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8. ABSTRACT

One mark of Zimbabwe's relatively high level of development in comparison to other African LDCs is an advanced infrastructure in the transport-communications sector. These are measured by such factors as the extent of road and rail networks, the volume of freight moved by various modes, and the number of road vehicles in use. This paper examines aspects of the transportation sector in detail and focuses on the response of the transport sector to the imposition of sanctions and on the problems arising from transport policies and administration. Problems in the transport sector which have implications for the transition are discussed and certain critical issues pointed out. The emphasis of transport policy on external trade has produced the following consequences: railways receive a disproportionate amount of resources, railway capacity has been built up in areas which may not be profitable after the removal of sanctions, road transport has been under-financed, and the interior transport system has been affected by inadequate funds for maintenance and replacement. The removal of sanctions should permit shorter, more efficient routes to be utilized for external trade, and should cause a lowering of the transport costs of imported and exported commodities.

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FINAL REPORT

SURVEY OF THE
TRANSPORT-COMMUNICATIONS SECTOR

by

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Transport Overview

Investment in the transport-communications sector is an important determinant of a country's level of development. This infrastructure, which provides for the internal movement of people and goods and the dissemination of information, serves to raise real income and improve the price-market mechanism through the widening of exchange possibilities. Moreover, by facilitating the movement of export commodities to external markets, it increases the total availability of national resources.

One mark of Zimbabwe's relatively high level of development in comparison with other African LDC's is an advanced infrastructure in this sector, measured by such factors as the extent of road and rail networks, volume of freight moved by various modes, number of road vehicles in use. Available information suggests that the transport sector accounted for approximately 20 percent of total expenditures on fixed capital formation between 1955 and 1965.¹

Zimbabwe has a multimodal transport-communications infrastructure. Base data on the sector are provided in Tables 1 to 3. Data on various transport modes are shown in Tables 1 and 2. Some communications data are shown in Table 3.

TABLE 1

Motorable Highways, by Type of Surface, 1963 and 1968
(in kilometers)

<u>Year</u>	<u>Total</u>	<u>Surfaced Roads</u>		
		<u>Bituminous</u>	<u>Gravel</u>	<u>Unsurfaced Roads</u>
1963	75,000	5,300	30,200	40,000
1968	78,470	5,300	32,930	40,000

Source: International Road Federation, World Road Statistics, 1965-69.
UN, ECA, Economic Survey for Africa, Vol. III, 1971.

¹The transport infrastructure covers railways, roads, inland waterways, air and pipeline facilities. Communications includes postal, telegraph and telephone services. Since 1966, the U.N. in line with its non-recognition policy of the

The extent of motorable roads by quality of surface is shown in Table 1. The latest data published by the U.N. on type of road surface is for 1963. After 1963, data are available only by type of governmental unit responsible for given roads. The increase of 2,930 kilometers shown for 1968 was allocated to gravel roads since reports issued by the Ministry of Transport and Power (1974) indicate bitumen road mileage unchanged.

The network of 5,300 kilometers of tarred two-laned primary roads link all major towns. The relatively high volume of road transport vehicles shown in Table 2 reflect the importance of road transport in the internal distribution system. However, rail transport in Zimbabwe, as for other mineral exporting countries of the southern Africa region, remains the most important means of transporting goods. In 1974 there were 20,009 miles of railways in the country. The volume of rail way freight traffic cited in the Table indicates the substantial investment in rail transport. Given the high costs of air freight cargo, the limited volume of goods moved by air is not surprising. It probably does not differ significantly from other African LDC's as a proportion of total goods transported.

These basic indicators show in a general fashion that in comparison with other developing countries in Africa, the country's transport network is superior. However, it is necessary to go behind the outline sketched above and examine certain aspects in more detail. This will be done in the framework of the response of the transport sector to the imposition of sanctions and problems arising from transport policies and administration.

The Characteristics of the Transport Infrastructure

I. Rails.

The land-locked, mineral-exporting countries of the southern Africa region have invested heavily in rail transport. Rail is the principal mode of transport

TABLE 2

Transportation Activities by Mode of Transport, 1965-1974
(passengers/metric tons in 000's, ton-kilometers in millions)

Year	(1) Railroads			(2) Road Transport Vehicles (number)		(3) Airlines	
	Passenger (km)	Tonnage hauled (mt)	Freight (ton-km)	Commercial vehicles	Private vehicles	Passenger (km)	Freight (ton-km)
1965	n.a.	n.a.	7,834		108,000		
1966	n.a.	n.a.	n.a.	28,000	107,000		
1967	n.a.	n.a.	n.a.	42,200	111,000		
1968 ¹	3,130	9,886	5,380	42,200	108,000	109,111	0.6
1969	2,857	10,406	5,615	52,000	126,000	134,744	0.74
1970	2,614	11,719	6,500	48,000	125,000	155,386	0.72
1971	2,782	11,686	6,293	56,000	127,000	175,528	0.69
1972	3,013	12,676	6,802	n.a.	n.a.	196,320	0.74
1973	3,236	12,597	6,623	n.a.	n.a.	202,146	0.68
1974	2,800	11,950	6,300	n.a.	n.a.	240,608	.60

¹First ten months.

Sources: UN Economic Commission for Africa, Statistical Summaries, No. 6, 1974.
UN Economic Commission for Africa, Economic Survey of Africa Vol. 111, 1971.

TABLE 3

Number of Telephones, Radios, TV Receivers, 1967-73

<u>Year</u>	<u>Telephones</u>	<u>Radios</u>	<u>TV Receivers</u>
1967	112,000	135,000	38,000
1968	116,000	158,000	41,000
1969	131,000	188,000	42,000
1970	132,000	206,000	50,000
1971	141,000	212,000	52,000
1972	151,000	215,000	57,000
1973	160,000	225,000	62,000

Source: Africa South of the Sahara, 1972--1974.

for exports. Because of its location, Rhodesia served as a transit route for the regional trade in mineral exports, and the country's primary rail system ran west-eastward to seaports in Mozambique.

During the period of the Central African Federation, 1953-63, the Rhodesian Railways became the joint property of the Southern Rhodesian and Zambian governments. This reflected the economic interdependence of the region. At this time additional investment was made in Southern Rhodesia's rail transport to augment the existing rail system. Neighboring-country exports, particularly high-rated Zambian copper, provided a large proportion of the revenues of the system.

When, in 1965, UDI was initiated the major features of the Rhodesian rail system were as follows:

a) For the interior: Rhodesian Railways ran from Victoria Falls on the Zambia border to the rail center of Bulawayo; from this center mainlines ran southward towards South Africa and northwards to Salisbury. The latter was connected with smaller centers in the northeast and northwest.

b) Lines to ports: Prior to 1956, there had been only a direct rail link from Salisbury to the eastern Port of Beira in Mozambique. In 1956 this was supplemented with a new connection built from Gwelo, Southern Rhodesia to the Port of Lourenço Marques in Mozambique with branch lines running from Fort Victoria, Chiredzi and West Nicholson.

c) A combination of an oil pipeline, railway and trunkroad was developed between Umtali and the Port of Beira.

d) The two ports of Beira and Lourenço Marques in Mozambique handled virtually the total of the country's external trade.

It is to be observed that these investments in rail transport were predicated on two crucial assumptions. First, Rhodesia was to be a transit for

southern African regional trade, especially for the high-rated mineral exports. Secondly, the two ports of Mozambique would remain, for the indefinite future, both Southern Rhodesia's and Zambia's main link with the outside world.

With the imposition of sanctions and subsequent political events both assumptions were proved wrong. First, there occurred the disruption of Rhodesia as a transit link for Zambian copper exports and the virtual redirection of exports from the Copperbelt to the Port of Dar Es Salaam. Transit routes for mineral exports will arise as a regional issue in the near future. The large outlay for new investment in alternative routes by neighboring countries will have important implications for the government of Zimbabwe in the post-sanctions era and surely some adjustments, such as sharing this trade, will be the subject of future negotiations. Secondly, with the border closing by Mozambique, sanctions forced additional investment in alternative routes for the country's own external trade. In 1974 a 90-mile link from Rutenga to Beitbridge was created and in 1976 a direct rail link to South Africa was to be opened. This was to become eventually the only route for external trade during the UDI period.

Costs of Sanctions. As historical data become available economists will assess more fully the effect of sanctions on the Rhodesian economy. At this point the suggestion is put forward that sanctions forced a less than optimum allocation of transport resources: At the same time as the return on investment in west-east rails was falling, additional resources were allocated to investment in the Southern geographical route.

In the years immediately after the imposition of sanctions, roughly taken as the period 1965-68, dislocations caused by the loss of transit trade resulted in inefficiencies in rail transport when capacity utilization rates, maintenance and replacement expenditures declined. Until Southern Rhodesia's own external trade had regained its previous level, the excess capacity in rail transport could also be

traced to that source as well. While a more detailed study would be required to evaluate the loss from high-rated transit trade on railway finances, Table 4 indicates fairly clearly that the financial situation of railways deteriorated fairly markedly between 1968 and 1975.

TABLE 4

Finances of The Rhodesian Railways, 1968-75
Total Income and Expenditure

<u>Year</u>	<u>Total Revenue</u>	<u>Total Expenditure</u>	<u>Net Surplus</u>
1968	56,930	59,110	- 2,180
1969	61,561	58,572	+ 2,989
1970	65,512	63,834	+ 1,678
1971	65,285	66,961	- 1,676
1972	69,895	71,821	- 1,926
1973	68,206	79,202	-10,996
1974	67,365	86,514	-19,149
1975	76,607	97,833	-21,226

Source: Central Statistical Office, Bulletin of Statistics, Dec. 1975.
Salisbury.

In 1974-76 the 100.0 million Rhodesian dollars investment in the direct rail link to Beitbridge in South Africa was clearly dictated by political, rather than economic considerations. The desire to disguise the country of origin of its exports originally led to the use of South Africa for certain external trade. However, with loss of the use of traditional eastern ports of Beira and Lourenço Marques in 1975, all external trade came to be channeled through South Africa. Hence, the necessity of the Rutenga-Beitbridge link. In addition to the direct costs of the limitations on choice imposed by political events¹, other costs may also be observed. The longer and less efficient route for external trade would tend to raise import prices of Rhodesian exports less competitive. Further, are

¹Additional direct costs resulted from purchases of new rolling stock. Mozambique confiscated 2,300 Rhodesian Railway wagons in 1975, at estimated replacement cost of \$50.0 million U.S.

the opportunity costs arising from use of funds to create new facilities while neglecting to maintain adequate levels of maintenance expenditures on other routes. As the next section of the report indicates, intermodal opportunity costs arose also.

II. Roads

Despite the emphasis on rail transport -- because of its importance for the export sector -- the extent and quality of roads is a matter of weight in the transport structure of a developing country. The optimum intermodal allocation of transport resources is an important issue of transport policy. Road transport has certain advantages over rail. The efficiency of investment in a rail system is a function of a heavy-unit traffic, which is available in quantity, with the traffic on offer containing a proportion of high-rated items. In brief, rails are superior for long-distance, heavy unit transport. Rails are also an inherently capital-intensive investment. Roads, on the other hand, are less costly and are a more flexible form of investment since input substitution is possible over a fairly wide range of the construction-planning process. It is also worth noting that rolling stock must be financed by a Public Rail Authority whereas private road users supply their own vehicles.

Main features and recent developments. The present road system was built up during the nineteen-fifties. At that time, road policy emphasized main road construction in a framework of all-weather roads linking major centers. Bridge construction on main and secondary roads was also carried out, so that the country at present has a total of 440 high-level and 300 low-level river crossings. The system includes 5,300 kilometers of tarred two-laned highways and main roads. The latter serve much the same places as the highways. These roads generally duplicate and serve as feeder links to supplement the railway system.

Since 1965 road expenditures have been concentrated in improvement and realignment of some main roads. The only major construction effort between 1969 and 1974 was the Victoria-Beitbridge road link. Improvements have included increases in main road axle loads to 8,200 kilograms in 1971 and widening of single lane mac roads. This was to compensate for an annual growth of 8 percent in overall traffic density and an annual rate of growth of 9 percent in heavy-vehicle traffic.

An inflation rate of 20 percent in road construction costs in the nineteen-seventies placed restrictions on what could be accomplished with already limited road resources. Table 5 indicates that planned expenditure on road transport has been diminishing proportion of total anticipated investment in transport over the planning periods since 1969. Comparison with Capital Budget Accounts suggests that actual expenditures were closely related to planned levels.

TABLE 5

Planned Investment in Transport Sector¹
 Three Year Intervals, 1969-72 to 1973-76
 (in millions of Rhodesian dollars)

<u>Sector</u>	<u>1969/72</u>	<u>1970/73</u>	<u>1971/74</u>	<u>1972/75</u>	<u>1973/76</u>
Railways	31.2	55.8	92.7	96.2	114.4
Roads	14.4	15.8	17.4	n.a.	16.0
Other Transport	6.6	6.4	11.3	31.4	n.a.
Total	52.2	77.2	121.4	127.6	130.4

Source: UN, ECA, Summaries of Economic Data, No. 6, 1974

¹Development planning in Rhodesia involved the elaboration of a "Public Sector Investment Program". Although specifics of the planning mechanism are not known, it involved some interministerial coordination with the Ministry of Finance in financial control.

In summary, there are two outstanding features of the road situation:

1) Main roads were constructed with a 20-year design-life and a high proportion of roads have already exceeded that life. Over the past decade increases in traffic densities and subsequent deterioration have outpaced road maintenance and replacement. 2) Apart from main roads which link major population centers and provide outlets to the coast, the road system is best developed in the Central Highveld. Differences in the frequency and conditions of roads in the Tribal Trust Lands and African Purchase areas are marked. It is reported that road surfacing often comes to an abrupt end at the approach of African areas.

Road Administration and Maintenance. Four authorities share administrative responsibility for roads. i) Main roads and all bridges are under the authority of the Ministry of Roads and Traffic. ii) Rural roads (other than main roads) are under the authority of Rural Councils. iii) African Area roads are the responsibility of the Ministry of Internal Affairs or may be delegated to the African District Council for the area. iv) Finally, roads in municipal areas are the responsibility of individual municipal governments. The Road Ministry does not maintain an in-house capability for road construction or maintenance. All such work is carried out by private contractors in the Civil Engineering industry.

Employment in Transport

Employment of Africans accounted for about 60 percent of total employment in the transport sector in 1975/76 and for somewhat less than 30 percent of total wage and salary receipts. Management and executive positions in the sector have been reserved for European manpower. Table 6 provides some information on skill group by race in rail transport. For the transport sector, there is some African employment

TABLE 6

Employment in Rail Transport by Skill and Race, 1975/76

	<u>European</u>	<u>African</u>
Management and Executive Staff	612	-0-
Enginmen and Drivers	911	45
Guards, Shunters, Brakemen and etc.	795	477
Artisans	5,591	10,059

Source: Southern Africa Study, mimeographed.

at the higher skilled categories. This amounts to approximately 9 percent of total African employment in rail transport.

The Transport Sector in Transition

This section flags some problems in the transport sector which have implications for the transition. The emerging issues will have been implicit in the foregoing pages. The objective here is to point out certain critical issues.

1. Since UDI, the major emphasis of transport policy has been on external trade. This emphasis has produced the following consequences:

a) Railways here received a disproportionate amount of resources in comparison with other modes of transport.

b) Railway capacity has been built up in areas where it is not certain that the quantity and type of freight hauled after removal of sanctions will make recent investments profitable.

c) Road transport, particularly in rural areas, has been under-financed.

d) The interior transport system has been affected by inadequate funds for maintenance and replacement.

2. In general, the removal of sanctions should permit shorter, more efficient routes to be utilized for external trade, lowering transport costs of imported and exported commodities. The lifting of sanctions, however, does not guarantee that physical facilities formerly used for external trade will be adequate.

The port situation is an important question mark. Available information suggests that after removal of sanctions the redirection of external trade may involve difficult adjustments. The conditions of South Africa railways and ports used by that country to handle UDI-exports had made South Africa reluctant to continue providing this service to Southern Rhodesia. There are reports that for the short run, at least, capacity of traditional eastern ports in Mozambique to handle Zimbabwean trade may be limited. The port of Lourenço Marques is reported to be affected by labor strikes. The port of Beira which was almost wholly dependent on the trade carried on before sanctions, would at least require a gearing up period to become operational. Its employment force had been reduced; also its source of supplies and spare parts had been cut off by sanctions. At any event this single port would not have the capacity to handle more than a given proportion of Zimbabwe's trade.

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