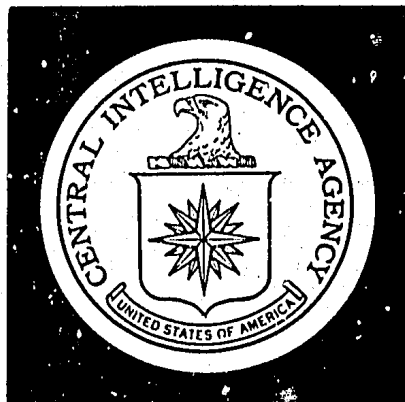


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**DIRECTORATE OF  
INTELLIGENCE**

# Intelligence Memorandum

*Copper Prices And Zambian Revenues*

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CENTRAL INTELLIGENCE AGENCY  
Directorate of Intelligence  
April 1971

INTELLIGENCE MEMORANDUM

COPPER PRICES AND ZAMBIAN REVENUES

Introduction

1. Prices for Zambia's copper fell some 40% from the record levels of March 1970 to less than 50 cents per pound in early 1971. Moreover, a major cave-in at the country's second largest mine has cut sharply into output. Because Zambia depends heavily on the copper industry, which dwarfs all its other industries, these events have had immediate consequences for the economy, although its large foreign exchange reserves are absorbing most of the impact. This memorandum briefly describes Zambia's copper industry and the related world copper situation and assesses the impact of continued relatively low copper prices on Zambian revenues during the next year or two.

Discussion

Background

2. World demand for copper, which has tended to outpace supply since the early 1960s, topped out in 1970, and a buyer's market is expected through 1971 and probably beyond. Prices have drifted downward from a high in early 1970 of more than 81 cents a pound for wirebars on the London Metal Exchange (LME) to 45 cents in mid-January 1971. US prices, which are considerably more stable than LME prices, rose to 60 cents in early 1970 (see Figure 1) but by mid-January 1971 had declined to 50 cents. Prices appear unlikely to return to the highs of a year ago, and the

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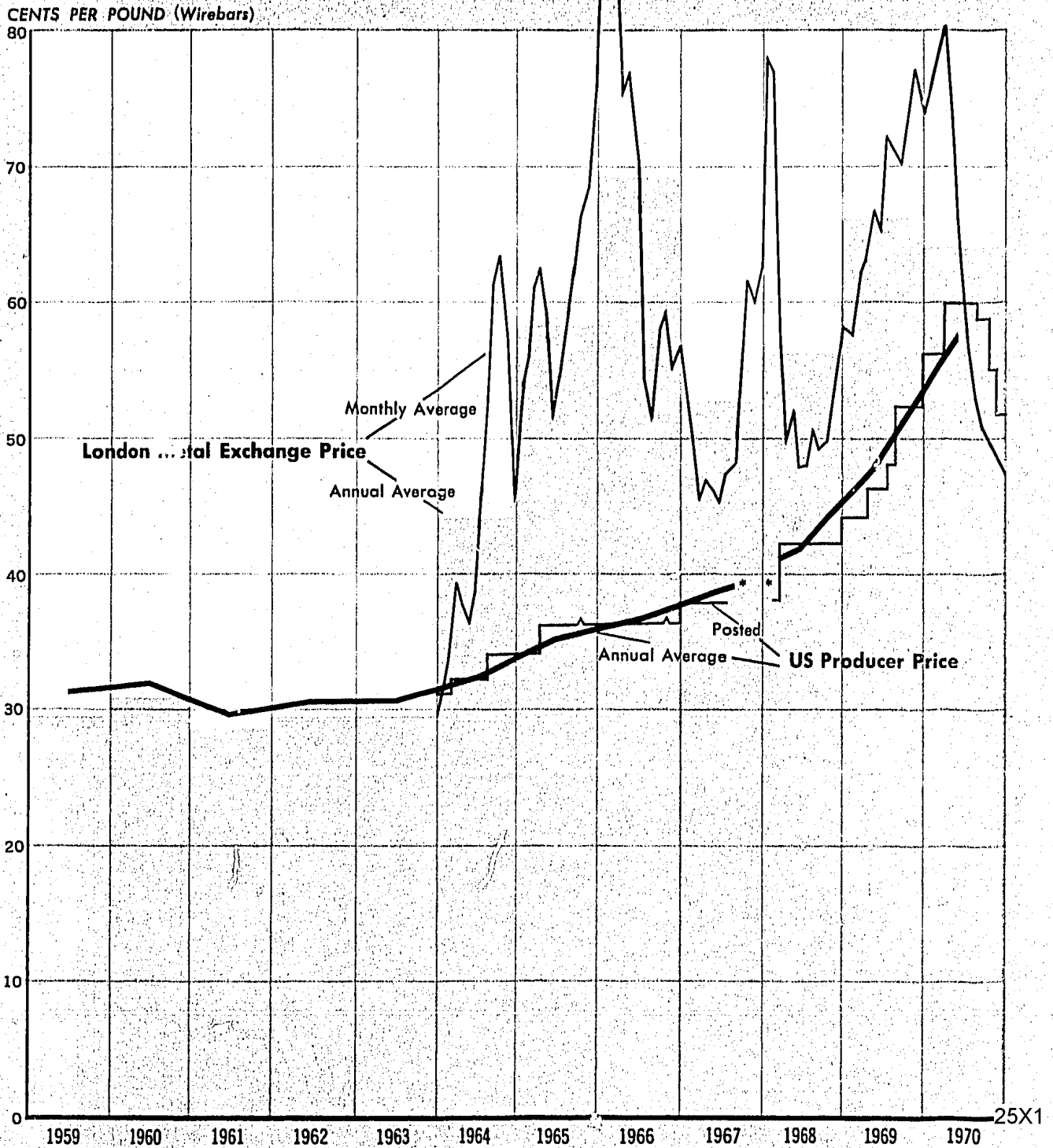
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# Copper Prices

Figuro 1



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No posted price during strike.

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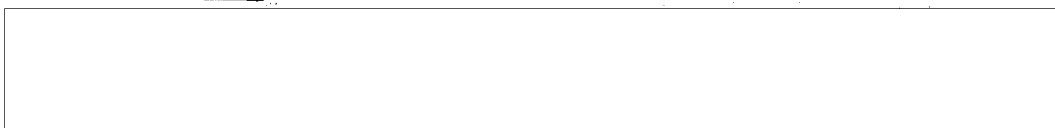
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recent windfall to countries dependent on copper for a significant share of their revenues apparently has ended.

3. The producing countries most affected are Zambia, Chile, Congo (Kinshasa), and Peru. These four, which comprise the Intergovernmental Council of Copper Exporting Countries (CIPEC), mine more than half the Free World copper -- outside the United States -- and export nearly their entire production.\* CIPEC exports account for 70% to 80% of Free World copper exports. Zambia now vies with Chile for first place among the CIPEC group (see Figure 2) and for third place in world production after the United States and the USSR. All four CIPEC countries, but particularly Zambia, depend heavily on copper sales for government revenue and foreign exchange to finance imports and other international transactions, and the finances of all, but again particularly those of Zambia, are vulnerable to a significant fall in copper prices. The copper mining capacities of the CIPEC countries are shown in the following tabulation:

	<u>Thousand Short Tons of Copper Content</u>	
	<u>Actual 1969</u>	<u>Planned 1973</u>
Zambia	825	925
Chile	830	1,300
Congo (Kinshasa)	400	500
Peru	250	295
<i>Total CIPEC countries</i>	<i>2,305</i>	<i>3,020</i>
<i>Total Free World</i>	<i>5,830</i>	<i>8,000</i>

4. More so than in any other country, the copper industry dominates the Zambian economy, accounting for more than 90% of exports, some



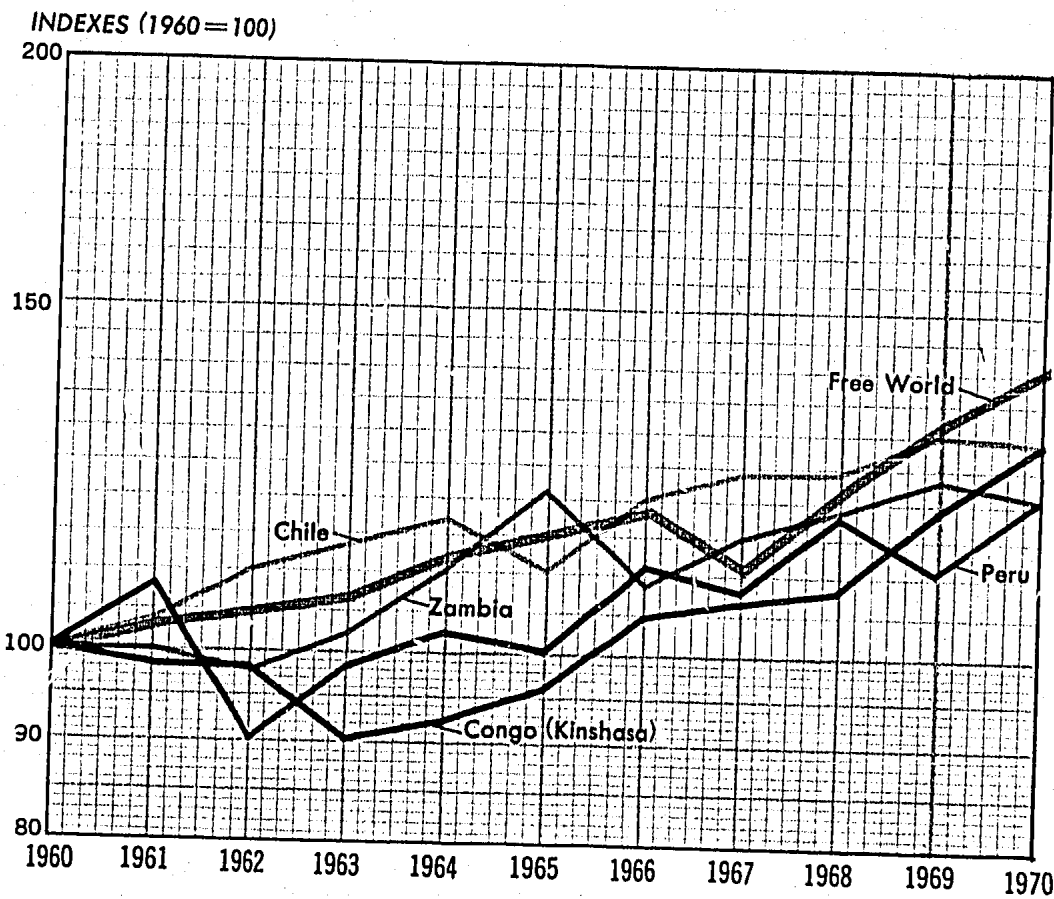
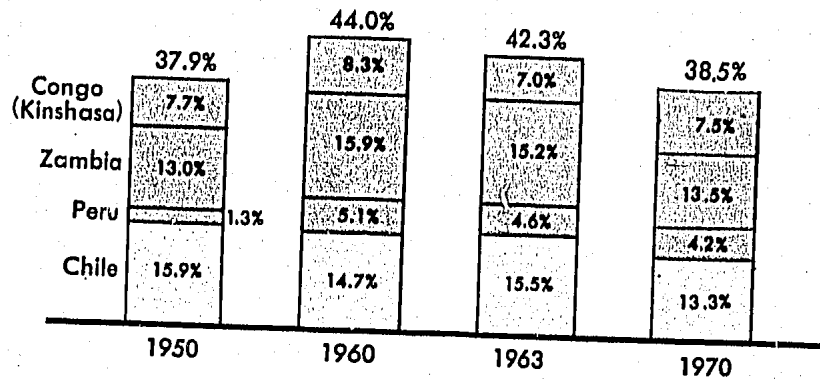
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Figure 2

**Growth of Copper Mine Production  
CIPEC Countries and Free World Total  
Indexes of Copper Content**

(In percent of Free World Total)



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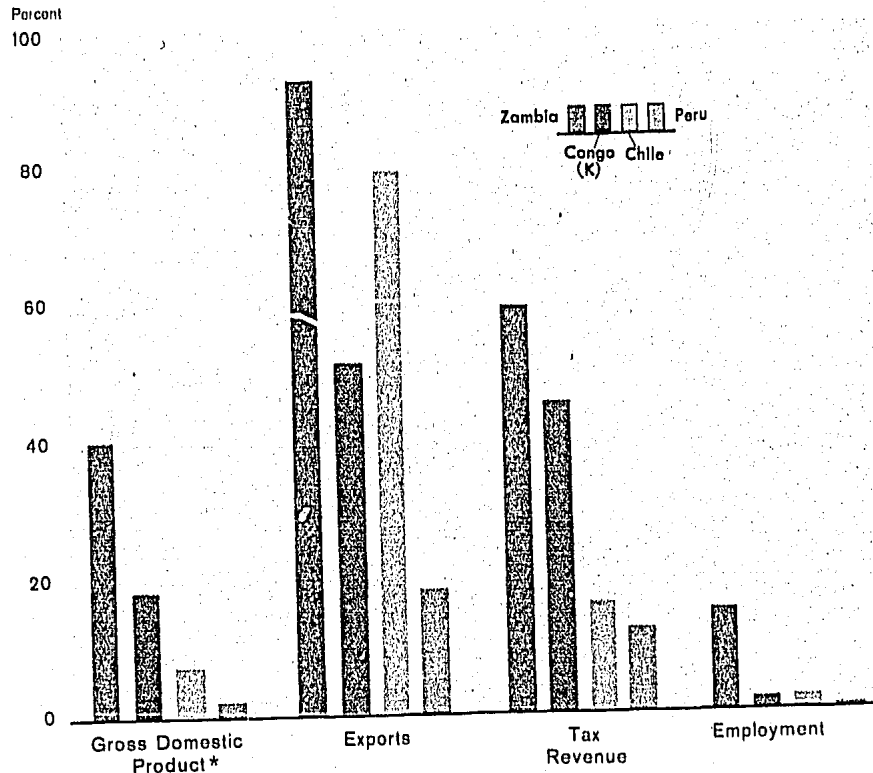
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60% of total government revenues, and about 40% of gross domestic product (GDP), including the estimated value of output in the subsistence sector (see Figure 3). Outside of the copper industry the economy is relatively

**Significance of Copper  
Among Major Free World Producers, 1969**

Figure 3



\*Percent of country's total derived from copper

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undeveloped, relying on imports to supply a major share of domestic needs of all kinds, except basic foods in good harvest years. Copper earnings traditionally have supported a high level of imports, which in 1970 totaled nearly \$440 million, the third highest import bill in sub-Saharan Africa, exceeded only by that of South Africa and Nigeria. A major decline in copper revenues, therefore, is of unusual significance to Zambia.

#### The Copper Industry

5. The Zambian copper industry is made up of two companies, Nchanga Consolidated Copper Mines (NCCM) and Roan Consolidated Mines

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(RCM), which produce approximately 52% and 48%, respectively, of Zambia's copper output. Seven mines located in the Copperbelt bordering the Congo (Kinshasa) are the principal source of copper ores. Although these mines have been operating since the 1930s and some even earlier, unexploited reserves averaging 2.5% copper content are adequate to maintain current production for the foreseeable future. In addition, large but unexplored deposits, which are extensions of the Copperbelt, are believed to exist and could provide the base for a greatly expanded industry. The companies own three copper smelters and three refineries which produced 825,000 tons of copper metal in 1969 (see the map), as shown in the following tabulation:

<u>Year</u>	<u>Thousand Short Tons</u>	<u>Year</u>	<u>Thousand Short Tons</u>
1965	755	1969	825
1966	646	1970	768 est.
1967	679	1971	760 est.
1968	733		

6. The present company organization was created in January 1970 when the subsidiary mining companies owned by Anglo American Corporation and the Road Selection Trust were consolidated into two newly created companies, Nchanga Consolidated Copper Mines and Roan Consolidated Mines. The government took a 51% share of each new company and issued 6% interest bearing bonds in payment, redeemable over a maximum of eight years for RCM bonds and 12 years for NCCM bonds. Redemption payments totaling \$19.7 million will be made every six months for eight years. At the end of that time, RCM bonds will have been completely redeemed, but payments of \$10.4 million for NCCM bonds will continue every six months for four more years. All payments are to be made out of the government's share of profits. The new companies are managed under contract by the former operators to whom management fees are paid. The government also changed the method of collecting revenue from the companies, abolishing the royalty and export tax system and replacing it by a single mineral tax of 51% of gross profits and an income tax of 45% payable on the balance -- a total of about 73% of gross profits.\*

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The new system has the merit of being simpler to compute and collect than the former system and also increases the tax on copper revenues somewhat.

7. The transition from private to state control was carried out without interrupting production, but in late September 1970 a cave-in of disastrous proportions occurred in RCM's Mufulira mine. Mufulira was the country's second largest copper producer, supplying about 25% of Zambia's output or more than 15,000 short tons monthly. Although production of about 3,000 tons a month was resumed in November 1970, the loss resulting from the cave-in for the year as a whole amounted to an estimated 40,000 tons. Nearly full production at Mufulira is expected by July 1971, but the cost in terms of restoration as well as lost production will be great.\* Lost production alone could reach 70,000 tons in 1971.

Revenues and Government Finances

8. Zambia has been riding the crest of a prosperity wave brought about by high copper prices during the past six years. Zambian prices, which since 1966 have been based on the LME price, rose from an annual average of 32 cents per pound in 1965 to 63 cents in 1969 and then declined to 60 cents in 1970. The value of Zambian copper sales nearly paralleled the change in price, increasing from \$480 million in 1965 to \$1,035 million in 1969 and then declining to \$930 million in 1970, as shown in the tabulation below:

<u>Million US \$</u>		
<u>Year</u>	<u>Value of Sales</u>	<u>Revenues to Government from Copper Industry</u>
1965	480	190
1966	615	230
1967	620	205
1968	720	255
1969	1,035	330
1970	930 est.	300 est.

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Concomitantly, government revenues from the copper industry increased from about \$190 million in 1965 to \$330 million in 1969, an average of 15% annually, before declining 10% in 1970 to an estimated \$300 million. Copper production changed little during the period, increasing only 9% between 1965 and 1969 and then declining in 1970 to less than 2% above the 1965 level.

9. Rising revenues have permitted Zambia to increase total budget expenditures by some 22% annually from fiscal year (FY) 1965 through 1971 (see Table 1). In spite of the steady growth of recurrent expenditures, which in 1970 were 2.4 times the FY 1965 level, the recurrent budget consistently has shown surpluses ranging from \$72 million in FY 1965 to \$235 million in calendar year 1969 and almost that much in 1970 when accumulated surpluses from past years totaled \$105.7 million. The capital budget generally has been fairly conservative and has been financed with little difficulty out of recurrent budget surpluses supplemented by some domestic and external borrowing. Most capital expenditures have been on infrastructure, particularly since the Rhodesian Unilateral Declaration of Independence when Zambia launched a program to decrease its dependence on Rhodesia. The rather large deficit recorded in 1968 resulted from this effort. Capital budget expenditures increased more than 60% in 1968 over the previous year, primarily as a result of investments in power, coal, railroads, and telecommunications.

**Foreign Trade and Balance of Payments**

10. Foreign trade plays a predominant part in Zambia's economy, with merchandise exports and imports equivalent to 64% and 26%, respectively, of GDP in 1969. Export receipts depend almost entirely on copper exports, and import payments have risen since 1965 because of investment outlays on development projects, including those associated with decreasing Zambia's dependence on Rhodesia. Exports increased an average of 20% annually between 1965 and 1969, reaching more than \$1 billion in 1969, while imports increased less rapidly (9% annually) to \$439 million. The annual trade surpluses, which had averaged \$217 million during 1965-68, rose to \$627 million in 1969. In 1970, however, the trade surplus declined to about \$545 million, due almost entirely to a decline in receipts from copper exports (see Table 2).

11. The relatively large surplus on merchandise account is in part offset by substantial payments for freight and insurance and by remittances abroad, mostly by copper companies and their employees. During 1965-69, payments on services and transfers were on the average equivalent to 29% of export receipts. Private and official capital movements during the five-year period have been relatively small. Capital movements fluctuate

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Table 1

## Zambian Central Government Accounts

	Million US \$							
	<u>FY 1965</u>	<u>FY 1966</u>	<u>Jul-Dec 1966 <sup>a/</sup></u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970 Revised</u>	<u>1971 Estimated</u>
Recurrent account								
Revenue	219.9	304.4	199.3	385.7	428.5	561.7	582.8	484.1
Expenditure	147.8	195.2	163.7	243.2	316.0	326.5	354.2	460.9
Surplus	<u>72.1</u>	<u>109.2</u>	<u>35.6</u>	<u>142.5</u>	<u>112.5</u>	<u>235.2</u>	<u>228.6</u>	<u>23.2</u>
Capital fund account								
Appropriation from recurrent account	51.8	86.8	56.0	100.8	112.0	196.0	148.4	112.0
Borrowing and other receipts	26.9	24.4	17.5	42.7	93.7	72.2	83.7	101.2
Total capital receipts	<u>78.7</u>	<u>111.2</u>	<u>73.5</u>	<u>143.5</u>	<u>205.7</u>	<u>268.2</u>	<u>232.1</u>	<u>213.2</u>
Capital outlays	42.8	91.8	57.3	167.2	270.6	218.8	231.0	241.6

a. Beginning on 1 January 1967, the Zambian government accounts were shifted to a calendar year basis instead of the former fiscal year (1 July-30 June).

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Table 2

## Zambia: Summary of Balance of Payments a/

	Million US \$					
	1965	1966	1967	1968	1969	1970 Provisional
Current account (net)	87.6	70.7	14.5	-23.8	320.0	155.4
Goods and services	113.5	84.1	14.6	11.1	394.9	294.0
Trade balance	201.0	254.2	185.8	228.1	627.3	544.6
Exports f.o.b.	513.5	624.7	651.3	746.6	1,066.7	984.2
Imports f.o.b.	312.5	370.4	465.5	518.6	439.3	439.6
Services (net)	-87.5	-170.1	-171.2	-217.0	-232.4	-250.6
Transfers	-25.9	-13.4	-0.1	-34.9	-74.9	-138.6
Capital movements (net)	-18.3	-38.8	37.4	40.6	-91.6	95.2
Private	-0.4	16.9	20.4	40.6	-109.8	128.8
Official	-17.9	-55.7	16.9	--	18.2	-33.6
Special drawing rights allocation	--	--	--	--	--	8.4
Errors and omissions	69.3	-18.8	-85.1	-7.7	-51.7	--
Apparent change in assets		13.2	-33.0	9.1	176.8	259.0

a. Because of rounding, components may not add to the totals shown.

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considerably because direct investments by the mining companies and variations in their balances held overseas have been the principal components of private capital movements.

12. The high value of copper sales in 1969 and 1970 created substantial balance-of-payments surpluses, which increased external reserves to slightly more than \$500 million by the end of 1970, an amount 16% greater than imports in that year. In 1969, copper exports were 44% above those of the previous year and, although declining in 1970, remained 29% above those of 1968. The balance on current account rose from a deficit of \$24 million in 1968 to surpluses of \$320 million in 1969 and \$155 million in 1970. Although capital movements showed a deficit of almost \$92 million in 1969, mainly as a result of a buildup of foreign exchange balances held abroad by the mining companies, the deficit was covered easily by the surplus on current account. The funds held abroad were returned to Zambia in 1970, accounting for much of the large net private inflow of nearly \$129 million in that year and consequently for the surplus of \$95 million on the capital account as well as the unprecedented growth in assets of some \$259 million.

### Prospects

13. World copper prices remained well below 1970 highs during the first quarter of 1971. In January, prices on the LME fell to 46 cents per pound and remained close to that level until mid-March when they rose above 50 cents in response to the news that Chile's copper industry was having difficulties and that Chilean exports might decline. Price behavior in the second half of the year is difficult to predict because of uncertainties, including the possibility of a US copper strike when labor contracts expire on 30 June. A nine-month strike, such as occurred in 1967-68, is unlikely, but even a strike of several months would raise prices considerably on the sensitive LME. Three other potential influences on prices are: an upsurge of the US economy in the third and fourth quarters; concerted action by CIPEC countries to raise prices by restricting the supply of copper; and a continuing shortfall in Chilean output. While none of these factors alone would be likely to raise prices to the highs of 1970, the three together might.

14. With prices lower, Zambian government revenues are being squeezed. The advantage once enjoyed by Zambia as probably the lowest cost copper producer in the world ended in recent years largely as a result of Zambian efforts to reduce dependence on Rhodesia. The substitution of low-grade Zambian coal for Rhodesia's excellent Wankie coal and efforts to circumvent the Rhodesian railroad, which resulted in doubling transportation costs, have been two principal factors in the steady rise of

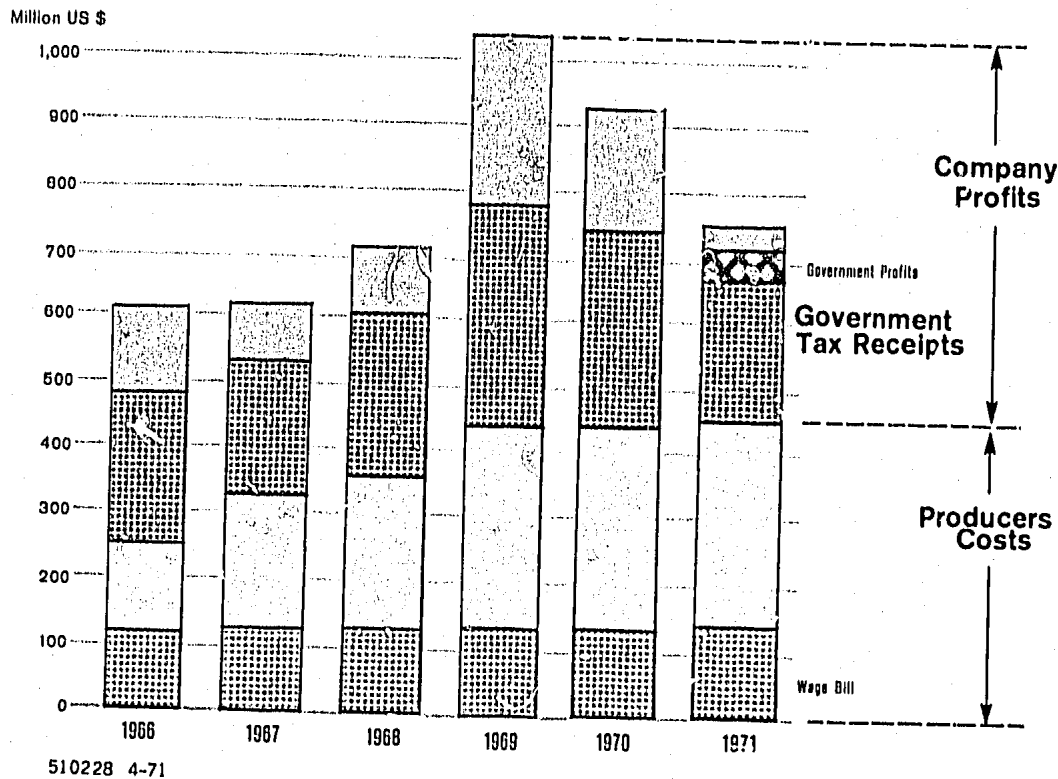
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costs from 20 cents per pound in 1966 to 30 cents per pound in 1971. The rise in costs has narrowed the gross profit margin on which the mineral tax and income tax are levied (see Figure 4) – for example, in 1971, with

**Zambia: Distribution of Copper Sales Revenue**

Figure 4



costs of 30 cents per pound, government tax revenues were roughly \$110 million less than they would have been at the 1966 cost level of 20 cents per pound. Moreover, the government's commitment not to increase taxes on copper revenues beyond 73% on gross profits until all bonds are redeemed – presumably a 12-year period – closes this option as a means of raising revenues.

15. With the decline in the value of Zambian copper sales in 1971 because of lower prices and reduced production, government tax receipts will decline and the balance of payments will deteriorate. At the anticipated 1971 production level of 760,000 tons, each 1 cent variation in the average annual price received per pound causes approximately a \$15 million change in annual export earnings and an \$11 million change in tax receipts at

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prices above 30 cents per pound (see Table 3). Thus, if the average annual price received by Zambia were 50 cents per pound in 1971, which apparently is the average price assumed by Lusaka for planning purposes, export earnings would decline by roughly \$170 million from the 1970 level and tax receipts would fall by about \$80 million and probably more. (Estimates of tax receipts are complicated by the fact that 1971 is the first full year the new tax structure will be applied to copper industry earnings.)

16. The Zambian government is not letting this decline in revenues interfere with its economic development and military programs. An increase of 15% in imports is projected for 1971 which, together with the drop in export earnings, will result in a current account deficit of around \$100 million. The capital account also will probably be in deficit as the large private capital inflow of 1970, which resulted largely from the return of copper company earnings held abroad, will not be repeated. In the 1971 budget a decline of \$100 million in current government revenues is anticipated and an increase of slightly more than \$100 million in current expenditures is planned. A large part of the increase represents military expenditures and greater spending on education and infrastructure. The surplus of current revenues over current expenditures thereby will be reduced to \$23 million (see Table 4), the smallest since Zambian independence. This surplus is too small to cover the planned allocation of \$112 million to the capital fund -- the first time the capital expenditures have ever exceeded the current surplus.

17. In spite of balance-of-payments and budget deficits should copper prices remain depressed, Zambia should have little economic difficulty in 1971. Zambian foreign exchange reserves, which totaled slightly more than \$500 million at the end of 1970, are many times larger than any foreseeable balance-of-payments deficit in 1971. Budget deficits can be covered quite readily by domestic borrowing, a device that, given unrestricted imports, ought to be no more inflationary than financing from copper revenues. Even should unfavorable copper prices extend into 1972, foreign exchange reserves should be adequate to cover all reasonable contingencies.

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Table 3  
 Distribution of Copper Sales Revenue in 1971  
 at Different Average Yearly Prices a/

	Million US \$						
	Price per Pound						
	<u>\$0.48</u>	<u>\$0.50</u>	<u>\$0.52</u>	<u>\$0.54</u>	<u>\$0.56</u>	<u>\$0.58</u>	<u>\$0.61</u>
Sales revenue	730	760	790	821	851	882	927
Producers costs	456	456	456	456	456	456	456
Of which:							
Wage bill	140	140	140	140	140	140	140
Government tax receipts	200	222	244	266	288	311	344
Company net profit	74	82	90	99	107	115	127
Of which:							
Government ownership profit	38	42	46	50	55	59	65

a. At a production level of 760,000 short tons.

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Table 4

Zambian Central Government Accounts  
as Published in January 1971

	<u>Million US \$</u>
<b>Recurrent Account</b>	
1. Revenue	484.1
2. Expenditure	460.9
3. Surplus	23.2
4. Accumulated surplus on recurrent account	105.7 <u>a/</u>
<b>Capital Fund Account</b>	
5. Appropriation from recurrent revenue	112.0 <u>b/</u>
6. Borrowing and other receipts	101.2
7. Total capital receipts	213.2
8. Capital outlays	241.6
9. Deficit	28.4
10. Accumulated surplus on capital account	35.0 <u>c/</u>
<i>Total funds available (items 1 + 6)</i>	585.3
<i>Total expenditures (items 2 + 8)</i>	702.5
<i>Total deficit</i>	117.2
<i>Total accumulated surplus available (items 4 + 10)</i>	140.7

- a. Unappropriated surpluses on Recurrent Account accumulated from past years.
- b. Appropriation to be made out of items 3 and 4.
- c. Unappropriated surpluses on Capital Fund Account accumulated from past years before deduction of 1971 deficit of \$28.4 million. . 15 .

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**CONFIDENTIAL**Conclusions

18. Zambia's dependence on copper for more than 90% of export earnings and 60% of government revenues makes the country's economy extremely sensitive to world copper price movements. At current production levels, each 1 cent variation in the average annual price received per pound causes a \$15 million change in annual export earnings and a variation of approximately \$11 million in government tax revenues. Relatively high copper prices since 1965 but particularly in 1969 and early 1970 permitted high levels of spending on infrastructure and the development of domestic resources and other projects to lessen dependence on Rhodesia. In spite of large expenditures, surpluses were shown on annual budgets, and external reserves increased to slightly more than \$500 million at the end of 1970.

19. The sharp drop in copper prices in early 1971, unless reversed later in the year, will significantly reduce Zambia's export earnings and government revenue. The recent agreement nationalizing the copper industry is unlikely to increase the government's share of gross copper earnings very much. Despite lower revenues, the government is going ahead with economic development and military programs; imports and government expenditures are planned to increase substantially in 1971. As a result, both the balance of payments and the state budget are expected to show deficits.

20. Zambia's foreign exchange reserves are more than sufficient to cover prospective balance-of-payments deficits through at least 1972. With imports largely free of restrictions, it is unlikely that the projected budget deficits will be seriously inflationary.

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