MINING IN THE SADCC

A REGIONAL APPROACH TO MINERALS DEVELOPMENT

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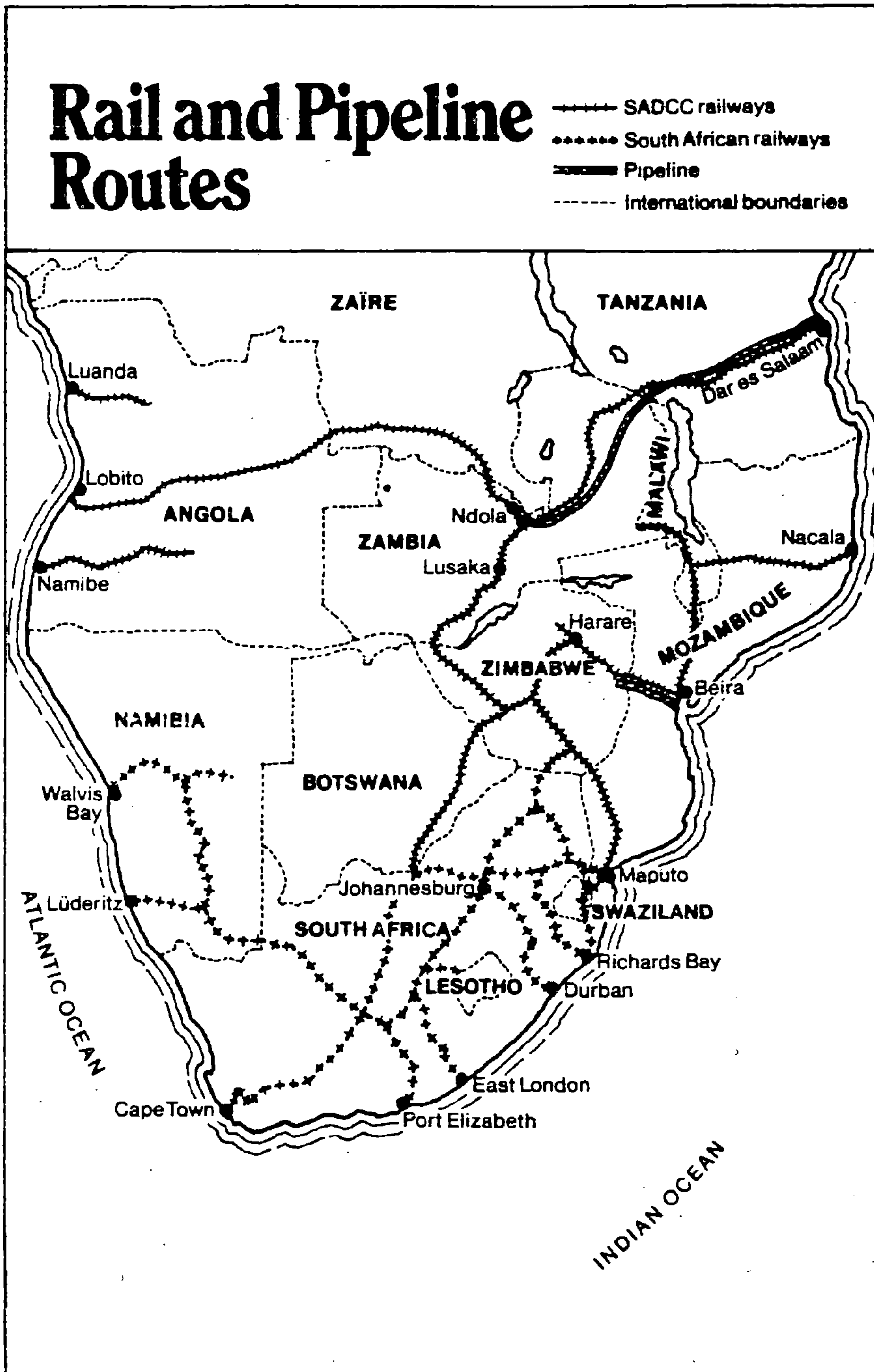

SOURCE: HANLON, 1986

TABLE 1.

THE SADCC: BASIC ECONOMIC DATA

1985	Area	Population	Pop. Density	Forex Rate	CPI (1)	GDP mp	GDP/ cap.	EXPORTS fob	IMPORTS cif	Trade Balance	Debt (2)	Debt/ GDP	Labour Force
Unit:	k,km2	Mil	\km2	\USD	1980=100	GUSD	USD	MUSD	MUSD	MUSD	GUSD	%	k
Angola	1247	8.8	7.0	30.0	NA	4.83	552	2,234	657	1,576.8	2.45	50.7%	1,000 (3)
Botswana	600	1.1	1.8	1.9	168.2	1.13	1025	728	576	152.0	.18	15.6%	117
Lesotho	30	1.5	50.4	2.2	189.0	.26	167	22	305	(283.0)	.17	67.4%	51
Malawi	118	7.1	59.8	1.7	173.8	1.17	166	249	288	(38.9)	.99	84.3%	411
Mozambique	802	14.0	17.4	43.2	261.0	3.27	234	76	424	(347.4)	1.44	44.1%	700
Swaziland	17	.7	38.0	2.2	199.4	.34	510	167	264	(97.1)	.08	24.1%	85
Tanzania	945	21.7	23.0	17.2	373.6	5.77	266	314	1,040	(726.2)	2.90	50.3%	748
Zambia	753	6.7	8.9	2.7	250.8	2.33	347	548	770	(222.4)	3.21	137.7%	362
Zimbabwe	391	8.3	21.3	1.6	196.2	4.55	545	1,118	900	217.2	1.53	33.6%	1,040
TOTAL(avg)	4903	69.9	14.3			23.64	338	5455	5224	231	12.95	53.7%	4513

(1) Consumer Price Index, (2) Total External Debt (3) estimate

SOURCES: TABLE 2.

TABLE 2.

THE SADCC: BASIC MINERAL DATA

1985	GDP Mining	% GDP Mining	Mineral Prod.	%*	MP/cap (1)	Mineral' Exports	%*	% Min. Exports	Mining Labour	%*	% Mng labour	MP/ labour	Miners RSA (5)	%*	Remittances
Unit:	MUSD	%	MUSD		USD	MUSD		% (2)	k (3)		% (4)	kUSD	k		MUSD (6)
Angola	1,488	30.8%	2,228	53%	254	2,152	58%	96.4%	na	na	na	na	.0	0%	.0
Botswana	528.6	46.9%	542	13%	493	615	16%	84.4%	9.4	7%	8.0%	57.6	16.4	7%	27.3
Lesotho	<	<	<	<	<	<	<	<	1.0	1%	2.0%	<	116.2	52%	541.2
Malawi	<	<	<	<	<	<	<	<	.3	0%	.1%	<	19.6	9%	17.9
Mozambique	3.2	.1%	5	.1%	0	0	0%	.4%	1.0	1%	.1%	5.4	55.7	25%	1.8
Swaziland	9.2	2.7%	13	.3%	20	13	0%	7.7%	2.4	2%	2.9%	5.4	14	6%	13
Tanzania	14.6	.3%	19	.4%	1	21	1%	6.6%	8.6	6%	1.1%	2.2	0	0%	0
Zambia	478.2	20.5%	975	23%	145	495	13%	90.4%	57.5	43%	15.9%	17.0	0	0%	0
Zimbabwe	327.4	7.2%	392	9%	47	437	12%	39.1%	54.3	40%	5.2%	7.2	0	0%	0
Total(avg):	2849	12.1%	4174	100%	60	3733	100%	68.4%	134	100%	3.0%	31.0	222	100%	601

* Percentage of the SADCC   < less than 1 MUSD or 0.05%

(1) Mineral Production per capita, (2) % Mineral exports of total exports, (3) Total mining labour force
(4) % Mining of total labour force, (5) Migrant miners in the RSA, (6) Remittances of RSA migrants
Sources: SADCC states government data, EIU: 1987/8, IMR SADCC Minerals Databank: 1988.

I. The SADCC

The Southern African Development Coordination Conference (SADCC) was formally established at the Summit of April 1980 in Lusaka, Zambia, but the foundations had been laid in July of 1979 at the Arusha Conference in Tanzania. The SADCC comprises nine states namely, Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe.

The Lusaka Declaration of 1 April 1980, "Southern Africa: Towards Economic Liberation", outlines the fundamental aims of the SADCC. Four principal development objectives are stated:

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.

With the signing of the Declaration, the Heads of Government committed their countries to a program of harmonious and coordinated development aimed at reducing their economic dependence particularly on the Republic of South Africa. The Declaration further committed the governments to accelerated economic development and regional self-reliance which is achieved through a judicious use of regional resources and external support. The declaration invited international support which would be sustained by regular consultations in the context of equal partnership in the pursuit of shared objectives.

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 curtail the activities of the African National Congress (ANC), the principle 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 onto itself as it was left with South Africa and its bantustans. Not even the SACU (South African Customs Union) states could be enticed to join. The South African, Southern African Development Bank, 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.

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, 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 SACU.

In April 1974 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 was 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 Agostino Neto).

The independence of Mozambique brought about a greatly increased area for the Zimbabwean nationalists to 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 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 SATCC (Southern African Transport Coordinating Committee) 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 on 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...

The Regional Grouping:

Basic demographic and economic data for 1985, for the SADCC grouping is presented in Table 1. The SADCC states occupy a land area of 4.9 million square kilometers with a total population (in 1985) of 70 million people resulting in an overall regional density of 14.3 persons/km2. Four countries, Angola, Tanzania, Mozambique, and Zambia, make up three-quarters of the SADCC land area and 73% of the region's population.

In 1985 the total SADCC GDP was 23.6 billion USD and the GDP/capita for the region was 338 USD, ranging from 166 USD (Malawi) to 1025 USD (Botswana).

Regional exports totalled 5.3 GUSD in 1985, dominated by Angolan oil (40% of the total) and a wide variety of commodities from Zimbabwe. In the same year regional medium to long term external debt stood at 13 GUSD and the regional ratio of debt to GNP was an alarming 54%, ranging from a healthy 16% in Botswana to 138% in Tanzania. In 1985 the estimated formal labour force was 4.5 million workers, a mere 6.4% of the regional population.

The relative importance of the minerals sector in the national economies is presented in the next section.

II. Mining in the SADCC

The minerals sector of the SADCC countries varies considerably in both size and contribution to the national economies of individual states. Basic mineral data for 1985 for the region is presented in Table 2.

As a grouping, the SADCC derives over sixty-eight percent of its foreign exchange from mineral exports worth, in 1985, 3.7 GUSD. In that year the principal mineral exporters were, by value, Angola 58%, Botswana 17%, Zambia 13% and Zimbabwe 12% of total SADCC mineral exports (Table 2). Thus these four states constituted 96% of all the mineral exports of the region.

Mineral dependence varies dramatically from state to state, from virtually nothing for Malawi to 96% of exports and 31% of GDP for Angola. This country, together with Zambia and Botswana are virtual mono-mineral economies with one mineral accounting for from 60% to 90% of total export receipts (Table 2).

The contribution of the minerals sector to the overall regional GDP stood at 12.1% in 1985, second only to agriculture, with the highest contributions being for Botswana (47%), Angola (31%) and Zambia (21%).

Four countries accounted for almost all (98%) of the value of the region's mineral production of 4.2 GUSD in 1985. These are Angola (53%, oil & diamonds), Zambia (23%, copper & cobalt), Botswana (13%, diamonds and copper/nickel) and Zimbabwe (9%, various minerals).

Regional mineral production per capita was 60 USD in 1985, ranging from less than one in Malawi to 493 USD in Botswana, while mineral output per miner, excluding hydrocarbons, averaged 31 kUSD, from 2 kUSD in Tanzania to 58 kUSD in Botswana (Table 2).

The total regional mining labour force stood at around 134 thousand workers in 1985 with the highest being for Zambia at 58 thousand. Employment in the minerals sector was 3% of overall regional formal employment, with the highest being for Zambia where it was 16%.

In 1985 there were around 222 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 more SADCC miners in the RSA than on the SADCC mines. The highest in the SADCC is Lesotho (116,000) where the migrant labour force is several times greater than the domestic formal labour force. The remittances of the 222,000 migrants totalled 601 MUSD in 1985, representing 2.7 thousand USD per worker. Total remittances from the RSA were 11% of total regional exports in 1985.

For further information on the mining industries of individual SADCC states, the Raw Materials Group has published a series of papers on the SADCC minerals sectors since 1985 in their journal "Raw Materials Report" (RMG: 1985-88).

III. Mineral Production

Mineral production for the SADCC ranked by value in 1985 is displayed in Table 3. 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 3.
SADCC: PRODUCTION OF PRINCIPAL MINERALS

Mineral	Volume 1970	1975	1980	1985	%* World	Value MUSD	Principal Producer (%)+
Oil Mt	5.07	8.75	6.78	11.51	.4%	1778	Angola 100%
Copper kt	714.01	695.06	652.11	522.37	6.1%	750	Zambia 92%
Diamonds Mct	3.791	5.022	5.778	14.049	21.3%	533	Botswana 90%
Gold t	13.78	11.50	11.78	15.10	1.0%	154	Zimbabwe 97%
Nickel kt	8.59	15.57	30.52	29.44	3.7%	147	Botswana 67%
Fe-Chrome kt	163	231.11	244.87	209.53	na	130	Zimbabwe 100%
Cobalt kt	2.052	1.953	3.650	4.729	17.3%	128	Zambia 93%
Steel kt	163	544.7	852.3	734.9	.1%	105	Zimbabwe 99%
Asbestos kt	220.98	299.14	283.88	199.11	4.7%	60	Zimbabwe 87%
Coal kt	4619	4972	4672	4170	.1%	56	Zimbabwe 73%
Chromite kt	503.9	875.7	552.5	526.5	5.2%	21	Zimbabwe 100%
Zinc kt	53.46	46.92	32.69	22.90	.3%	18	Zambia 100%
Tin kt	1.144	.997	1.024	1.231	.7%	14	Zimbabwe 99%
Iron Ore kt	9456	9090	1621	1098	.1%	12	Zimbabwe 100%
Silver t	54.714	38.633	53.433	43.731	.3%	9	Zimbabwe 57%
Lead kt	27.30	19.10	10	8	.1%	4	Zambia 100%

* % of World Production in 1985. + % of SADCC Output 1985
Source: SADCC Government Statistics and BGS, 1987.

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.

All of the region's chromite production is converted to ferro-chrome or ferro-silica-chrome before export and the manufacture of stainless steel, using the region's nickel and ferro-chrome, is under consideration. Since the closure of the Swazi and Angolan iron ore mines, all of the iron ore mined in the region (in Zimbabwe) is converted to steel 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.

Table 5
SADCC: 1985
Local Consumption of Minerals

Mineral	Production	%
Oil	11.5 Mt	8%
Copper	522 kt	2%
Gold	15 t	<
Silver	44 t	7%
Nickel	29 t	<
Fe-chrome	209 kt	<
Steel	735 kt	50%*
Cobalt	4.7 kt	<
Asbestos	199 kt	5%*
Coal	4170 kt	98%
Coke	600 kt	95%*
Zinc	23 kt	15%*
Tin	1.2 kt	10%*
Lead	8 kt	40%*
Phosphate	171 kt	100%
Pyrite	76 kt	100%
Cement	1600 kt	95%*

< less tan 1%, * estimate

The approximate percentage of local consumption or transformation is presented in Table 5. For most of the important minerals the percentage is between 0 and 10% with the notable exceptions of coal and coke, steel, zinc and lead. Several industrial and fertiliser minerals such as phosphates, pyrites, limestone/cement, bauxite, glass sands and salt are entirely produced for local consumption in the region.

IV. 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 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 93% of the region's copper and 90% 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 4).

Turner Newall of the UK controls the bulk of the SADCC's asbestos output (Shabanie & Mashaba Mines Ltd and 20% of Havelock Asbestos) 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 getting rid of its assets in the region over the last few years (see RMG: 1985).

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 4). 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 4). 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. Examples would be AAC's 27% holding in ZCCM, for the former, and their 20% holding in Wankie Collieries with a management contract, for the latter.

A regional breakdown of ownership by major mineral is given in Table 4, 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 total value of these minor minerals would be of the order of 50 to 100 MUSD, mainly under state control.

Table 4.
SADCC: MAJOR MINERALS, OWNERSHIP & OUTPUT, 1984.

Mineral	Country	Company	Private %	Company	State %	Output kt	Output MUSD	%State MUSD*
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	3472a	69	41
	Botswana	RST	85	AAC,Amax	15	259a	5	1
	Zimbabwe	BNC	100	AAC	0	78a	1	0
	Total:					3809a	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	14.8a	165	1
	Zambia	ZCCM	40	AAC,public	60	0.4a	4	3
	Total:					15.2a	169	2%
Diamonds	Botswana	Debswana	50	De Beers	50	12.9b	564	282
	Angola	Diamang	23	Soc.Gen.	77	0.9b	63	49
	Tanzania	William.	50	De Beers	50	0.2b	9	4
	Total:					14.0b	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%

* % holding x value of output, nap: not applicable,
a: tons, b: million carats.
Sources: SADCC states government and company data.

V. 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: 198?).

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 as the surplus 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 decline in base metal prices from the late seventies, accelerating 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.

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 4 it is apparent that the Zimbabwean minerals have the lowest share of state ownership, 0% for chromite, gold, asbestos and nickel, and about 50% for copper.

VI. Transport

In 1985, the minerals that were produced mainly in the interior and that have a unit value too low to be airfreighted, making them vulnerable export route disruptions, were copper 522 kt, nickel 29 kt, zinc 23 kt, ferro-chrome 210 kt, steel 735 kt and asbestos 199 kt (Table 3). Coal is mainly consumed in the countries of production, and about half of steel output is consumed in the region, which means that every year the interior states of the SADCC need to get roughly 1.5 Gt of various minerals to the coast to earn the foreign exchange vital to their economies. The main countries affected in this way are Zambia, Zimbabwe and Botswana.

Due to the closure of the Beira and Maputo lines in 1976, during the struggle for majority rule in Zimbabwe, and the closure of the Benguela line due to acts of destabilisation in Angola, the states of the interior became even more dependent on the RSA for their external trade. Between 1976 and 1980 the only non-South African rail route to the coast was the long haul up the Tazara line to Dar es Salaam in Tanzania.

With the independence of Zimbabwe the routes to both Beira and Maputo reopened. South Africa almost immediately embarked on a strategy of attempting to ensure the continued closure of the Angolan and Mozambican routes in order to maintain its control over the external trade of the landlocked SADCC states. They did this both by direct sabotage by the South African Defence Force (SADF) and indirectly via surrogate rebels who they trained, supplied and ran.

However, recently with impending sanctions against the RSA, the SADCC countries have launched a major initiative to upgrade the alternative routes, particularly the railroad to the Mozambican ports of Beira, Maputo and Nacala and the Angolan port of Lobito.

Hence, a major problem facing the mining industries of the interior SADCC states is and is likely to continue to be the problem of securing safe export routes to overseas markets for their minerals.

VII. 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, mineral marketing and 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 is 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).

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.

In 1988 the SADCC Mining Unit produced a set of criteria for the selection of regional projects. In this regard the development objectives of the SADCC as defined in the Lusaka Declaration of 1980 (see section 1, above), plus the Mining Sector strategy document adopted by the SADCC Council of Ministers in 1986, form the basis for the following acceptable types of projects:

1) Projects involving two or more countries.
2) Projects that reduce dependence, particularly on the RSA.
3) National projects with a regional impact.
4) Pilot projects and research centres.

Thus far the SADCC Mining Sector programme has consisted of several studies out of which it is hoped that specific projects will move to the investment implementation stage. The regional studies which have been completed and reviewed by the SADCC Mining Council of Ministers are:

1) "Mining Machinery and Spare Parts Manufacturing, Repairing and Reconditioning Facilities". Done by the CFTC, financed by the IDU.

2) "Foundry Fabrication and Machining Facilities". Done by the CFTC, financed by the IDU.

3) "Development of Iron and Steel Industry". Joint project with PTA, done by the UNIDO, financed by UNIDO.

4) "Regional Mining Sector Skilled Manpower Survey". Done by the Euroquip (France), financed by the EEC.

5) "Small Scale Mining, Processing, and Marketing". Done by Klockner (FRG), financed by the EEC. This project still awaits finalisation.

6) "Inventory on Geology, Minerals and Mining". Done by Bonifica (Italy), financed by the EEC.

7) "Production of Mining Chemicals and Explosives". Done by the CFTC, financed by the IDU.

8) "Contribution to the Identification of Investment Opportunities in the Field of Industrial Minerals in the SADCC". Done by Sofremines (France), financed by France.

9) "Development of Fertilizer Mineral Raw Materials". Done by the CFTC, financed by the IDU.

All the Commonwealth Fund for Technical Cooperation (CFTC) projects were carried out using teams made up of local (SADCC) experts and their personnel.

In addition to the above, the following regional studies are underway and due for completion in the near future:

10) "Report of Possible Products from Sua Pan Brines, and Markets for these Products in the SADCC Region". Execution UN/DTCD and finance from UNDP.

11) "Market Study for Semi-finished Copper Products". Done by Tilburg University, financed by The Netherlands.

12) "Feasibility Study on the Possibility of Establishing a Refractory Industry in the SADCC Region". Execution UN/DTCD and finance from UNDP.

13) "Hydrogeological Investigation of the SADCC Region". Financed by the World Bank.

14) "Integrated Exploitation and Processing of the Mulanje and Manica Bauxite Deposits and Establishment of an Alumina/Aluminium Industry. Execution UN/DTCD and finance from UNDP.

15) "Processing of Lime in the SADCC Sub-region". Execution by UN/DTCD and finance from UNDP.

In addition there are still several regional projects that have failed to attract funding, some of them since 1984. These are:

16) "Inventory and Optimisation of Regional Mineral Processing Facilities". Although this important study has failed to attract financing, several mineral processing sharing projects are already underway.

17) "Central Isotope Geochronology Laboratory for the SADCC Sub-region". Funds for this project which is already operational have been promised by the EEC since 1985 but have failed to materialise.

18) "Remote Sensing Survey of Mineral Resources in the SADCC Sub-region using Spot Satellite. Likely to be funded by the EEC.

19) "Manufacture of Diamond Tools in the Kingdom of Lesotho".

20) "Exploitation of Coal resources in the SADCC Sub-region".

21) "Development of Non-metallic/Industrial Minerals in the SADCC Sub-region". This study is the second part of project 8 (above).

The completed studies (1 to 9) resulted in a series of specific projects which were approved by the SADCC Meetings of Mining Ministers in 1987 and 1988 and the SADCC Mining Coordinating Unit is currently seeking funding for them (a few 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 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 Skilled 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.

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.

VIII. Discussion

The SADCC mining sector was a late starter in terms of regional projects. After Zambia took responsibility for the sector in 1981 nothing happened until 1985 when 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.

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 have provided the forum for the coordination of mining legislation 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 been testing 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.

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 posibility 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 Beira Corridor Group (BCG) is promoting an ambitious project to produce ferro-chrome using Zimbabwean chromite, Mozambican metallurgical coke and Zambian and Mozambican hydro-power. The BCG is also 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.

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 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.

IX. Conclusions

1) The mining sector of the SADCC region is the most important sector in terms of foreign currency generation (exports). It is the second most important sector, after agriculture, in terms of the gross value of output and the third largest employer, after agriculture and manufacturing.

2) The regional minerals sector is vertically integrated into the economies of the developed countries. Less than ten percent of regional mineral production is consumed in the region. The advent of a regional, SADCC, market would offer many opportunities for increased use of minerals in the region.

3) Ownership of the mining sector in the region varies from state to state, but the overall value of mineral output is almost equally controlled by the private and state sectors. State participation increased rapidly from 1960 to 1980, but since then private investment has been encouraged, although there has been little commitment of new funds.

4) There has been almost no growth in the regional mining sector since the onset of the world recession in 1980 due to historically low prices on the world market for most of the metals and minerals produced in the region. This has provoked a liberalisation of mining legislation in several states in an attempt to attract foreign investment to revive their minerals sectors.

5) As most of the SADCC region's minerals are produced in the interior, secure and economic transport routes to the coast are critical to the survival of the industry. This problem is exacerbated by the destabilisation of the region by South Africa and, in the case of Angola, the USA.

6) The SADCC Mining Sector Coordinating Unit has commissioned several important studies which have identified numerous projects for the development of the regional minerals sector. These include the development of minerals for local consumption, the manufacture of regional inputs to mining, the downstream processing and transformation of minerals into products for the regional market and the provision of regional facilities for training and scientific investigation.

7) There is considerable scope for collective development of the minerals sector at a regional, SADCC, level but the main obstacle facing regional integration is the lack of convertibility between the currencies of the region and the lack of credit mechanisms for intra-regional trade in minerals and mineral inputs. The PTA system is a first, tiny, step in this direction.

8) Possibilities exist for the development of specific mineral resources in the region as an alternative to global supplies from South Africa. In this regard the SADCC region's resources of chromite, the platinum group metals, manganese and titanium sands need to be reassessed.

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