

# The Ivory Carving Industry of Zambia

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Commercial ivory carving in Zambia did not begin until the early 1970's, the same decade as for Zambia's southern neighbours: Zimbabwe, Botswana and South Africa. Prior to then, ivory was, however, carved in small quantities. For example, in some parts of Zambia chiefs wore ivory bangles as a symbol of their status and authority, and the Lozi people were known to make bangles as ornaments for both men and women; but in no way could the carving be considered an ivory industry, and it is unlikely that there were any carvers who worked full-time with ivory.

The early 1970's were prosperous times for Zambia, and the relatively strong economy, based on copper exports, attracted many foreigners, including traders from West Africa, Kenya and Somalia, some of whom had little respect for the law. This was when many Zairois were also lured to Zambia, including ivory carvers who had a tradition in their own country of working ivory for several hundred years.

Since raw ivory was easily obtainable in Zambia in the early 1970's and its value was starting to increase substantially on the world market, it was not surprising that the foreign traders along with Zambians began to exploit it in a major way. For a person to trade legally in ivory, whether worked or raw, he required a trophy dealer's licence, which was granted by the National Parks and Wildlife Service (NPWS). From 1971 to 1978 the number of trophy dealers increased from 66 to 224 (see Table 1). Over 90% of them handled ivory as there was much money to be made from selling ivory carvings and in exporting raw ivory.

One of the first persons to set up an ivory carving business in Lusaka was an Italian businessman in 1971. He hired four Zairois carvers who worked with only hand tools in the beginning, but once the business began to prosper, the owner purchased electrically powered machines. The raw ivory was bought from NPWS at 2 kwacha per kg (about US\$3) in 1974, and from hunters who shot elephants legally. By the mid-1979's the firm was consuming between 500 kg and 600 kg of raw ivory a year, which was processed into many types of items: carved tusks, chess sets, pendants, bangles, necklaces, sculptures of human heads, animals and fruit.

The Italian's company, however, was not the biggest in the late 1970's. The largest one in the country was then owned by an Indian who had a retail shop in the middle of Lusaka, where he sold all types of tourist souvenirs and gifts. Also in Lusaka, he started his ivory factory in 1977; he hired two carvers and two machinists to produce items for his shop. The business quickly grew, and at its peak, around 1980, there were 28 ivory workers: seven carvers, nine machinists and twelve ivory scrapers. All the carvers were Zairois, and they were paid for what they made, rather than given a regular salary. In the early 1980's the Indian's best carvers were earning about \$650 a month, and the factory was consuming on average eight to ten tusks per month weighing 12-16kg each. In a year, about 1,5 tonnes of raw ivory were processed into ivory goods, with a 25% wastage. Tine raw ivory, purchased from NPWS at a total cost of \$37 500, was converted into about \$330 000 worth of ivory commodities (at retail prices). Thus, each ivory worker converted on average 53,5 kg of raw ivory into carvings that retailed for about \$11 800. For comparison, in 1982 in Zimbabwe, the average ivory craftsman consumed 75 kg of raw ivory (E. Martin, 1984). Zambia's period of economic growth was shortlived, however; in the latter part of 1976 the economy began to decline and has continued to fall ever since; between 1976 and 1984 the per capita national income in kwacha (at 1970 prices) fell by 25%, according to official data published by the Central Statistical Office in Lusaka

**Table 1.** Licensed trophy dealers in Zambia

Year	Number
1971	66
1973	96
1974	130
1975	186
1977	222
1978	224
1979	216
1980	205
1981	167
1982	62
1983	25

Source: Unpublished statistics from the National Parks and Wildlife Service.

(Republic of Zambia, 1984; 1985). With the decline, many of the European and Asian residents began to leave the country, and the government brought in stricter controls on foreign exchange. Therefore, these foreigners began to look around for items they could purchase which would have some value outside the country. Ivory carvings were an obvious choice, although the quality of the workmanship was not up to the standard prevailing in most of southern Africa.

Large quantities of ivory carvings were bought in the late 1970's, but many of them lacked proper documentation. In 1978 some of Zambia's honorary rangers searched every passenger and crew member flying to Europe during a six-week period to ascertain how much ivory was being taken out of the country illegally, and they discovered that vast amounts of worked ivory were being taken, but only one raw tusk was found. During these six weeks, \$41 260 worth worked ivory was confiscated. There were two incidents when the crews of a European carrier were caught smuggling ivory carving. Flights going to London carried very little illegal ivory, but those going the European continent carried large amounts. The honorary rangers learned that almost all the people smuggling ivory were residents of Zambia, not tourists.

As the economy of Zambia declined, the value of the kwacha, compared with the main European and American currencies, also fell. From 1975 to June 1985 the official value of the kwacha went from on kwacha equalling US\$1,55 to just 42c — a 73% drop. Many traders in Zambia illegally exported goods in order to externalize their assets. The West Africans and Zairois were especially active; they smuggled out emeralds, amethysts and malachite as well as ivory.

By the early 1980's these traders realised that because Zambian ivory carvings were relatively crude there were difficulties in selling them abroad. They then put their efforts into moving large quantities of raw ivory out of the country, which produced disastrous results to the elephant populations.

In 1973 an aerial census was carried out in the Luangwa Valley, which had the largest number of elephants in the country. Graham Caughley and John Goddard estimated a total of 56 000 in North Luangwa, South Luangwa and in the corridor between (Caughley and Goddard, 1975) Some six and a half years later, in 1979, Iain Douglas-Hamilton estimated a population of 33 510 in the same areas; this meant a 40% decline (Douglas-Hamilton et al. 1979). A third census was

carried out and analysed by Dale Lewis and Gilson Kaweche during the wet season, in January 1985. This showed a further decline of 30% to 400/n since 1979 (Kaweche and Lewis, 1985). Iain Douglas-Hamilton, who made the first continental estimate of elephant numbers in 1979 for the World Wildlife Fund and the New York Zoological Society, believed there were then about 150 000 elephants in all of Zambia (Douglas-Hamilton, 1979). In mid-1985, NPWS estimated only 41 000 (personal communication with George Mubanga, Senior Wildlife Research Officer), indicating a decline of 73% over the past six years.

The illegal killing of elephants throughout most of Zambia escalated due not only to the deteriorating economy but also to the sharp increase in the world market price for raw ivory and the ineffectiveness of the anti-poaching units of NPWS which suffered from a lack of adequate funding, a shortage of manpower and low morale. The illegal trade in raw ivory increased so much during the 1970's that several members of NPWS believed that the trade was totally out of control. Some trophy dealers were buying a single ivory tusk from NPWS only for the purpose of using the official ownership certificate they received with it for other ivory they illegally purchased from villagers.

According to information supplied to me by senior members of NPWS, much of the ivory smuggled out of the country since the 1970's came from elephants poached in the Luangwa Valley. The normal practice is for a trader (who may be Zairois, Senegalese, Somali or Zambian), to lend to an illegal hunter a rifle with a good supply of cartridges. The hunter then descends the Muchinga escarpment, probably with a porter or two from a nearby village to carry provisions down, and raw ivory back. Often a group of hunters and porters will work together in a gang, staying in the Valley for a week or two. On the western side of the Valley, the gangs are large, averaging about ten men, but on the eastern side they rarely consist of more than seven and these are less sophisticated hunters, generally without automatic rifles. The gangs move their camp from time to time during their stay in the Valley and they search for rhinos as well as elephants. When they leave, they go back up the escarpment by foot, usually to the western side or due north; the eastern and southern sides of the Valley are more protected by tourist development and Game Management Areas. On the western side of the Valley most of the poachers are Bisa and Lala peoples; in the north the Bemba are involved, and in the east the Kunda, Chewa, Nsenga and Tumbuka take part.

In 1992, according to information supplied to me by Phil Berry (then Warden of the Save the Rhino Trust Luangwa Anti-Poaching Unit), hunters on the western side of the Valley were paid 20 kwacha (\$2 1,50) per kg for the raw ivory by middlemen, while on the eastern side of the Valley Zambian and Malawian poachers received only half that amount, or just under \$11 per kg. The ivory on the eastern side went into neighbouring Malawi where it was used in the domestic ivory carving industry (Martin, 1985), and the ivory transported to the northern and western ends of the Valley was mostly exported out of the country to Burundi and other places where the markets were bigger and more lucrative. The price paid to the poachers on the western side of the Valley in 1982 was about half the world market price, based on the official value of the kwacha. In fact, in 1982 and 1983 the black market rate for the kwacha was twice as high for foreign convertible exchange as the bank rate soon the western side of the Valley poachers were receiving only 25% of the international price for raw ivory, and 12,5% on the eastern side.

According to more recent information supplied to me by the Chief Ranger of NPWS, D.C. Eldred, the traders in rural areas paid about 65 kwacha (\$37) per kg for raw ivory in 1984 while the price in the cities was 95 kwacha (\$53) per kg. Time prices in rural areas are now almost exactly half the world market price, based on official

exchange rates, but, using the unofficial kwacha rate, are one-quarter of the world market price (as was the case in 1982).

Once the middlemen purchase the illicit raw ivory, they organise its shipment out of the country. According to information given to me by two honorary rangers in Zambia, the majority ends up in Burundi, sometimes moving via the Zambian port of Mpulungu on Lake Tanganyika. Much cement is exported to Burundi from this port, and it is likely that considerable quantities of ivory are hidden in the cement bags. One of Zambia's better-informed honorary rangers told me that the pace of loading cement bags on to ships at Mpulungu becomes almost frantic during the lunch period when customs officers are either not on duty or are not inspecting as thoroughly as during the regular working hours. Whether this has been true for some years, I do not know, but there is no doubt whatsoever that large amounts of raw ivory from Zambia are illegally taken out of the country and sent to Burundi. Since the late 1970's, Burundi has been one of the major exporters of raw ivory in Africa, although the country has only one live elephant; most of Burundi's ivory originates from Tanzania, Zaire and Zambia (R. Martin, 1985).

Zambia's raw ivory is also illegally moved overland by lorry into Zaire and Malawi, and southwards into Botswana and South Africa. Statistics on this illicit trade are few, but occasionally large hauls are intercepted by the government authorities. In 1981 a Greek businessman in Lusaka concealed 476kg of raw ivory in a false bottom of his lorry and illegally took it into South Africa. He was arrested, and pleaded guilty in the South African court, but in mitigation he stated that the reason he moved ivory out of Zambia without a permit was because the Zambian government would not give him enough convertible exchange to take out of the country.

In the 1970's there were three sources from which trophy dealers obtained ivory: NPWS headquarters at Chilanga (which obtained most of its supplies from confiscations), the legal elephant hunters and the dishonest businessmen. Quantifying amounts from these sources is impossible, but general estimates can be made. Unfortunately, even figures from NPWS are incomplete. From 1971 to 1976 one set of official statistics shows that on average each year NPWS gave export permits for 2 041 tusks, but no weights are listed for these. It appears from other ivory export permits supplied to me by NPWS that from 1975 to 1978, 58 745 kg of raw ivory were legally exported, or an annual average of 14 686 kg. These figures give some idea of the minimum quantity of raw ivory legally available.

For 1978 and 1979 an annual average of 363 elephants were legally shot by resident hunters and 78 by overseas safari clients (see Table 2).

Table 2. Numbers of elephants shot on licence in Zambia from 1978 to 1981.

Year	Resident Hunters	Safari Clients	Total
1978	365	82	447
1979	361	74	435
1980	293	101	394
1981	159	47	206

Source: Unpublished statistics from the National Parks and Wildlife Service.

Most of the ivory obtained by safari clients was exported by them and thus was not usually available to the Zambian trophy dealers. NPWS annual report for 1978 gives the average tusk weight of elephants shot by safari clients from 1973 to 1978 —over which time it dropped from 22 kg to 17 kg. If we assume that the average tusk weight continued to decline to 15 kg, then in the late 1970's the resident elephant hunters produced a maximum of 10 tonnes of ivory per year.

Regarding the third source, the illicit dealers, one can only guess the amounts. However, it is not unreasonable to propose that at least

2 000 elephants were illegally killed each year during the 1970's, which would provide a gross potential of at least 20 tonnes of ivory a year; although not all of it would be picked up, probably more than half would be.

Whatever the total amount of ivory available in Zambia in the 1970's, it was a very great quantity, and the majority of it was illegally obtained by traders. This was confirmed to me not only by members of NPWS but also by honorary game rangers and trophy dealers themselves. Moreover, the ivory carving industry was based mainly on illegal supplies. Consequently, the government began phasing out licences to trophy dealers in 1979. From 216 in that year, there were only 25 licences issued in 1983.

On account of the illegality of the ivory trade in the 1970's, it is not possible either to determine how much raw ivory was consumed by the ivory carving industry or to know how many ivory craftsmen there were. However, from information supplied by NPWS staff, honorary rangers, former owners of ivory workshops and from the estimated demand for worked ivory (partly based on today's requirements), it is probable that the amount of raw ivory consumed in the ivory industry from 1974 to 1979 was between 6-10 tonnes per year, and that there were about 10 full-time ivory craftsmen and perhaps another 100 part-time. This conforms with the figure derived from the annual average consumption of 53,5 kg per carver.

In the 1970's the staff at Chilanga, NPWS headquarters, outside Lusaka, sold ivory on a "first come first served" basis. However, charges of favouritism towards some of the trophy dealers were made, and the Chief Warden also believed that the system was unfair since certain dealers were privileged to inside information about the times when the ivory store was full. With the phasing out of the local trophy dealers and the private ivory carving industry, NPWS changed the method of selling raw ivory. In 1979 a tender system started, and only locally registered trophy dealers were invited to submit bids. The raw ivory was divided into three grades, based on weight and quality: Grade 1 was whole tusks in excess of 15 kg; Grade 2 was whole tusks of 5-15 kg; Grade 3 was scrap, broken tusks and pieces of ivory weighing less than 5 kg. (Recently, the minimum weight of Grade 1 was reduced to 13 kg and Grade 2 to 4 kg). On 11th November 1979 NPWS sold 10 358 kg of raw ivory to six local companies for the following prices: Grade 1 at 30 kwacha (\$37,82) per kg; Grade 2 at 26 kwacha (\$32,78) per kg and Grade 3 at 10 kwacha (\$12,61) per kg. These prices were about half those of the world market price at the time and thus NPWS lost about \$340 000 on this sale.

Within the private ivory carving industry being purposely wound down by the government and with NPWS trying to discourage exports of raw ivory by Zambian trophy dealers, NPWS began to invite overseas buyers to purchase their stocks of raw ivory, a policy which should have been introduced earlier. In February, 1982, two well-known foreign firms won tenders for 12 437 kg in a consignment within an average tusk weight of 5,68 kg. Only Grades 1 and 2 were sold, at 53,19 kwacha (\$57,30) and 51,14 kwacha (\$55,09) per kg. This time, because foreign buyers were approached, NPWS received approximately the world market price.

The third major tender took place in July 1983, when 8 831 kg of ivory (average tusk weight 7,96 kg) sold for an average price of \$37,83 kwacha, or \$30,25 per kg — which is low — but no ivory of Grade 1 was offered. The consignment was purchased by a European company which of course exported it. The fourth and most recent sale was 8 108 kg offered by tender for US dollars, and it was secured by the same European company. The three grades of ivory were sold at \$87,10, \$69,05 and a remarkable \$59,09 per kg respectively. In early 1985 the world price for raw ivory reached an all-time high because of tremendous demand for it in Hong Kong and Japan, due to the fact that a significant decrease in supply would occur in 1986 with the introduction of the new CITES quota system.

In a further attempt to control Zambia's ivory trade, the government outlawed all hunting of elephants in early 1982 by Presidential decree. Moreover, a year and a half later, all licences to trade in worked ivory were withdrawn; but a few trophy dealers were allowed to continue to sell their old stocks of ivory commodities if they registered them with NPWS. In July 1985 there were several shops in the centre of Lusaka, mostly on Cairo Road, and some at the airport, still selling various ivory items: chess sets, heads, necklaces, earrings, pendants, animal figurines, chokers, bangles and hair pins, even though all private carvers were supposed to have ceased working in ivory by June 1984. And, there were also illegal hawkers of ivory in the back streets of Lusaka and outside the Pamodzi Hotel, a few kilometers from the city centre. They claimed that their small selection of ivory carvings were made on the Copper Belt. Since NPWS does not have staff or transport available to patrol urban areas adequately this illegal trade has not stopped.

Under the provisions of the Wildlife Conservation Fund, which began in January 1983, NPWS set up its own ivory carving business. The Fund permits NPWS to enter into a variety of businesses in order to earn money to purchase equipment for anti-poaching work, to improve conservation activities and to aid staff welfare. In setting up an ivory factory, NPWS hoped to create stronger controls on the sale of ivory carvings and to create a monopoly on the ivory carving industry, as well as increasing revenues.

The ivory factory, officially called the Zambia Ivory and Trophy Centre, was established in August 1983 in Chilanga, shortly before all private ivory craftsmen were to cease work. NPWS had no previous experience in running such an enterprise and therefore wisely went into partnership with private businessmen, giving them a 40% share in return for the equipment and management expertise they would provide. NPWS also supplied a building, electricity and water; the raw ivory was provided at a heavily subsidised price.

In July 1985 the factory employed one manager (an expatriate Indian mechanical engineer), one accountant, five carvers and three ivory scrapers (all male). The ivory carvers were born in Zaire and speak French; they receive a monthly salary which varies between 200 kwacha (\$91) and 315 kwacha (\$143), plus a bonus of one kwacha (45c) for each kilogram of ivory worked. Thus, they average between \$107 and \$163 a month.

The factory purchases raw ivory (mostly Grade 3) from NPWS at very advantageous prices: for Grades 1, 2 and 3 the prices are \$22,73 (50 kwacha), \$18 and \$11,36 per kg respectively. Such prices are between one-quarter and one-third of those on the world market.

Since September 1984 the factory has been consuming an average of 300 kg of raw ivory each month. From this, 225 kg of polished tusks and carved items such as bridges, human heads, flower vases, monkeys and jewellery are made. The wastage is no more than that of the largest private factory and this is comparatively little. The eight ivory craftsmen consume a phenomenal 450 kg of raw ivory a year per person, but they are polishing many tusks and this takes little time or effort.

The carving is still of a lower quality than that found in Zimbabwe, Malawi or South Africa (E. Martin, 1985). One indication of the poor craftsmanship is that the finished goods are sold by weight. In July 1985 the price for an ivory item weighing between 1 g and 50 g was calculated on the basis of a kilogram of raw ivory costing \$9 1,50-100 g at \$88 per kg, 101-200 g at \$84 per kg, 201-300 g at \$81 per kg, and items over 300 g at \$75 per kg. Thus, all 300 g ivory items, no matter what their differences in carving, are priced at \$22,50 retail.

Despite the poor quality of the carving, the factory is highly profitable. For the first half of 1985, the running expenses averaged about \$2 275 a month, while the gross revenue from sales (almost all ivory) was around \$20 000.

Although perhaps an additional 0.5-1 tonne of ivory is still being carved by private traders illegally, the Zambia Ivory and Trophy Centre has no problems in disposing of all its output within days of production. Moreover, people often come to Chilanga in the morning, order a piece of ivory, and come to collect it the following afternoon. The factory sells all its output at Chilanga and does not wholesale or retail it elsewhere. At present production levels, it is unnecessary for the factory either to advertise or sell its ivory items in other shops. Demand is so great that production could even be doubled.

One of the main reasons why business is so brisk is that residents still want to buy ivory for the purpose of converting it into hard currency abroad. By far the most potentially profitable item for people who wish to externalise their money is polished or slightly carved tusks. The price for these is actually lower at the factory than raw ivory on the international market.

Oddly, tourists also have to pay for their purchases at the ivory factory with kwacha; it does not accept foreign exchange or international credit cards. The processed ivory, inexpensive as it is at the official kwacha rate, is ludicrously cheap when the black market rate for dollars or sterling is used. Since this is three times the bank rate, it obviously tempts diplomats as well as tourists.

The government of Zambia is now actively encouraging foreign tourism. According to the Central Statistical Office, in 1984 only 10 491 tourists came to Zambia specifically on holiday, with the largest numbers from Zimbabwe (2 037), the United Kingdom (2 012) and the USA (995). These numbers are very low, especially in comparison to earlier ones; twice as many tourists (22 167) came to Zambia in 1965 (Game and Fisheries Annual Report for the year 1966). Tourism is, in fact, going up this year and, as elsewhere in Africa and Asia, demand for ivory items will probably become greater with increased tourism.

In order to take advantage of the present market and a likely higher demand in the future, NPWS should initiate some changes in the ivory factory. Prices for the worked ivory should be raised; payment should be accepted in hard currencies from tourists, and considerable improvement in the quality should be made. The factory should also open a few retail shops in Lusaka, the Luangwa Valley, Livingstone and at the international airport. These would make it much less competitive for the illegal carvers and hawkers to sell their products, and if the factory increased its own output, there would be still less incentive for illegal sales. In addition, NPWS should set a deadline for stopping all sales of ivory in private shops which are still allowed to market their "old" stocks, in order to maintain the monopoly on the ivory carving industry. There are about 200 honorary rangers in Zambia, and NPWS should make greater use of these people. With their assistance, NPWS could easily crack down on those hawkers and shops that persist in selling ivory goods illegally. Some honorary rangers could also help with the policing of the new retail outlets for the government-owned ivory factory.

Furthermore, NPWS should make some changes in its sales of raw ivory. In the past, prices well below those of the international market have been accepted, and ivory stocks have also been held in storage too long at a time, losing revenue. NPWS should consider selling ivory on regular, open auctions, advertising these well in advance, particularly in Europe, Japan and Hong Kong. Even if the government prefers to retain its practice of selling raw ivory by tender, it should not accept a bid of less than 10% below the prevailing international price. And, of course, all sales should be paid for in convertible foreign exchange, a policy only recently introduced.

Under present conditions, the government-owned ivory factory in Chilanga is annually consuming 3.6 tonnes and grossing \$240 000 a year (approximately 87% of the total ivory carving business in Zambia), with a net profit of around \$213 000. From the one sale of raw ivory in early 1985 the government grossed \$542 151. However, as has been shown above, these revenues could be substan-

tially increased. The senior staff of NPWS are well aware of the problems affecting the management of ivory in Zambia and they are extremely concerned about the country's 60% elephant population loss between 1974 and 1984. They sincerely want to improve the situation, and with more money accrued from a properly managed ivory trade, they could do so.

**Table 3.** Ivory stocks held at the National Parks and Wildlife Service headquarters.

Year	No. of Pieces	Weight in kg	Average Tusk Weight (kg)
1979	1605	8824	5.5
1980	486	7465	15.4
1981	3489	15659	4.5
1982	2717	9968	3.7
1983	2197	6865	3.1
1984	3393	10515	3.1

Source: Unpublished statistics from the National Parks and Wildlife Service.

**Table 4.** Retail prices for ivory commodities sold in shops in Lusaka and at the capital's international airport, July 1985.

Item	Size	Average price in US\$
Sculptures of heads	5 cm	43
Bangles	small to medium	29 – 54
Chokers	medium	20
Crocodiles	10 cm	16
Lions	5 cm	16
Necklaces	medium	10 – 20
Lady's hairpins	medium	9
Earrings	small	7 – 10
Pendants	small to medium	5 – 10
Crosses	small	2

## REFERENCES

- CAUGHLEY, C. and GODDARD, J. (1975). Abundance and distribution of elephants in Luangwa Valley, Zambia. *East African Wildlife Journal*, 13: 39-48.
- DOUGLAS-HAMILTON, I. (1979). The African Elephant Action Plan. Report to IUCN/WWF and New York Zoological Society. Typescript.
- DOUGLAS-HAMILTON, I., HILLMAN, A.K.K., HOLT, P. and ANSELL, P. (1979). Luangwa Valley Elephant, Rhino and Wildlife Survey. Report to IUCN/WWF and New York Zoological Society. Typescript.
- KAWECH E.G. and LEWIS, D. (1985). Luangwa Elephant Aerial Census Typescript.
- MARTIN, E.B. (1984). Zimbabwe's ivory carving industry. *Traffic Bulletin*, 6 (2): 33-38.
- MARTIN, E.B. (1985). Malawi's ivory carving industry. *Pachyderm*, (5): 6-11
- MARTIN, R.B. (1985). Establishment of African Ivory Export Quotas and Associated Control Procedures. Report to CITES, Lausanne. Typescript.
- REPUBLIC OF ZAMBIA, Ministry of Natural Resources and Tourism (1966). Game and Fisheries Annual Report for the Year 1966. Government Printer, Lusaka.
- REPUBLIC OF ZAMBIA, Ministry of Lands and Natural Resources (1979). National Parks and Wildlife Service Annual Report 1978. Government Printer, Lusaka.
- REPUBLIC OF ZAMBIA, Central Statistical Office (1984). Country Profile Zambia 1984. Government Printer, Lusaka.
- REPUBLIC OF ZAMBIA, Central Statistical Office (1985). Monthly Digest of Statistics, 21, No. 2-3 (February/March 1985). Government Printer, Lusaka.