100%
Cadmium	t	40	59	61	51	50	52	100%
Tungsten	t	150	165	155	150	150e	154	100%
Tantalite	t	10	3	7	5	5e	6	14%
Salt	kt	89	154	136	125	120e	125	200%

[1]average 1984-88, [2]% of SADCC in 1988. Source: IMR SADCC Databank

Although Namibia produces a fairly wide variety of minerals, by value three-quarters is made up of only two, uranium and diamonds. In 1987 these two minerals constituted 79% of mineral exports (41% and 38% respectively).

The SADCC region's only source of lead and zinc (Kabwe, Zambia) is almost exhausted, the addition of Namibian production of these two minerals is therefore opportune, particularly as there is significant local consumption of these two minerals in the region. Namibian tin production is similarily of importance.

TABLE 23: NAMIBIA, MINING OWNERSHIP

Company/Mine	Major Shareholder/s	Mineral/s
CDM	De Beers Consol. Mines	diamonds
Koes Salt	Private	salt
Kombat	Tsumeb Corporation	copper, lead
Otjihase	Tsumeb Corp., Otjihase Mining	copper, silver
Peralin	Private	marble, gold
Rosh Pinah/IZ	Iscor, Molly Copper	zinc, lead,
Rossing Uranium	Rio Tinto Zinc PLC	uranium
Salt Company	Private	salt, calcite
SWA Lithium	Metramco (Klockner, FRG)	beryl,petalite
Tsumeb	Gold Fields of SA	copper, silver tin, arsenic
Uis/Imcor Tin	Iscor	tin, tantalite
Usakos	Private	lime

Source: IMR SADCC Database, 1989.

In terms of ownership and control of the SADCC minerals sector, the entry of Namibia will increase the overall level of control by South African mining companies as they control almost the whole Namibian minerals sector with the exception of Rossing Uranium which is controlled by RTZ of the UK (Table 23).

VII. The Companies

Historically, colonial penetration of the region was intricately linked to minerals and mining companies. Two of the countries, Zambia and Zimbabwe, were actually conquered and ruled for a time by Cecil John Rhodes' British South African Company (BSAC). The development of most of the other states was also deeply affected by mining, whether for mineral exploitation, mineral transport routes (Angola and Mozambique) or the supply of labour to the sub-continent's mines (Lesotho, Mozambique and Malawi). In this sense the only SADCC state that has not been strongly affected by the regional exploitation of minerals is Tanzania, but since the construction of the Tazara railroad in the early seventies, it also has hosted a vital mineral export route.

The successor to the BSAC is today by far the most important transnational mining house in the region: the Anglo American - De Beers mining consortium of South Africa. They control most of the region's nickel production (BNC and BCL), coal production (Wankie), diamond production (Debswana), about a third of the ferro-chrome output (Zimalloys) and 27% of ZCCM in Zambia which produces 91% of the region's copper and 92% of the cobalt. In 1984 the value of mineral output owned by AAC-DeBeers was approximately 650 MUSD, 32% of the total value of SADCC mineral production, excluding oil (see Table 24).

Turner Newall of the UK controls the bulk of the SADCC's asbestos output (Shabanie & Mashaba Mines Ltd) and Union Carbide of the USA controls the other two-thirds of ferro-chrome production (Zimasco). Other transnationals involved in the region are Rio Tinto Zinc and Lonrho of the UK (gold) and Amax of the USA (copper/nickel), but the latter company has been selling its assets in the region over the last decade.

A significant proportion of mining in the region has some degree of state control. The Zambian state owns 60% of the parastatal copper/cobalt mining company ZCCM which also controls all of the region's lead and zinc production (Kabwe). All petroleum production is controlled by the Angolan parastatal Sonangol in partnership with oil transnationals, principally Gulf Oil of the USA (Cabgoc) now owned by Chevron.

The states of the region controlled 46% of the value of the major minerals produced in 1984, excluding oil (Table 24). Including oil, the state share was 49%. State ownership by mineral varies considerably, from zero in the case of

chromite mining, to 79% for regional coal extraction (Table 24). The extent of state/private control is not accurately reflected by the percentage ownership of the mining company, due to minority share holdings with virtually no control, on the one hand, and management contracts with low equity holdings, on the other.

TABLE 24: SADCC, MAJOR MINERALS, OWNERSHIP & OUTPUT, 1984

Mineral	Country	Company	Private %	Company	State %	Output kt	MUSD	%State MUSD[1]
Copper	Zambia	ZCCM	40	AAC,public	60	669	683	410
	Zimbabwe	MCM	45	public	55	19	21	12
		BNC	100	AAC	0	1	1	0
		Corsyn	100	Lonrho	0	3	3	0
	Botswana	BCL	85	AAC,Amax	15	21	25	4
	Total:					713	733	58%
Cobalt	Zambia	ZCCM	40	AAC,public	60	3472[2]	69	41
	Botswana	RST	85	AAC,Amax	15	259[2]	5	1
	Zimbabwe	BNC	100	AAC	0	78[2]	1	0
	Total:					3809[2]	75	60%
Pb/Zn	Zambia	ZCCM	40	AAC,public	60	38	31	18
	Total:					38	31	60%
Nickel	Botswana	RST	85	AAC,Amax	15	19	83	13
	Zimbabwe	BNC	100	AAC	0	10	45	0
	Total:					29	128	10%
Chromite	Zimbabwe	Zimalloy	100	AAC, public	0			
		Zimasco	100	Union Carb.	0	476	23	0
	Total:					476	23	0%
Gold	Zimbabwe	Various	99	Numerous	1	14.8[2]	165	1
	Zambia	ZCCM	40	AAC,public	60	0.4[2]	4	3
	Total:					15.2[2]	169	2%
Diamonds	Botswana	Debswana	50	De Beers	50	12.9[3]	564	282
	Angola	Diamang	23	Soc.Gen.	77	0.9[3]	63	49
	Tanzania	William.	50	De Beers	50	0.2[3]	9	4
	Total:					14.0[3]	636	53%
Coal	Zimbabwe	Wankie	20	AAC	80	3109	45	36
	Zambia	Maamba	0	nap	100	511	16	16
	Botswana	Morupule	93	AAC	na	393	4	0
	Mozamb.	Moatize	0	nap	100	40	2	2
	Swazi.	Mpaka	48	Gencor	52	125	3	1
	Total:					4178	70	79%
Asbestos	Zimbabwe	S&M Min.	100	Turner N.	0	165	62	0
	Swazi.	Havelock	100	TN & Gencor	0	26	10	0
	Total:					191	72	0%
GRAND TOTAL EXCLUDING OIL:							1937	46%
Oil	Angola	Cabgoc	49	Chevron	51	10191	2035	1038
	Total:					10191	2035	51%
GRAND TOTAL:							3972	49%

[1]% holding x value of output, [2]tons, [3]Mcarats,
nap: not applicable. Sources: IMR SADCC Databank,1986

A regional breakdown of ownership by major mineral is given in Table 24, but it should noted that minor values of numerous other minerals are mined in the SADCC, particularly in Zimbabwe. These include tin, tantalum, graphite, lithium, phosphate rock, manganese, iron ore, semi-precious stones and minerals for the construction and ceramic industries.

The global crisis has had a profound effect on the viability of the region's major mining companies, except for the precious mineral/metal companies (diamonds and gold). The rapid decline in mineral prices from 1980 meant that by 1986 most of the major mining houses were in a state of severe crisis. These included RST (nickel/Copper), with a crippling 500 MUSD debt, Bindura Nickel, Zimalloys, the Zambian copper giant, ZCCM, and African Associated Mines (asbestos). Due to good diamond and gold prices, Debswana and the Zimbabwean gold mining companies were relatively financialy stable.

TABLE 25: SADCC MINING COMPANIES
SELECTED[1] FINANCIAL PROFILES, 1987

Company (USD[7])		Sales	Capital[2]	Assets[3]	Debt[4]	Tax[5]	Profit[6]
Blanket Mines	Au	11.1	9.9	8.3	.9	1.6	1.9
Cluff Minerals	Au	2.9	7.3	9.8	7.5	2.2	1.0
Corsyn	Au	29.1	16.9	14.1	.0	1.2	2.7
Falcon Mines	Au	23.1	27.8	23.1	.0	.2	3.6
Falconbridge	Au	11.2	9.9	8.3	.4	1.6	3.6
Independence	Au	40.7	75.0	82.4	.0	.0	13.4
Rio Tinto (Zim)	Au	64.6	35.6	27.6	5.4	5.3	9.5
sub-total, Gold:		182.7	182.5	173.6	14.3	12.1	35.8
Mhangura (MCM)	Cu	42.7	21.5	23.6	7.8	.0	1.6
Lomagundi (LSM)	Cu	4.1	4.3	7.1	2.3	.0	-4.2
ZCCM	Cu	1336.7	1784.8	1610.3	591.9	30.6	41.8
Bindura (BNC)	Ni	60.7	111.0	71.6	10.2	.0	-2.6
Botswana RST	Ni/Cu	76.1	94.0	166.5	757.6	4.4	14.7
Kamativi	Sn	5.1	3.4	3.3	2.9	.0	-2.7
sub-total, non-Fe:		1525.4	2019.1	1882.4	1372.6	35.0	48.6
Buchwa	Fe	18.1	7.6	23.3	9.0	.0	.4
Zimalloys	Fe-Cr	83.2	76.5	57.8	5.1	.8	10.0
sub-total, Ferrous:		101.2	84.1	81.1	14.1	.8	10.5
S & M Mines	Asb	73.3	99.8	63.9	.0	.0	.9
Wankie Colliery	C	65.0	111.2	100.9	43.9	.0	11.2
Debswana	Di	na	585.7	337.6	.0	na	596.9
Bikita Minerals	Li	4.1	4.9	3.4	.0	.0	.3
sub-total, Other:		142.4	801.6	505.8	43.9	.0	609.4
TOTAL		1952	3087	2643	1445	48	704

[1]selection based on data availability only, [2]capital employed [3]fixed assets, [4]medium and long term debt, [5]tax & royalties [6]final profit, [7]coverted from local currency at average exchange rate for calendar year. Source: IMR SADCC Databank

In 1987 a selection of seven gold mining companies made profits of 36 MUSD on total capital employed of 183 MUSD giving an overall return on capital of 20% (Table 25), while six non-ferrous mining companies (Cu/Ni/Sn) made a profit of 49 MUSD on capital of 2 GUSD giving a return of only 2.5% (Table 25). Return on capital for two ferrous mining companies was 12.5%.

Overall return on capital for a selection of 18 SADCC mining companies was a mere 4.3%. Profit as a proportion of sales (turnover) was slightly higher at 5.5% and total debt was 55% of overall fixed assets (Table 25).

With the significant increase in metal prices since 1987, most of the major regional mining houses are once more running at a profit and are managing to repay the debts that accumulated during the 1980-86 period.

TABLE 26: SADCC MINING COMPANIES, DEBT[1]

Company (MUSD[2])	1982	1983	1984	1985	1986	1987
Blanket Mines	5.0	2.4	1.2	.9	.9	.9
Cluff Minerals	.0	.0	.0	.0	.0	7.5
Corsyn Consol.	2.0	1.5	1.2	1.0	.0	.0
Falcon Mines	.0	.0	.0	.0	.0	.0
Falconbridge	2.5	1.6	.5	.4	.4	.4
Independence	29.3	22.1	17.1	15.8	15.2	.0
Rio Tinto Zim.	39.6	26.0	18.2	13.6	7.2	5.4
Bikita Minerals	.0	.0	.0	.0	.0	.0
Bindura (BNC)	52.1	52.3	43.3	28.6	25.5	10.2
Botswana RST	510	580	665	696	714	758
Buchwa (Bimco)	24.3	16.8	12.2	12.8	10.4	9.0
Debswana	.0	.0	.0	.0	.0	.0
Dorowa Minerals	.0	1.0	.8	.6	.0	.0
Kamativi (KTM)	.0	.0	1.9	1.6	.0	2.9
Lomagundi (LSM)	8.9	4.7	2.7	2.2	3.5	2.3
Mhangura (MCM)	15.9	9.9	7.0	5.2	4.5	7.8
S & M Mines	48.4	35.8	17.2	.0	.0	.0
Wankie Colliery	55.5	80.8	65.4	39.1	37.3	43.9
ZCCM	587	568	572	1447	1433	592
Zimalloys	30.8	30.7	11.7	7.1	4.9	5.1
TOTAL	1411	1433	1438	2272	2257	1445
Debt/Capital[3]	61%	62%	87%	108%	93%	74%

[1]medium and long term debt, [2]converted to USD at average exchange rate for calendar yaer, [3]debt as a % of capital employed. Selection on data availability only. Source: IMR SADCC Databank

Total medium and long term debt for a selection of twenty mining companies increased from 1.4 GUSD in 1982 to 2.3 GUSD in 1985 (61%) before falling back to 1.4 GUSD in 1987 (Table 26). Debt as a proportion of total capital employed increased from 61% in 1982 to 108% in 1985, then fell to 74% by 1987 (Table 26). Two companies, Botswana RST and ZCCM, made up 93% of the debt of the 20 selected companies in 1987 and the latter has managed to significantly reduce its debt burden since 1986 due to higher copper prices (Table 26).

VIII. Legislation

Although the mining industries of the region face similar problems, the legislative structure that the governments have set up to overcome them varies considerably from state to state especially as regards their attitude to the mining trans-national corporations (TNC's).

The colonial mining laws were by and large extremely favourable to the TNC's particularly with regard to mineral rights, repatriation of profits, labour rights and the training of indigenous personnel. A case in point is Zambia, where the state only acquired the national mineral rights from the BSAC on the eve of independence but even then, the most lucrative areas had already been ceded to two TNC's in perpetuity. The racial employment policies of the TNC's operating in Zambia were only abolished the year before independence (1963). In many areas the mining companies operated as a "state within a state", as aptly described by an Angolan scholar, often with sweeping powers over justice, welfare, education and other, normally public, areas (Dololwa: 1978).

Largely as a reaction to this perceived pro-TNC bias, by the colonial administrations, on gaining independence, many of the new governments introduced a new legislative regime which generally vested all mineral rights with the state, introduced heavier taxation, compulsory training of locals, extensive mining safety regulations and diminished repatriation of profits.

From greater legislative control, the new regimes turned to acquiring increased state participation in the local subsidiaries of the mining TNC's as the commodities "boom" continued into the early seventies, in order to gain direct control of their mining industries and to retain as much of the surplus value as possible within the country concerned.

The ex-Portuguese colonies (Angola and Mozambique), which only gained independence in 1975, from the outset embarked on a policy of state control of their mining industries, but this was also in part as a result of the settler exodus from these countries and the resultant abandonment of mining operations.

The major effect of the strict legislative regime and the increasing state participation in mining industry ownership was to cause a rapid decline in new foreign investment in mining. With the exception of diamonds in Botswana and oil in Angola, there has been no major foreign investment in the mining industries of the SADCC since the early seventies.

With the onset of the Global Crisis and the resultant decline in base metal prices in the early eighties, the states of the region started to look to the development of new mineral resources as the value of their "traditional" minerals declined in real terms. In order to attract investors, especially for small and medium scale operations, the governments embarked on a new phase of mining laws revision, in an attempt to make their countries more attractive to scarce foreign capital. In 1986 both Mozambique and Angola adopted new mining laws, Tanzania has introduced a new mining regime and Zambia is in the process of changing its legislation.

Thus far there has not been much response from foreign investors, but this is most probably due to the prevailing low prices for most minerals except for precious minerals until recently.

Zimbabwe gained independence in 1980, as the world recession set in, but due to the fairly restrictive laws of the former settler regime, especially as regards the repatriation of profits, no major mining legislation was enacted, except for the minerals marketing act which created a state monopoly for the marketing of all minerals. State participation in mining has in general only been for "depressed" minerals, namely, copper, tin and iron ore. From Table 24 it is apparent that the Zimbabwean minerals have the lowest share of state ownership, 0% for chromite, gold, asbestos and nickel.

Due to the lack of new foreign investment since independence, in 1989 Zimbabwe introduced a new Investment Code that allows for a greater repatriation of after tax profits for venture capital, which was considered to be the main deterrent to new foreign investment.

IX. The SADCC Mining Coordination Unit

In 1981 Zimbabwe presented the SADCC Council of Ministers with a report on "Regional Cooperation in the Mining Industry" (SADCC: 1981), which outlined areas of possible regional cooperation such as: mineral beneficiation, manpower training, minerals marketing, mining financing and technology. Subsequently the responsibility for the coordination of the Mining Sector was delegated to Zambia at the meeting of the Council of Ministers held in Blantyre, Malawi in November, 1981.

This Coordination function should have been executed by the Ministry of Mines of Zambia which has created a Coordinating Unit under the direct supervision of the office of the Chief Mining Engineer (Mines Development Department), but virtualy nothing was done from 1981 to late 1984.

The objectives of SADCC regional cooperation in the mining sector are derived from the principles and policies set out in the Lusaka Declaration of 1980, and amplified in the Mineral Resources Strategy adopted by the SADCC Council of Ministers at the meeting held in May, 1984 in Blantyre, Malawi. This policy is fully in line with the 1980 Lagos Plan of Action which outlines three main objectives for mineral development:

(i) Establishment of sovereignty over natural resources.
(ii) Development of mineral based industries.
(iii) Development of indigenous skilled manpower capability.

The main functions of the Coordinating Unit include preparation of mining sector strategy, initiating, stimulating and identification of projects in close liaison with member states. The Unit is also responsible for mobilising technical, managerial and financial resources for project implementation.

Thus far the SADCC Mining Sector programme has consisted of several studies of which it is hoped that specific projects will move to the investment implementation stage. Several regional studies have been completed and reviewed by the SADCC Mining Council of Ministers. These covered the local manufacture of mining machinery and spare parts, the local production of mining chemicals and explosives, a study on regional iron and steel production (jointly with the SADCC Industry Sector), a regional mining manpower survey, a study on small scale mining, a study on mining data management, a report on fertilizer minerals, and a study on industrial minerals development and a market study for semi-finished copper products.

In addition to the above, there are several regional studies underway, including a market survey of possible products from Sua Pan Brines in Botswana, a feasibility study on the establishment of a refractory industry, a hydrogeological investigation of the SADCC region, a prefeasibility study on the establishment of an alumina/aluminium industry, a study on the processing of lime in

the sub-region, a study on regional coal exploitation and a study on methods of promoting investment in small and medium scale mining.

The completed studies have resulted in a series of specific projects which were approved by the SADCC Meetings of Mining Ministers in 1987, 1988 and 1989, and the SADCC Mining Coordinating Unit is currently seeking funding for them (several have already secured funding). These can be grouped in the following broad categories:

a) Development of Industrial and Fertiliser Minerals: The Luzinada bentonite deposit (Mozambique), the Kindonocaxa phosphate deposit (Angola), the Sianyolo fluorspar deposit (Zambia), the Pugu kaolin deposit (Tanzania), vermiculite in Zimbabwe and Malawi, ceramic raw materials in Swaziland, the heavy mineral beach sands deposits of Malawi, Mozambique and Tanzania and an assessment of regional ornamental stone and gypsum deposits.

b) The Development of Strategic Regional Mineral Resources: Exploration for further lead/zinc reserves in Zambia to prolong the life of the Kabwe mine, exploration for bauxite reserves along the Zimbabwe-Mozambique border for the establishment of the region's first aluminium plant, the reassessment of the Angolan and Swazi iron ore resources (both used to be major producers) and the development of the coal resources of the Moatize basin (Mozambique) and the Livingstonia basin (Malawi).

c) Development of Small Scale Mining: This includes projects on the small scale development of minerals such as coal, lime, gemstones and other selected minerals.

d) Strengthening of Mining Manpower Training: Included here are projects for the strengthening of university and technical college training, and in-company training.

e) Reinforcing Mineral and Mining Knowledge in the Region: These projects include the setting up of national geological/mining databases and a regional one at the Unit in Lusaka, a regional geophysical and geochemical map compilation facility in Maputo and the implementation of a regional seismological network.

f) Development of Import Substitution Industries for Mining Inputs: This includes the setting up of a regional mining inputs databank and the local manufacture of inputs such as refractory bricks, diamond tools and rockdrills, wear resistant liners and rail track and fittings, electrodes, activated carbon and metallurgical coke.

g) Optimizing the Utilization of Existing Facilities: This could be done, for instance, by the sharing of mineral processing facilities, training institutes and marketing bodies.

Partly as a result of the recommendations of earlier regional studies, the SADCC Mining Coordinating Unit is being strengthened with experts in small scale mining, mineral processing, mining inputs and mineral economics, funded by foreign aid agencies.

Several regional initiatives have already taken place outside the ambit of the Coordinating Unit, the most notable being the project whereby about 13 kt of copper/nickel matte from the Selebi-Phikwe smelter in Botswana is being toll-refined by two companies in Zimbabwe (BSR and ENR) thereby keeping more of the value-added in the region. Copper concentrates from the Mundonguara mine in Mozambique are also being refined in Zimbabwe, at Alaska (MCM). E.C. Meikle, a small Zimbabwean bauxite mining company, is currently exploiting Mozambican reserves on the other side of the border.

At an informal level there have been several instances of mining personnel gaining on the job training on the mines and plants of neighbouring states.

X. Discussion

The SADCC mining sector was a late starter in terms of regional projects. Zambia took responsibility for the sector in 1981 and in 1985 several regional studies were commissioned. Several specific regional projects arose out of these studies and these still await funding and implementation.

Compared to the other sectors such as energy (Angola) and transport and communications (Mozambique), the mining sector has lagged far behind. This could in part be due to the fact that the regional mining sector is about half owned by the private sector while energy, transport and communications are generally state held. In addition, as regional transport and communications rehabilitation is in the interests of all the individual states and the main aid donors (to get their raw materials), it is relatively easy to get consensus and funding for projects in this sector while for the actual productive sectors (mining, agriculture and industry) there are more areas of potential conflict/competition, so it is more difficult to make headway.

Some of the most crucial areas, addressed in the Zimbabwean paper of 1981, have seen no progress. These include a regional strategy for minerals marketing and mining legislation. The latter area is in considerable flux at the moment as most of the states mining legislation undergoes revision, generally in order to attract foreign investment in the sector. The Mining Sector Coordinating Unit could provide the forum for the coordination of mining policy to avoid the situation of states "under bidding" each other by making their investment policies more attractive to scarce foreign capital.

The possibility of sanctions being imposed by or against South Africa has meant that the SADCC states are now looking to other states in the region to subsitute for minerals presently supplied from South Africa. In this regard the Zimbabwean ferro-manganese producer (Zimalloys) has tested Zambian supplied manganese ore and the same company is also looking for a low phosphorous and suphur lime in the region to substitute for South African supplies. Zimasco is currently importing low phosphorus and sulphur coal and coke which could be sourced from within the region.

The Coordinating Unit is also seeking funding for several projects which address this problem, including the development of the Luzinada bentonite quarry in Mozambique to replace regional imports from the RSA, the establishment of coking facilities at Moatize in Mozambique to produce a special grade of metallurgical coke for ferro-chrome smelting in Zimbabwe, which is currently coming from the RSA at the rate of 55 kt/an.

As the prospects of sanctions by the West against South Africa have become more likely, attention has been focussed on some of the regional resources of minerals currently imported by the OECD

countries from the RSA. In this regard the huge chromite resources of Zimbabwe are being considered as a possible alternative to South African supplies as are their and Botswana's reserves of the platinum group metals (Jourdan: 1988). The titanium sands of Malawi, Mozambique and Tanzania could also be looked at in this regard.

Zimbabwean companies are involved with the development of the Sua Pan project in Botswana which will make the region self-sufficient in soda ash, potash and salt, though it appears that the project will also need the South African market to be viable thereby increasing regional dependence on that country.

Several of the studies looked at the regional situation regarding inputs to the mining sector and came up with proposals for the creation of new facilities and the expantion of present facilities for the local manufacture of various imported inputs. The main obstacle to the creation of a facility in any one country to cater for the regional market is the fact that once the facility is operational there is no guarantee that the other states will purchase the product.

The SADCC has a myriad of soft currencies meaning that most trade is done through one of the hard OECD currencies, usually US dollars. As most of the SADCC states are desparately short of foreign currency they do not have ready hard currency buy from their neighbours, as much as they would like to. Instead they are often forced to continue to obtain their supplies from the OECD countries as they are able to offer aid, grants, low interest loans and other credit facilities which their neighbour is not in a position to give. Taking these forms of aid into account, a purchase could could be cheaper from the OECD country even if the list price from the SADCC state is substantially less.

This problem of soft currencies and credit also applies to the setting up of downstream industries to further transform minerals into finished products for the regional market, as well as to intra-regional mineral trade. The unpleasant fact remains for the SADCC that it is usually much easier to purchase from the developed countries than from one's neighbours. The setting up of the PTA (Preferencial Trade Area) has gone some way in overcomming this problem, but much more needs to be done, particularly as regards the setting up of a regional credit facility for intra-regional trade. Ultimately the SADCC needs convertability between their currencies if collective self-reliance is to move from a slogan to reality.

The mining sector of the SADCC region is extremely vulnerable to the vagaries of the world market due to its lopsided (vertical) integration into that market. For real development to take place in the region the mining sectors need to change from being

suppliers of minerals to the world market to being suppliers of raw materials to local industry for resource-based industrialization.

Exports onto the world market should be mineral-based manufactures rather than untransformed minerals and metals. The SADCC grouping offers a large market for resource-based industrialisation that the tiny markets of the individual member states could not support. But for this market to be realized the barriers to intra-SADCC trade need to be removed, a trade credit system needs to be created and currencies need to be convertible or semi-convertible within the region. These measures clearly imply a certain loss of sovereignty from the member states to the regional grouping which will call for courageous and far-sighted statesmen.

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