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Zaire Ituri Livestock Development Project Appraisal Report

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Eastern Africa Region
Agricultural Credit and Livestock Division

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ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

CURRENCY EQUIVALENTS

Currency Unit	-	Zaire (Z), Z 1.00 = 100 makuta (k)
Z 1.00	-	1 SDR (Special Drawing Right) = US$1.15
US$1.00	-	Z 0.87

WEIGHTS AND MEASURES

Metric System

1 hectare (ha)	-	2.471 acres (ac)
1 kilogram (kg)	-	2.205 pounds (lb)
1 ton (metric)	-	1,000 kg (2,205 lb)
1 liter	-	0.26 gallons

ABBREVIATIONS

CELZA	-	Cultures et Elevages du Zaire
CIDA	-	Canadian International Development Agency
DPN	-	Le Domaine Presidentiel de la N'Sele
FMC	-	French Ministry of Co-operation
FRG	-	Federal Republic of Germany
INERA	-	Institut National pour l'Etude et la Recherche Agronomiques (National Institute for Agronomic Study and Research)
IPU	-	Ituri Project Unit
ONDE	-	Office National de Developpement de l'Elevage (National Ranching Development Authority)
SDR	-	Special Drawing Right
SGA	-	Societe Generale d'Alimentation
SOFIDE	-	Societe Financiere pour le Developpement Economique

GOVERNMENT OF ZAIRE FISCAL YEAR

January 1 to December 31

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SUMMARY AND CONCLUSIONS

i. The Republic of Zaire has considerable potential for livestock production, yet it imports large quantities of meat products. In order to rejuvenate the livestock sector and to cut down beef imports, in 1972 Zaire commenced a program to rehabilitate large ranches; in support of this program, IDA in 1973 provided a Credit (No. 398-CK) for US$8.5 million to establish a National Ranching Authority (ONDE) whose initial responsibility included the development of three ranches in Shaba province. In order to complement this development, and as part of a broad effort to increase smallholder incomes, Government now wishes to undertake the rehabilitation of the traditional livestock areas through the provision of improved veterinary and animal production services, and through the introduction of better marketing and slaughter facilities. The proposed Project would support this effort in Ituri sub-region, Zaire's largest traditional cattle area, where nearly 300,000 cattle are kept by about 18,600 small livestock owners. The production attributable to the Project would meet future demand in the region and would also allow increased shipment of beef to other parts of Zaire, mainly Kinshasa. The approach utilized in the Project would, if successful, be a forerunner to other livestock and perhaps general rural development programs in Zaire's traditional farming areas.

ii. The Project would undertake a major rural development effort in Ituri sub-region by developing an overall livestock improvement program for small farmers. This program would be initially directed at cattle improvement, but would also examine and promote the improvement of other classes of stock. Over 5 years the Project would provide dipping, inoculation, veterinary treatment, clinical and animal production advisory services for farmers throughout the cattle areas of Ituri. Initial emphasis would be placed on improving animal health, although development of better animal production methods should assume greater importance as the Project develops. The primary objective would be to provide dipping cover for 80% of the cattle in Ituri by year 5. As full advantage would only be obtained from dipping if all animals in an area were dipped, compulsory dipping of all cattle within a radius of 8 km of an operational dip or spray race would be introduced. It would be proposed that farmers pay for the dipping materials. In the first three years these would be charged at a subsidized price of 40% of their costs; thereafter, the full charge would be levied. The animal production extension effort would be directed at developing better grazing management through grazing associations, stock control where necessary, improved cattle husbandry, introduction of legumes, and of improved breeding stock. Methods would be examined to improve productivity of other stock such as sheep, goats, pigs, poultry. In order to finish the large numbers of immatures or unfinished animals presently slaughtered in the traditional areas and to reduce the risk of over-stocking in some areas, the Project would provide for the development of three existing ranches (Kerekere, Asada and Dele) in the Ituri sub-region. Also, the municipal abattoirs at Kisangani and Bunia would be re-equipped and run on a commercial basis. Finally the Project would include provision for technical assistance for Project management, studies, training of Project staff, and preparation of future projects in the Ituri region.

iii. The Department of Agriculture would coordinate all Project activities through a Project Policy and Co-ordinating Committee. Responsibility for management and execution of the Project would be divided between an Ituri Project Unit (IPU) in the Department of Agriculture which would be responsible for the veterinary, animal production, marketing and rural slaughter services, and the Office pour le Developpement de l'Elevage (ONDE) which would be responsible for the ranches and abattoirs. Because of a shortage of experienced and qualified personnel, the Project would provide 12 technical assistance staff of different disciplines for 40 man-years for the veterinary and animal production services (7), ONDE ranches and headquarters (2), abattoirs (2), and for the training center (1).

iv. Total Project cost is estimated at about Z 14.0 million (US$16.1 million), of which approximately Z 7.9 million (US$9.1 million) or 56% represents foreign exchange requirements. The IDA, CIDA, FMC and FRG contribution would together finance 83% of total project costs and cover all the foreign exchange requirements (US$9.1 million) and 60% of local costs (US$4.2 million). The high level of local cost financing is presently justified by the Government's difficult budgetary situation due mainly to recent high world inflation and depressed world market prices of the country's main revenue earner, copper. The proposed IDA credit of US$8.0 million would be on standard terms to Government and meet all foreign exchange requirements not covered by CIDA, FMC and FRG and 50% of the Project's local costs. CIDA would provide not less than US$3.3 million to finance all foreign exchange costs and 60% of local costs of the abattoir component (US$0.8 million), the majority of operating veterinary supplies for IPU and ranches (US$2.1 million) and most study funds (US$0.4 million); with the exception of the capital expenditures on the abattoirs which will be on a long term loan on terms similar to IDA's the remainder of the Canadian contribution will be on a grant basis. FMC would provide an estimated US$1.5 million as a grant in the form of technical assistance for IPU. FRG would provide approximately US$0.5 million as a grant to Government to cover the cost of developing the Ngabu Training Center for staff training and the cost of an education specialist for three years. Government would contribute US$2.8 million, which would be partially offset to the extent that project costs include about US$580,000 of taxes and duties. Government would, in addition, also maintain over the project period the cost of existing veterinary and animal production services in the project area estimated to cost US$2.0 million. Procurement of vehicles (US$500,000) and veterinary materials and supplies (US$200,000) in orders exceeding US$50,000 equivalent would be subject to international competitive bidding in accordance with IDA guidelines; orders would be bulked whenever possible. In the case of imported cattle purchases (US$160,000), quotations would be sought for the delivery of suitable stock from neighboring countries, through agents and/or farmers through press advertising in these countries. The IPU and ONDE would review their annual requirements with the objective of issuing joint tender documents whenever possible. Technical assistance staff provided by IDA (for the ranches, studies, and the Financial Controller) estimated at a total cost of US$0.7 million would be internationally recruited in accordance with procedures acceptable to IDA. All building construction and improvements (US$1.9 million) would, due to their dispersed locations and diverse construction requirements, be carried

out by local tender or by force account where no satisfactory contractors operate or contractors costs are far in excess of estimates. Local purchasing would be done by competitive bidding and normal commercial channels as applicable using local procedures which are satisfactory. Local breeding and fattening cattle would be purchased by ONDE in Ituri markets.

v. At full development in year 13, improved veterinary, animal husbandry and marketing services would increase productivity of the traditional cattle herd by reducing mortality, increasing liveweight at sale, improving growth rates, increasing herd numbers (from 287,000 to 418,000 head), increasing annual offtake (from 31,400 to 64,500 head) and raising milk yields. The proposed fattening ranches would improve quality and finish 7,000 animals annually from the traditional herds, as well as producing 1,280 animals from their own breeding herds. At full development total incremental production would be estimated at 33,500 head of cattle or the equivalent of some 4,000 tons of carcass meat. This would represent about 22% of Zaire's 1975 domestic beef output. About 80% (3,200 tons) of the increased production would be attributed to the smallholder development scheme, while the remainder (800 tons) would come from the ranch rehabilitation program.

vi. The overall economic rate of return for the Project over 20 years would be 29%. The Project would not be particularly sensitive to changes in costs and benefits. A 10% increase in costs would reduce the Project's overall economic rate of return by 3 percentage points to 26%, while a 10% decrease in benefits would reduce it by 4 percentage points to 25%. The Project economic rate of return is therefore relatively favorable. However, if sunk costs (such as existing dips, and abattoir facilities) were included, it would fall by 15 percentage points to 14%. Although the Project is relatively simple in conception it has a high degree of risk, particularly in the smallholder and abattoir components. The greatest risk would appear to be attached to the implementation of the veterinary and animal production services for the traditional sector. Although farmers and Government staff have considerable enthusiasm for the Project there is no recent record of development in the area on which to base likely farmer response. When faced with having to pay increasing costs for dips, medicines, fees, etc. and when asked to form grazing associations, the response from farmers could in practice be much less than is hoped for. The main risk involved in the implementation of the abattoir component would be the failure of Government to adjust fees regularly, and the chance that throughput could be lower than projected. Although the ranches are somewhat less likely to encounter serious difficulties, some risk would be involved if Government failed to adjust producer prices regularly.

vii. The Project would create about 400 additional permanent jobs in the veterinary services, ranches and abattoirs. About 18,600 pastoral families would participate in the Project. Their present average income is about Z 300 (US$345) or a per capita income of about Z 55 (US$63), which is somewhat higher than the estimated absolute poverty level in Zaire of Z 20 (US$23). At full development about 26,000 families would have benefited from the Project and the average total income would be about Z 423 (US$490), thus appreciably improving the incomes and standard of living of one of the poorest sections of Zaire's population.

viii. The First Livestock Project (398-CK) is the first and only ongoing agricultural project in Zaire, although a Cotton Rehabilitation Project

(1179-ZR) for US$8.0 million has recently been approved by the Board. The first project has been slow getting underway and has experienced management difficulties resulting in cattle losses, slower than anticipated improvements in livestock performance and slow investment due in part to transport and supply problems. The most serious aspect has been increase in costs and failure of Government to adequately adjust producer prices (which were already inadequate at the commencement of the project), resulting in negative financial rates of return. In May 1976, Government producer prices were tripled over the 1973 level (para 6.05) which only compensated for inflationary trends in production costs and represented a small relative price increase for the bottom grades but not for the top grade. The March 1976 supervision mission has estimated that total Project cost calculated in Zaires has doubled, reflecting rapid inflation during the past two years, the expected effects of devaluation on costs and higher inflation rates forecast for the remainder of the Project. In foreign exchange terms Project costs have increased 35%. It estimated that the May prices would be insufficient to compensate for the expected increase in the cost of capital by the end of 1976. The mission therefore recommended a further 30% increase in the producer prices for late 1976. Government increased prices prior to Board presentation of this project and this price increase should provide an adequate return on capital and allow income from sales of stock to meet increased Project costs.

ix. Subject to the required assurances and conditions, the proposed Project would be suitable for an IDA Credit of US$8.0 million to the Government of Zaire.

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

I. INTRODUCTION

1.01 The Republic of Zaire has considerable potential for livestock production, yet it imports large quantities of meat products. Prior to 1960 Zaire had a growing beef sector based on the development of infrastructure on large ranches and in the traditional farm sector. However, in the following decade development ceased, many ranches were destocked and infrastructure both in the large and small farm sectors fell into disuse. In order to rejuvenate the sector and to cut down beef imports, in 1972 Zaire commenced a program to rehabilitate large ranches; in support of this program, IDA in 1973 provided a Credit (No. 398-CK) for US$8.5 million to establish a National Ranching Authority (ONDE) whose initial responsibility included the development of three ranches in the main ranching province, Shaba. In order to complement this development, and as part of a broad effort to increase smallholder incomes, Government now wishes to undertake the rehabilitation of the traditional livestock areas through the provision of improved veterinary and animal production services, and through the introduction of better marketing and slaughter facilities. The proposed Project would support this effort in Ituri sub-region, Zaire's largest traditional cattle area, where nearly 300,000 cattle are kept by about 18,600 small livestock owners. In addition to support for the traditional producers, the Project would also help to develop three existing ranches to provide a means for fattening cattle from smallholder areas while at the same time reducing the possibilities of local overstocking. The production attributable to the Project would meet future demand in the region and would also allow increased shipment of beef to other parts of Zaire, mainly Kinshasa. The approach utilized in the Project would, if successful, be a forerunner to other livestock and perhaps general rural development programs in Zaire's traditional farming areas.

1.02 The First Livestock Project (398-CK) is the first and only ongoing agricultural project in Zaire, although a Cotton Rehabilitation Project (1179-ZR) for US$8.0 million has recently been approved by the Board. The first project has been slow getting underway and has experienced management difficulties resulting in cattle losses, slower than anticipated improvements in livestock performance and slow investment due in part to transport and supply problems. The most serious aspect has been the increase in costs and failure of Government to adequately adjust producer prices (which were already inadequate at the commencement of the project), resulting in negative financial rates of return. Despite this, ranch cattle numbers have risen 13% and the combined ranches posted an unexpected small profit in 1975 due to increased cattle valuation. In May 1976, Government prices were tripled over the 1973 level (para 6.05) which only compensated for inflationary trends in production costs and represented a small relative price increase for the for the bottom grades but not for the top grade. The March 1976 supervision mission has estimated that total Project cost calculated in Zaires has doubled, reflecting rapid inflation during the past two years, the expected effects of devaluation on costs and higher inflation rates forecast for the remainder of the Project. In foreign exchange terms Project costs have increased 35%. It

estimated that the May prices would be insufficient to compensate for the expected increase in the cost of capital by the end of 1976. The mission therefore recommended a further 30% increase in the producer prices for late 1976. Government increased prices prior to Board presentation of the project and this price increase should provide an adequate return on capital and allow income from sales of stock to meet increased Project costs.

1.03 The Ituri Project was identified by a Bank mission in 1974 and prepared by the Department of Agriculture with the help of consultants and the Regional Mission in Zaire (RMZ). This report is based on the findings of an appraisal mission which visited Zaire in September/October 1975 composed of Messrs. Peberdy, Marticou, Sanger, Steengaard, Ms. Lallement (IDA) and Mr. Root (Consultant). Appraisal and subsequent discussions with Government confirmed inadequate financial rates of return on investment at producer prices ruling at that time. This report has been completed after updating financial projections to take into consideration the official producer price increase of May 1976 (para 1.02) as well as the impact of devaluation and Government measures taken in March 1976.

II. BACKGROUND

A. General

2.01 The Republic of Zaire covers 2.3 million square kilometers and is the third largest country in Africa. The population in 1974 was about 24 million, and is growing at a rate of 2.6% per annum; about 70% of the population live in rural areas. Most of the country has a wet tropical climate, but the plateau areas of the southeast and the mountainous areas along the eastern border have cooler and more temperate regimes. A wide variety of crops can be grown and the natural grasslands and forests offer a wide range of development possibilities, including livestock. The rivers and lakes are well stocked with fish and the rivers provide nearly 15,000 kilometers of navigable waterways and considerable hydroelectric potential. There are significant deposits of copper, zinc, manganese and cobalt.

2.02 Zaire became independent in 1960 and following political turbulence the economy began to recover in 1967, spurred by rising copper prices. Between 1968 and 1973 the GDP grew at an average annual rate of about 7% in real terms, although despite this rapid growth per capita income in 1974 was estimated at only US$150. 1/ In 1974 exports of goods amounted to about Z 740 million (US$1,480 million), of which minerals accounted for more than 70%. Imports totalled about Z 658.4 million (US$1,316.8 million). In recent years all sectors of Zaire's economy have been affected by a sharp fall in copper prices, causing a rapid decline in economic growth and serious budgetary and balance of payments problems. In March 1976 the deteriorating economic situation led Government to devalue its currency by more than 40% and to implement a stabilization program. The Zairian currency has now been pegged to the IMF Special Drawing Rights (SDR). At the same time, the

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1/ At the pre-March 12, 1976 exchange rate of Z 1 = US$2.

Stabilization Program included measures to balance the budget and external accounts by reducing Government spending and controlling foreign exchange expenditures.

B. Agricultural Sector

2.03 The agricultural sector is of great importance to the economy of Zaire. About 70% of the population is dependent on agriculture for its livelihood, and about 3% of these are involved in livestock production. Traditional subsistence farmers and pastoralists include some 3 million farm families, whose production accounts for about 57% of total agricultural output. In addition to these small farms, there are numerous commercial plantations and a number of cattle ranches which contribute some 43% of total production. In recent years total output from the agricultural sector has grown by only 2.4% per annum, a rate which has failed to keep pace with population growth (estimated at about 2.6% per annum). Consequently, Zaire is increasingly dependent on food imports such as cereals, fish and meat, to meet the growing demand (which is particularly strong in the urban areas). As a result of this lack of progress in agriculture, per capita rural income in 1974 was estimated at only Z 15 (US$30), as compared to the national average income of about Z 75 (US$150).

2.04 The slow rate of growth of the agricultural sector over the last decade can be attributed to a number of factors, among which the most important have been the decline of plantation agriculture, the deterioration of transport facilities, the lack of experienced farm and ranch managers and of qualified agricultural labor, which became particularly acute following the Zairianization measures of 1973; these factors have been compounded by the weak institutional support and the Government's tendency to favor the industrial and mining sector to the disadvantage of the agricultural sector.

C. Beef Cattle Sub-Sector (Annex 1)

2.05 Cattle are the most important livestock in Zaire; in 1973, there were about 1 million head of cattle, 0.6 million pigs, 2.8 million sheep and goats, and 9 million chicken and other fowl. About 600,000 cattle are raised by pastoral herdsmen, small farmers and ranchers for meat and milk, and 400,000 head are kept by commercial ranches. Cattle farming is practised especially in the regions of Shaba, Kasai Oriental, Kivu and in the sub-region of Ituri.

2.06 In 1973, nearly 80% of the traditional herds (450,000 cattle) were in the northeastern region of Haut-Zaire and Kivu, while 60% of the commercial cattle were in the southeast, mainly in the Shaba region. In November 1973, the Government took over all privately-owned commercial ranches and management was transferred to various public agencies and companies, including ONDE (Office National pour le Developpement de l'Elevage). The exploitation of smaller ranches was given to private individuals, while the Government retained ownership rights. In 1973, large ranches accounted

for nearly 60% of domestic beef production (10,000 tons) while the remaining 40% (7,000 tons) came from the traditional sector. The Government now hopes to increase beef production both through the improvement of existing ranches and by fostering smallholder cattle production. Rapid development of livestock production is handicapped by a shortage of cattle and of government recurrent funds, and in some areas by tsetse fly and poor animal health conditions exacerbated by inadequate veterinary services.

2.07 Cattle and meat are marketed through both public and private channels. The most important single buyer of meat is the state company "Societe Generale d'Alimentation" (SGA) which has an import monopoly. SGA is the principal wholesaler in Kinshasa and in urban centers of Shaba province. Private traders handle most of the cattle trade. Private butchers dominate the retail beef market.(Marketing - Annex 2)

D. Agricultural Services

2.08 The Department of Agriculture is responsible for formulating agricultural policies, providing extension services and assisting parastatal bodies under its control, e.g. Office National de Developpement de l' Elevage (ONDE), and Institut National pour l'Etude et la Recherche Agronomique (INERA). ONDE was established with IDA assistance in 1973 to promote livestock development, and more particularly to rehabilitate and run specified public ranches on a commercial basis. The capital of ONDE is made up of grants and loans from Government and transferred assets from ranches under its control. ONDE does not pay corporate income tax but in accordance with its statutes reinvests its profits in further livestock development. ONDE's task was originally to develop three IDA financed ranches (Muhila, Mitwaba and Kayembe) in the Shaba Region. Following the Government nationalization program in 1973, ONDE was entrusted with five additional ranches, the Bunia abattoir, the Kamina butchery and the veterinary laboratories in Lubumbashi and Kinshasa. ONDE employs over 2,800 staff, of whom 10 are graduates. The audited 1975 accounts for IDA-financed ranches show an accumulative profit of Z 88,000, primarily due to increased valuation of stock. The unaudited consolidated accounts for all ONDE's operations for 1975 indicate a profit of Z 199,000; this represents an inadequate return on capital and would not allow ONDE to finance any major development programs.

III. THE PROJECT AREA

General (Annex 3)

3.01 The Project area would comprise the Ituri sub-region of Haut-Zaire in the northeast corner of Zaire bordering Sudan and Uganda. The administrative headquarters of the sub-region is Bunia. Ituri is divided into five administrative zones, which are in turn sub-divided into sectors and collectivities. The Project would cover four of these zones (Irumu, Djugu, Mahagi and Aru) or a total area of 29,000 km^2. The Project area consists of a mixture of hills, plateau and mountainous country,

with altitudes varying from 1,000 to 1,700 meters; savannah occupies about 75% of the area. Rainfall varies from 1,000 to 1,600 mm with most of the area receiving about 1,200 to 1,300 mm. There are two rainy seasons, mid-March to mid-May and August to November. The population of the Ituri sub-region was estimated at 1,089,000 in 1974, making it one of the most densely populated areas in Zaire.

Traditional Smallholder Farming Sector

3.02 The traditional farming sector comprises about 170,000 families cultivating an area of about 270,000 ha. The major crops are beans, maize, cassava, sweet potatoes, groundnuts, Arabica coffee and cotton. About 30,000 farmers own livestock of some kind, and about 18,600 of these own cattle; small stock, particularly pigs and poultry, are becoming increasingly important. There are now about 287,000 cattle, 300,000 goats, 74,000 sheep, 37,000 pigs and a large number of poultry in the region. Most livestock owners also cultivate crops, but in Irumu there are some Bahema families who subsist entirely on livestock production.

Cattle in the Traditional Sector

3.03 During the disturbances in the early 1960's, the Ituri cattle herd declined from some 310,000 to 253,000 head in 1965. Since that time the herd has been growing at an annual rate of about 1.4%, giving a present herd size of around 287,000. Generally, calving rates are low; this is due mainly to poor grazing management, the age of the cows, mineral and salt deficiencies, and to high parasite and disease incidence. These traditional herds also are characterized by high mortality. One notable feature of the herds is that 47% of the cattle are females over 3 years of age, giving the herd a potential for rapid growth. The overall stocking density in Ituri is about 1 livestock unit per 6.8 grazing hectares; although the density could be higher in most areas, overgrazing has occurred in a few locations. If improved, natural pastures in many areas could carry at least 1 stock unit per hectare. Cattle offtake is about 10% to 11% (31,000 cattle), with over half the male animals being consumed or sold at an unfinished age of 1 to 3 years old; these statistics indicate that small farmers are fully exploiting young males in their herds in an effort to earn income.

3.04 Cattle diseases have an important effect on mortality rates and on the general condition of the stock. Over half of all cattle deaths are caused by East Coast Fever, and Anaplasmosis and Piroplasmosis are also of serious concern. Anthrax is prevalent and inoculation programs are mounted when outbreaks occur. Internal parasites are particularly serious among young stock, as these make the stock more susceptible to other diseases, and affect weight gains and the overall condition of the growing animals. Abundance of rain and swampy conditions permit a high incidence of Liver Fluke in certain areas. Trypanosomiasis is present near forested areas. Cysticercosis is also common.

Commercial Ranches

3.05 Commercial ranches now occupy perhaps 5% of the land area in the Ituri sub-region. These businesses are presently owned by private Zairian

individuals, missions and parastatal bodies. Government wishes to rehabilitate these operations (para 1.01) utilizing IDA and other international assistance. Several of these ranches now operated by the Office des Mines d'Or de Kilo-Moto are in particular need of assistance. These five ranches cover some 33,900 ha and have a total of 3,800 head of cattle; the ranches are: Kerekere (16,000 ha, 2,400 cattle); Dele (5,000 ha, 800 cattle); Asada (5,000 ha, 260 cattle); Yegu (5,000 ha, 400 cattle); Ladde (5,000 ha, no cattle). With the exception of Yegu, which supplies milk as well as beef to the mines, all are understocked. The ranches are generally in state of disrepair, management is inexperienced, productivity is low and income is not, or at best barely, covering operating costs. Government wishes to revitalize and integrate them into the development of the traditional areas by using them for fattening unfinished stock from these areas. Under this plan, some of the ranches would also build up breeding herds, using dual purpose milk/beef bulls for eventually providing half bred milk cattle to the traditional areas.

Slaughter Facilities

3.06 The main towns of Bunia and Kisangani possess well-built and modern abattoirs which although originally well-equipped have fallen into disrepair through a lack of maintenance. The Veterinary Department (para 3.07) also operates a number of smaller slaughter houses in other urban and rural areas. The Bunia and Kisangani abattoirs run at a loss because of inexperienced management, deteriorating plant, low fees and low throughput of cattle, pigs, sheep and goats. Since the breakdown of its pig slaughtering facilities the throughput of the Kisangani abattoir has considerably declined and it now competes with a number of uncertified and very unhygienic slaughter operations which have started near the town. Current slaughtering procedures at Kisangani represent a threat to public health (Annex 6). ONDE has recently been given responsibility for running the Bunia abattoir, while Kisangani remains under the authority of the Veterinary Department (which is not a suitable agency for running a commercial slaughter operation).

Veterinary and Animal Production Services

3.07 The Veterinary Department of the Animal Health and Production Division in the Department of Agriculture (para 2.08) is responsible for animal health, animal production and meat inspection. It runs a number of livestock centers, controls stock movement and has the responsibility for organizing and supervising markets. The Department in Ituri has a good basic organizational structure of zone clinics, field dispensaries (39), dips (27) and field housing (30) on which to build its work program; many of the facilities and in need of repair. It employs about 240 staff. There are disproportionate numbers of poorly qualified or unqualified personnel who have an inadequate understanding of animal husbandry; this can be attributed to the fact that this subject is not adequately covered in their training courses.

IV. THE PROJECT

A. General Description

4.01 The Project would undertake a major rural development effort in Ituri sub-region by developing an overall livestock improvement program for small farmers. This program would be initially directed at cattle improvement, but would also examine and promote the improvement of other classes of stock. Over 5 years the Project would:

(a) rehabilitate the veterinary and animal production services in Ituri through the provision of cattle dipping facilities, animal health dispensaries, veterinary medicines and dipping materials, and through the introduction of animal husbandry and grazing-management programs;

(b) improve marketing services, a stock route, and rural slaughter facilities;

(c) train Project staff and farmers;

(d) develop 3 existing ranches, primarily for finishing cattle purchased from the traditional sector and also as a source of improved breeding stock for future sale in traditional areas;

(e) improve existing abattoirs at Bunia and Kisangani; and

(f) provide technical assistance for Project management, studies, and for the preparation of future projects in the Project area.

The Department of Agriculture would coordinate all Project activities through a Project Management Committee. Responsibility for management and execution of the Project would be divided between an Ituri Project Unit (IPU) which would be responsible for the veterinary, animal production, marketing and rural slaughter services, and ONDE which would be responsible for the ranches and abattoirs.

B. Detailed Features

Veterinary and Animal Production Services (Annex 3)

4.02 The Project would provide dipping, inoculation, veterinary treatment, clinical and animal production advisory services for farmers through-

out the cattle areas of Ituri. Initial emphasis would be placed on improving animal health, although development of better animal production methods should assume greater importance as the Project develops. The primary objective would be to provide dipping cover for 80% of the cattle in Ituri by year 5. The Ituri Project Unit would determine how best this might be achieved. The dips would be run by the veterinary service and, where organized, by farmers' associations. Initially, the program would be introduced in areas with existing dips or where the collectivities (the smallest administrative unit) or associations of farmers have demonstrated their interest in the program. As full advantages from dipping would only be obtained if all animals in an area are dipped, compulsory dipping of all cattle within a radius of 8 km of an operational dip or spray race would be introduced; assurances to this effect were obtained at negotiation. It would be proposed that farmers pay for the dipping materials; however, although the farmers have said they are prepared to meet these charges, it remains to be seen whether they will all agree to meet the full costs of the materials. Because it would take 3 years for the improved income from stock sales to cover annual dipping expenditure, dipping materials in the first three years would be charged at a subsidized price of 40% of their cost (Z 0.60 per head/annum) (see Annex 3 Table 4). Thereafter, unless otherwise agreed with IDA, the full charge would be levied (Z 1.50 per head/annum). This proposal was agreed at negotiations. Methods of fee collection could vary; farmers could pay it either as a dipping charge to the Veterinary Department or a Farmers Association, or as a specific collectivity tax levied using existing tax legislation. Although in the past there have been recommendations to abolish collectivity taxes, some collectivities presently charge a tax of 10 to 20 k per head of cattle for raising revenue. The use of these revenues is uncertain. Therefore in order to make it easier for farmers to pay for dipping it was agreed at negotiations that any collectivity cattle per capita tax charged for raising general revenues in areas where dipping facilities were operating would be removed. Profits from market fees and fees at rural slaughterhouses could be earmarked for covering part of the costs of the dipping program. The Veterinary Department would provide drugs and inoculants for sale to farmers at cost plus a 15% service charge. The Department would also run an annual compulsory free Anthrax inoculation program for cattle. Emphasis in the first 18-24 months would be on renovating existing facilities; thereafter, providing progress warranted it, new ones would be built. Thus at Project completion there would be 72 dips (36 new), 12 new spray races, 84 field dispensaries (45 new), 5 new stores, a workshop and 80 junior staff houses (50 new). Annex 3, Table 5 gives development targets. Clinical work would be undertaken at existing clinics at zone headquarters and at Nioka Research Station.

4.03 The animal production extension effort would be directed at developing better grazing management through grazing associations, stock control where necessary, improved cattle husbandry, introduction of legumes, and introduction of improved breeding stock. Methods would be examined to improve productivity of other stock such as sheep, goats, pigs, poultry. Nioka would supply selected young bulls for sale to farmers at prices 10% above producer prices for immatures.

4.04 In order to assist these programs, it may be appropriate in 2 or 3 years time for IPU to provide a pilot credit program for livestock owners. An arbitrary provision of Z 100,000 has therefore been made in Project costs

for this purpose. It was agreed at negotiations that the establishment and use of the farmers credit fund would depend on the formulation by IPU of suitable arrangements satisfactory to IDA; the matter will be kept under review during supervision.

4.05 The veterinary and animal production services in Ituri would be reorganized and its qualified staff strengthened. Seven technical assistance personnel provided by the French Ministry of Co-operation (FMC), working for a period of 2 to 5 years would help with the program (para 4.11); one of the Technical Assistance team would be manager of IPU for the first three years. The principal investment items would be building materials, spray races, water pumps, dip chemicals, drugs, inoculants, seed, vehicles and radio equipment (Annex 3, Tables 12, 13 and 14).

Marketing Services and Rural Slaughter Facilities (Annex 2)

4.06 The veterinary and animal production services provided under the Project would lead to increased cattle numbers as well as to increased off-take from the existing herd. Provision would therefore be made for the improvement of rural stock marketing facilities and the organization of regular markets at some 21 centers throughout Ituri. After an initial survey by Project staff, work would commence in the second year to rehabilitate 40 existing small rural slaughterhouses; staff would be trained in proper slaughtering and flaying techniques. Following further investigations to ascertain that it is still needed, an old unused stock route between Kerekere and Bunia would in the third year be renovated with Project funds (Z 37,000) and reopened. ONDE's stock purchasing activities would be expanded both with regard to slaughter cattle for the Bunia abattoir and immature and unfinished cattle for fattening on ranches. Principal investments would include improvements to buildings and provision of cattle yards, scales and equipment (Annex 2 Table 7).

Training (Annex 4)

4.07 Existing buildings at Ngabu on the Nioka research station would be rehabilitated and turned into a small training center. The center would be part of and come under the Ituri Project Unit. Initially emphasis would be placed on training junior staff in animal production, animal health and extension methods. The center would be established under the management of an expatriate expert provided under technical assistance (para 4.11) from the Federal Republic of Germany (FRG). Staff at Nioka Research Station would assist the center's resident teaching staff with lectures and demonstration material. Provision would be included for building renovation as well as for a house, equipment, vehicles and operating costs (Annex 4 Tables 1, 2 and 3).

4.08 IPU, following the advice of the extension specialist, would also provide ancillary equipment for existing farmer training centers in the area at Gopka and Totoba, and funds for running special courses at them. A mobile visual aids unit would be provided and run by IPU and assistance would be given to the National Broadcasting System to develop short agricultural programs to be broadcast from Kisangani.

Ranches (Annex 5)

4.09 There is a need to finish the large numbers of immatures or unfinished animals presently slaughtered in the traditional areas and to improve the quality of meat which is shipped to Kinshasa. In order to meet this need and to reduce the risk of over-stocking in some areas, the Project would provide for the development of three existing ranches (Kerekere, Asada and Dele) in the Ituri sub-region. ONDE would operate an active buying program for the ranches, purchasing immature animals from traditional producers for fattening over a one or 2 year period. These ranches are now owned and operated by the Office des Mines d'Or de Kilo-Moto (para 3.07); under the Project they would, however, be transferred to ONDE, which would be given responsibility for their operation. Although emphasis would be placed on fattening smallholder cattle, 1,500 breeding heifers and 98 bulls would be purchased to build up nucleus breeding herds. Some of the bulls purchased would be dual purpose beef/milk bulls for producing half-bred milk cattle for the traditional areas in the future. Half the breeding stock would be purchased from Ituri smallholders and Nioka Research Station and the rest would be imported from Kenya or the Sudan. ONDE would develop detailed ranch development plans for each ranch. A semi-intensive ranch management system would be introduced (about one animal unit to 1.5 ha) and emphasis would be placed on improving herd performance and ranch efficiency. The expected development of the three ranches is illustrated in the table below.

Ranch	Size ('000 ha)	No. of Cattle		Heifers to be Purchased	Annual No. of Steers Purchased		
		Present	Proposed		Yr. 1	Yr. 5	Yr. 12
Kerekere	16.6	2,425	11,070	1,000	350	1,150	2,500
Asada	5.0	260	3,280	-	350	1,450	2,500
Dele	5.0	817	4,320	500	300	1,500	2,000
Total	26.6	3,502	18,670	1,500	1,000	4,100	7,000

Investments under the Project would include the provision of buildings, dips, yards, firebreaks, vehicles, weighing scales, water supplies, fencing, stylosanthes, and funds for the purchase of heifers and steers (Annex 5 Tables 3, 7 and 11). Management would be strengthened by the employment of an experienced internationally recruited Ranch Manager to oversee the three ranches for five years (para 4.11).

Abattoirs (Annex 6)

4.10 The municipal abattoirs at Kisangani and Bunia would be re-equipped and run on a commercial basis. The Bunia abattoir will provide the outlet for surplus traditional area and ranch cattle produced by the Project. As indicated earlier (para 3.06), current slaughtering procedures in Kisangani are a threat to public health from contamination through disposal of untreated effluent and sale of uninspected meat. Investment in the Kisangani abattoirs will overcome

these problems and will allow full advantage to be taken of the presence of the experts needed to rehabilitate the Bunia abattoir. Because of the health hazards it was agreed at negotiations that the small unhygienic slaughter operations near Kisangani would be closed. At Kisangani investment would include building renovation, repair of equipment and re-equipment where necessary, and overhaul of the refrigeration plant. The pig section would be brought back into use. A hide shed, stores and workshop would also be constructed. Responsibility for the abattoir would be shifted from the Veterinary Department to ONDE, which is better qualified to run this type of commercial operation. The Bunia abattoir building would be renovated throughout and its overall layout improved; an extension would also be constructed to enable slaughter of pigs, and to provide hide drying and storage facilities, staff offices and a covered slaughter pen. Necessary items of new equipment (including pig handling equipment) and a maintenance workshop and insulated vehicles for a meat delivery service would also be provided. The Canadian International Development Agency (CIDA) will provide two experts to supervise the re-equipping, to revise operational procedures, and to introduce a new accounting system and a program of staff training at both abattoirs. Slaughter charges would be increased (para 4.19), and efforts would be made to increase annual throughput; ONDE's cattle buying operation to supply Bunia would be increased (Investments Annex 6 Tables 1 and 8).

Technical Assistance

4.11 Because of lack of experienced and qualified personnel in Zaire, the Project would provide 12 technical assistants for 40 man years. Internationally recruited specialists would train Zairian counterparts and would be phased out from years 2 to 5 of the investment period. A team of 7 men (24 man years) would be provided to assist the veterinary service by the French Ministry of Cooperation (FMC); it would consist of a team leader, 1 veterinarian, 1 animal husbandry expert, 1 extension and training specialist, 1 financial controller, 1 mechanical engineer, and 1 building specialist. Agreement to this will be the subject of a letter of understanding between the Government of Zaire and FMC. An expert would be provided for three years under German technical assistance (FRG) to develop and run courses at the new Ngabu center at Nioka. One or two years before their departure the FMC and FRG technical assistance staff would be assigned local counterparts who would take over from them at the end of their assignment, assurances on this were obtained at negotiations. The Canadian International Development Agency (CIDA) will provide 2 abattoir specialists for two years. ONDE would engage directly or through a consultancy firm a ranch general manager to develop the Project ranches. Because of recent expansion of ONDE's activities as a result of the nationalization of the ranching sector (Annex 7), the Project would also provide ONDE with funds for a Financial Manager in Kinshasa for 4 or 5 years to help manage its financial operations and organize and develop its accounting and control systems; this would be a continuation of an appointment made under the first project in February 1977. Technical assistance costs are included separately under their respective components in the Project cost table.

Studies and Support Staff (Annex 9)

4.12 Consultant services would be required for Project studies in Ituri; the studies would be concerned with such matters as pasture improvement, systems for improving stock production including smallstock, trypanosomiasis, amalgamation of Loda and Pimbo training centers (Annex 4), and a final evaluation of the Project. In year 3 specialists would be employed to consider and prepare a second phase of the Project; depending on experience by that time, that phase might incorporate other agricultural sub-sectors. Use of these funds would be mutually agreed between the Government and IDA. The Project would also include provision for a Financial Manager for ONDE (para 4.11). It would be a condition of disbursement for Project studies that Government and IDA had reached agreement on the use of the funds.

ONDE's Operating Expenses for Ranches and Abattoirs

4.13 The Project would include the incremental operating expenses for the first three years of the Project for the ranch component, and for the first two years of the Project for the abattoir component, as during this Project period revenues earned would be insufficient to cover all operating expenses.

C. Project Costs

4.14 Total Project costs are estimated at about Z 14.0 million (US$16.1 million), of which approximately Z 7.9 million (US$9.1 million) or 56% represents foreign exchange requirements. Total Project costs are detailed below:

	Z'000			US$'000			Foreign Exchange
	Local	Foreign	Total	Local	Foreign	Total	%
Veterinary and Animal Production							
Capital Investments	952	819	1,771	1,094	941	2,035	46
Incremental Operating Costs	847	1,401	2,248	974	1,610	2,584	62
Technical Assistance	-	1,044	1,044	-	1,200	1,200	100
Sub-Total	1,799	3,264	5,063	2,068	3,751	5,819	64
Markets, Rural Slaughterhouses and Stock Route							
Capital Investments	81	88	169	93	101	194	52
Incremental Operating Expenses	220	-	220	253	-	253	-
Sub-Total	301	88	389	346	101	447	23
Training							
Ngabu Training Center Capital Investments	71	85	156	82	98	180	55
Ngabu Training Center Operational Costs	101	75	176	116	86	202	43
Ngabu Training Center Technical Assistance	-	156	156	-	179	179	100
Other Training Investments	24	70	94	27	81	108	75
Sub-Total	196	386	582	225	444	669	66
Ranches							
Capital Investments	578	464	1,042	664	534	1,198	45
Breeding Stock	117	140	257	135	161	296	54
Incremental Operating Expenses	287	123	410	330	141	471	30
Technical Assistance	-	261	261	-	300	300	100
Sub-Total	982	988	1,970	1,129	1,136	2,265	50
Abattoirs							
Bunia Capital Investments	126	194	320	145	223	368	61
Kisangani Capital Investments	62	72	134	71	83	154	54
Technical Assistance	-	122	122	-	140	140	100
Incremental Operating Expenses	49	-	49	56	-	56	-
Sub-Total	237	388	625	272	446	718	62
Studies and Support Staff							
Studies	42	289	331	48	332	380	87
Technical Assistance to ONDE Hq.	-	305	305	-	350	350	100
Sub-Total	42	594	636	48	682	730	93
TOTAL	3,557	5,708	9,265	4,088	6,560	10,648	62
Contingency Allowances							
Physical	355	571	926	408	656	1,064	62
Price	2,230	1,617	3,847	2,563	1,859	4,422	42%
Sub-Total Contingencies	2,585	2,188	4,773	2,971	2,515	5,486	46%
TOTAL PROJECT COSTS	6,142	7,896	14,038	7,059	9,075	16,134	56%

Costs have been estimated at prices prevalent at the time of appraisal plus estimated price escalations to January 1977. A physical contingency of 10% has been applied to all Project items. Price contingencies have been calculated at rates taking into consideration the effect of the very high rate of inflation in Zaire; for local costs the contingency provision is 30% for 1977, 15% for 1978 and 10% for 1979, 1980 and 1981. For foreign costs, price contingency provisions are: civil works, 12% for 1977-79 and 10% for 1980-81; equipment, technical assistance and other costs, 8% for 1977-79 and 7% for 1980-81. Taxes and duties have been included in Project costs; direct imports for the Project would be exempted from duty. Applicable taxes for Project investments are estimated at Z 505,000 (US$580,000). Exemption from duties were confirmed at negotiations.

D. Financing

4.15 Financing of Project costs would be as follows:

	Foreign Exchange	Local Currency	Total	Percentage
	(US$ million)			
IDA	4.5	3.5	8.0	50
CIDA	2.7	0.6	3.3	20
FMC	1.5	-	1.5	10
FRG	0.4	0.1	0.5	3
Government	-	2.8	2.8	17
Total	9.1	7.0	16.1	100

4.16 The IDA, CIDA, FMC and FRG contributions would together finance 83% of total project costs and cover all the foreign exchange requirements (US$9.1 million) and 60% of local costs (US$4.2 million). The high level of local cost financing is presently justified by the Government's difficult budgetary situation due mainly to recent high world inflation and depressed world market prices of the country's main revenue earner, copper. The proposed IDA credit of US$8.0 million would be on standard terms to Government and meet all foreign exchange requirements not covered by CIDA, FMC and FRG and 50% of the Project's local costs. CIDA would provide not less than US$3.3 million to finance all foreign exchange costs and 60% of local costs of the abattoir component (US$0.8 million), the majority of operating veterinary supplies for IPU and ranches (US$2.1 million) and most study funds (US$0.4 million); with the exception of the capital expenditures on the abattoirs which will be on a long term loan on terms similar to IDA's the remainder of the Canadian contribution will be on a grant basis. FMC would provide an estimated US$1.5 million as a grant in the form of technical assistance for IPU. FRG would provide approximately US$0.5 million as a grant to Government to cover the cost of developing the Ngabu Training Center for staff training and the cost of an education specialist for three years. Government would contribute US$2.8 million, which would be partially offset to the extent that project costs include about US$580,000 of taxes and duties. Government would, in addition, also maintain over the project period the cost of existing veterinary and animal production services in the project area estimated to cost US$2.0 million.

Ituri Project Unit (Annex 8)

4.17 Funds for the veterinary and animal production services, markets and rural slaughterhouses, the stockroute, training and studies would be made available to IPU. It was agreed at negotiations that an Ituri Project Account would be established under the control of the Project Manager and his Financial Director in the IPU, and that every six months Government would credit the IPU with their budgetary allocation for the next six month period. A special revolving fund would be established to handle dips and medicines (para 5.03). IPU would prepare annual estimates of its expenditures in July which it would submit to the Project Coordinating Committee (para 5.01) and the Department of Finance for approval; these estimates would also be forwarded to IDA for information.

ONDE

4.18 Ranches. ONDE would receive US$2.3 million for the development of the Project ranches. Of this, some US$1.8 million representing the investment and technical assistance costs would be transferred as a contribution to equity in order to strengthen the ranches and ONDE's financial position; the balance of US$0.5 million representing working capital requirements would be loaned by Government to ONDE at an interest rate of 11-1/2% per annum, the level which SOFIDE (Societe Financiere pour le Developpement Economique) 1/ is presently charging. The loan would be repayable over 20 years and, as income for the first seven years would be inadequate to cover loan charges because of the need to build up cattle numbers, a seven year grace period on loan repayments would be given during which time interest would be capitalized. It would be a condition of disbursement for the ranching component that the ranches would be transferred to ONDE with all existing assets and free of liabilities. At negotiations it was agreed that: (i) for the Project implementation period the Project ranches would be accounted for and funded separately as a unit within ONDE and income from the ranches would be credited to the account and used for meeting operating expenses and purchasing cattle; (ii) separate accounts would be maintained for each ranch and each would be developed and operated as a viable commercial enterprise; (iii) four months before each fiscal year ONDE would submit its work plans and draft budgets for the following year to IDA for its approval; this arrangement has worked satisfactorily under the first project; (iv) Government would make equity and loan contributions to ONDE in advance at six month intervals to meet the requirements of the ranches

4.19 Abattoirs and other Activities. In order to strengthen their financial position ONDE would receive US$662,000 as equity to rehabilitate the Bunia and Kisangani abattoirs. The Kisangani abattoir would be transferred free of any liabilities to ONDE. The enterprises would be run on commercial lines. Fees would be regularly reviewed by Government and ONDE. If for some reason ONDE is not permitted to set fees or prices at a level sufficient to operate the abattoirs profitably then Government would provide a subsidy. ONDE would require short-term working capital to purchase animals and hides

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1/ SOFIDE is the main parastatal credit institution in Zaire.

for processing; loan funds for this would be made available either from Government sources, a commercial bank loan or overdraft facilities and/or partial payment on order by SGA or other meat purchaser in the case of Bunia abattoir. During the period of construction four months before each fiscal year ONDE would submit to IDA abattoir work plans and budgets for the following year. ONDE would be provided by Government with up to US$70,000 per annum over 5 years as a grant to employ a Financial Manager for overseeing ONDE's total operations (para 4.11); the terms of reference and appointment of this Financial Manager would be determined in consultation with IDA. Assurances with regard to the above were obtained at negotiations.

4.20 It would be a condition of disbursement for funding the ranching and abattoir components, that a subsidiary financing agreement acceptable to IDA be drawn up between Government and ONDE reflecting the above financial arrangements. It was agreed at negotiations that no changes would be made to this agreement without consultation with IDA.

E. Procurement

4.21 Procurement of vehicles (US$500,000) and veterinary materials and supplies (US$200,000) in orders exceeding US$50,000 equivalent would be subject to international competitive bidding in accordance with IDA guidelines; orders would be bulked whenever possible. The IPU and ONDE would review their annual requirements with the objective of issuing joint tender documents whenever possible. In the case of imported cattle purchases (US$160,000), quotations would be sought for the delivery of suitable stock from neighboring countries, through agents and/or farmers through press advertising in these countries. Technical assistance staff provided by IDA (for the ranches, studies, and the Financial Controller) estimated at a total cost of US$0.7 million would be internationally recruited in accordance with procedures acceptable to IDA. All building construction and improvements (US$1.9 million) would, due to their dispersed locations and diverse construction requirements, be carried out by local tender or by force account where no satisfactory contractors operate or where contractors costs are far in excess of estimates. Local purchasing would be done by competitive bidding and normal commercial channels as applicable using local procedures which are satisfactory. Local breeding and fattening cattle would be purchased by ONDE in Ituri markets. Assurances were obtained at negotiations that the above procurement procedures would be followed.

F. Disbursement (Annex 12)

4.22 The proceeds of the Credit would be disbursed over five years on the basis of:

(a) 100% of foreign expenditures or 75% of local expenditures on: (i) capital investment costs of the veterinary and animal production services, markets, rural slaughterhouses and stockroute;

(ii) specified operating expenditures (excluding personnel) of the Project Unit services and Ngabu Training Center; (iii) capital investment costs of ONDE's Kerekere Asada and Dele ranches; and (iv) costs of veterinary medicines, vaccines and minerals for ranches;

(b) 75% of local expenditures made under the farmers credit fund;

(c) 100% of foreign expenditures for: (i) management and technical assistance services to ONDE; and (ii) studies and Project evaluation;

IDA disbursements under (a)(i), a(iii), a(iv) and c would be fully documented; disbursements under (a)(ii) and b would be made against certificates of expenditure, the documentation for which would not be submitted to IDA for review, but would be retained and made available for inspection by IDA during Project supervision. Documents of expenditure by IPU would be signed by the IPU Manager and Financial Controller. Expenditure by ONDE would be approved by the Director General and the Ituri Ranch Director.

G. Accounts and Audit

4.23 The Ituri Project Unit would maintain its own Project accounts, and quarterly returns would be made to the Department of Agriculture. IPU through the Department of Agriculture would submit to IDA annual audited accounts within six months of the close of the financial year. Such accounts would be audited by independent auditors acceptable to IDA. Assurances to this effect were obtained at negotiations.

4.24 ONDE maintains separate accounts for the first project ranches and for enterprises transferred to it under the nationalization program. Audited accounts for the former are sent to IDA six months after the financial year. Under the Project ONDE would maintain separate accounts for each ranch and abattoir; a statement of physical assets of each entity and accounting systems would be established at the outset of the Project. As in the case of the first project, ONDE's audited accounts, audited by auditors acceptable to IDA, would be forwarded to IDA not later than six months after the end of the fiscal year. Confirmation of the continuation of these auditing arrangements were obtained at negotiations.

V. ORGANIZATION AND MANAGEMENT

Overall Direction and Coordination

5.01 The Director General of the Department of Agriculture would have responsibility for overall policy and coordination of the Project. The

Director General would be advised by a Project policy and coordinating committee which would meet twice a year under the chairmanship of the Director General; the committee would consist of the Director of Veterinary Services, the Manager and Deputy of the Ituri Project Unit, the Director General of ONDE and representatives of the Departments of Finance, National Economy, Interior and INERA and other representatives considered necessary. Executive responsibility for execution of the Project in the traditional farming sector would rest with a special Ituri Project Unit, while responsibility for ranch and abattoir development would rest with ONDE. In Ituri there would be a consultative sub-regional Project committee. It would not have directional or executive functions but would review and comment on the program of IPU and ONDE activities, and keep interested departments informed; minutes would be sent to the Policy and Coordinating Committee. It would meet twice each year under the chairmanship of the Sub-Regional Commissioner. Members could include: IPU Manager, Zone Commissioners, Sub-Regional Heads of the Departments of Agriculture, Cooperatives and Education, the Director of the Nioka Research Station, Director of Kilomines, Ranch Director of ONDE's ranches and the Bunia abattoir. A Project organization chart is given in Annex 8, Appendix 1.

Ituri Project Unit (Annex 8)

5.02 The Ituri Project Unit (IPU) would be a separate entity in the Department of Veterinary Services. It would be headed by the IPU Manager, who would report to the Director of Veterinary Services in Kinshasa (although in his capacity as member of the Project Coordinating Committee he would have direct access to the Director General). In view of the need to maintain staff and expenditures at the proper level after Project completion, assurances were obtained at negotiations that the present and proposed staffing and level of expenditure on veterinary and animal husbandry services, both during and after the Project, would be maintained at the level of expenditures and staffing as shown in Annex 3, Tables 13 and 14. A condition of disbursement of the veterinary and animal production services would be that the Manager, Veterinarian, and Financial Controller for the IPU, had been recruited.

5.03 IPU would develop the veterinary and animal production services, the markets and rural slaughterhouses, the stockroute and a training program. As part of the veterinary dipping and medicine program (para 4.02), IPU would establish and maintain a revolving fund for purchasing dipping materials, drugs and inoculants for sale to farmers; Government would provide the funds (and foreign exchange) necessary to meet farmers' requirements and to make up any shortfalls in revenue due to any losses or need to subsidize dipping materials. IPU would sell drugs at prices designed to cover any handling losses (initially it is suggested that the cost price of the materials plus 15% might be charged). It was agreed at negotiations that Government would maintain the revolving fund on the above basis and that it or some other suitable and agreed mechanism would be maintained for ensuring the supply of dips and medicines at a level necessary to maintain the improvement achieved in animal health and production under the Project.

5.04 The IPU headquarters staff would be based in Bunia. The unit would also have one administrative staff officer stationed in the Department of Agriculture in Kinshasa dealing with supplies and other matters. An internationally recruited veterinarian or animal husbandry officer would be employed under Project technical assistance (para 4.11) for the first three years to establish and manage the IPU. He would be supported by a Zairian deputy who at the end of three years would become Manager of the IPU; at this stage he would in turn be supported by a member of the technical assistance team who would become his adviser. An internationally recruited Financial Controller would also be employed to develop the necessary organization to deal with the increasing sale of dips and drugs. These technical assistance staff would be supplied by FMC which would consult with the Zaire Government and IDA on appointments. Appointments of IPU Manager and Deputy would be made in consultation with IDA and assurances to this effect were obtained at negotiations. Terms of reference and qualifications of these two staff are given in Annex 8, Appendix 2.

Ranches

5.05 Each ranch would be individually managed, but overall direction of the ranch development program would be the responsibility of the Ituri Ranch Manager (who would be in charge of Kerekere and based there). He in turn would work directly with the Director General of ONDE. In view of the shortage of qualified and experienced Zairian personnel the Ranch Manager would be internationally recruited by ONDE directly, or from a consulting firm. His position would eventually be filled by an ONDE ranch manager who has became experienced on Ituri or other ONDE ranches. The Ranch Manager would attend IPU committee meetings and liaise closely with IPU staff and abattoir staff on policies being implemented to increase offtake of immature and unfinished mature cattle from the traditional areas. IDA would be consulted on this appointment and his recruitment would be a condition of disbursement of this component.

Abattoirs

5.06 CIDA would provide a managerial/technical expert for two years to organize work programs and the administration and operation of the abattoirs on an efficient basis. He would be given authority by the Director General to organize the plants and implement the project and would work directly under the Director General of ONDE. The managers of the abattoirs would retain management responsibility for their plant and marketing operations, although work programs would be established by the technical advisor. A suitably qualified internationally recruited engineer, provided by CIDA for two years, would supervise the general overhaul of all existing plant and equipment and the installation of new equipment. The present manager of the Bunia abattoir would receive 6 months training in abattoir management, plant operation and factory hygiene in a neighboring country. A suitably qualified person would be selected to undergo similar training prior to assuming the position of manager at Kisangani.

Ngabu Training Center

5.07 The training center would be part of the Ituri Project Unit. FRG would supply a technical assistance expert (Principal) for three years to

develop the center and courses. The extension specialist in IPU would work closely with the Principal on course content and general educational policy. The appointment of the Principal would be subject to consultation between the Governments of Germany and Zaire.

Project Implementation

5.08 IPU and ONDE would provide regular six monthly reports to IDA of Project implementation, finances and effects of the Project on beneficiaries. An evaluation report would be prepared at Project completion. Annex 10 indicates the principal information that would be submitted to IDA. An implementation schedule is included in Annex 11.

VI. PRODUCTION, MARKETS, PRICES AND FINANCIAL RESULTS

A. Production

6.01 At full development in year 13, improved veterinary, animal husbandry and marketing services would increase productivity of the traditional cattle herd by reducing mortality, increasing liveweight at sale, improving growth rates, increasing herd numbers (from 287,000 to 418,000 head), increasing offtake (from 31,400 to 64,500 head) and raising milk yields. The proposed fattening ranches would improve quality and finish 7,000 animals annually from the traditional herd, as well as producing 1,280 animals from their own breeding herds. At full development total incremental production is estimated at 33,500 head of cattle or the equivalent of some 4,000 tons of carcass meat (Annex 2, Table 1). This would represent about 22% of Zaire's 1975 domestic beef output. About 80% (3,200 tons) of the increased production would be attributed to the smallholder development scheme, while the remainder (800 tons) would come from the ranch rehabilitation program.

B. Marketing (Annex 2)

6.02 At full development about 4,300 tons of beef or 55% of the total beef production of Ituri will be consumed in Haut-Zaire while the remainder, about 3,000 tons, will be available for shipment outside the Region. Demand in Haut-Zaire is expected to grow approximately at the same rate as population growth (2.6%) except in urban areas where there is no prospect for a commensurate increase in real income. However, it is not known how the May 1976 cattle price increase and the decrease in real income resulting from the expected general price increase will affect demand for beef. If demand for beef in Haut-Zaire proves to be less than projected, more beef will be available for shipment outside the Region, mainly to Kinshasa and other large urban centers.

6.03 At full development, the Project's incremental beef production of 4,000 tons would account for about 12% of total beef production in Zaire.

However, as beef demand projections for Zaire suggest that by 1985 from 44,000 to 55,000 tons of beef will be required and as the available supply will amount to only 30,000 tons, 14,000 to 24,000 tons would still have to be imported (Annex 1). The Project's incremental milk production would be consumed by Ituri producers' families; any surplus would find a ready local market. The Project's incremental hide and skin production is expected to be bought by the Bata Company for processing in Kinshasa.

6.04 The Project's improvement in the marketing system would allow an increase in cattle marketed through official market places. ONDE would purchase immatures and slaughter cattle for the ranches and the Bunia abattoir in competition with other farmers and traders. Government has been considering reducing the number of traders; this however, would reduce competition and could increase prices. Government however gave assurances at negotiations that cattle marketing would not be restricted by Government limitations on the number of traders and that ONDE would purchase cattle in competition with traders. Also because of the importance of the need to regularly channel meat through the Bunia abattoir for sale outside the Region, Government agreed that ONDE would establish at the beginning of the project, agreements satisfactory to the Association with one or more marketing companies under which they would purchase meat from the abattoir at Bunia and transport it to Kinshasa or other urban centers.

C. Prices

6.05 An interdepartmental commission of Government is responsible for setting maximum producer and consumer beef prices. The Department of National Economy is responsible for implementing price controls. However, these price controls are only partially effective throughout the country, as cattle trade and beef retail is mostly in private hands (see para 2.07). Official producer prices remained unchanged between February 1973 and May 1976 while actual producer prices rose from 10 to 40% above official levels and retail prices more than 100%. To encourage investment in beef production, Government allowed an increase in official producer prices in May 1976. These new prices would not be sufficient, however, to provide adequate returns for new ranch investments by 1977, as is illustrated by the financial rate of return of 9% for the combined Project ranches. Therefore it was agreed at negotiations that before Board presentation Government would increase the two top grades of meat by 30%, i.e. 1st quality from Z 0.70 per kg liveweight to Z 0.91 per kg and 2nd quality Z 0.62 per kg liveweight to Z0.80 per kg liveweight. The 3rd quality of meat would remain the same at Z0.54 per kg liveweight.

6.06 These new producer prices should be regarded as starting prices because of the need to ensure an adequate financial rate of return on new investments in the smallholder and ranching sectors. Further price policy should aim at establishing minimum producer and consumer prices (not maximum prices) above which prices would fluctuate according to market forces of demand and supply. Because of the expected high rate of inflation and lagged reaction in beef production to price adjustments, Government agreed at negotiations that these minimum producer prices would be reviewed regularly at least annually, in consultation with IDA, and that in order to assist in future price revisions Government would establish and maintain an appropriate

index satisfactory to IDA which would reflect production cost fluctuations; consideration would be given to linking the index with an average c.i.f. import price. Allowance would also be made to accommodate special measures in case of exceptional fluctuations in world market prices.

6.07 The new prices still leave Ituri beef delivered at Kinshasa competitive with imported beef or with beef produced in other regions, although the differences in quality between beef imports and local production makes the comparison difficult. Presently, Ituri beef is of lower quality than most imported or locally produced beef; however, the quality will improve considerably with the development of fattening and breeding ranches. The competitiveness of the Ituri beef will, therefore, mostly depend on the valuation of the Zaire and on the quality improvement that will result from the Project.

D. Financial Results

Smallholders, Ranches and Abattoirs

6.08 Over twelve years the Project would raise average annual family incomes of cattle owners from Z 300 (US$345) to Z 423 (US$490), of which incomes from cattle and milk sales and consumption would increase from Z 213 (US$245) to Z 336 (US$386); cash incomes would increase from Z 128 (US$147) to Z 260 (US$299) after payment of drug and dipping charges. The Project will, therefore, provide an adequate incentive to producers, especially since livestock will be the main cash earning possibility for small farmers in Ituri in the medium term. The financial return of investments in the smallholder component is estimated at 22%. The incremental financial rate of return on Project investments is relatively favorable. However, if sunk costs such as existing dips and buildings which will be used more effectively were included, the financial rate of return to smallholders would fall 8 percentage points to 14%, indicating that the proposed prices are just sufficient to yield a minimum acceptable rate of return for the type of development proposed for the smallholder sector.

6.09 The financial rate of return for breeding/fattening ranches would be 19%. Investments in the abattoirs would yield a financial return of 22% for Bunia and 12% for Kisangani.

Government Benefits (Annex 14)

6.10 Data on government spending in the Ituri Livestock Sector are incomplete as are estimates of Government fiscal revenues collected. The taxation system is being standardized throughout the country and is based on a capita tax. Farmers would pay the full cost for drugs and vaccinations and after a three year subsidy period the full cost of dipping materials (para 4.02). Fees would be charged at levels sufficient to cover operating costs of markets, rural slaugherhouses and stock routes and would be credited to the veterinary services; assurances were obtained on these points at negotiations. In spite of these contributions and fees, with the exception of three years, the project would result in a Government annual deficit

during the Project life (Annex 14). However, while expenditure on services appears to exceed direct revenues to central government the parastatal organization ONDE will make profits in future which will exceed the Government's level of deficit and these surpluses will be reinvested in the livestock sector.

VII. ECONOMIC BENEFITS AND JUSTIFICATION

7.01 The Project would represent Government's first major effort to improve smallholder livestock production in Zaire. It would provide basic veterinary infrastructure facilities and extension services in an area where support services for livestock production have been neglected in the past. In addition, by rehabilitating existing ranches, stockroutes and abattoirs, it would modernize the Ituri livestock sector, resulting in higher cash incomes for pastoralists, and a more regular supply of meat to consumers. Finally, the introduction of better husbandry practices, pasture improvement and grazing management would gradually improve the traditional system of extensive livestock production, thereby enhancing the prospects for further livestock development in the Ituri region.

7.02 The main quantifiable benefits arising from the Project would be a substantial increase in beef and milk production, estimated at Z 8.0 million (US$9.2 million) at full development. This includes the increased value of cattle products handled by the Bunia and Kisangani abattoirs. At full development the incremental production would result in net annual savings of foreign exchange estimated at Z 4.0 million (US$4.6 million) at present world market prices. These savings would represent about 15% of the country's present foreign exchange outlays for imported beef. The Project would also have a number of additional benefits at full development which are more difficult to quantify. This would include: (a) better nutrition for approximately 26,000 families through increased milk production and increased consumption of meat products in the Bunia area; (b) more hygienic slaughtering of animals; (c) the development of local expertise in livestock production and better extension services through in-service training; (d) demonstration of improved pasture and land management techniques to a wide cross-section of cattle producers; and (e) the possibility of testing extension methods for smallholder development schemes that, if proven successful, could be used in developing other rural development programs.

Economic Rate of Return and Sensitivity Analysis (Annex 15)

7.03 The overall economic rate of return for the Project over 20 years would be 29%. Individual rates of return were calculated for the traditional sector, the ranches and abattoirs; these were 26%, 23% and 37% respectively. In this analysis foreign exchange costs and benefits were shadow priced at Z 1.10 per US$1.00 (as compared with the present rate of Z 0.87 per US$1.00) to more adequately reflect the value of foreign exchange to Zaire. All labor costs for veterinary services, ranch and abattoir operations were valued at expected January 1977 wage rates, which are assumed to reflect economic costs of this type of skilled and semi-skilled labor. Additional farm labor costs are small and were not included. The cost of technical assistance, except for

technical assistance at ONDE headquarters and for future project preparation, was included in investment costs.

7.04 The Project would not be particularly sensitive to changes in costs and benefits. A 10% increase in costs would reduce the Project's overall economic rate of return by 3 percentage points to 26%, while a 10% decrease in benefits would reduce it by 4 percentage points to 25%. The Project economic rate of return is therefore relatively favorable. However, if sunk costs (such as existing dips, and abattoir facilities) were included, it would fall by 15 percentage points to 14%.

Risk

7.05 Although the Project is relatively simple in conception it has a high degree of risk, particularly in the smallholder and abattoir components. Data on which projections for all components have been made is weak, and communications and supply problems could be substantial. The greatest risk would appear to be attached to the implementation of the veterinary and animal production services for the traditional sector. Although farmers and Government staff have considerable enthusiasm for the Project, there is no recent record of development in the area on which to base likely farmer response. When faced with having to pay increasing costs for dips, medicines, fees, etc. the response from farmers could in practice be much less than is hoped for. This risk can be mitigated somewhat, however, by concentrating for the first 18 to 24 months on the most responsive collectivities that already have some facilities; this should give some indication of likely response before any large expenditures have been made in capital improvements. If the annual dipping cost to the farmer is a major deterrent then Government must decide whether it is prepared to subsidise the dipping program entirely; such a decision may be necessary after the first twelve months. The technical skills and the overall efficiency of field staff will have to be raised considerably. The introduction of experienced management and in-service staff training is essential if the Project is to have any chance of success. It was therefore agreed at negotiations that Government, CIDA, FMC, FRG and IDA would review the progress of the program at the end of two years full operation (i.e. after the Technical Assistance team have been on the ground for two years) with a view to determining whether the development of new facilities and continuation of the program as planned is fully warranted and whether charges should be made. There is a degree of risk that services could decline or lapse following the investment period. The main risk involved in the implementation of the abattoir component would be the failure to adjust fees regularly, and the chance that throughput could be lower than projected. Although the ranches are somewhat less likely to encounter serious difficulties, some risk would be involved if Government failed to adjust producer prices regularly and if difficulties were encountered in purchasing fattening stock at the right prices (the latter would be offset to some extent by the development of the nucleus breeding herds on two of the ranches). There will be need to develop quickly a sound data collection system to monitor progress and to allow adjustments to plans as necessary.

Employment and Income Distribution

7.06 The Project will not substantially raise wage employment in the Project area. Expected additional permanent jobs will amount to about 400, most of which will be created in the veterinary services, ranches and abattoirs. About 18,600 pastoral families will participate in the Project. Their present average income is about Z 300 1/ (US$345) or a per capita income of about Z 55 (US$ 63), which is somewhat higher than the estimated absolute poverty level in Zaire of Z 20 (US$23). At full development about 26,000 families will have benefited from the Project and the average total income will be about Z 423 - 500 1/ (US$490), thus, appreciably improving the incomes and standard of living of one of the poorest sections of Zaire's population.

VIII. RECOMMENDATIONS

8.01 During the credit negotiations, agreement was reached on the following principal points. Other points agreed at negotiations are included in Schedule A.

(a) A special Ituri Project account would be established and every six months Government would credit this account with IPU's budgetary allocation for the next six-month period (para 4.17);

(b) For the Project implementation period the Ituri Project ranches would be accounted for and funded separately as an Ituri Project unit within ONDE. Income from ranches would be credited to the account and used for meeting operating expenses and purchasing cattle (para 4.18);

(c) Government would make equity and loan allocations to ONDE to meet the requirements of the ranches. These would be paid to ONDE at six monthly intervals in advance of requirements (para 4.18);

(d) IDA procurement procedures would be followed (para 4.21);

(e) Government would maintain present and proposed staffing and levels of expenditure for veterinary and animal husbandry services both during and after the Project (para 5.02);

(f) Appointment of the IPU Manager and Deputy would be made in consultation with IDA (para 5.04);

(g) Stock marketing in Ituri would not be restricted by Government limitations on the numbers of traders and ONDE would purchase cattle in competition with traders (para 6.04);

1/ Includes estimates of crop production for self-consumption.

(h) ONDE would establish at the beginning of the project, agreements satisfactory to the Association with one or more marketing companies under which they would purchase meat from the abattoir at Bunia and transport it to Kinshasa or other urban centers (para 6.04);

(i) Government would establish satisfactory minimum prices at the outset of the project. Government would review these prices at least annually in consultation with IDA and in order to assist in future price revisions Government would establish and maintain an appropriate index satisfactory to IDA which would reflect beef production cost fluctuations (para 6.06).

8.02 A condition of effectiveness would be the satisfactory implementation of any conditions required by CIDA or FMC as conditions of their participation.

8.03 A condition of disbursement for Project studies would be that Government and IDA had reached agreement on the use of the funds (para 4.12).

8.04 A condition of disbursement for the veterinary and animal production component would be the recruitment of the IPU Manager, the Veterinarian, and the Financial Controller (para 5.02).

8.05 Conditions of disbursement for the ranching component would be:

(a) the signing of a Subsidiary Financing Agreement acceptable to IDA between Government and ONDE (para 4.20)

(b) that the ranches had been transferred to ONDE with all existing assets and free of liabilities (para 4.18); and

(c) the recruitment of the Ranch Manager (para 5.05).

8.06 Subject to the above assurances and conditions, the proposed Project would be suitable to an IDA credit of US$8.0 million to the Government of Zaire.

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

SCHEDULE A

During negotiations agreement was reached in the following additional points.

(a) Compulsory dipping of all cattle within a radius of 8 km of an operational dip or spray race would be introduced. Dipping materials in the first three years would be charged at a subsidized price and thereafter, unless otherwise agreed with IDA, the full charge would be levied (para 4.02).

(b) Collectivity cattle per capita taxes charged in areas where dipping facilities were operating would be removed (para 4.02).

(c) The establishment and use of the farmers credit fund would be dependent on arrangements satisfactory to IDA (para 4.04).

(d) One or two years before their departure the FMC and FRG technical assistance staff would be assigned local deputies who would take over from them at the end of their assignment (para 4.11).

(e) Through the Department of Agriculture IPU would submit to IDA annual audited accounts within six months of the close of the financial year. Such accounts would be audited by independent auditors acceptable to IDA (para 4.23).

(f) IPU would establish and maintain a revolving fund for purchasing dipping materials, drugs and incoculants for sale to farmers. Government would provide funds (and foreign exchange) necessary to meet farmers requirements and to make up any shortfall in revenue through losses and need to subsidize dipping materials. The revolving fund or some other suitable and agreed mechanism, would be maintained for ensuring the supply of dips and medicines at a level necessary to maintain the improvement achieved in animal health and production under the Project (para 5.03).

(g) Fees would be charged at levels sufficient to cover operating costs of markets, rural slaughterhouses and stock routes and would be credited to the veterinary services (para 6.10).

(h) After 2 years Government, CIDA, FMC, FRG and IDA would exchange views on the advisability of continuing the program as planned (para 7.05).

ONDE:

(a) The small unhygienic bush slaughter operations near Kisangani would be closed (para 4.10).

(b) Separate accounts for each ranch would be maintained and each ranch would be developed and operated as a viable commercial enterprise (para. 4.18).

(c) During the implementation period, four months before each fiscal year, ONDE would submit to IDA for its approval ranch and abattoir work plans and budgets for the following year (para 4.18 and 4.19).

(d) The Kisangani abattoir would be transferred free of any liabilities to ONDE. Bunia and Kisangani abattoirs would be run on commercial lines, and separate accounts would be kept for each. Fees and prices would be reviewed regularly by Government and ONDE. If for some reason ONDE is not permitted to set fees or prices at a level sufficient to operate the abattoirs profitably, then Government would provide a subsidy. Short-term working capital to purchase and process animals and hides for processing would be made available either from Government sources, a commercial bank loan or overdraft facilities and/or partial payment on order in the case of Bunia abattoir (para 4.19).

(e) The terms of reference and acceptance of appointment for the Financial Manager would be determined in consultation with IDA (para 4.19).

(f) No changes would be made to the Subsidiary Financing Agreement between Government and ONDE without IDA's approval (para 4.20).

(g) ONDE's accounts for each ranch and abattoir would be audited by independent auditors acceptable to IDA; a statement of physical assets of each entity and accounting systems would be established at the outset of the Project. As in the case of the first project, ONDE's audited accounts for all its enterprises, audited by auditors acceptable to IDA, would be forwarded to IDA within six months of the end of each fiscal year (para 4.24).

(h) ONDE would consult with IDA over the appointment of ranch manager for the ranches (para 5.05).

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

BEEF PRODUCTION, MARKETING, PRICES AND DEMAND

A. General

1. Tropical forest spreads over about 45% of Zaire, while the remainder is covered by various types of savannah and water. Only about 1% of the land is cultivated and large areas remain unused. 70% of the population (19 million) makes its living from agriculture, of which only 3% (600,000) are raising cattle. The value of agriculture production was estimated at Z 192 million in 1973, of which about half resulted from commercial production. Livestock, hunting, and fishing activities contributed only 6% (Z 11 million) to the total value added of the agricultural sector (Table 1). The contribution of this sector to GNP has regularly diminished in recent years and amounted to only about 15% in 1974. This small percentage is due to:

(a) the generally low productivity in traditional agriculture;

(b) the stagnation, if not decline in agricultural production during past years;

(c) the inefficiencies in the rural marketing system and poor extension services; and

(d) the low priority given to rural development by the Government.

Hence, per capita income in rural areas was estimated in 1974 at only Z 15.0 (US$30) compared to Z 75 (US$150), the national average.1/

2. Fish is the most important source of animal protein. In 1973, of the total fish and domestic livestock production (197,000 tons), fish represented about 80% (156,000 tons). Beef accounted for about 42% of the remainder (41,000 tons) followed by pork, goats, sheep, and poultry (Table 2). Local meat and fish production is inadequate to satisfy domestic demand and 41,000 tons of fish and meat were imported in 1973 (Table 3). Total beef consumed was estimated at 24,000 tons of which 17,000 tons were locally produced and 7,000 tons imported. The annual per capita consumption of fish and meat was 8 to 9 kg of which meat contributed 2.5 kg. Beef and offal consumption

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1/ At the pre-March 12, 1976 exchange rate 1 Z = 2 US$.

of slightly more than 1 kg per person compares unfavorably with other countries in the region; that is, Central African Republic 13.2 kg, Chad 9.5 kg, Gabon 5.9 kg and Rwanda 3.3 kg. Meat and fish supplies must be augmented by game -- probably still a major but declining contributor -- and insects, so that protein consumption by Zairians in 1973 was somewhat higher than estimated above. However, provisional statistics indicate that since 1973, total protein production, in particular fish has declined, while imports remained stagnant. Thus per capita consumption of animal protein is likely to have declined during recent years. To reverse this trend, the government plans to stimulate meat and fish production, for which Zaire has great potential.

B. Beef Production

3. Size of Herd. Cattle are the most important livestock in Zaire. In 1973, there were about 1 million head of cattle, 0.5 million pigs, 2.8 million sheep and goats, and 9 million chicken and other fowl (Table 4). About 600,000 cattle are raised by pastoral herdsmen, small farmers and ranchers for meat and milk, and 400,000 head were raised by ranching companies, religious missions and Government farms until 1973. At the end of 1973, the private ranching sector was nationalized and now all the ranch lands belong to the State. Cattle farming is practiced especially in the regions of Shaba, Kasai Oriental, Kivu and in the sub-region of Ituri, due to the quality of the grazing lands and the presence of a favorable environment (zones free of Glossina, proximity to consumer markets). In the east, where Trypanosomiasis is not so prevalent, cattle of the Afrikander breed, or the zebu of Ituri are raised. On the other hand, in the west, priority is given to the N'Dama strain, smaller and slower to develop, but tolerant to Trypanosomiasis. Sheep and goats are held in small numbers in and around villages or are herded in larger numbers, particularly in Haut-Zaire, Kivu, Kasai, and Bandundu. Pigs and fowl are kept in and around villages and to a lesser extent on pig or poultry farms.

4. Commercial cattle raising was introduced in Zaire at the beginning of the 20th Century and increased from 1,000 head in 1901 to 120,000 head in 1935 and 514,000 head in 1959. The traditional herd belonging to pastoralists and smallholders also increased (1935: 194,000, 1959: 521,000) as a result of population growth and the expanded meat sales opportunities which accompanied the modernization of the economy.

5. The civil disturbances of the 1960's adversely affected the livestock sector and many animals were killed or stolen. Most expatriate farmers and some larger ranching companies stopped operating, disposing of their remaining cattle by slaughtering or selling live to other ranchers. Large herds of indigenous cattle were moved to neighboring countries. Veterinary services stopped functioning. As a result, livestock numbers decreased by 25% for cattle and an average of 30% for other livestock. The decrease has equally affected the traditional and the modern livestock sectors. After

1965, livestock numbers have increased again, and presently they are reaching their pre-independence level. In 1973, nearly 80% of the traditional herds were in the northeastern region of Haut-Zaire and Kivu, while 60% of the commercial cattle were in the Southeast, mainly in the Shaba region.

6. Traditional Cattle Herders and Small Farms. Government estimates in 1974, although tentative, indicate that about 40,000 families in Haut-Zaire and Kivu own over 450,000 head of cattle and market about Z 2.0 to Z 2.5 million worth of production a year, in addition to obtaining meat and milk for their subsistence. In Bas Zaire, 57,000 head are kept on about 200 ranches and farms owned by Zairians and sometimes organized as cooperatives. While these farms are often classified as part of the improved livestock sector, their management methods are variable. Other concentrations of smallholders are found in Kasai Occidental and Shaba (particularly the Dilolo-Sandoa area). Production from this sector is estimated at 7,000 tons of beef, reflecting low off-take rates (8-10%) and the fact that traditional production methods have hardly improved during past years.

7. Commercial Ranches. Until 1973, the Government owned or had a majority share in over 70 ranches, farms and research stations of various size. Some had passed to complete Government ownership shortly after independence. The management of these ranches was the responsibility of various bodies, including INERA. In November 1973, however, the Government took over all privately owned commercial ranches and for the first few months entrusted ONDE (Office National pour le Developpement de l'levage) with their management. Then, however, management was transferred to various public agencies and companies. The exploitation of smaller ranches was given to private Zairians, while the Government retained ownership rights. Thus, the Government presently controls all major cattle ranches with the help of the following public entities:

ONDE 1/	100,000 head of cattle 2/
CELZA	132,000 head of cattle
Domaine de la N'Sele	45,000 head of cattle
SGA	33,000 head of cattle
Kilo - Moto	3,000 head of cattle
Gecamines	-

These entities are expected to operate commercially. ONDE is currently surveying the size of the herd on these ranches. Although results are not yet available, most of these ranches are believed to be understocked.

8. Over 80% of the cattle on public ranches is found in the Southeast, particularly Shaba, because of favorable ecological conditions and the fast

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1/ See Annex 7.
2/ Provisional figures.

growing Kinshasa and Lubumbashi markets which are encouraging the expansion of modern ranches. The three existing ranches in Ituri, belonging to the Kilo-Moto mine, are considerably understocked and provide only part of the meat required by the mining company.1/ Other ranches are located in the Lower Zaire region catering for the Kinshasa market. Animals are normally sold at between four to five years of age and offtake varies from 15-18% on fully developed ranches. In 1973, large ranches accounted for nearly 60% of domestic beef production, producing 10,000 tons of beef from an estimated 50,000 heads. The Government plans to increase beef production by improving existing ranches and by establishing new properties. An IDA-financed ranching project is presently being implemented to improve and expand cattle on the Muhila, Mitwaba and Kayembe Mukulu ranches in the Shaba region (398-CK). The Project also provides funds for preparing a third livestock project, which still has to be identified.

C. Marketing of Cattle and Meat

9. Wholesale Marketing. Cattle and meat is marketed through public and private channels. The beef wholesale trade is dominated by state companies, in urban centers, in particular, by S.G.A. (Societe General D'Alimentation) which has an import monopoly for meat. To cover the growing meat deficit in Zaire, S.G.A. until recently imported an average of 1,000 tons of beef per month, 650 tons for Kinshasa and about 300 tons for Shaba, the main consumption centers in Zaire. It also imported 200 tons of offals, 200 tons of hens and 1,200 tons of fish per month. Until the end of 1974, S.G.A. imported meat mainly from African countries, that is, Rhodesia, Kenya, Chad, Sudan, etc., while currently, S.G.A. imports from Ireland, France, South Africa and Latin American countries. This change in the origin of meat supplies reflects favorable world market conditions for meat as well as increasing intra-African transportation costs, especially for air transport. More specifically, African exporting countries currently cannot compete with low world market prices caused by the self-sufficiency policy and economic recession in the EEC countries and the attempt by major world market suppliers to find new markets for their surplus meat. Thus, consumers who were used to buying fresh African meat changed rapidly - apparently without any major problems - to frozen meat coming from European and Latin American countries. Until mid 1975, a free import policy allowed beef supply to adjust to demand, but the growing shortage of foreign exchange reserves has compelled the government to apply a more restrictive policy in recent months, which is expected to continue in the near future.

10. S.G.A. currently purchases most of the production in Shaba, whether produced by CELZA, ONDE or S.G.A. itself (S.G.A. owns a ranch with 33,000 head of cattle). As mentioned above, cattle production in Shaba is dominated by

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1/ For further details see Annex 5.

ranches, which are located in the eastern and central sections of the region. Most beef in Shaba is slaughtered and marketed in Lubumbashi, Likasi and Kolwesi, while small pockets of consumption exist also in Kamina and Kalemie. Transport of cattle, which is mostly done by trek and railroad to consumption centers, is organized by the ranching companies themselves or by order. Cattle are then sold to local butchers and state companies, before being slaughtered in modern abattoirs. Shaba has, in fact, a network of adequate publicly owned slaughterhouses and cold storage facilities of which the most important one is owned by S.G.A. in Lubumbashi. Local beef supply in Shaba is not sufficient to satisfy local demand so that until 1974 about 3,000 tons of beef were annually imported. Indications are that the beef deficit in Shaba has continued to grow in recent years.

11. While state companies, in particular S.G.A., dominate beef marketing in Shaba, private traders handle most of the cattle trade in the Haut-Zaire and Kivu regions.1/ Most livestock sold come from herds owned by smallholders, who sell cattle in various primary markets directly to butchers or to a variety of middlemen who organize transport, mostly by truck to more distant urban centers, such as Kisangani, Bukavu, Isiro. Transportation is handicapped by bad road conditions, in particular, during the rainy season, when meat supply is very irregular causing local shortages in these centers. After the cattle are sold to local butchers, slaughtering takes place in public abattoirs. These facilities are often operated inefficiently and under unsatisfactory sanitary conditions, because maintenance and replacements are lacking and the slaughter fee of Z 1 per head of cattle would not cover normal operating costs, not to mention regular maintenance and replacements. Hence, abattoirs take considerable losses and the operation could only be made profitable after substantial investments and organizational changes. Besides private traders, ONDE, which operates the abattoir in Bunia, signed a contract with S.G.A. in July 1975 to provide seven tons of meat a week for shipment to Kinshasa. ONDE has since been successful in buying some cattle in parts of Ituri, which are poorly served by private traders, thus providing a service to smallholders and at the same time introducing a new element into the traditional marketing system. With the development of the Ituri livestock sector, its role is expected to increase rapidly.

12. Retail Marketing. A multitude of small butchers and traders dominate the retail market of beef in Zaire and meat often reaches the consumer only after having passed through the hands of numerous intermediaries. In major cities only about 30% of meat is sold through modern retail shops, some of which are operated by state companies, such as S.G.A., Economat du Peuple. The rest is sold by retailers, who rent small stands and shops in traditional market places. Butchers cut meat into small pieces and sell it by heaps, so that weight and quality can hardly be controlled. Competition among retailers is limited by tacit agreements and new-comers find it difficult to enter the market. There are, indeed indications that retailers try to limit their supply, thus creating an artificial shortage of meat to boost prices

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1/ For further details on marketing in Ituri, see Annex 2.

and profits. The quasi-monopolistic behavior is illustrated by the fact that retail prices for meat almost doubled during the last two years, while producer prices for cattle increased only by 20 to 40%. This attitude is also encouraged by irregular meat supplies which favor speculation. Finally, it partly explains why meat supply in major cities remained almost stagnant, during recent years, despite rapid urbanization and income growth.

13. The present marketing system is adequate in bringing cattle and meat from the producer to the consumer. It works with a fair degree of competition, but its overall efficiency could be improved further by:

(a) removing obstacles to the free access to the market;

(b) expanding storage facilities to regularize meat supplies;

(c) setting-up regular air freight service between regions; and

(d) providing better roads and road maintenance to facilitate cattle transportation to markets;

It would not seem to be advisable to set up a national wholesale or retail monopoly as the Government has done in other agricultural sectors. Considering, in fact, the particular complexity of cattle and meat marketing, such a monopoly would hardly be able to provide the same services as the present system and would, therefore, run the risk of being very inefficient and thus become a considerable obstacle for developing a modern livestock sector in Zaire.

D. Prices and Price Control

14. An interdepartmental Committee is responsible for determining maximum producer, wholesale and retail prices for livestock products. Price control is under the responsibility of the Department of National Economy who has controllers who inspect markets in all regions of the country. The objective of price control is to protect consumers and to make meat available to the urban population at low prices. In the past, however, Government price controls were not always effective. For example, while official producer prices remained the same from February 1973 until May 1976, actual producer prices (paid in various parts of the country to producers by traders/SGA), compared to official maximum prices, increased depending on locality by 10 to 40%, and retail prices by more than 100%. The different

rates of increase illustrate the fact that rapidly rising retail prices are only partially passed on to producers by the present marketing system. However, it also reflects the fact that price controls have mainly been applied to public ranches, which can easily be controlled. Indeed, while an unofficial 25% increase in Shaba ranch cattle prices in 1975 (24 k/kg/lw to 30 k/kg/lw) was apparently tolerated by the Ministry of National Economy, further attempts by ranches to increase prices were not allowed. As production costs almost doubled during the past two years, ranch income was hardly sufficient to cover operating cost, not to mention to yield a reasonable return on ranch investments. Thus, in the past two years, during which annual inflation rates exceeded 30%, only wholesale and retail traders seemed to have been able, not only to protect the real purchasing power of their incomes, but also to increase their profit margins, while producers' real income stagnated, if not declined. Overall, the present price control system constitutes considerable disincentive to improve modern and traditional livestock production; it is hardly able to protect consumers as more than 70 % of all meat is retailed in traditional markets, where controls can barely be enforced.

15. The pressure on producer prices was compounded by two other factors. As the share of imports has been growing in the country's meat supply, world market prices have been playing a leading role in determining internal prices for cattle and meat. Ranch cattle in Shaba have to compete with imported meat now coming mainly from South-Africa, while surplus meat transported by plane from the Northeastern regions (mainly Ituri) to Kinshasa have to compete with the low prices of high quality European and Latin-American beef. Indeed, world market prices fell sharply in 1974/75 reflecting the self-sufficiency policy in beef of the EEC and the general recession in most industrialized countries. A full recovery of the world beef market 1/ is not expected before the end of the 1970's. Moreover, the effect of low world market prices was compounded by the considerable overvaluation of the Zairian currency. Indeed, not only the current low world market prices for beef, but especially the distortion in Zaire's exchange rate, have been an efficient means of keeping absolute meat prices low. However, the influence of import prices on domestic beef prices was considerably reduced in recent months, as imports of all categories of meat were limited by exchange controls, creating a growing shortage of meat in all parts of Zaire. Finally, estimates indicate that the March 1976 devaluation of the Zairian currency (the Zairian currency has been pegged to the SDR), reflecting an actual devaluation of about 40% of the Zaire, has reduced to a great extent the considerable distortion in the country's foreign exchange rate, but at the same time substantially increased meat prices and livestock production costs.

1/ See World Bank Report "Price Forecasts for Major Primary Commodities" April 1976 in which it forecasts a 3% per annum growth between 1976 and 1980 and a 0.2% per annum growth to 1985.

16. Following the March 1976 devaluation of the Zairian currency, the government substantially increased maximum producer prices for beef in May 1976.

Region	First Quality	Second Quality	Third Quality
	Z/kg Liveweight		
Bas Zaire	.75	.67	.67
Bandundu	.71	.63	.54
Equateur	.65	.57	.50
Haut Zaire	.70	.62	.54
Kivu	.65	.57	.50
Shaba	.75	.67	.57
Kasai Or. and Oc.	.75	.67	.57
(Official prices since February 1973)	(.24)	(.21)	(.19)

Estimates indicate that this producer price increase will be sufficient to yield a reasonable rate of return on existing smallholder and ranch investments. However, it would not be sufficient to achieve an adequate return on new investment. The price level for cattle will therefore require further review and adjustment. Moreover, as important as determining an adequate price level for producers, will be the establishment of a price adjustment mechanism, whereby past delays in bringing producer prices in line with cost developments can be avoided. To set up such a price adjustment mechanism, producer prices should be pegged to a relevant price/cost index and considered as minimum prices to provide a reasonable return to ranches and smallholders. In fact, if the past divergent trend in price and cost development were allowed to continue, the development of Zaire livestock sector would be impossible. However, only the rapid development of the country's livestock potential will make it less dependent on foreign supplies and provide additional income to its farmers and increasing meat supplies to its consumers. This would, indeed, provide the best protection for consumers against high meat prices in the long run.

E. Demand and Supply Prospects

17. There is insufficient information to trace the development of beef consumption during the 1960's and early 1970's. It probably declined during 1960-1964 and started to rise again after 1965. A rise in export prices for

copper and other minerals during the late 1960's provided a stimulus to the economy. To a large extent the additional revenue accrued to Government and (through an expansion of the civil service and increase in Government expenditure) to the Kinshasa area in general. This had a positive effect on beef demand which showed an annual rise in consumption of 10% for beef between 1968-1971. During the same period GNP grew by 7% p.a. However, in 1972, when copper prices fell, demand for beef declined. This decline continued in 1973, when Zairianization of foreign-owned businesses accelerated the departure of Europeans. Although beef consumption increased again in 1974, this rise is not likely to continue in 1975 as copper prices fell again, which is forcing the Government and other sectors to reduce spending. Thus, in 1975 total beef consumption is not likely to have reached the high 1971 level, indicating that per capita consumption of beef in recent years has tended to decline.

18. The main factors determining future demand are population growth, increases to income and price elasticities for the demand of meat. The annual growth rate of the Zairian population is 2.6% and it is not expected that this rate will change in the next 10 years. Zaire's economic growth prospects are seriously affected by the stagnation in world output and trade. In fact, its export earnings are declining, while import prices are rising, resulting in a considerable deterioration of the country's terms of trade. In addition, the rapid Zairianization of foreign-owned businesses, farms and plantations in late 1973 continues to adversely affect commercial activities as well as agricultural production and income. It is, therefore, estimated that per capita income will grow at an annual rate of only 1 to 1.5% during the coming years.1/ At the end of the 1970's however, it is expected that growth will again accelerate, as agricultural activities and, in particular, world market copper prices are expected to rise. Hence, from this period onwards, per capita income is likely to increase by 2 to 3% a year. Reliable figures on income elasticities for Zaire are very scarce. Studies made in other African countries show that income elasticity of demand for meat ranges from 0.7% to 1.5% depending on type of meat and consumer groups. Past figures for Zaire on GNP growth and meat consumption indicate that income elasticities for meat tend to be higher than 1. To simplify demand projections, it was assumed before the recent devaluation and price increase that annual income would grow by 5% and income elasticity vary between 1 and 1.5% during the next 10 years. Based on these assumptions, domestic demand for meat was likely to increase between 5 and 7.5% during the period 1976-1985. However, the above figures did not consider the expected rise in meat prices (real terms) and their impact on demand (negative price elasticities). Since no figures on price elasticities of demand for beef are available in Zaire, the mission reduced the above percentages slightly to 4 and 6% as a possible range for future beef consumption. On this basis it was estimated that beef consumption would increase from an estimated 30,000 tons in 1975 to respectively 44,000 tons and 54,000 tons in 1985.

1/ World Bank: The Economy of Zaire, July 1975

19. Growth in domestic beef production, presently estimated at 17,000 tons, will very much depend on the rehabilitation of the nationalized ranching sector which has the greatest potential for accelerating livestock production in Zaire. The organization and management problems associated with the Zairianization are likely to affect initial growth of this sector, but as new management becomes more experienced, production could increase from this sector in the early 1980's. The mission estimates that beef production in the year 1985 will amount to about 30,000 tons compared to 17,000 in 1975. The additional growth of 13,000 tons will mainly originate from livestock projects which are presently implemented and prepared, namely, the Shaba Ranch Project (5,000 tons) and the Ituri Livestock Project (4,000 tons). The rest of the increase will mainly come from other commercial ranches. This will represent an annual growth rate of 5.8%, but growth rates will be much lower until the end of this decade before they gradually increase at the beginning of the 1980's. Compared to projected consumption levels in 1985 of between 44,000 tons and 54,000 tons, available domestic supply will leave a gap of between 14,000 and 24,000 tons to be imported.

20. The above projections are necessarily speculative in nature and are intended to describe only broad tendencies in Zaire's meat market. In the medium term these projections must be reviewed in light of recent Government measures, namely, the increase in domestic cattle prices and the substantial devaluation of the Zairian currency which both will result in a steep rice of beef prices. The expected rapid rise in the general price level will considerably reduce the purchasing power of Zaire's population, especially that of its urban inhabitants. It is likely therefore that meat consumption and imports during the coming years may not rise and may even decline. Moreover, imports of beef and other meat products will probably depend more on the availability of foreign exchange and government measures rather than on consumer demand. A recovery of the meat market will probably not ocurr before the beginning 80's so that the projected deficit for 1985 will probably be at the lower level of about 14,000 tons. Whatever dampening impact recent government measures will have on the Zairian meat market, its dependence on foreign meat supplies will not change in the foreseeable future and there will be room to absorb increased supplies from local production.

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Gross Domestic Product by Industrial Origin

(In millions of current Zaire)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Produit Intérieur Brut - Distribution Sectorielle

(En millions de zaïres courants)

	Year/Année						
	1968	1969	1970	1971	1972	1973	
Primary Activities							Secteurs Primaires
Agriculture	140.8	145.7	141.1	146.4	155.0	175.6	Agriculture
Commercial	(69.5)	(67.1)	(61.3)	(65.8)	(73.6)	(90.0)	Secteur Commercial
Traditional	(71.3)	(78.6)	(79.8)	(80.6)	(81.4)	(85.6)	Secteur Traditionnel
Livestock and Hunting	8.3	9.6	5.2	5.3	5.2	5.6	Elevage et Chasse
Forestry	3.1	4.8	3.3	3.5	4.2	4.9	Forêt
Fishing	3.8	4.7	5.5	5.7	5.9	6.2	Pêche
Secondary Activities							Secteurs Secondaires
Mining and Metal Processing	121.2	190.5	107.8	87.5	100.3	303.0	Mines et Industries Métallurgiques
Manufacturing	36.0	42.1	77.5	89.2	102.1	127.5	Industries Manufacturières
Construction	22.7	31.5	45.0	59.1	50.3	50.8	Construction
Commercial	(16.0)	(22.3)	(30.0)	(39.4)	(33.6)	(35.4)	Secteur Commercial
Traditional	(6.7)	(9.2)	(15.0)	(19.7)	(16.7)	(15.4)	Secteur Traditionnel
Tertiary Activities							Secteurs Tertiaires
Trade	82.3	99.2	116.0	142.4	168.3	214.4	Commerce
General Government	70.0	91.7	119.3	153.3	172.2	186.3	Gouvernement
Transport and Communication	38.4	46.9	75.9	86.4	97.3	108.2	Transport et Communication
Electricity, Gas and Water	7.4	8.4	8.7	9.5	9.6	10.2	Electricité, Gas et Eau
Financial Institutions	12.8	17.4	19.4	22.2	22.8	24.7	Institutions Financières
Ownership of Dwellings	19.1	24.6	36.1	42.3	38.9	40.0	Propriété Immobilière
Other Services	58.0	71.2	84.0	100.9	121.2	131.1	Autres Services
GDP at Factor Cost	623.9	788.3	844.8	953.7	1,053.3	1,388.5	PIB Aux Coûts de Facteurs
Plus: Net Indirect Taxes	127.2	167.4	198.8	183.5	195.5	263.3	Plus: Taxes Indirectes Nettes
GDP at Market Price	750.2	955.7	1,043.6	1,137.2	1,248.8	1,651.8	PIB Aux Coûts de Marché
Inputed Banking Service Charge	- 2.6	- 3.9	- 4.8	- 5.6	- 5.7	- 6.5	Charges Imputées pour Services Bancaires
GDP at Market Price	747.6	951.8	1,038.8	1,131.6	1,243.1	1,645.3	PIB aux prix du Marché

Source: Bank of Zaire, Annual Reports 1971-1972, 1972-1973 and data provided by the Zairian Authorities. World Bank Economic Report - July 1975

Source: Banque de Zaire, Rapports Annuels 1971-1972, 1972-1973 et données fournies par les Autorités Zaïroises. Rapport Economique de la Banque Mondiale - Juillet 1975

January 8, 1976

Le 8 janvier 1976

ANNEX/ANNEXE 1
Table/Tableau 1

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Meat Production
(in tons)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Production de Viande
(en tonnes)

Years Années	Insects Insectes	Hunting Chasse	Fish Pêche	Pisci- culture	Cattle Bovins	Sheep & goats Ovins & caprins	Pigs Porcs	Poultry Volailles
1970	32,120	70,000	136,550	2,470	15,685	2,582	7,606	8,900
1971	32,441	63,000	123,926	2,458	16,300	3,263	8,368	9,200
1972	32,765	56,000	144,670	2,506	18,458	4,078	9,877	9,500
1973	33,092	51,030	151,903	2,556	17,000	4,258	10,043	9,975
1974 1/	33,422	45,927	159,498	2,606	17,404	4,471	10,545	10,474
1975	33,756	45,334	127,473	2,658	17,932	4,694	11,073	10,997
1976	34,093	37,201	175,847	2,710	18,498	4,929	11,626	11,547
1977	34,433	33,481	184,639	2,764	19,024	5,175	12,125	12,208
1978	34,777	30,139	193,871	2,818	19,595	5,434	12,818	12,731
1979	35,124	27,120	203,564	2,874	20,182	5,706	13,459	13,367
1980	35,475	24,408	213,742	2,930	20,788	5,991	14,132	14,036

1/ 1974-1980 estimates

Source: Ministry of Agriculture

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1/ 1974-1980 estimations

Source: Ministère de l'Agriculture

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ANNEX/ANNEXE 1
Table/Tableau 2

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Volume of Imports of Principal Agricultural Products

1959, 1968-73, Thousands of Tons

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Importations de Principaux Produits Agricoles

1959, 1968-73, en Milliers de Tonnes

Products	Year/Année 1959	1968	1969	1970	1971	1972	1973 1/	Produits
Maize 2/	6.0	57.7	64.6	64.0	100.0	85.0	125.0	Maïs
Rice	2.3	18.3	2.0	25.0	20.0	25.1	52.2	Riz
Potatoes	2.0	3.5	3.2	4.5	4.5	3.2	5.0	Pommes de terre
Wheat and/or Flour	38.7	49.4	63.3	85.0	85.0	97.8	129.3	Blé et/ou farine
Sugar	5.8	10.0	15.0	15.0	20.0	18.0	N.A.	Sucre
Meat and Meat Products	7.9	6.4	9.5	12.0	12.5	12.5	16.0	Viande et Produits de viande
Fish and Fish Products	34.2	20.0	24.6	24.8	25.0	25.1	25.0	Poisson et Produits de Poisson
Malt	16.5	19.9	29.0	37.3	N.A.	65.0	40.5	Malt
Tobacco	4.2	N.A.	3.6	4.1	5.4	3.8	5.0	Tabac

1/ Provisional.
2/ Before its independence Zaire was an exporter country.

Source: Bank of Zaire's Annual Report 1972-1973 and information provided by the Zairian Authorities

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1/ Provisoire.
2/ Avant son indépendance, le Zaïre était un pays exportateur.

Source: Rapport Annuel de la Banque de Zaïre, 1972-1973 et informations fournies par les Authorités Zaïroises.

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ANNEX/ANNEXE 1
Table/Tableau 3

ANNEX/ANNEXE 1
Table/Tableau 4

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT — **PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI**

Livestock Population from 1953 to 1973 — Evolution du Cheptel de 1959 à 1973

Cattle, Pigs, Sheep & Goats & Poultry — **Bovins, Porcs, Ovins & Caprins et de Volailles**

Years Années	Cattle Bovins	Pigs Porcs	Sheep & Goats Ovins & Caprins	Poultry Volailles
1959	1,035,049	361,416	2,780,492	3,707,766
1963	900,202	311,749	2,032,441	3,132,404
1964	766,223	353,203	1,890,864	4,501,000
1965	798,793	385,993	1,800,020	N.A.
1966	801,728	410,366	2,216,845	3,188,459
1967	798,965	416,594	2,094,326	2,784,793
1968	886,806	433,089	2,066,570	5,247,968
1969	956,413	481,104	2,449,075	7,924,628
1970	973,522	488,049	2,468,059	8,449,000
1971	974,758	492,206	2,610,059	8,215,491
1972	1,047,565	549,877	2,681,870	8,495,220
1973	1,078,849	520,371	2,816,168	8,835,981

Source: Estimates provided by Ministry of Agriculture

Source: Estimations fournies par le Ministère de l'Agriculture

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ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

MARKETING AND MEAT PROCESSING IN ITURI AND HAUT-ZAIRE

A. Present Situation

Production and Supply (Table 1)

1. The Ituri sub-region currently produces 3,500 tons of beef 1/ i.e., 20% of the national production, yet its total cattle herd of 297,000 head represents one-third of the national herd. Production has been increasing at 1.4% p.a. over the past 5-10 years. The rate of offtake is estimated at 10-11%, which gives annually 32,000 head of cattle available for sales and self-consumption. Carcass yields are in the order of 48%. Ituri supplies beef almost exclusively to Haut-Zaire, but it has an important export potential to supply other domestic markets, Kinshasa in particular. The current marketing organization is one of the factors constraining a better offtake and supply of cattle.

2. The Ituri cattle industry includes two sectors: the traditional sector and the modern sector. The traditional sector, with 287,000 head of cattle, is concentrated in the northern and southern parts of the sub-region, the Zones of Aru and Irumu. Cattle raising is also a traditional economic activity in the central part, the Zone of Djugu, but competes with agriculture. This distribution of the traditional cattle industry has been determined by the settlement pattern of the Ituri population (see Annex 3, para 5).

3. The modern sector includes 10,000 head of cattle distributed amongst several ranches which had been established throughout the sub-region before Independence. They were either privately owned or attached to zoo-technical Stations or missions; in addition, Kilomines, the company exploiting the gold mines, has set up some cattle ranches in order to produce meat and dairy products for the population of the mines. Most ranches were "Zairianized" in 1973. Some have been allocated to private citizens, others to INDERA and the Veterinary Service. None were given to ONDE. Kilomines, now a Zairian company, has kept the responsibility for its ranches.

1/ Unless otherwise specified the term "beef" will include beef meat and offals throughout this Annex.

Demand for Ituri Cattle (Table 2)

4. Demand for Ituri cattle is greater than supply. The population of Haut-Zaire, which consumes 88% of the beef supplied from Ituri, has been increasing rather fast, maybe faster than the overall population of Zaire (2.6%). Meanwhile, beef supply has increased at 1.4% p.a. only, and per capita beef consumption has been decreasing.

5. Ituri consumes two-thirds of the beef it produces, although official slaughter records (Table 3) give an indication that since 1970 beef consumption has been declining in Ituri (except in Bunia and Aru Zone) both in absolute and relative terms. Bunia, the largest town in Ituri with a population of 30,000, consumes 3,000 head of cattle a year. It has the greatest annual beef consumption per capita in Ituri and Haut-Zaire, i.e. 17.7 kg. Contrary to the situation prevailing in other consumption centers of Ituri and Haut-Zaire, beef is the main source of animal protein in Bunia, ahead of pork, goat or fish. The other towns of Ituri have a much lower level of consumption mainly because of their lower income. Consumption in the rural areas is estimated at 12,390 animals, mainly young male cattle, which represents only 2 kg of beef per capita. Kilomines consumes 450 head of cattle per annum of which 250 are produced on its ranches.

Present Consumption of Ituri Cattle and Beef at Selected Centers

Consumption Center	No. of Consumers	No. of Cattle Consumed	%	Per Capita a/ Consumption beef
				(kg)
HAUT-ZAIRE	2,942,970	28,295	88.0	1.4
Ituri	972,445	21,245	66.0	3.2
-Bunia	24,600	3,200	10.0	18.9
-urban (w/o Bunia)	119,850	5,000	15.6	6.0
-rural	961,115	12,390	38.5	2.1
-mines	19,860	450	1.4	3.3
-others		205		
Kisangani	252,316	2,610	8.0	1.5
Isiro		130	0.4	
Others		4,310	13.0	
CONSUMPTION OUTSIDE HAUT-ZAIRE				
Kinshasa		400	1.0	
Others		3,455	11.0	
TOTAL		32,150	100.0	

a/ Carcass weight: 115 kg; offals 30 kg. For the purpose of the per capita consumption calculations; the meat consuming population has been defined as the population of 5 years old and above, which constitutes approximately 82% of the total population.

Source: Table 2.

6. About one-third of Ituri's total beef production i.e., some 11,000 head of cattle, are exported from the sub-region to other centers of Haut-Zaire such as Kisangani and Isiro, to North-Kivu, Uganda and Kinshasa. (ONDE started a cattle purchase/slaughter operation in July 1975 for export to Kinshasa).

7. Kisangani, the capital city of Haut-Zaire with a population of 300,000,1/ consumes annually over 2,600 head of cattle, may be 5,400 as indicated by transit permit records,2/ although fish and pork rank before beef in the diet of its inhabitants. Cattle supplies are at times irregular especially during the rainy season. The cattle is trucked live from Ituri on the 700 km dirt road that connects Bunia to Kisangani.

8. Isiro, a town of 60,000 inhabitants, is located in Haut-Uele at some 450 kilometers from Aru Zone where it gets most of its supply of cattle. Since 1971, Isiro's beef consumption has drastically decreased, from almost 1,000 head to 130 in 1974. Reduction in income, poor transport infrastructure and resulting decline in cattle trade are the major causes for Isiro's decreased demand for Ituri cattle. Once a prosperous trading center for agricultural produce, economic activity in Isiro has declined considerably. The trek from Aru Zone to Mungbwere, from where cattle can travel by train, has not been maintained. It is therefore no longer profitable for traders to come regularly from Isiro to Aru Zone to purchase just a few cattle.

Cattle Markets

9. Location and Facilities. In the past, a marketing infrastructure was established throughout Ituri. Cattle markets were located according to the same location pattern as production, hence markets can be identified as three distinct groups: the northern markets, the central markets and the southern markets. Most markets had properly equipped market places consisting of a shed, scales, crushes and small holding grounds. Many of these facilities have now fallen into disrepair although some of the scales are still in working order. All northern markets have scales in working order. Only one central market has facilities and scales; other markets have no facilities, and people just meet at a given place. None of the southern markets except the Bunia market, have scales in working order. A list of all existing markets and the status of facilities is found on the table below:

1/ Since 1970, Kisangani's population has been growing at 7% p.a. Source: Region du Haut-Zaire, Division Regionale des affaires Politiques.

2/ Source: Region du Haut-Zaire, Rapport annuel du Service Veterinaire de 1974; Sous-region de L'Ituri. The mission has preferred to base its estimates of the throughput of the Kisangani abattoir on official slaughter records, assuming that the other 3,000 animals are consumed in La Tshopo sub-region.

Market Name	Facilities a/ in use but requiring repairs	Facilities a/ None	Scales Working (may need repairs)	Scales Not Working	Scales None
Northern Markets					
Aru Nyambere	x		x		
Kauchu	x		x		
Mont Hawa	x		x		
Kurumu		x	x		
Apaa		x			x
Atchinia		x	x		
Adranga		x	x		
Mado	x		x		
Central Market					
Djugu		x			
Djalasiga		x			
Luga		x			
Mont-Rona		x			
Mytchapa	x		x		x
Southern Markets					
Bunia		x	x		
N'denge		x		x	
Mandro	x	x		x	x
Kadanza		x			x
Bogoro	x			x	
Gety	x			x	
Mitego		x			x
Boga	x			x	

a/ Facilities = holding grounds, sheds, crushes.

10. Organization. The Veterinary Service is currently responsible for organizing and operating cattle markets in Ituri. The southern markets are the most active and regular in the sub-region; the weight of animals on sale is visually estimated and then the animals are auctioned. This procedure also operates at Bunia market which has scales. In 1975, the Veterinary Service successfully established a schedule of one market a week located in rotation at each of the eight southern markets. Northern and central markets are occasional, animals are weighed on scales or the weight is estimated at sight and sales are based on a price per kilogram. No schedule exists for the northern and central markets because the Veterinary Service assumes that cattle owners will not give sufficient support. Traders themselves go to the Veterinary Service for markets to be arranged. ONDE, however, has recently held several markets in the north and one in the center. Its experience corroborates northern stockowners complaints to the mission that they would sell cattle if more traders came to the area. Traders on the other hand complain of lack of organized markets (see para 16).

11. The veterinary staff, usually an Infirmier and his aide, of the sector in which the market is situated, are responsible for organizing and running the market. They publicize market days in the areas concerned two weeks in advance. Markets are normally attended by farmers from more than one sector, and veterinary staff from neighboring sectors also come and run the market. It is common to find 4 or 5 veterinary staff operating a market. Their tasks include the registration of cattle: one agent numbers the cattle for sale, another writes the card (name of owner, number and description of animals) and collects the market fee, while a third agent weights or appraises the animals if there are no scales; a fourth agent acts as an auctioneer or sponsors the sale according to the system prevailing in that particular market (see para 10) while a fifth one registers the traders, records the price for animals sold and the buyer's name. Finally, either one supervises the transaction between seller and buyer. The sector Infirmier prepares the market report which is sent to Bunia Veterinary headquarters.

12. Market Agents. Three types of traders can be established depending on the consumption centers they service: the Ituri centers, the Haut-Zaire and North Kivu centers and Kinshasa. Traders servicing Ituri consumption centers, including Bunia, are all from the sub-region. They frequent the closest cattle markets to the consumption center where they operate. Traders sell cattle to butchers but often are butchers themselves.

13. Traders for the Haut-Zaire and North Kivu consumption centers mainly come from Kisangani, Bunia, Isiro and Beni. A distinction must be made between Kisangani and Bunia traders, and Isiro and Beni traders. Most Kisangani and Bunia traders have other businesses, transport, general merchandise, meat retail etc; for them cattle are a "return load" on the truck operating between Bunia and Kisangani. Isiro and Beni traders however, are only cattle traders and butchers. Traders frequent different cattle markets according to the destination of the cattle. Traders operating for the Kisangani and North Kivu consumption centers tend to frequent cattle markets in southern

Ituri; a few go occasionally to cattle markets in central and northern Ituri. By contrast, traders operating for Isiro/Haut-Uele consumption centers tend to frequent the cattle markets of northern Ituri. Recently some traders from Isiro also attended southern markets.

14. A few traders have come from Kinshasa to purchase cattle in the southern markets, had them slaughtered and frozen at the Bunia abattoir and flew them back to Kinshasa. When ONDE initiated a similar activity on account of SGA (see Annex 1) it purchased cattle only in the central and northern markets.

15. No records of traders' attendance of cattle markets have been kept except for the markets held in souther Ituri in 1975. The available information indicates that the average number of traders per market day varies between 13 and 20 and that the same buyer usually attends several markets per month. Some 30 to 40 buyers or more may be regularly active on the southern markets of Ituri. The mission received indications that the number of traders operating in the southern markets has increased rapidly over the past few years, while the number of traders operating in the northern markets has decreased (see para 8). This increase in the number of traders in southern markets can be explained as follows: trade has deteriorated considerably since the Zairianization measures of 1973 and have has become one of the few commodities which can still be exported from Ituri and for which there exists some marketing infrastructure. More traders have therefore entered the cattle market of southern Ituri to get their "return load". Meanwhile, traders have lost interest in northern markets for two major reasons: first, the decline in demand in Isiro/Haut-Uele as explained in para 8; second, the deterioration of the road infrastructure within Ituri hampers cattle trucking from Aru to Kisangani via Bunia; traders are unwilling to trek cattle lest they be lost or stolen on the way.

16. Market Throughput. Official market reports record about 6,000 head of cattle traded annually in Ituri markets; this is likely to be an underestimate, since records are incomplete, especially in the northern and central zones (Table 4). Various other records suggest that a least 14,000 head of cattle must be traded, of which 11,000 are exported outside Ituri and 3,000 are consumed in Bunia. Even discounting the Uganda trade and cattle consumption in rural areas and small towns of Ituri, of which only few may have been purchased on cattle markets, 8,000 head of cattle not accounted for in market records suggests extensive bushtrading or other non recorded sales.

17. Licenses and Fees. There are three types of traders' licence

Inter-regional trade:	Z 120:00	annually
Regional trade :	Z 80:00	"
Sub-regional trade :	Z 40:00	"

This licence system is valid throughout Zaire. The proceeds from the licences go to the central revenue service. A market fee of Z 1:00 per head of cattle is paid by farmers when cattle are registered for sale at the market. It is not reimbursed if cattle are not sold. The proceeds of the market fees go to the Collectivities.

18. Cattle Movements. Cattle move by trek from Aru-Zone to Haut-Uele, from Irumu Zone to North Kivu and from the southern markets to Bunia. They move by road/truck from Bunia to Kisangani. In the past a trek existed to move cattle from Aru Zone to Bunia. It is no longer used because two small bridges need repairs. When ONDE started purchasing cattle in Aru Zone for the Bunia abattoir it experimented with two treks. Both originate in Kerekere; one thereafter follows the "route des mines" while the other follows the major road from Aru to Bunia. The former is very rocky, the distance between the "authorized" night stops is very long, and the trip takes about 10 days. The latter is shorter but goes through an area of intensive agriculture with little grazing land; the trip takes about 7 days.

19. The veterinary service is in charge of controlling cattle movements. All stock moved out of a zone or out of the sub-region require a transit permit which can be obtained at no cost at headquarters only. Traders often omit this formality because the distance between markets and zone headquarters is too great.

Abattoirs, Meat Processing facilities, Rural Slaughterhouses

20. There are three modern abattoirs in Haut-Zaire - Bunia, with a capacity of 20,000 to 25,000 cattle; Kisangani, with a capacity of 18,000 cattle; and a small one in Isiro. Because of inadequate maintenance and repairs only parts of the plants are functioning (see Annex 6 on abattoirs). There is a charcuterie (meat processing plant) at Soleniama near Bunia. No records of its output are available.

21. Official statistics recorded 3,700 head of cattle killed in rural slaughterhouses of Ituri in 1974. (This figure may represent only the slaughter records of zone and major sector headquarters). Each collectivity has at least one small slaughterhouse, some times more, depending on the size and religious composition of the collectivity. The slaughterhouses are located either in small towns or, in the rural areas, near a dip or a veterinary dispensary.

22. A typical village slaughterhouse is a square building of good construction, designed with proper drainage and ventilation, close to a water supply, and provided sometimes with a slaughter slab. Most village slaughterhouses were originally equipped with proper hoist and gambrels. Many of them have an adjoining hide drying shed, ventilated on three sides with wire mesh panels and equipped with wooden frames for suspension drying. Few have been properly maintained and repaired. Many have fallen into disuse or are used in most unsatisfactory hygienic conditions. The hide sheds are seldom used.

23. The Veterinary Service is responsible for the operation and maintenance of the village slaughterhouses, for meat inspection and slaughter records, but it lacks adequate staff and funds and staff time is not adequately apportioned for this purpose. The butchers often kill and flay the animals themselves, then retail the meat on the local markets. The current (September 1975) slaughter fee of Z 1.00 for big cattle, Z .75 for pigs and small livestock, uniformly applicable throughout the country for any slaughter service, is rarely collected.

Wholesale and Retail Markets

24. There is no formal wholesale market of carcasses in Ituri. There is a very limited one in Kisangani and Isiro where before having the animals slaughtered, traders have often made a previous purchase arrangement with the butchers, who take on the condemnation risk. The Societe Generale d'Alimentation - SGA (Annex 1 para 9) is not yet active as a wholesale trader as it is in Kinshasa and Shaba.

25. Meat is retailed at two different types of outlets: (a) at the central market, which is a daily market in major towns (Kisangani, Bunia, etc.), weekly or bi-weekly in small towns, fortnightly or monthly in the rural areas; meat and offals are sold in small heaps; (b) at modern butcher shops (1 in Bunia, 6 in Kisangani of which one belongs to SGA); meat is sold according to European cuts. Modern butchers have wholesale arrangements with market butchers and rent them some of their cold storage capacity.

Prices

26. As discussed in Annex 1, para 14, the Government price policy is to fix maximum prices. In 1975 and early 1976 the official maximum producer price were still maintained at the level set following official price changes made on February 2, 1973. These prices were thought too high at the time in Ituri and the Ituri Agriculture Department negotiated lower prices for each of the three zones and established different weight requirements for each zone attempting to reflect the type of cattle found there. However, information on price trends available from the southern markets only (table 4) indicates that price controls are not very effective and that prices in those markets increased between 1972 and 1975 and exceeded the maximum prices established. Prices, however, were still too low to justify investing in ranching and ranches were operating at a loss. Then in May 1976 official maximum cattle prices were increased threefold; no information is available on how producers prices have reacted to this measure.

Official Liveweight Cattle Prices (Producer Prices)
(Z/kg)
----------1972 to April 1976----------

Grade	Aru Zone Grade	Aru Zone Z/kg	Djugu Zone Grade	Djugu Zone Z/kg	Irumu Zone Grade	Irumu Zone Z/kg	National Max. Price Z/kg	May 1976
1st quality steers	350 kg & more	.21	350 kg & more	.20	300 kg & more	.18	.24	.70
2nd quality adult cattle in good condition	300-350 kg	.20	300-350 kg	.18	250-300 kg	.20	.20	.62
3rd quality cull animals	300 or less	.19	300 or less	.17	250 or less	.16	.19	.54

Source: Annual reports of Regional Veterinary Service.

27. Between 1972 and 1975 producer prices of other classes of stock also increased, probably at a faster rate than cattle as can be seen from the following table:

Liveweight Prices (Trader to Butcher Prices)
(Z/animal)

	------1972------		-------1973-------		-------1974------	
	Kisangani	Bunia	Kisangani	Bunia	Kisangani	Bunia
Pigs	(	2.00-7.00	14.0	(	18.00	9.00-15.00
Goats	(n.a.	1.50-4.00	10.0	(n.a.	15.0	8.00-10.00
Sheep	(	1.50-4.00	10.0	(	15.0	5.00-10.00

Source: Annual reports of Regional Veterinary Service.

28. Little reliable information exists on wholesale prices in Haut-Zaire. It would seem, however, that between 1972 and 1975 they increased substantially above the maximum wholesale prices established by the Government.

Wholesale Prices
(Z/kg/carcass)

	---------1973/74----------			----------1975----------		
	Kisangani	Bunia	Isiro	Kisangani	Bunia	Isiro
Beef	.60	.40-30 a/	n.a	.60-80 b/		(.80-85)
Pork	.50	(		.65	(	(
Goat/sheep	.50	(n.a.			(n.a.	(n.a.

Source: Annual reports of Regional Veterinary Service

29. Similarly, no information is available on actual retail prices in Haut-Zaire between 1973 and 1976 except for the price lists established by the Government, which are posted in modern butcher shops and for Ituri prices (see Annex 2, Table 6). The mission received some indication that retail prices in the central market of Kisangani in September 1975 were 100% higher than Government prices.

30. Several factors contribute to the pressure on cattle and beef prices in Haut-Zaire: the general inflation in Zaire, the increase in production and transport costs, the deficiencies in the present marketing system, and most importantly, the growing gap between supply and demand of all meat products as production is not keeping up with population growth (see para 4). However, the Government believes that the main factor is the increasing number of traders profiting from the inadequate supply of cattle. To reduce the number of these traders, the Regional Department of Agriculture has suggested limiting cattle trading to truck owners. There are also indications that the Government is considering setting up a national wholesale monopoly for meat as it has done for other agricultural products. Limiting the free access to markets would only reduce competition among traders and risk causing further increases in beef prices and a squeeze in producer prices. Moreover, a public wholesale monopoly would hardly be able to provide the same services as present traders and would not ensure the improvements in the marketing system necessary to stimulate production and supply of cattle.

31. In 1975, Ituri beef sold in Kinshasa was competitive with imported beef. With an exchange rate of Z 1 to US$2 Ituri beef which had been purchased at Z 0.24 to 0.26 per kg liveweight (Z .48 to .50 per kg CDW) was landed in Kinshasa at Z .85 per kg carcass (US$1.70) after meeting an airfreight charge of Z 0.25 per kg. This compared with beef imports from Angola and France at Z 0.95 per kg (US$1.90) and Kenya Z 1.15 (US$2.30). No information on prices producers are actually receiving as a result of the recent rise in prices is available but if Z .60 per kg is being paid per kg liveweight and airfreight costs have risen 60% then the landed cost in Kinshasa might be in the region of Z 1.75 (or US$2.00), which is about the price of imported meat and certainly so if the overvaluation of the Zaire is taken into acount. Presently, Ituri beef is inferior in quality to imported beef but since SGA controls the wholesale market and gives butchers no choice as to the origin or quality of the carcasses which it sells, Ituri beef could be sold just as well.

Hides and Skins

32. Most hides and skins produced in Haut-Zaire and Ituri appear to be wasted, which represents a substantial loss of income for cattle owners. There is little market in them and no organization to prepare, dry or collect them. There is no evidence of rural trading. The main sellers are the butchers and the only buyer is the Bata agent in Bunia. Hides produced at the Bunia abattoir are of low grade and have a reputation for poor flaying, irregular shape, cuts and gauging, bad fleshing, washing and suspension drying. Hides handled by the Bata agent in Bunia are also of poor quality: they are

dried by suspension between trees prior to being dispatched to Kinshasa. Hides produced at the Kisangani abattoir are now being dried and sold to the agent in Bunia, while, at one time, they were discarded as valueless. However, all the hides seen by the mission at Kisangani would be classified by the tanners as rejects. In 1975 wet hides fetched 9 k a kilo, and dried hides 18 k a kilo (the average weight of the dried hides is 9 kg).

B. The Sub-Project

33. The main objectives of the marketing and meat processing component of the Project would be: (a) to increase and improve the supply of cattle and beef to satisfy regional demand and build up an exportable surplus to Kinshasa; (b) to rehabilitate and develop market facilities; (c) to rehabilitate a stock route; (d) to improve two abattoirs and village slaughter houses; (e) to organize the processing and trade of hides and skins; (f) to monitor the marketing and meat processing sector of the cattle/beef industry.

Supply Prospects

34. Total meat production in Ituri would reach about 7,500 tons including ranch production by Year 11 of the Project (see Table 1). The expected Project incremental beef production (4,000 tons) would be similar to the increase expected from the first IDA Livestock Project in Shaba. The rate of offtake in the traditional herd would increase from 10-11% to 15% over the same period.

Demand Prospects

35. Little information is available on population growth, income and income and price elasticities for beef in Haut-Zaire. Overall population is estimated to increase at the national average rate of 2.6% with a somewhat lower growth rate for the rural population and a more rapid increase of urban inhabitants (perhaps 7%). Economic activities in Haut-Zaire have declined rapidly during recent years and a full recovery is not expected before the early 1980's. In fact, new industrial development schemes and efforts to rehabilitate and stimulate agricultural production will not materialize before the end of the decade. In September 1975 it was expected that rural beef consumption would probably rise at the same rate as population growth, while urban beef consumption (Bunia and Kisangani) was expected to grow at a maximum of 3% per annum until 1980 and 4% thereafter. As urban population is likely to increase at a faster rate, per capita consumption of beef in urban centers was likely to decline. Thus, overall per capita consumption of beef in the Haut-Zaire region would tend to decline or at best stagnate during the next 10 years. Based on these projections the total amount of beef consumed in Haut-Zaire would have amounted to 4,300 tons in the mid-eighties. As 7,500 tons of beef will be produced in Ituri (see para 34) a net surplus of 3,000 tons of Ituri meat would be available for shipment outside of Haut-Zaire compared to 54 tons in 1975. This represents three

months of imports at their current level and savings of US$5.7 million at current average import prices ($1.90). These shipments of beef would amount to 57 tons of meat to be transported by SGA from Bunia every week which will require considerable improvements in the present air transport arrangements.

36. However, the above projections must be reviewed in light of recent substantial increase in domestic beef prices (see para 26) and the devaluation of the Zairian currency, which both will result in a steep rise of domestic beef prices. The expected rapid rise in domestic prices will substantially reduce the purchasing power of the population, especially that of its urban inhabitants. It is likely, therefore, that higher prices for meat production, lower real income and limited development prospects may result in a stagnation if not decline in beef consumption in Haut Zaire in the medium term, especially in its urban centers, thus increasing the surplus of meat from Ituri. But whatever the prospects for meat consumption in Haut Zaire may be, which are difficult to quatify at this stage, the supplies of beef produced by the Ituri Project will find a ready market in Kinshasa and other major urban centers in Zaire.

Cattle Markets

37. Investment. The proposed project would rehabilitate 9 of the 21 existing markets including overhaul and repair of the existing facilities and scales (see Table following para 9). It would also provide for new scales and new facilities for the markets which do not have any. In addition, the project would finance the creation of one new market in the central zone. Mount Rona was named to the mission as a desirable location but it would be left to the marketing expert of the Project team to decide on the exact location of the new market. Too few cattle are available in central Ituri to justify project intervention in the remaining three markets. If the need to create additional markets were felt at a later stage, the Government would consider this. Total investment costs would amount to Z 31,500 (Table 7).

38. Organization. All markets would operate with scales and sales would be based on a price per kilogram. Market schedules would be prepared for each zone; the frequency of the markets would increase with offtake. The Veterinary Service would remain in charge of the operation and maintenance of the markets. It would have manpower available among its field staff. Adequate guidelines would be prepared to avoid the current overstaffing at the market place. The Project would also examine market requirements and make recommendations, for example, to shift the total marketing responsibility to the collectivities so that the Veterinary and Animal Production Services can devote themselves more fully to their specific goals. The additional manpower that would become necessary as the frequency and the throughput of the markets increased could, as a first step, be recruited from the collectivities and be trained by the Veterinary Service. Finally, the Project would establish such market regulations as the veterinary control of animals. The cattle would be dipped or sprayed before

going or on its way to the market in order to limit the risk of contamination during transit. The vaccination and dipping records of each animal would be checked when the cattle are registered upon arrival at the market.

39. Agents - ONDE would increase its activity on the cattle markets of Ituri in competition with private farmers and traders and act as residual buyer. The unfinished stock would be sent to fattening ranches while the mature ones would be purchased by the Bunia abattoir for export to Kinshasa. ONDE's presence would have a stabilizing effect and allow for implementation of a floor producer's price (see para 48 below). ONDE would also develop a pig purchase/slaughter operation, also for export to Kinshasa.

Throughput Costs and Fees

40. Traders and officials stressed that the markets would be better used if rehabilitated and better organized. It has therefore been estimated that market throughput would increase from less than 55% to 75% of all cattle traded. Providing throughput is achieved (and this must remain speculative since farmers may prefer to sell outside markets) a market fee of Z .40 per head of cattle on the increased throughput would be sufficient to cover operating costs and generate enough profit to provide an adequate return on the new investment (Table 8). However, in view of the limited scope for taxing livestock owners for the Veterinary Service provided by the Project and the possible delays in achieving the increased throughput it is intended to maintain the present fees of Z 1.00 per head of cattle. Of course, this high fee might be a disincentive to use markets and the Project might decide later to lower fees to encourage market usage. Since the Veterinary Service would be responsible for maintaining these markets it is recommended that fees be credited as revenue to the Department. Government would provide investment funds needed and annual operating costs as indicated in Tables 7 and 8. IDA would contribute towards the investment costs.

Stock Route (see map)

41. Northern traders and ranches would benefit from the reopening of the stock route although it remains to be seen whether the former would use it despite their statements that they would. The proposed project would rehabilitate the 200-250 km stock route which had been established by Kilomines (para 18). A special decree would have to be issued to officially recognize the stock route and 10 night kraals. Water is plentiful throughout the area. The major investment would be for the repairs of two bridges. The estimated throughput of the stock route would not justify its rehabilitation before the third year of the project (Table 8), by which time its full value could be reassessed. The cattle which ONDE would have to move until then could keep using the "route des mines". The transit of cattle on the new stock route would not take more than five days.

42. Investment in the stockroute (Z 36,800) would be an overall Project cost since it would serve both ranches and traditional stock owners. Government would be financially responsible for developing and maintaining

it, but would delegate responsibility for building and running it to ONDE. A charge presently estimated at Z .65 would be made. The charge would cover operating costs and generate sufficient profit to give an adequate return on the capital invested. The proceeds would be collected by the Veterinary Service. As an internal administrative matter Kerekere would undertake the development, maintain the stock route and keep the accounts and be reimbursed for this service by the Veterinary Department. Investment and operating cost estimates are given in Tables 7 and 8.

Rural Slaughterhouse

43. At least 40 rural slaughterhouses (1 per collectivity) would be rehabilitated by the project in order to: (a) increase health and sanitary standards; and (b) to recover the hides which are currently lost throughout the sub-region. The marketing expert in the project would do the final survey of the work to be done in the first year of the project; the investment (Z 99,800) would be implemented over years 2 and 3. This component of the project would represent extension of the abattoir component, and it would be the responsibility of the marketing expert to train staff in proper killing and flaying techniques.

44. In small towns, all slaughtering would have to be done at the slaughterhouses. It is hoped that in addition, the throughput of these slaughterhouses could be increased by about 20% of rural slaughtering in Year 1 to about 40% after 10 years. The main incentive for cattle owner/butchers to use the slaughtering facilities would be the possibility of selling hides and skins at a good price, and emphasis would be placed on developing this service. The Veterinary Service would be responsible for village slaughterhouses including meat inspection, supervision of killing and flaying of animals, drying of hides, overall maintenance of facilities, and maintenance of slaughter records. A slaughter fee of Z 1.00 for big cattle and Z .75 for pigs and small animals would be established and collected by the Veterinary Service. These fees would just about cover operating costs and if the profit forecast from sale of hides materializes the total income would provide an adequate return on capital invested, but would not allow for insurance against condemnation as included in the slaughter fees established for the abattoirs of Bunia and Kisangani (Annex 6 para 30). Government would provide the investment and operating cost including funds to purchase hides as estimated in Tables 7 and 9. IDA would contribute towards investment costs. It has been assumed that the Veterinary Department would purchase hides of cattle slaughtered at the centers and sell them to ONDE but is possible that other arrangements may be preferred by the Project since it may be difficult to make arrangements for each payment at slaughterhouses. Estimates of hide purchases in the first three years are probably optimistic but give some idea of what can be achieved. Should the net revenue from hides not materialize then slaughter fees would have to be revised.

Prices

45. The long-term viability of the livestock industry in Ituri mainly depends on the price policy which will be adopted by Government. In May 1976, offical maximum cattle prices were tripled to compensate for past inflation and the price effects of recent Government decisions. Although the prices established in May 1976 were a marked improvement over past prices, they are still too low to compensate for the increase in production costs which took place since 1973. This is especially critical for the ranches which have to incur higher investment and operating costs in order to produce higher quality cattle. Therefore the mission estimated that a further increase of 30% for the top two grades of cattle will be required by January 1977 to achieve adequate returns on new investments in the livestock sector. These suggested new producers prices are illustrated below:

	Official Prices			Proposed Prices	% Increase on May 1976 Prices
	Feb. 1973	Actual 1975	May 1976		
	Z per kg liveweight				
Quality steers and heifers over 350 kg	.24	.25	.70	.91	30%
Quality steers, heifers and cows in good condition 260-350 kg	.19	.22	.62	.80	30%
Quality culled bulls and animals under 260 kg	.17	.17	.54	.54	-

46. The prices being recommended by the mission should be regarded as starting prices, not maximum prices. Further price policy should aim at establishing minimum producer and consumer prices. The producer prices would be regularly adjusted according to a price index which would reflect production cost fluctuations; consideration would be given to linking it with an average c.i.f. import price. Allowance would be made to accommodate special measures in case of exceptional fluctuations in world market prices. Actual future market prices will then fluctuate above this regularly adjusted minimum price level reflecting supply and demand conditions. Current projections indicate that relative world market prices for beef are expected to rise in coming years.1/ Moreover, supply and demand projections for beef in Zaire also indicate a growing shortage of meat, so that relative prices for cattle and meat are likely to increase in the future. Whether these expected price increases will be passed on to the producer will depend on a better integration of smallholders into the market economy, improvement in the marketing system, but mainly on Government's pricing policy. Implementation of the proposed

1/ World Bank - Price Forecasts for Major Primary Commodities, July 1975.

minimum price legislation for cattle producers in the Ituri region would be backed by ONDE, which will gradually become one of the principal buyers of cattle in the Ituri sub-region competing with private farmers and traders for immatures andd slaughter cattle. Other private traders will then have to buy in competition with ONDE and thus adjust to the prices it pays, as will wholesale and retail prices for meat.

47. To establish a cost/price index it is suggested to analyze the production costs of a fully developed ranch. To simplify the establishment and the future use of this index, only the main production inputs, such as labor, drugs, minerals and fuel should be considered and their relative importance in total production cost be weighted. The base period (100) for setting up the index should be the beginning of 1977 and thereafter the price increases for the above items should be computed on a regular basis. Every 6 months, or at least at the end of each year, cattle prices should be adjusted to remain in line with production cost increases. The methodology of the Lasperge price index, should be followed.

48. The prices recommended by the mission, still leave Ituri beef delivered at Kinshasa competitive with imported beef or with beef produced in other regions, although the differences in quality between various beef imported and produced makes the comparison difficult. Presently, Ituri beef is of lower quality than most imported or locally produced beef; however, the quality will improve considerably with the development of fattening and breeding ranches. Three main qualities of beef would be produced which can be profitably sold at Bunia by ONDE to S.G.A. at a price ranging from Z 1.15 to Z 1.75, which, delivered at Kinshasa, represents a price range from Z 1.60 to Z 2.20. The price range of imported beefs delivered at Kinshasa is also Z 1.60 to Z 2.20, but would be Z 2.00 to Z 2.80 if the prevailing overvaluation of the currency (26%) is taken into account. The competitiveness of the Ituri beef will, therefore, mostly depend on the valuation of the Zaire and on the quality improvement that will result from the Project. In the short-term, the foreign exchange constraints of the country are such that Ituri beef will find a ready market in Zaire as import substitute.

49. As the success of the Project depends on the implementation of a more producer-oriented price policy, Government undertook at negotiations to make the recommended price changes prior to the project-going to the Board. Financial projections are based on the mission's proposed producer prices.

Hides and Skins

50. The Project would introduce the possibility for traders, cattle owners and butchers to sell their fresh hides and skins to the village

slaughterhouse and to the Kisangani and Bunia abattoirs where they would be cleaned and dried. A uniform price of Z 2.25 per unit would be offered for fresh hides and Z .75 for skins (Annex 6, para 48). The Project would design a system of gathering points where ONDE/Bunia abattoir would collect hides and skins from the rural slaughterhouses of Ituri.

SUMMARY OF INVESTMENT, OPERATING COSTS AND REVENUES OF THE MARKETING AND MEAT PROCESSING PROJECT COMPONENTS (Z)

(Z'000)

	Year					
	1	2	3	4	5	Total
Markets						
Investment	6.1	17.5	7.9	-	-	31.5
Operating Costs	1.0	1.2	1.7	2.9	2.9	
Operating Revenues	4.5	4.8	5.5	6.3	7.5	
Financial Rate of Return /1	18%					
Sensitivity - if costs rise 10%	14%					
Benefits delayed 3 years	6%					
Stock Route						
Investment	-	-	36.8	-	-	36.8
Operating Costs	-	-	0.5	0.9	1.8	
Operating Revenues	-	-	1.5	2.2	3.2	
Financial Rate of Return /1	10%					
Sensitivity - if costs rise 10%	9%					
Benefits delayed 3 years	9%					
Slaughter Slabs						
Investment	-	49.9	49.9	-	-	99.8
Operting Costs	6.6	44.2	47.3	52.1	55.7	
Operating Revenues	9.2	59.1	63.1	68.8	73.7	
Financial Rate of Return /1	18%					
Sensitivity - if costs rise 10%	10%					
If benefits delayed 3 years	0%					
Total Investment Cost	6.1	67.4	94.6			168.1

/1 Source: Annex 2, Tables 7, 8, 9, & 10.

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Sales of Cattle

(Number of Animals)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ventes De Bétail

(Nombre D'Animaux)

	Before Project/ Avant le Projet	Year/Année 1	2	3	4	5	6	7	8	9	10	11-20	
Traditional Herd 1/													Troupeau Traditionnel 1/
Heifers 9-24 months	584	601	620	658	694	745	799	851	876	888	925	946	Génisses 9-24 mois
Bulls/steers 9-24 months	2,336	2,461	2,598	3,602	3,967	4,968	6,090	6,488	7,099	7,190	7,490	7,654	Taureaux/bouvillons 9-24 mois
Heifers 24-36 months	292	287	297	467	501	650	802	863	1,400	1,515	1,534	1,598	Génisses 24-36 mois
Bulls/steers 24-36 months	9,052	9,353	9,603	10,090	10,706	11,827	12,200	13,449	14,326	14,560	14,744	15,364	Taureaux/bouvillons 24-36 mois
Cows and heifers over 36 months	9,490	9,601	10,095	10,634	11,230	11,972	12,718	15,141	17,665	18,182	20,888	24,900	Vaches et Génisses de plus de 36 mois
Bulls/steers 36-48 months	3,504	3,792	3,811	3,918	4,182	4,360	4,507	5,012	5,034	5,516	5,607	5,678	Taureaux/bouvillons 36-48 mois
Bulls/steers 48-60 months	1,460	1,457	1,478	1,490	1,513	1,621	1,652	1,697	1,828	1,968	2,107	2,235	Taureaux/boeufs 48-60 mois
Bulls 5 years and over	4,672	4,691	4,709	4,676	4,716	4,780	5,132	5,234	5,487	5,840	5,774	6,145	Taureaux de 5 ans et plus
Sub-total	31,390	32,243	33,211	35,535	37,509	40,923	43,900	48,735	53,715	55,659	59,069	64,520	Total partiel
Project Ranches 2/													Ranches Inclus dans le Projet 2/
Kerekere - breeding herd	250	80	251	144	385	444	364	412	523	810	955	935	Kerekere - troupeau d'élevage
Kerekere - fattening herd	-	-	-	315	315	451	632	1,037	1,624	2,256	2,256	2,256	Kerekere - troupeau d'embouche
Total	250	80	251	459	700	895	996	1,449	2,147	3,066	3,211	3,191	Total
Asada - fattening herd	-	79	220	515	705	940	1,221	1,641	2,057	2,327	2,327	2,327	Asada - troupeau d'embouche
Dele - breeding herd	55	38	112	66	196	196	117	112	217	371	380	350	Dele - troupeau d'élevage
Dele - fattening herd	-	-	285	570	855	1,140	1,425	1,615	1,900	1,900	1,900	1,900	Dele - troupeau d'embouche
Total	55	38	397	636	1,051	1,336	1,542	1,727	2,117	2,271	2,280	2,250	Total
Sub-total	305	197	868	1,610	2,456	3,171	3,759	4,817	6,321	7,664	7,818	7,768	Total partiel
Other Ranches													Autres Ranches
INERA research stations	140	160	185	290	390	490	600	650	740	870	900	900	Stations de recherche de l'INERA
Missions	65	70	80	120	150	180	215	230	260	290	300	300	Missions
Private ranches	250	250	260	270	280	290	310	330	340	350	350	360	Ranches privés
Sub-total	455	480	525	680	820	960	1,125	1,210	1,340	1,510	1,550	1,560	Total partiel
Total	32,150	32,920	34,604	37,825	40,785	45,054	48,784	54,762	61,376	64,833	68,437	73,848	Total

1/ Source: Annex 3, Table 16.
2/ Source: Annex 5, Tables 2, 6 and 10.

1/ Source: Annexe 3, Tableau 16.
2/ Source: Annexe 5, Tableau 2.

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ANNEX/ANNEXE 2
Table/Tableau 1/(4)

ZAIRE

ITURI LIVESTOCK DEVELOPMRNT PROJECT

Production of Beef, Hides and Skins

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Production de Boeuf, de Cuirs et de Peaux

	Before Project/ Avant le Projet	Year/Année 1	2	3	4	5	6	7	8	9	10	11-20	
A. BEEF (Metric tons)													A. BOEUF (Tonnes)
Gross production from traditional herd	3,410	3,495	3,590	3,810	4,000	4,325	4,640	5,175	5,750	5,980	6,360	6,560	Production brute du troupeau traditionnel
Animals sold to ONDE ranches													Animaux vendus aux ranches de l'ONDE
Heifers	-	20	30	10	-	-	-	-	-	-	-	-	Génisses
Steers 2 years	-	35	35	50	70	100	175	245	245	245	245	245	Bouvillons 2 ans
Steers 3 years	-	45	90	135	180	225	270	315	315	315	315	315	Bouvillons 3 ans
Sub-total		100	155	195	250	325	445	560	560	560	560	560	Total partiel
Net production from traditional herd	3,410	3,395	3,435	3,615	3,750	4,000	4,195	4,615	5,190	5,420	5,800	6,000	Production nette du secteur traditionnel
ONDE - Ranch Production	50	30	170	255	395	510	615	790	1,050	1,280	1,320	1,310	Production des ranches de l'ONDE
Other ranch production	(70)	75	80	110	130	155	185	200	220	250	260	265	Production des autres ranchs
Total production (A)	3,530	3,500	3,685	3,980	4,275	4,665	4,995	5,605	6,460	6,950	7,380	7,575	Production totale (A)
(Available for export to Kinshasa) 1/	54	130	179	420	620	905	1,071	1,497	2,185	2,490	2,740	3,260	(Disponible pour l'exportation à Kinshasa) 1/
B. HIDES (Cattle)													B. Cuirs (de Bovins)
Production of village slaughterhouses													Production des abattoirs villageois
from village slaughtering		7,640	8,070	8,515	8,980	9,465	10,020	10,600	11,205	11,830	12,485	13,200	des abattages dans les villages
from rural slaughtering		2,540	2,610	2,675	3,430	4,270	3,610	3,710	4,565	4,680	4,805	5,750	des abattages dans les campagnes
from dead animals		4,500	5,020	5,620	6,060	6,120	7,380	8,465	9,785	10,605	11,730	12,730	des animaux morts
Sub-total		14,680	15,700	16,810	18,470	19,855	21,010	22,775	25,555	27,115	29,020	31,680	Total partiel
Production of Bunia abattoir		4,295	4,697	6,780	8,375	10,815	12,150	15,745	21,380	23,660	26,280	30,640	Production de l'abattoir de Bunia
Production of Kisangani abattoir		2,690	2,770	2,850	2,930	3,120	3,245	3,375	3,510	3,650	3,790	3,950	Production de l'abattoir de Kisangani
Total		21,665	23,167	26,440	29,775	33,790	36,405	41,895	50,445	54,425	59,090	66,270	Total
C. SKINS (Sheep and goats)													C. PEAUX (de moutons et de chèvres)
Production of Kisangani abattoir		6,760	7,030	7,310	7,600	7,910	8,220	8,550	8,890	9,250	9,620	10,000	Production de l'abattoir de Kisangani

1/ Net of condemnations and freezing losses.

1/ Condamnations et pertes de congelation non-comprises

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ANNEX 2/ANNEXE 2
Table/Tableau 1(B)

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Cattle Demand Projections
(Number of Animals)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Projections de la Demande de Bétail
(Nombre d'Animaux)

Consumption Centers	Before Project 1/ Avant le Projet	Year 1 2/ Année 1	Year 2 Année 2	Year 3 Année 3	Year 4 Année 4	Year 5 Année 5	Year 6 Année 6	Year 7 Année 7	Year 8 Année 8	Year 9 Année 9	Year 10 Année 10	Years 11-20 Années 11-20	Centres de Consommation
ITURI													ITURI
- Ranches - heifers		250	375	125	-	-	-	-	-	-	-	-	Ranches - Génisses
Steers 2 years	-	500	500	700	1,000	1,500	2,500	3,500	3,500	3,500	3,500	3,500	- bouvillons 2 ans
Steers 3 years	-	500	1,000	1,500	2,000	2,500	3,000	3,500	3,500	3,500	3,500	3,500	- bouvillons 3 ans
- Urban (without Bunia)	5,000	5,100	5,200	5,305	5,410	5,520	5,685	5,855	6,030	6,210	6,400	6,590	-Centres urbains (Bunia non-compris)
- Rural (without mines, missions, INERA Stations)	12,390	12,710	13,045	13,380	13,730	14,090	14,450	14,830	15,215	15,610	16,015	16,430	-Zones rurales (mines, missions et stations de l'INERA non-comprises)
- Missions	65	70	75	80	85	90	95	100	110	115	120	125	- Missions
- INERA stations	140	155	170	185	205	225	245	270	300	330	360	400	- Stations de l'INERA
- Mines (Kilo-Moto - Watsa)	450	455	460	465	470	475	480	485	490	495	500	505	- Mines (Kilo-Moto, Watsa)
Sub-total	18,045	19,740	20,825	21,740	22,900	24,400	26,455	28,540	29,145	29,760	30,395	31,050	Total partiel
Haut-Uélé (without Watsa mines)	1,140	1,160	1,180	1,210	1,230	1,255	1,295	1,330	1,370	1,415	1,455	1,500	Haut-Uélé (sans les mines de Watsa)
Bas-Uélé	510	520	530	540	550	565	580	600	620	635	655	675	Bas-Uélé
Uganda	2,455	650	665	685	700	720	740	760	780	800	1,010	1,040	Ouganda
North-Kivu	1,000	1,020	1,040	1,060	1,080	1,100	1,135	1,170	1,205	1,240	1,280	1,315	Nord-Kivu
Sub-total	5,105	3,350	3,415	3,495	3,560	3,640	3,760	3,830	3,975	4,090	4,400	4,530	Total partiel
La Tschopo	2,790	2,845	2,900	2,960	3,020	3,080	3,175	3,270	3,365	3,470	3,570	3,680	La Tschopo
Kisangani	2,610	2,690	2,770	2,850	2,930	3,120	3,245	3,375	3,510	3,650	3,795	3,950	Kisangani
Sub-total	5,400	5,535	5,670	5,810	5,950	6,200	6,420	6,645	6,875	7,120	7,365	7,630	Total partiel
Bunia (Abattoir)													Abattoir de Bunia
- for local consumption	3,200	3,295	3,395	3,500	3,600	3,710	3,860	4,015	4,175	4,340	4,515	4,695	- pour la consommation locale
- for export to Kinshasa	400	1,000	1,300	3,280	4,775	7,105	8,290	11,730	17,205	19,520	21,765	25,945	- pour les exportations vers Kinshasa
Sub-total	3,600	4,295	4,695	6,780	8,375	10,815	12,150	15,745	21,380	23,860	26,280	30,640	Total partiel
Total	32,150	32,920	34,605	37,825	40,785	45,055	48,785	54,760	61,375	64,830	68,440	73,850	Total

1/ The before project distribution is based on data collected from records of market sales, transit permits and slaughter. The rural consumption is estimated to include all young males which, from the herd composition data, are neither marketed nor dead. An additional allowance of 2 animals per month per collectivity was made to cover "ceremonies" (wedding, funerals etc.). There is a residual which could not be accounted for and was labelled "Uganda". From the consultant studies and the mission's interview it was found that some cattle is sold to Uganda and some goes to Uganda as dowries.

2/ Demand Projections:
Ituri - urban: year 1-5, 2.0%; year 6-11/20, 3.0%
Ituri - rural: year 1-11/20, 2.6%; at the same rate as population growth
Missions: year 1-11/20, 6.0%
INERA stations: year 1-11/20, 10%
Mines: year 1 - 11/20, 1.0%
Haut-Uélé, Bas-Uélé, North Kuvu, La Tshopo; year 1-5, 2.0%; year 6-11/20, 3.0%
Kisangani, Bunia: year 1-5, 3.0%; year 6-11/20, 4.0%

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1/ La distribution de la demande avant le projet est basée sur des données des relevés des marchés, des feuilles de routes et des abattages. La consommation rurale comprend tous les jeunes males qui, selon les données de la composition du troupeau, ne sont ni morts ni commercialisés. De plus, deux animaux par mois et par collectivité ont été prevus pour les "cérémonies" (mariages, funerailles etc.). Un certain nombre d'animaux qui ne pouvaient être attribués à aucune catégorie ont été regroupés dans la catégorie "Ouganda". Selon des études de consultante et des interviews de la mission dans la zone du projet, du bétail serait vendu en Ouganda ou y serait envoyé comme dot.

2/ Projections de la demande:
Ituri - population urbaine: année 1-5, 2.0%; année 6-11/20, 3.0%
Ituri - population rurale: année 1-11/20, 2.6%; même taux d'accroissement annuel que la population.

Missions: année 1-11/20, 6.0%.
Stations de l'INERA: année 1-11/20, 10%.
Mines: année 1-11/20, 1.0%
Haut-Uélé, Bas-Uélé, North-Kivu, La Tschopo: Année 1-5, 2.0%; année 6-11/20, 3.0%.
Kisangani et Bunia: année 1-5, 3.0%; année 6-11/20, 4.0%.

le 18 février 1976

ANNEX/ANNEXE 2
Table/Tableau 2

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Official Slaughter Records In Haut-Zaïre

(Number of Head)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Relevé Officiel Des Abattages En Haut-Zaïre

(Nombre d'Animaux)

Consumption Centers	Year/Année 1971	1972	1973	1974	1975	Centres de Consommation
A. ITURI SUB-REGION 1/						A. SOUS-REGION DE L'ITURI 1/
1. Slaughter of adult cattle						1. Abattage de bovins adultes
Bunia abattoir		2,093	2,625	3,034	1,478	Abattoir de Bunia
Irumu zone (incl. Gety)		1,827	1,649	1,672	364	Zone d'Irumu (Gety inclus)
Djugu zone		882	687	652	338	Zone de Djugu
Mahagi zone		771	682	545	216	Zone de Mahagi
Aru zone		484	576	871	386	Zone d'Aru
Mambasa zone		-	34	20	27	Zone de Mambasa
Sub-total		5,997	6,243	6,794	2,809	Total partiel
2. Slaughter of calves		81	75	47	48	2. Abattages de veaux
Total A	3,957	6,078	6,318	6,841	2,857	Total A
B. HAUT-UELE SUB-REGION						B. SOUS-REGION DU HAUT-UELE
1. Slaughter of adult cattle						1. Abattage de bovins adultes
Isiro	984	659	355	128		Isiro
Wamba	18	-	40	22		Wamba
Watsa	310	388	197	182		Watsa
Dugo	15	42	28	50		Dugu
Faradje	46	39	62	92		Faradje
Rungu	985	-	-	-		Rungu
Sub-total	1,374	1,128	682	474		Total partiel
2. Slaughter of calves	41	11	6	6		2. Abattage de veaux
Total B	1,415	1,139	688	480	n.a.	Total B
C. BAS-UELE SUB-REGION						C. SOUS-REGION DU BAS-UELE
Buta	20	240	156	47		Buta
Others	24	43	4	-		Autres
Total C	44	283	160	47	n.a.	Total C
D. LA TSCHOPO SUB-REGION						D. SOUS-REGION DE LA TSCHOPO
Kisangani: adult cattle	4,449	2,527	1,670	2,359		Kisangani: bovins adultes
calves	36	-	32	90		veaux
Sub-total	4,485	2,527	1,702	2,449	n.a.	Total partiel
Basoko	10	54	93	52		Basoko
Isangi	-	-	120	11		Isangi
Others	4	86	-	-		Autres
Sub-total	14	140	213	63	n.a.	Total partiel
Total D	4,499	2,667	1,915	2,512	n.a.	Total D
E. TOTAL OFFICIAL SLAUGHTER IN HAUT-ZAÏRE	9,915	10,167	9,081	9,880		E. RELEVE TOTAL DES ABATTAGES OFFICIELS EN HAUT-ZAIRE

1/ In 1962, total slaughter in Ituri reached 20,345 head (adult cattle: 20,345; calves 68)

1/ En 1962, le chiffre total des abattages officiels en Ituri était de 20,345 animaux (20,345 bovins adultes; 68 veaux)

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ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Official Ituri Market Records

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Relevé officiel des marchés de l'Ituri

Market Location	Total Number of Animals/Nombre Total d'Animaux					Average weight of Animals Sold/ Poids moyen des Animaux Vendus					Average Price per kg of Animals Sold/ Prix moyen par kg des animaux vendus (Z/kg)					Emplacement des Marchés
	1971	1972	1973	1974	1975 (Jan-Sept) 3/	1971	1972	1973	1974	1975 (Jan-Sept)	1971	1972	1973	1974	1975 (Jan-Sept)	
A. CATTLE SOLD																A. RETAIL VENDU
1. Northern Markets 1/																1. Marchés du Nord 1/
Aru (Nyambere)					143					(240)						Aru (Nyambere)
Kauchu					109											Kauchu
Mont - Hawa					70											Mont Hawa
Apaa					63											Apaa
Adranga					539											Adranga
Mado					-											Mado
Sub-total			528		924			245		(240) 4/			.14		(.18) 4/	Total Partiel
2. Central Markets																2. Marchés du Centre
Djugu			115		-			230					.20			Djugu "
Djalasiga			16		-			230					.16			Djalasiga
Luga					18					315					.18	Luga
Mont-Rona					60											Mont-Rona
Mytchapa					200											Mytchapa
Sub-total			131		278			230		(315) 4/			.20		(.18) 4/	Total partiel
3. Southern Markets																3. Marches du Sud
Bunia		448	836	1,201	183		240	305	260	235		.12	.18	.17	.20	Bunia
Nidenge		561	797	546	390		240	280	280	275		.12	.12	.17	.22	Nidenge
Mandro		251	546	515	150		300	265	300	310		.10	.14	.14	.16	Mandro
Kadanza		372	622	419	268		265	270	282	280		.10	.13	.16	.21	Kadanza
Bogoro		623	535	696	534		260	250	280	250		.095	.12	.15	.20	Bogoro
Gety		590	890	842	602		250	240	275	225		.11	.15	.17	.19	Gety
Mitego		577	906	900	542		290	270	280	280		.095	.10	.17	.17	Mitego
Boga		-	69	629	372		-	285	265	265		-	.14	.17	.21	Boga
Sub-total	3,645	3,622	5,201	5,748	3,041	345	260	270	275	260	.75	.10	.14	.16	.20	Total partiel
Total	(3,645)	(3,622) 2/	5,860	(5,748)	4,242	(345)	(260)	270	(275)	(260) 4/	(.75)	(.10)	.14	(.16)	((.19) 4/	Total
B. CATTLE UNSOLD			1,354	767	518											B. RETAIL NON-VENDU
C. TOTAL NUMBER OF CATTLE RECORDED	(3,645)	(3,622)	7,214	(6,515)	4,760											C. NOMBRE TOTAL D'ANIMAUX ENREGISTRES

1/ No records for the Kurumu and Atchinia markets.
2/ The brackets indicate that these figures are incomplete.
3/ Most figures for the northern markets were not recorded in Bunia headquarters, they were collected by the mission at the veterinary sector level.
4/ These averages are based on some of the market records only.

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1/ Il n'existe aucun dossier pour les marchés de Kurumu et d'Atchinia
2/ Les parenthèses indiquent que ces totaux ne sont que partiels, aucunes
3/ La plupart des données des marchés du Nord ne figurent pas dans les dossiers du siège du service vétérinaire sous-régional à Bunia elles furent rassemblées par la mission au niveau des secteurs vétérinaires.
4/ Ces moyennes ont été calculées à partir des données inclues dans les dossiers de quelques marchés seulement.

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ANNEX/ANNEXE 2
Table/Tableau 4

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Permit Transit Records

(Number of Head)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Relevés des Feuilles de Route

(Nombre d'Animaux)

	1973	1974	1975 (Jan. - Sept.)	
From Northern Markets to:				Des Marchés du Nord à destination de:
Aba			59	Aba
Faradje			3	Faradje
Dungu			39	Dungu
Watsa			313	Watsa
Mungbwere			17	Mungbwere
Isiro			269	Isiro
Buta			330	Buta
Wamba			69	Wamba
Bunia			403	Bunia
Irumu			32	Irumu
Kisangani			2	Kisangani
Isangi			17	Isangi
Sub-total			1,553	Total Partiel
From Central Markets to:				Des marchés du Centre à destination de:
Kisangani			278	Kisangani
Bunia			18	Bunia
Sub-total			296	Total Partiel
From Southern Markets to:				Des marchés du Sud à destination de:
Isiro			9	Isiro
Kisangani			1,192	Kisangani
Bunia			952	Bunia
Beni (Kivu)			605	Béni (Kivu)
Sub-total			2,758	Total Partiel
Total				Total
Haut-Uéle		1,232	1,116	Haut-Uélé
Bunia			1,373	Bunia
Beni (Kivu)		869	605	Béni (Kivu)
Kisangani		5,388	1,472	Kisangani
Others		2	41	Autres
TOTAL	(5,394) 1/	(7,491) 2/	4,607	TOTAL

1/ Only figure available.

2/ No available figure for Bunia.

1/ Seul chiffre disponible.

2/ Aucun chiffre disponible pour Bunia.

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ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Meat Retail Prices
(Z/kg)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Prix de Détail de la Viande
(Z/kg)

	BUNIA			KISANGANI			ISIRO			
	1973	1974	1975	1973	1974	1975	1973	1974	1975	
MODERN BUTCHER SHOPS										**BOUCHERIES MODERNES**
Beef										**Boeuf**
Roast	1.40	.90	1.40	1.30	1.60	1.60	1.60	1.80	1.86	Rôti/entrecôtes
Fillet	1.40	.90	1.40	1.50	1.80	1.80	1.60	1.80	2.10	Filet
Chopped meat	1.40	1.40	1.40	1.30	1.40	n.a.	1.80	1.80	1.90	Viande hâchée
Stewing Steak/chuck/flank	1.00	1.00	1.00	.90	1.20	1.20	.60	.90	1.30	Carbonade sans os
Meat with bone	.60	.60	n.a.	.55	.90	n.a.			1.00	Viande avec os
Liver, lungs, heart, kidneys	.60	.60	.60	.70	1.20	1.20			1.70	Foie, poumons, coeur, rognons
Tongue	.85	.85	.85	.70	1.20	1.20			1.80	Langue
Boiled meat	.60	.60	.80			n.a.			.90	Viande bouillie
Scraps	.20	.20		.30	.30	n.a.	.20	.30	n.a.	Déchets
Bones	.10	.10	.30	.12	.15	.12			.40	Os
Pork										**Porc**
Roast	.70	.70	1.40	n.a.	n.a.	1.50	1.40	1.60	2.20	Rôti
Chops	.55	.70	1.40	n.a.	n.a.	1.30	1.30	1.50	2.00	Côtelettes
Chopped meat (beef/pork)	.15	.80	1.40	n.a.	n.a.	1.50				Viande hâchée (boeuf/porc)
MARKETS										**MARCHES**
Beef										**Boeuf**
Meat with bone	n.a.	n.a.	.70	n.a.	n.a.	n.a		n.a.	n.a.	Viande avec os
Meat without bone	.50	.65	.50	"	"	"		"	"	Viande sans os
Roast	.60	.65	n.a.	"	"	"		"	"	Rôti
Fillet	.70	.70	.60	"	"	"		"	"	Filet
Tripes	.20	.20	.25	"	"	"		"	"	Tripes
Liver, tongue	n.a.	n. a	.50	"	"	"		"		Foie, langue
Head with tongue (per unit)	"	"	1.50	"	"	"		"	"	Tête avec langue (la pièce)
Head without tongue (per unit)	"	"	.80	"	"	"		"	"	Tête sans langue (la pièce)
Legs (per unit)			.10	"	"	"		"	"	Pattes (la pièce)
Pork										**Porc**
Roast	n.a.	n.a.	.50							Rôti
Meat with bone	.32	.32	.40							Viande avec os
Feet	n.a.	n.a.	.35							Pieds
Goat and mutton										**Chèvre et mouton**
Meat with bone	.35	.35	n.a.				.90	1.20	n.a.	Viande avec os

February 18, 1976

le 18 février 1976

ANNEX/ANNEXE 2
Table/Tableau 6

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Markets, Stock route and Rural Slaughterhouses

Investment Costs

(ZAIRE)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Marchés, Piste à Bétail, Tueries Rurales

Coûts d'Investissement

(ZAIRE)

Investment Item	Unit / Unité	Unit Cost / Coût Unitaire	Year 1/Année 1		Year 2/Année 2		Year 3/Année 3		Total			Foreign Exchange Component / Devises		Catégorie d'Investissement
			Unit/Unité	Costs/Coûts	Unit/Unité	Costs/Coûts	Unit/Unité	Costs/Coûts	Unit/Unité	Costs/Coûts				
											US$ Eq.			
		Z		Z		Z		Z		Z		Z	%	
A. Markets														**A. Marchés**
Holding grounds construction	km²	565	-	-	4.8	2,710	4.6	2,500	9.4	5,310	6,107	3,549	67	Construction d'enclos
Holding grounds repairs	km	185	.6	110	.4	75	.8	150	1.8	335	385	226	67	Réparation d'enclos
Cattle race construction	m	15	-	-	60	900	60	900	120	1,800	2,070	-	-	Construction de couloirs d'aspersion
Cattle race repairs	m	5	45	225	30	150	60	300	135	675	776	-	-	Reparation de couloirs
New liveweight scales	unit	3,040	5	3,800	5	11,400	-	-	5	15,200	17,480	12,530	82	Bascules (peuves) à bétail
Liveweight scales overhaul		575	3	1,725	2	1,150	4	2,300	9	5,175	5,951	3,290	64	Reparation de bascules à bétail
Shelters construction	unit	75	-	-	8	600	8	600	16	1,200	1,380	-	-	Construction d'abris
Shelters repairs	unit	15	6	90	4	60	8	120	18	270	310	-	-	Réparation d'abris
Water troughs	unit	75	3	225	6	450	4	900	13	1,575	1,811	-	-	Abreuvoirs
Sub-total	-			6,175	-	17,495		7,870		31,540	36,270	19,595	62	Total partiel
B. Stock Route														**B. Piste à Bétail**
Night-kraals (perimeter fence)	km	565	-				4	2,260	4	2,260	2,600	1,510	67	Kraals de nuit (clôture périphérique)
Herdsmen sheds	unit	75					10	750	10	750	863	-	-	Abris pour les bouviers
Water troughs	"	75	-		-		10	750	10	750	863	-	-	Abreuvoirs
Bridge repairs	"	16,200					2	32,400	2	32,400	37,260	17,400	54	Reparation de ponts
Miscellaneous: spades, buckets, small water pump, etc								700		700	805	365	54	Divers: pelles, seaux, petite pompe à eau, etc.
Sub-total								36,860		36,860	42,391	19,275	52	Total partiel
C. Rural Slaughterhouses														**C. Tueries Rurales**
Buildings														**Bâtiments**
General repairs	unit	970			20	19,400	20	19,400	40	38,800	44,620			Réparations générales
Hide sheds, frame and store	unit	590			20	11,800	20	11,800	40	23,600	27,140			Hangar à peaux, cadres et magasin
Sub-total - buildings						31,200		31,200		62,400	71,760	13,990	22	Total partiel - Bâtiments
Equipment														**Matériel**
Hoists	unit	90			10	900	10	900	20	1,800	2,070			Palans
Cutting table, wooden	unit	90			20	1,800	20	1,800	40	3,600	4,140			Billot
Gambrels	"	8			10	80	10	80	20	160	184			Grappins
Skinning knives	"	6			20	120	20	120	40	240	276			Couteaux de dépouillage
Boning knives	"	6			20	120	20	120	40	240	276			Couteaux de découpe
Steak knives	"	8			20	160	20	160	40	320	368			Couteaux à viande
Portable offal bin	unit	35			20	700	20	700	40	1,400	1,610			Seau à viscères
Small water tank (200 gallons)	unit	520			15	7,800	15	7,800	30	15,600	17,940			Petit réservoir d'eau (200 gals.)
Misc. (hose, pails, hooks, possibly small water pump, etc)	unit	350			20	7,000	20	7,000	40	14,000	16,100			Divers/tuyaux, seaux, crochets eventuellement une petite pompe à eau, etc.)
Sub-total - equipment						18,680		18,680		37,360	42,964	35,290	94	Total partiel - matériel
Sub-total						49,880		49,880		99,760	114,724	49,280	49	Total partiel - Tueries Rurales
Total base costs				6,175		67,375		94,610		168,160	193,385	98,150	52	Coûts totaux de base

ANNEX/ANNEXE 2
Table/tableau 7

June 25, 1976

le 25 juin 1976

ZAÏRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Markets, Stock Route

Operating Costs and Revenues
(Zaïre)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Marchés, Piste à Bétail

Coûts et Revenus de Fonctionnement
(Zaïre)

	Before Project[3] / Avant le Projet	Year/Année 1	2	3	4	5	6	7	8	9	10	11-20
A. MARKETS												
Throughput of cattle[1]	6,410	11,330	12,115	13,820	15,870	18,850	21,632	26,055	26,820	34,160	37,525	41,785
I. OPERATING EXPENSES												
Maintenance of physical facilities[2]	-	-	120	500	1,580	1,580	2,200	2,200	2,200	2,200	2,200	3,150
Staff: field staff, percentage of vet. field staff		0.7	0.7	0.7	0.7	0.7	0.9	1.5	1.5	1.5	1.5	1.7
Costs		938	1,013	1,088	1,156	1,188	1,525	2,543	2,543	2,543	2,543	2,875
Headquarters staff: cost	25	95	95	95	130	130	170	170	170	170	170	190
Total operating expenses		1,033	1,228	1,683	2 866	2,898	3,895	4,913	4,913	4,913	4,913	6,215
Replacement of scales[4]		-	-	-	-	-	-	-	-	3,800	9,880	-
Total operating expenses		1,033	1,228	1,683	2,866	2,898	3,895	4,913	4 913	8,713	14,793	6,215
II. OPERATING REVENUES												
Market fee @ 40k [5]		4,532	4,846	5,528	6,348	7,540	8,652	10,422	10,728	13,664	15,010	16,714
III. MARGIN, REVENUES OVER OPERATING COSTS		581	3,618	3,845	3,482	4,642	4,757	5,509	5,815	4,951	219	10,499
B. Stock Route												
Throughput of cattle - Bunia Abattoir	400	700	750	1,850	2,600	3,850	4,550	6,700	9,900	11,500	12,800	15,000
others		310	470	580	750	1,000	1,375	1,750	1,750	1,750	1,750	1,750
Total		1,010	1,220	2,430	3,350	4,850	5,925	8,450	11,650	13,250	14,550	16,750
I. OPERATING COSTS - MAINTENANCE OF PHYSICAL FACILITIES INCLUDING LABOR[6]	-			500	900	1,800	1,800	2,500	2,800	2,800	2,800	3,000
II. OPERATING REVENUES @ Z .65	-			1,580	2,178	3,153	3,851	5,493	7,573	8,613	9,458	10,890
III. MARGIN, REVENUES OVER OPERATING COSTS	-			1,080	1,278	1,353	2,051	2,993	4,773	5,813	6,658	7,890

	Avant le Projet	Année 1	2	3	4	5	6	7	8	9	10	11-20
A. Marché												
Nombre d'animaux à vendre[1]	6,410	11,330	12,115	13,820	15,870	18,850	21,632	26,055	26,820	34,160	37,525	41,785
I. COUTS DE FONCTIONNEMENT												
Entretien des installations[2]	-	-	120	500	1,580	1,580	2,200	2,200	2,200	2,200	2,200	3,150
Personnel: Pourcentage du personnel vétérinaire sur le terrain		0.7	0.7	0.7	0.7	0.7	0.9	1.5	1.5	1.5	1.5	1.7
Coûts		938	1,013	1,088	1,156	1,188	1,525	2,543	2,543	2,543	2,543	2,875
Personnel du siège sous-régional	25	95	95	95	130	130	170	170	170	170	170	190
Coûts totaux de fonctionnement		1,033	1,228	1,683	2 866	2,898	3,895	4,913	4,913	4,913	4,913	6,215
Renouvellement des bascules[4]		-	-	-	-	-	-	-	-	3,800	9,880	-
Coûts totaux de fonctionnement		1,033	1,228	1,683	2,866	2,898	3,895	4,913	4 913	8,713	14,793	6,215
II. REVENUS DE FONCTIONNEMENT												
Redevance de marchés @ 40 k [5]		4,532	4,846	5,528	6,348	7,540	8,652	10,422	10,728	13,664	15,010	16,714
III. MARGE BENEFICIAIRE, REVENUS EXCEDANT COUTS DE FONCTIONNEMENT		581	3,618	3,845	3,482	4,642	4,757	5,509	5,815	4,951	219	10,499
B. Piste à Bétail												
Nombre d'animaux - pour l'abattoir de Bunia	400	700	750	1,850	2,600	3,850	4,550	6,700	9,900	11,500	12,800	15,000
Autres		310	470	580	750	1,000	1,375	1,750	1,750	1,750	1,750	1,750
Total		1,010	1,220	2,430	3,350	4,850	5,925	8,450	11,650	13,250	14,550	16,750
I. COUTS DE FONCTIONNEMENT (ENTRETIEN DES INSTALLATIONS, MAIN D'OEUVRE Y COMPRISE)[6]	-			500	900	1,800	1,800	2,500	2,800	2,800	2,800	3,000
II. REVENUS DE FONCTIONNEMENT @ Z.65	-			1,580	2,178	3,153	3,851	5,493	7,573	8,613	9,458	10,890
III. MARGE BENEFICIAIRE, REVENUS EXCEDANT COUTS DE FONCTIONNEMENT	-			1,080	1,278	1,353	2,051	2,993	4,773	5,813	6,658	7,890

1/ The number of cattle going through the markets would increase from less than 50% to 75%.
2/ 2% and 5% of capitalized value of facilities in years following construction; 7% - year 6-11, 10% thereafter.
3/ Mission estimate.
4/ Replacement of old scales, 5 in years 9-10 (25% payable on order, 75% on delivery) 5 in years 13-14, 4 in years 17-18.
5/ The fee of 40k is adequate to generate sufficient revenue but the present fee of Z 1 will be maintained until the actual throughput is ascertained (see Annex 2, para 40).
6/ 3% of capitalized value of facilities in year 5· 8% in year 11-20

1/ Le nombre d'animaux en vente sur les marchés augmentera de moins de 50% à 75%.
2/ 2% et 5% de la valeur actualisée des installations au cours des années suivant la période de construction; 7% des années 6 à 11, 10% dans les années suivantes.
3/ Estimation de la mission.
4/ Renouvellement des anciennes bascules, 5 aux années 9-10 (25% payable à la commande, 75% à la livraison) 5 aux années 13-14, 4 aux années 17-18.
5/ La redevance de 40k est adéquate pour la production de suffisantes recettes, mais la présente redevance de Z 1 sera maintenue jusqu'à ce que l'actuel rendement est assuré (Voir Annexe 2, para 40).
6/ 3% de la valeur actualisée des installations à l'année 5, 8% aux années 11-20

ANNEX/ANNEXE 2
Table/Tableau 8

July 19 1976

le 19 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Rural Slaughterhouses

Operating Costs and Revenues
(Z'000)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Tueries Rurales

Coûts et Revenus de Fonctionnement
(Z'000)

	Before Project / Avant le Projet	Year 1 / Année 1	Year 2 / Année 2	Year 3 / Année 3	Year 4 / Année 4	Year 5 / Année 5	Year 6 / Année 6	Year 7 / Année 7	Year 8 / Année 8	Year 9 / Année 9	Year 10 / Année 10	Years 11-20 / Annees 11-20
Throughput[1] / Abattages[1]												
Cattle / Bovins	7,480	7,640	8,070	8,515	8,980	9,465	10,020	10,600	11,205	11,830	12,485	13,200
Pigs and goats / Porcs et chèvres	2,000	2,050	2,105	2,160	2,215	2,275	2,330	2,395	2,455	2,520	2,585	2,650
	Total amount/Montant total (Z)											
I. OPERATING COSTS / I. COUTS DE FONCTIONNEMENT												
Maintenance of physical facilities / Entretien des installations	100	300	300	300	750	750	750	750	750	750	750	750
Labor: man-years / Main d'oeuvre: Hommes-année	10 5	11	15	16	17	18	19	20	21	23	24	25
Cost (Z) / Cout (Z)		6,337	8,625	9,200	9,775	10,350	10,925	11,500	12,075	13,225	13,800	14,375
Purchase of hides: number[2] / Achat de peaux: nombre[2]	-	-	15,700	16,810	18,470	19,855	21,010	22,775	25,555	27,115	29,020	31,680
Cost @ Z2.25 / Coût @ 2,25 zaïres	-	-	35,325	37,823	41,558	44,674	47,273	51,244	57,499	61,008	65,295	71,280
Total operating costs / Coût de fonctionnement total	5,000	6,637	44,250	47,323	52,083	55,774	58,948	63,494	70,324	74 983	79,845	86,405
II. OPERATING REVENUES / II. REVENUS DE FONCTIONNEMENT												
Slaughter fees: cattle @ Z1.00 / Taxe d'abattage: bovins @ 1,00 zaïre	n.a.	7,640	8,070	8,515	8,980	9,465	10,020	10,600	11,205	11,830	12,485	13,200
small animals @ Z.75 / petits animaux @ 0,75 zaïre		1,537	1,580	1,620	1,660	1,706	1,747	1,796	1,841	1,890	1,939	1,990
Sub-total / Total partiel		9,177	9,659	10,135	10,640	11,171	11,767	12,396	13,046	13,720	14,424	15,190
Hide sales @ Z 3.15 / Ventes de peaux @ 3,15 zaïres		-	49,455	52,952	58,181	62,543	66,182	71,744	80,498	85,412	91,413	99,792
Total operating Revenues / Revenus de fonctionnement totaux	(5,000)	9,177	59,105	63,087	68,821	73,714	77,949	84,140	93,544	99,132	105,837	114,982
III. MARGIN, REVENUES OVER OPERATING COSTS / III. MARGE BENEFICIAIRE DIFFERENCE ENTRE COUTS ET REVENUS DE FONCTIONNEMENT		2,540	14,855	15,764	16,738	17,940	19,001	25,646	23,220	24,149	25,992	28,577
IV.												

1/ Calculated on 100% Ituri-urban consumption; 20% in year 1 to 40% in years 11-20 of Ituri-rural consumption. Pig and goat consumption would increase at the same rate as population growth rate: 2.6% p.a.

2/ See Annex 2, Table 1 (B)

1/ Calculés sur la base de 100% de la consommation urbaine en Ituri; de 20% à l'année 1 à 40% aux années 11-20 des abattages pour la consommation rurale en Ituri. La consommation de porcs et de chèvres augmenterait au meme taux que la population: 2,6% p.a.

2/ Voir Annexe 2, Tableau 1 (B)

June 28, 1976

le 28 juin 1976

ANNEX/ANNEXE 2
Table/Tableau 9

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Agriculture and Livestock Husbandry in the Traditional Sector in Ituri

A. General

1. The sub-region of Ituri Kibali in Haut-Zaire region is situated in the north east corner of Zaire bordering Sudan and Uganda. The sub-region (which has its administrative headquarters in Bunia) covers 62,000 km2 and is divided into five administrative zones; Irumu, Djugu, Mahagi, Aru and Mambasa. The zones are divided into sectors and then into collectivities. Bunia is 700 km from regional headquarters at Kisangani and 290 km from the furthest northern zone headquarters of Aru.

2. The western Mambasa zone of the sub-region is at an altitude of 600 - 800 metres and is covered by tropical rainforest. East of the Mambasa zone the land rises and forest gives way to savannah, covering hills, plateau and in places mountainous country until the Lake Mobutu fault is reached where the land falls away sharply to Lake Mobutu. The southern zone, Irumu, averages 1,000 m in altitude; the northern zone Aru 1,200 m and the central areas Djugu and Mahagi between 1,500 and 1,700 m. The highest points are Adjo 2,425 m and Aboro 2,456 m, the lowest Mahagi-Port on Lake Mobutu at 617 m. The forested Mambasa zone has few livestock (mainly poultry 3,200 goats and 200 pigs) and the Government has not included it in the project area so that the following description of Ituri refers to the other four zones (29,000 km2) which cover the project area.

Climate

3. The climate is affected by altitude and average rainfall ranges from 1,000 to 1,600 mm. Most of the area receives about 1,200 to 1,300 m. Ituri has two rainy seasons although in many areas some rain falls even in the dry months. The driest months occur from mid November to end of February or mid March followed by rains from March to May and a short drier spell in June and July. Differences between the rainy and dry seasons are not always marked in Irumu and Djugu, particularly the latter. The long dry season of four months becomes distinct further north in Mahagi and Aru as temperature in the second half of this season, especially in Aru, is affected by hot dry winds coming from Sudan. (rainfall and temperature data is shown in Tables 1 and 2).

Vegetation

4. The forest belt penetrates the western boundaries of the three southern zones. Small forested areas exist within zones and along rivers and streams. The area covered by such forest requires definition in view

of the increase in subsistence cultivation that has taken place over the last fifteen years. The savannah area which occupies some 20 to 25,000 sq km can be divided into three main types. Medium altitude savannah, high altitude savannah and lake shore bushland, each of which has a number of distinct subtypes of land use importance. Common grassland genera include Hyparrhenia, Panicum, Themeda, Beckeropsis and Pennisetum. The area is generally well watered with a good network of perennial rivers, streams and springs.

Population

5. In 1951 the population was estimated to be over 580,000 and in 1974 reached 1,087,000, a growth rate of over 3% per annum. Overall population density is 40/km^2 but in certain areas it reaches 119 people/km^2 making Ituri one of the most densely populated parts of Zaire. Seven principal tribes live in the sub-region with different ethnic and geographical origins. They obtain most of their subsistence requirements from crops although three of the four major groups have appreciable numbers of livestock. 170,000 families are estimated to subsist purely on crops and there are about 20,000 livestock owners of whom 5,000 obtain most of their subsistence from stock. 1970 population figures, domicile and main characteristics of these tribal groups can be summarized as follows:

Banyari	36,000 people	Irumu. Originally from Uganda. Mainly cultivators.
Wallendu	230,000	Irumu and Djugu. Cultivators. Irumu and a small group in Djugu. Cultivators. Speak Wallendu.
Mabendi	N/A.	
Bahema	200,000	Pastoralists originally from Southern Ethiopia and dispersed in Mahagi, Djugu, and Irumu zones. Some groups from Southern Irumu, especially in the Boga region do not practice cropping.
Ndo or Okebo	22,000	Mainly ironsmiths from northwest Uganda who have settled in parts of Aru and Djugu.
Alur	156,000	A population of mixed crop and livestock farmers belonging to several independent clans of Nilotic origin which have occupied much of Mahagi.

Lugware	184,000 people	Livestock people who have settled on Aru and in neighboring Uganda. Divided into 6 main clans.

6. The distribution of population and stock by zones is as follows (Table 3 gives further characteristics of land use in the zones):

	km^2	Population ('000)	Cattle (0'000)	Goats ('000)	Sheep ('000)	Pigs (0'000)
Irumu	7,977	197	106	44	7	10
Djugu	9,223	386	30	55	12	19
Mahagi	5,164	305	39	52	7	8
Aru	6,874	201	112	154	48	-
	29,238	1,089	287	305	74	37

Production

7. The main economic activities in Ituri are agriculture, fishing, hunting and mining. Present production and income levels are estimated to be lower than those obtained in 1960. Although important, hunting is likely to decline as population and settlement increases. Expansion of mining must rely mainly on new discoveries. Further development in Ituri will largely depend on expanding agriculture and fishing activities.

Agriculture

8. Agriculture in the region can be divided into the large farm and the traditional farming sectors. Information on the present division of land between these two sectors and their contribution to the economy of Ituri is unreliable.

9. Before Independence large farms contributed most to the monetary sector in agriculture. They are presently owned by private individuals, parastatal bodies like Kilomines, missions and government. Production on these farms has dropped sharply since Independence and now most of them are producing little or are unoccupied. Before Independence over 60,000 cattle were raised on large farms including over 6,000 dairy cows which kept the Bunia Abattoir and a creamery at Libi in operation. Today only about 10,000 head of cattle remain in this sector of which very few are dairy animals. The principal cash crop grown is coffee.

10. The Government is making efforts to improve productivity on its own farms, particularly at the large (2,700 head) Nioka research station with German Technical assistance. The Ituri Project is expected to improve livestock productivity on the parastatal ranches. Some individual Zairian farmers are attempting to increase production but lack suitable credit and management advice. Although not a specific original objective of the project, it should help Government develop a suitable policy for livestock development of these individual farms, encouraging where possible the flow of credit to them through the private banking sector. Where it is evident that large farms cannot be developed by the present owners Government should consider associating them in some productive manner with the traditional sector or developing them through the parastatal ranching organization ONDE.

11. The traditional farming sector is mainly based on crops cultivated by about 170,000 families. The 1974 Ituri Agricultural Annual report estimated that over 270,000 ha were cultivated, the major crops being beans (84,000 ha) maize (68,000 ha) cassava (58,000 ha) sweet potatoes (27,000 ha) and groundnuts (17,500 ha). The principal cash crops are Arabica coffee (7,000 ha) and cotton (2,600 ha) while other secondary crops include rice, Robusta coffee, tea and quinine. Local traders transport food and vegetables to urban markets outside Ituri depending on road conditions and market demand. Marketing of coffee and cotton through the state organizations has proved difficult and some farmers complain that they have not been able to sell their produce during recent years.

12. Cattle (287,000 head); Goats (305,000), Sheep (74,000), Pigs (37,000) and a large number of poultry constitute the livestock population. The Bahema, Lugware and Alur are the main stockowners while small stock, particularly pigs and poultry, are becoming increasingly important for small farmers without cattle. Presently few agriculture inputs are being used due to an inefficient distribution system, general lack of supplies in Zaire and poor produce marketing providing no incentive for farmers to purchase farm inputs. Present statistics indicate that the average area cultivated per family varies from 1.1 ha in Irumu to 2.1 ha in Aru while the average cattle holding per livestock owner varies from 11 cattle in Djugu to 29 in Irumu (average 15 head) - Table 3. Most crop farmers are very poor, living at the subsistence level and selling relatively little produce for cash. At appraisal the average cash income from cattle sales for a farmer with 12 cattle was about Z 35 (US$40) assuming a price of 20 k per kg liveweight (representing about 60% of the value of offtake from this herd). Following devaluation if the recently introduced maximum prices of 54 and 62 k per kg for second and third categories became the norm then the average cash income would rise to Z 97.2 (US$107) (Table 4).

13. Overall, adequate land is available in the sub-region to increase cultivation and livestock numbers. However, in certain areas, particularly in Djugu, local over population is occurring thus preventing the continuation of the bush fallow system and reducing grazing areas. Some farmers are now

unable to get sufficient land for cultivation in their own localities so that serious conflicts of interest are arising between cultivators and livestock owners in such areas, the latter complaining that they are losing their grazing and the former complaining of trepass on their cultivation.

14. The poor marketing system and roads are probably the most immediate obstacle to increased output. However in some areas further expansion of agriculture will increasingly depend on more intensive farming systems involving the provision of inputs to improve crop and livestock productivity. Tribal affiliations and social needs limit, at least initially, the mobility of the population in its search for new cultivation land. The problems involved will have to be tackled soon considering the present income levels and the fact that the human population is likely to reach 2 million in 20 years. The Government wishes to improve the situation but presently funds are insufficient to develop the necessary extension and marketing services.

Administration Structure and Local Government Financial Control

15. The sub-region is administered by the Sub-Regional Commissioner head quartered in Bunia. Zone Commissioners are responsible for the five zones under whom are appointed the chiefs of collectivities. Departmental heads report to the Sub-Regional Commissioner on policy matters affecting Ituri, while they receive technical direction from their regional and departmental superiors.

16. Budgeting and financial control of sub-regional departments such as Veterinary is done through the Sub-Regional Commissioners office. Some vehicles and gasoline are allocated by a general supply office in Kinshasa. A few Veterinary items are allocated directly by veterinary headquarters in Kinshasa. The financial year runs from March to February. Departments prepare estimates in July, which are then discussed by the sub-regional authority (Government appointed) and submitted to the Department of Finance in Kinshasa at the end of September. Estimates, which are not reviewed by regional departmental heads, are considered mainly in the light of expenditure guidelines received from Kinshasa. The sub-regional budget is then considered by the National Council legislature in Kinshasa (on which there are 10 deputies from Ituri in a council of over 200 deputies); staff numbers are seldom altered but changes in other items sometimes occur. Sub-regions are notified of approvals in February. Accountants in sub-regions and zones pay salaries on the basis of lists prepared in Kinshasa from returns originally sent from the sub-region. They also pay local supplies on invoices countersigned by departmental heads and keep records of expenditure.

Veterinary and Animal Production Services

17. The Veterinary Department is responsible for animal health, animal production, and meat inspection. It runs a number of livestock centres, controls stock movement and has the responsibility for organizing and

supervising markets although recently ONDE has undertaken some of these functions. The Department has a sound basic organizational structure of diagnostic clinics, dispensaries, dips, field housing and livestock centres on which to build its work program. Unfortunately political disturbances in the past, lack of running and maintenance funds and other problems have not allowed the department to use their facilities efficiently, many of which are now in various stages of disrepair. The Department's relatively large staff are underemployed because funds are lacking.

18. A veterinarian is in charge of the sub-region which is divided into five veterinary zones, (six including Mambasa). The zone boundaries generally follow those of the administration with the exception of Irumu which for veterinary purposes is split into Gety and Irumu. A small section deals with Bunia itself and neighboring Kisenyi. The zones, which are divided into sectors (24 in all), are run by an Assistant Veterinarian or an Infirmier. Each sector has a clinic or dispensary and there are 39 dispensaries and 27 cattle dips serving collectivities at which one or two infirmiers or their assistants are stationed; there are also centres without dispensary buildings at which staff are stationed. Small village slaughter-houses and weighing scales are found in some areas (Annex 2 for marketing). Staff housing is available for 30 infirmiers or assistant infirmiers in the field. The Department employs about 240 staff (excluding those paid by the collectivities but under Veterinary supervision) of which the technical grades of field services consist of the Veterinarian in charge (Level A1) 5 local and foreign Assistant Veterinarians (A2), 57 Infirmiers (A3) with varying training backgrouns and 124 untrained Infirmier assistants. Two Assistant Veterinarians, 5 Infirmiers and 2 assistant inspect meat and markets. Several technical staff work on livestock stations. A more detailed staffing schedule is given in Tables 5 and 6.

19. While more than adequate in number of the operating funds available, the quality of the service, certainly for any future expanded program, is adversely affected by the disproportionate number of poorly qualified or unqualified personnel. The problem is further compounded by infirmiers having poor animal husbandry knowledge, a subject not adequately covered in their courses. While the level of livestock husbandry in Ituri does not warrant a large number of qualified veterinarians, a veterinarian will be needed in the north as well as the south considering the distances and need to monitor unofficial movements of stock between neighboring states. Three os the zone chiefs are Infirmiers instead of Assistant Veterinarians; three of the sector chiefs are Assistant Infirmiers and not Infirmiers while only 8 Infirmiers work at dispensaries in the field and on collectivities. While part of this problem may be explained by the existing staff disposition and priorities it is clear that qualified staff are insufficient at zone, sector and dispensary level. In future staff reorganization it must be re-cognized that Government staff cannot be dismissed; reducing staff numbers must depend on transfers and attrition.

20. The annual cost of the Ituri Veterinary Service is difficult to estimate. From various figures it would appear to be about Z 225,000 of which 80% is for salaries. Available funds are not enough to maintain and equip existing facilities and to keep qualified staff fully operational in the field. Between 1971 and 1974 some funds were made available for a dipping program; charges did not cover costs. Reports for 1973 and 1974 indicate that 191,000 and 333,000 cattle were dipped representing a weekly rate of 4,000 and 6,000 per week respectively. In 1975 no funds have been available to purchase dipping materials and to purchase drugs and inoculants for sale to farmers. The shortage has been compounded by the recent closure of private pharmaceutical trading operations in the sub-region which has reduced the supply of all types of drugs (they supplied mainly human needs); it is uncertain whether State trading concerns can take over adequately. The effect has been very demoralizing on staff. Present staff activities are concentrated on microscopy and other examination, some vaccinations (mainly Anthrax, Rabies, Poultry Typhoid, Newcastle Disease) and some treatment (mainly worms, trypanosomiasis and mange). As funds are inadequate livestock centers remain underdeveloped with a few stock being maintained by staff mainly paid by collectivities. The centers include Djugu (290 ha - 31 cattle); Ngei (55 ha - 16 cattle); Djodjo (114 ha -34 cattle); Nri (113 ha no cattle); Muchapa (410 ha - 9 cattle); Niambere (315 ha - 14 cttle); Andiva (120 ha - 83 cattle).

21. The Ministry of Education has a Veterinary training center for Infirmiers for Northern Zaire at Loda. The quality of training and facilities could be improved substantially. (Annex 4 Section C).

22. The large animal health and production research center at Nioka is being supported with German technical and capital assistance. Some 11,000 ha in size, the station is situated in the middle of the Project area (see Map). In the past it was the center for some practical and well documented animal and pasture production research wich will be of value for future development in Ituri. The center is administered by the Institute National Pour L'Etude et la Recherche Agronomique (INERA) which until recently came under the Presidents office but has now been transferred to the Ministry of Agriculture. Initial efforts have been directed at re-establishing the cattle breeding program for the four main breeds kept on the station, Bahema, Lugware, Alur and Sahiwal/Sindhi crosses (some 2,700 head - the station has a grazing capacity at full development approaching 1 animal unit per hectare). Animal Health surveys are being started and several practical research experiments have commenced on parasite control. The station undertakes diagnostic work for the sub-region using converted Research laboratories. At present the facilities are under utilized but it would be possible to expand them very eaisly by moving to the neighboring unused Ngabu laboratories which used to be the center of major diagnostic work.

Agricultural Services

23. The Agricultural Department in the sub-region has 2 Agricultural Graduates (level A1) 8 Assistant Agricultural Officers (A2) 63 Agricultural Assistants (A3) and over 50 Agricultural monitors in collectivities (no training). There is an agricultural school at Pimbo run by the Ministry of Education training junior staff. In addition missions finance two small farmers' training centers at Totoba and Gopa. The Ariwara mission in Aru is pioneering training of draught oxen for farmers in that area. Transport, travelling and other funds necessary for the extension program are in short supply; the local agricultural officer also wishes to increase staff numbers to get better extension coverage.

B. Livestock

24. According to the 1974 stock census there were in Ituri 297,000 cattle, 306,000 goats, 76,000 sheeps and 37,800 pigs. The majority were in the traditional farming sector and only 10,000 cattle 1,000 goats 2,000 sheep and 700 pigs were on large farms. Distribution of the stock is given in Table 3.

Cattle

25. During the 1950's the cattle herd in the traditional sector built up to nearly 310,000 head. In the early 60's it declined rapidly to 253,600 head. Since then the traditional herd has increased at about 1.4 percent a year and has now reached an estimated population of 287,000 head in 1974 (Table 7). The reason for this rather slow build up in cattle numbers is primarily due to high mortality and a mediocre calving rate. As illustrated in para 6 about 75% of the animals are concentrated in Irumu and Aru. The large farm herd of 60,000 animals was decimated in the early 1960's and has remained low.

26. Two main breeds of cattle are distinguishable in the sub-region. The Bahema breed came with the Bahema people from Ethiopia and is characterized by its very long horns, long body and relatively small head. At Nioka adult Bahema male cattle average 340 kg liveweight; cows give between 500 and 700 litres milk per lactation. The breed is found principally among Bahema people in Irumu and Gety. The Lugwari breed is found in the North and is related to the small East African short horn zebu. Adult males at Nioka weigh 370 kg with cows giving 400 to 500 litres of milk. Cattle of both breeds mature in 4 to 5 years but would probably grow faster under better grazing and husbandry conditions.

27. The Veterinary Service undertakes regular detailed stock counts which classify the animals by age and sex. While census recorders differ in their assessment of stock ages some estimates can be made of combined

mortality and offtake in each age group. By noting the differences in stock numbers between age grades and making estimates of mortality it is possible to calculate offtake percentages for each age group. Figures should however be taken as order of magnitude and it would be one of the objectives of the project to verify and check the validity of data being collected. One of the most striking aspects of the traditional herd structure is that 47% of all cattle are classified as adult female and 73% of total herd are female. A high proportion of mature females (35 to 42%) is often found in pastoral and subsistance cultivater herds although 47% adult females is possibly higher than average; this is partly accounted for by the fact that 6% of this number are stock between 3 and 4 years old. The calving rate is in the region of 52 to 55% but when the mortality rate for calves of 30% is taken into account the effective calving rate drops to between 42 and 44%. Mortality of followers is 8 to 12% and adult stock 5 to 6% with an overall herd mortality of 12 to 13% (46,500 head including 25,000 calves).

28. The low calving rate is due to poor grazing management, presence of old cows, mineral and salt deficiencies, high parasite and disease incidence. Offtake is about 10 to 11% with over half the male animals being consumed or sold at an unfinished age of 1 to 3 years indicating that small farmers are fully exploiting young males in their herds to earn income. Few heifers are sold because of the desire to build up the herds and many cows are reportedly kept until they die so that perhaps only 6% of the cows are culled annually representing about one third of the 31,000 animals consumed or sold. About 15,000 cattle are exported outside the sub-region. (Annex 2). Although hides and skins drying sheds have been constructed as part of village slaughter houses the small trade in hides does not appear to reflect the potential. Livestock are probably the most assured cash income of all agricultural enterprises in Ituri today.

29. Over half the cattle deaths are caused by tick borne East Coast Fever; tick borne Anaplasmosis and Piroplasmosis are also serious. Anthrax is prevalent and inoculation programs are mounted when serious outbreaks occur. Internal parasites are serious, particularly among young stock making them more susceptible, sometimes fatally, to other diseases, and affecting weight gains and condition of the growing animal. Abundance of rain and swampy conditions permit a high incidence of Liver Fluke. Trypanosomiasis is present near forested areas. Cysticercosis is common and affects the value of the animal to the abattoir or butcher and human health. Mortality and disease appear to be more serious in the wetter south which does not have the dry season to serve as a check. 16% of the Irumu herds are calves compared with 22% in Aru, reflecting higher mortality and possibly a lower birth rate; evidence supported by the greater demand in Irumu for dips, drugs and salt.

30. On average the Southern Bahema have twice as may cattle as others; 3,700 cattle owners live in Irumu with an average of 29 animals each; 8,900 graziers in Aru and 3,000 each in Mahagi and Aru have 10 to 13 cattle each.

As in most cattle owning societies ownership of cattle appears to have a skew distribution with more than half the people owning less than half the cattle. Pressure for cash among the poorer owners often results in a higher exploitation rate of young stock, even females. Statistics show great differences in individual herd structures as the needs of the farmer differ. Any future planning must consider these aspects.

31. All land belongs to the State. In traditional areas grazing is held communally while individuals have cultivation rights in accordance with customary law. Attempts are made to keep cultivation areas separate from grazing areas although expansion of the former is increasing conflict of interest. Use of communal grazing land varies from a free for all to relatively closely controlled conditions. In some areas graziers rest pastures and may reserve areas for cattle in milk; some areas may be allocated for use by particular families or group of families or villages. In an improved state natural pastures could carry at least 1 animal unit per hectare. On present information, overall stocking density in Ituri is about 6.8 stock units per grazing hectare in the traditional areas (Table 3) but there are collectivities where the stocking rate is much higher and local ovegrazing is occurring (Table 8). In the past Government drew up plans for grazing management for some of the communally owned land and some livestock owners understand grazing rotations.

Goats and Sheep

32. Goats (305,000) and sheep (82,000) are an important source of meat and cash. Flocks are increasing although statistics are not consistent. In 1973 about 49% of the animals were classed as mature female and 33% as kids or lambs, the latter suggesting, certainly in the case of goats, a high mortality and/or low kidding percentage. Common health problems with goats and sheep include worms, Coccidiosis, Salmonella, Mange, Piroplasmosis (goats) Caprine Pleuropneumonia (goats) and foot rot (sheep). As accurate information on herd growth and mortality is lacking it is not possible to estimate offtake although comparing available statistics with those from countries with similar conditions offtake probably exceeds 20%. Adult goats might weigh about 30 kg and in 1975 were sold at Z 4 to 6 each with a big billy fetching Z 7; young smaller goats were sold for Z 2 to Z 3 each. Adult sheep might weigh about 25kg and are sold at roughly the same prices as goats.

Pigs

33. The pig population (38,000) is expanding and is a useful source of meat and cash. An increasing number are being sold to the forest areas where they are in demand. About 50% are kept in Djugu, 27% in Irumu and 21% in Mahagi. The pigs are generally small and a mixture of various breeds. They run free in village areas although some are tethered and may receive crop residues. Sows seem to have 3 piglets running with them.

In 1974 about 30% of the pig population were recorded as sows and gilts and 46% piglets. Worms and pneumonia are the main killers of young pigs and mange seemed common on the few pigs kept in pens on large farms; Trypanosomiasis, Cysticercosis and Salmonella are also present. African Swine fever has been recorded. In 1975 pigs were sold at between 50 and 70kg for prices ranging from Z 8 to 12 each; a young piglet might cost Z 3.

C. Project Considerations

General

34. Ituri is a high potential agricultural area from which people of different origins obtain their livelihood from either crops or livestock or both. The greatest benefit could be achieved by improving both crops and livestock. The Government is presently examining methods of improving the crop sector while at the same time obtaining funds for the development of the livestock sector. It is evident that this will be a pilot livestock project affecting one part of the community and considerable funds will be required for further development once the first project is completed. (See para 65 for details of further studies).

35. The Project proposes to improve both animal health and animal husbandry. Immediate benefits should accrue from the animal health program as farmers are aware of the benefits and they are not immediately dependent on great changes in traditional herding arrangements. However long term benefits will only occur if animal and pasture management are improved. As the female population is large, a reduction in stock mortality and improvement in calving rate could result in a substantial increase in stock numbers leading to overgrazing unless the pasture is improved and offtake of stock is matched to grazing capacity. Overall there is room for more stock in Ituri but since many cultivator stockowners wish to stay in their own communities this will lead to local overgrazing problems which can only be solved by improving pastures and increasing offtake of young stock. The national need for more stock demands that the present mortality be reduced in Ituri but if this is done now it will be done before it is known whether the people are prepared to follow improved husbandry methods. Therefore a risk is being taken that most people will eventually introduce better grazing practices. However unless there are indications of improvement in pasture management being accepted during the course of the project further expansion of animal health and production services in the area after 5 years should be reconsidered.

Animal Health

36. The Project can adopt several alternative strategies in providng dipping, inoculation, medicines and clinical services to the farmer. Although one strategy has to be chosen at the outset of the project it may be desirable

to change it as experience is gained. For this reason, the problems are explained in detail. The most widespread reduction in cattle mortality could be achieved through compulsory dipping. Further reductions could be achieved if annual anthrax vaccinations were undertaken and trypanocidal drugs made available. Mortality and particularly weight gain would be improved if drugs combating Helminthiasis and Liver Fluke were widely used; preliminary work at Nioka showed an increase in weight of 1 to 3 year old cattle of 10-25 kg in 3 months from dosing; the value of the meat being 5 to 10 times the value of chemicals being used. The combined effect of these controls on a cattle herd could reduce mortality of calves to 10% and older stock to less than 5% provided the program was widespread, or at least locally comprehensive, and combined with some grazing control ensuring that only dipped animals used certain grazing areas. It is intended therefore to give priority to dipping followed by inoculations and medicines.

37. A good dipping program develops a herd of cattle susceptible to tick borne diseases which could suffer serious casualties in the future if the program ceased. Once started it is therefore vital that the program continues and the more thoroughly it is done the more important it is to stop "dirty" cattle (carrying infected ticks) entering a "clean" area. In the 1950's a subsidized dipping program was operated in Ituri and revived in a small way in 1973 and 1974. Farmers suffered losses when the original scheme stopped; they are therefore anxious that a new scheme is properly organized. The Government has proposed a subsidized dipping scheme for the first few years followed by an increase in charges to cover material costs. There was some ambivalance as to whether it should be compulsory or not, although benefits were based on complete dipping of the herd. Veterinarians in Zaire maintain that a dipping program that is not 100% effective, because of the presence of some dirty cattle, will still reduce mortality because it will reduce the intensity of challenge that calves receive at present. The dipping program can be introduced in three ways:

(a) develop the program with interested farmers who will try to keep their cattle on separate grazing areas from those who do not dip;

(b) introduce compulsory dipping with 8 km of all functioning dips; and

(c) optional dipping for the first two years followed by compulsory dipping.

38. The attitude of the farmer to the three alternatives will be influenced by the cost of the service and the fact that services are subsidized. The dipping material commonly used at present is Asuntol. A weekly dipping of an animal plus filling of dip bath twice a year would

cost about Z 1.50 per animal per year for dipping materials alone (Asuntol Z 15 per kg) assuming that the animal removes 1 1/2 litres dip (1 1/2 grams of chemical) every time it uses the dip. Larger animals are said to use 2 litres per dip and according to veterinary department records of the last dipping program traditional cattle used just over 1 litre per dip - due to the smaller size of traditional cattle and calves.

39. An annual charge of Z 1.50 includes a 15% charge to cover losses, other costs, etc. It does not include the services of veterinary staff running the dips or their maintenance. Returns from dipping are not immediate and in the case of a man with 12 cattle the cost of dipping at Z 1.50 per head would reduce his income by about Z 13 from Z 97 to Z 84 in the first year and it would not be until the third or fourth year that his net income returned to the level it was before (Table 4); in year 10 it will have increased by over 100%. Charging full costs for materials at the beginning of the program would almost certainly limit initial interest. Some farmers only have one or two cattle and may have difficulty in finding money although many have had to find 10 to 50 k per head for a collectivity tax. The conservative man with over 50 head may resent having to pay a large sum annually. Chiefs of collectivities and farmers questioned during appraisal in September 1975 before devaluation generally expressed willingness to pay full chemical costs, even over Z 1.00 per head per year. Some however wanted dipping but thought Z 1.00 too high. Others, participating in Aru thought some farmers would refuse dipping and certainly would not wish to pay Z 1.00 per head. Most discussions were held on the basis that farmers would pay the full costs.

40. Government officials felt that compulsory dipping could be introduced and is possible under existing legislation. If full charges from the outset were made it would seem that it would be equitable if the scheme were made voluntary initially and participating farmers had their own grazing areas. If dip costs are subsidized then participation would certainly increase and dipping could be introduced on a compulsory basis providing the cost was not a lot higher than the range of collectivity cattle taxes being raised by many collectivities and if the latter are removed at the same time. To achieve maximum benefits from the program it is proposed to introduce compulsory dipping of all animals within 8 km of a dip. Initially a subsidized charge of 60 k per animal per year would be made and after three years farmers would pay the full cost of the dip materials. A variation would be to have an escalating charge over the first three years so that by the fourth year the cost was equal to the cost of the materials. Methods of fee collection could vary; farmers could pay it either as a dipping charge (on a monthly, quarterly or yearly basis) or as a Government collectivity tax levied using existing legislation. Obviously, the question of farmers reaction to paying full costs will only be known once the project has started and experience has been gained. If charges prove to be a serious disincentive, a completely subsidized scheme may have to be considered; in this respect it must be acknowledged that most Government sponsored compulsory dipping schemes (as against individual farm or ranch operations) have had to be highly subsidized to get the maximum

use. The Project will give consideration to using cheaper dipping chemicals and, in concert with ONDE, will place bulk tenders and orders which should reduce costs.

41. The farmers will pay the full cost of drugs and medicines. Anthrax is a hazard to both humans and livestock and Government will mount a compulsory Anthrax inoculation program annually; government will pay for the inoculant, 6 k per dose in early 1976 but estimated to increase by 50% as a result of the recent devaluation.

42. As presently envisaged, the Government proposes to operate the dips for which it will make a 6-monthly charge. It will sell drugs and inoculants from dispensaries. This will involve considerable organization collecting cash and checking of stores. During the course of the Project efforts should be made to establish farmer associations in order to take over some of these functions. They would run dips and purchase drugs in bulk for sale to their members from their own stores, constructed by self-help. Such a program has started in Kivu under a UNDP project and is proving popular. When discussed at meetings in Ituri farmers often indicated that they would like to control as much of the program as possible.

43. The Project would operate a revolving fund for the purchase and sale of dipping materials and drugs which would be sold by the Veterinary Department for cash at 15% above the cost to cover losses etc. Funding under the Project allows for dipping subsidies to be paid into the fund to cover shortfalls in dipping fees charged; when the subsidies are withdrawn all charges should cover cost of materials. Considerable delays in delivery of materials may occur so that stockpiles will have to made. Losses in transit to Bunia could be a problem, all cargoes therefore should be fully insured. Finance required for the revolving fund for drugs, inoculants and dips is given in Table 10.

44. The animal health program aims to dip 80% of the cattle in the Project areas by the fifth year and supply a variety of medicines and inoculants for about 90,000 treatments to be made annually. 100% cover against Anthrax would be provided. The proposed build-up is given in Table 5, but it is stressed that the mix of medicines and number of animals to be treated can only be regarded as guesses since there is no statistical information on hand. The proposed siting of dips and dispensaries is given in Table 9.

Animal Production and Credit

45. The Animal Production officer would have two Assistants specializing in goats, sheep and pigs. All field staff would spend half their time on animal husbandry. Primary attention would be paid to improving grazing by introducing grazing rotations, eradicating bush and poor grass species, reseeding fallow land with Setaria and introducing legumes particularly Stylosanthes and Desmodium. Originally it was expected that special grazing

and fire guards would be employed directly by the Project. However, organization of grazing should be done by the farmers themselves. Every assistance would be given to establishing farmers associations and examining various ranching organizational systems that might be suitable for the area. Discussions would be held with farmers to determine the methods to be employed to maintain the correct stock numbers bearing in mind the variation in size, age and sex of the herds and the various social customs that have to be satisfied. ONDE will buy young stock for fattening on their own project financed ranches but in some instances collectivities might be organized to establish special cooperative fattening areas on collectivities or on disused large farms. The first five years should be regarded as a pilot stage in which different systems might be tried.

46. The scope for grassland improvement is indicated by Mr. Risopoulos in his publication "Management and use of Grasslands in Zaire" (FAO Pasture and Fodder Crop Studies No. 1 - 1966). He quotes livestock carrying capacity of natural Cymbopogon grassland in Ituri (at 1,600 - 1,900 metres) of 350 kg liveweight/ha under reasonable management with an ouput of 140 kg liveweight/ha and under good management liveweight production of 190 - 240 kg/ha. Neighboring land badly used was estimated to carry only 150 - 200 kg liveweight per ha yielding 50 kg liveweight/ha. Normal carrying capacity of other savannah areas is given as 235 to 245 kg liveweight/ha with production ranging from 55 kg to 100 kg liveweight/ha liveweight depending on usage. As a form of comparison the present average weights of all animals given in the herd projection in Table 16 is about 187 kg. Risopoulos also gives yields of 15 tons dry matter per hectare of Desmodium and between 28 to 39 tons/ha of green matter for improved Setaria species compared with 19 tons for local species.

47. In addition to grazing management, herd improvement would include selection of breeding stock, castration, cow culling, herd management, feeding minerals and fodders. Attention would be paid to integrating livestock operations with cultivation practices e.g., pigs, sweet potatoes, cattle fodders, conservation of crop wastes etc. Investigations would be made into developing the collection of surplus milk for sale in zone headquarters and for local butter, cheese and ghee production. A small private milk collection scheme operates near Bunia and might warrant encouragement. In collaboration with the marketing staff, efforts would be made to improve hides and skins collection. Where grazing management and disease control warranted, farmers would be encouraged to purchase improved bulls from Nioka for their own herds or establishing small bull centers. The reestablishment of some of the government veterinary stations as bull breeding centers and demonstration areas is not supported at this stage. Because of disease it will be at least two years before susceptible bulls can be introduced safely into the traditional areas; Nioka is likely to be able to meet foreseeable demands for improved bulls (with sufficient notice it could produce up to 200 annually). Pasture improvement is normally better demonstrated on farmers own land areas and funds have been included for purchasing legume seed for establishing demonstration and seed areas on collectivities that wish to participate and provide labor. Demonstration materials will also be provided.

48. Goat, sheep, pig and poultry husbandry will receive attention especially as these animals are important among the poorer livestock owners. Improvement of animal health through availability of medicines will be important; in particular, helminth control with sheep, goats and pigs. The animal production staff will attempt to devise husbandry improvements. For pigs the economics of cheap pens and the feeding of sweet potatoes especially grown for them might be investigated, utilizing any meat meal produced from the Bunia abattoir. Introduction of improved cockerels or making available clutches of eggs of improved poultry could be consdered. Following investigation and collection of data by project staff the possibility of employing a short term specialist to recommend husbandry methods for a particular class of stock might be valuable.

49. The Project will include a sum of Z 100,000 as a pilot credit fund to be loaned to farmers or collectivities for grazing and animal improvement programs. The fund will be administered by the Project and its use will be dependent on a general plan of operation being prepared by the Project for approval by IDA.

50. Veterinary field staff will be responsible for developing the marketing services and overseeing the slaughterhouses. Zone and dispensary staff will organize markets in their area. The development of dipping facilities throughout the Ituri area will require more attention to health of animals being moved and on the necessary precautions being taken if there are clean cattle to be moved through dirty areas.

Fattening Ranches

51. To provide a market for the increasing number of male stock that will be produced in the traditional areas and for finishing older animals ONDE will purchase increasing numbers of stock from small farmers for ONDE's ranches.

Research

52. INERA will conduct any necessary animal husbandry and health research.

Staff and Costs of the Animal Production and Veterinary Services

53. Project management will examine long-term staff requirements in relation to needs and available funds and considering the requirements of other agricultural services in Ituri. Unless comparison is made with other services there is danger that livestock expenditures could become excessive. Presently veterinary services are suffering from a shortage of trained staff, principally at the dispensary level, and operating funds. Small improvements can be made by redeploying existing trained staff and reducing untrained personnel but the major improvement in the service will be dependent on an increase in overall expenditure and recruitment of more trained personnel.

54. To start the Project it is proposed to provide direction and impetus by the employment of a Project Manager, 3 Veterinarians (including deputy PM), an Animal Husbandry Officer, an Extension and Training Specialist and a Financial and Administrative Controller. To supervise the doubling of dips and dispensaries, the field staff of 5 Assistant Veterinarians and 57 Infirmiers would be increased by year 5 to 11 and 101 respectively while untrained staff would be reduced from 119 to 102. This is lower than the original request which would have required 7 Veterinarians 21 Assistant Veterinarians and 115 Infirmiers.

55. At the end of the development period (year 5) the sub-region should be run by a Veterinarian assisted by a Veterinarian in the south and another in the north. The Animal Husbandry Officer and his two assistants would concentrate on animal husbandry. At this stage a Veterinarian is not needed for each sector; sectors should be run by Assistant Veterinarians or Assistant Animal Production Officers. Each sector would have an Infirmier in charge. An average sector has about 4 dispensaries. The correct level of staffing of dispensaries is difficult to determine without knowing future demand. Ideally a dip and dispensary should be staffed by an infirmier and an aide. In terms of work load about 1,000 cattle can be dipped in 3 to 4 hours so that a dip serving an area with 4,000 to 6,000 cattle might operate 3 days a week. On dipping days the aide would check the register while graziers help animals through the dip and clean up afterwards. The Infirmier would treat animals and discuss problems with farmers. The field staff should spend half their time on animal husbandry and grazing organization. On this basis the 84 dispensaries and dips would require 84 Infirmiers. However spray races only deal with about 1,000 head so that it would be difficult to justify a full time trained man for each spray race. A look at the siting of dips on the map will show that many are in clusters or groups with a diameter varying from 10 km to 20 km (see Annex Table 11). Since an Infirmier could supervise more than one dispensary it should be possible to devise a less intensive form of staffing of dips and dispensaries than originally proposed. To start the project it is proposed that an Infirmier would supervise the dipping of 6,000 animals a week which would take 18 to 24 hours of his time leaving time for treatment and other jobs on farms; using this criteria only 61 Infirmiers are required. If dips were grouped and Infirmiers required to deal with more cattle it would be possible to reduce this number to 42. Determining the correct numbers of Infirmiers at dispensaries is not the only aspect needing attention. The work load of Infirmiers in sectors, zones and clinics has to be carefully examined as these represent about 40% of the Infirmiers.

56. Veterinary services are expensive. They must have a reasonable administrative structure since lives of animals are involved and mistakes result in serious farmer criticism. The proposed service is no exception and normal recurrent expenditure will rise from Z 215,000 to Z 378,000 in 6 years (excluding costs of inoculants and drugs). Much of the increase would meet short falls in financing the present services.

57. It is difficult to evaluate the cost of the services on a per stock owner or per animal basis because the number of farmers keeping all types of stock is not known. This form of comparison can be misleading since one of the objectives of the Project is to encourage farmers without animals to have them and to increase animal production generally. Although the Project does not provide funds specifically for poultry demonstration, funds could be used for this sector. There could be 30,000 farmers who own cattle, sheep, goats, pigs, donkeys, rabbits out of 175,000 farmer families so there is scope for improving this number. Using 30,000 stockowners as a basis, then by 1982 the service would cost Z 10.8 per stockowner family per year and Z 1.9 per farmer if the service were costed against all farm families in Ituri. The service is of course of value for the Ituri large farm sector and for Zaire as a whole. If cost per head of cattle is taken as a yardstick (remembering that goat, sheep and pig numbers exceed cattle by 40% and that poultry, mules, donkeys, and dogs also require attention), then the cost of the field service per head of cattle in 1982 is Z 1.1. These figures do not include the cost of training or facilities provided by the Nioka Research Station, and only use to try to develop a rationale for determining the future level of veterinary services. They illustrate the need for farmers to pay more for veterinary services, grazing improvements and other infrastructure requirements. The following table summarizes the staffing of the Project at completion, figures in brackets denote headquarters staff included in the totals:

Trained Personnel		Pre-development		Year 6	
Veterinarians		1	(1)	3	(1)
Animal Production Graduates		-	-	1	
Assistant Vets./An. Prod.		5	(1)	11	(4)
Infirmiers		57	(9)	101	(6)
Marketing/Abattoir Inspectors		7	(7)	7	(7)
Trained Staff		70		123	
Field Aide Infirmiers		119		102	
		189		225	
Costs					
Salaries, Allowances	Z(000)	181		231	
Other costs	Z(000)	34		147	
Total Costs		215		378	
No. Farmers	(000)	175		200	
No. Stock farmers	(000)	30		35	
No. Cattle	(000)	292		349	
No. Farmers per trained staff		2,500		1,640	
No. Stockowners per trained staff		430		280	
No. Cattle per trained staff		4,170		2,840	
Cost per livestock farmer (Z)		7.2		10.8	
Cost per head of cattle (Z)		0.7		1.1	

58. The Project would first review staff dispositions to improve efficiency and reduce overstaffing in certain areas. A veterinarian and 11 Infirmiers should be recruited in the first year from training schools. Headquarters and zone HQ's appear overmanned with Infirmiers and aides so that some would be transferred to the field. Initially diagnostic work would be concentrated at Nioka, where the laboratories are presently

running at 25% capacity. All activities on the virtually empty veterinary stations would be stopped. Although housing would still be used by field staff, all stock would be passed to ONDE who would undertake to return a similar number at a future date if required. Investment, personnel and operating costs are provided in Tables 12, 13 and 14. Details of the revolving fund are given in Table 10. Staff disposition and numbers represent the situation in 1975 but changes could occur before the Project starts.

Staff Training (Annex 4)

59. Training for existing personnel would be provided at the proposed center at Ngabu (Nioka). The Project would have a special Extension and Training Specialist in Bunia. In collaboration with other staff members he would examine needs in the field. He would work very closely with the Ngabu center. He would determine the role of existing Farmer Training Centers at Gopa and Totoba and assist in designing suitable short term courses for staff farmers, leaders involved in livestock inoovation and the livestock curriculum of the present long term courses held at these centers. He would liaise with staff from Pimbo and Loda training centers to help make their courses more relevant.

60. An important task would be to prepare a handbook of standard recommendations for use by all staff in the field. He would help design and introduce extension work programs and reporting methods for staff. He would prepare demonstration and lecture courses that staff can use at meetings with farmers in the field and propose how pilot or leader farmers can be identified and used in the project. Infirmiers should be encouraged to run one day courses on subjects of topical interest at their dispensaries and in the villages.

61. With the help of Infirmiers he would design radio programs for farmers to be broadcast from the Kisangani Broadcasting Station.

Implementation

62. The first two years of the Project would be mainly spent repairing and bringing into operation existing facilities, introducing more trained staff (Table 5), training staff (Annex 4) and developing the organization of the animal health program. In these two years the following would be undertaken: headquarters offices would be expanded and stores built in zone and sector headquarters; in the field 6 new dips would be constructed making a total of 42 in operation; 2 spray races; 12 new dispensaries and 10 junior staff houses would also be built to match the number of dips. Proposed sites for new dips and dispensaries would be reviewed. Expatriates (7) and new senior Zairian staff would be housed in existing houses (for which some funds for renovation where necessary have been included). Where-

ever possible, farmers would be encouraged to help by providing labor for cleaning furrows, cutting fence posts for cattle yards, digging foundations etc. If the program is succeeding at the end of year two then 30 new dips 10 spray races, 33 dispensaries and 21 houses would be added to complete the program in years 3 and 4. Some dips will have water supplied by water pumps while others will depend on furrows dug by self help groups. The dips and dispensaries would be sited so that each would handle about 4,000 cattle (1,500 to 6,000) while spray races would be tried for smaller numbers. To gain experience of this type of operation, the first two spray races would be included in the second year of the Project - to see whether spray races can be supervised and serviced adequately. Spray race running costs are estimated at Z 500 annually but careful costing is necessary since costs could be higher if much maintenance becomes necessary. At an annual cost of Z 500, costs per animal of spray race operation would be Z 0.50 per head if 1,000 cattle used the spray race.

63. Contract building costs have increased substantially in Ituri and the Project will seek reductions through changing design, building methods, and materials; the Project may also set up its own building team. In September 1975 new dip building costs were quoted at Z 12,000 yet from quantity estimates given in Table 15 it appeared that these could be halved to Z 6,000. Following devaluation this estimate has been increased to Z 9,500. Because of the size of the building program and the importance it will assume in future projects a practical building specialist will be engaged for the first two years of the Project.

64. The Project will have its own workshops for normal maintenance and repair work; vehicles on ONDE ranches and the abattoir would also use these facilities. More difficult repairs involving special equipment would be done in the sub-regional workshop. An expatriate mechanical engineer will be employed at the beginning of the Project to establish the workshop.

Evaluation and Further Studies

65. The Project would establish a monitoring system to evaluate progress. Consultants may be employed from time to time to examine particular aspects. $380,000 has been included to undertake further studies which might include (Annex 10):

(a) investigations of individual problems arising during the Project e.g. pasture; tsetse; methods to improve small stock husbandry;

(b) investigations to find alternative employment opportunities for the declining labor force at Kilomines (probably combined with (c);

(c) a comprehensive agricultural study of the area after 2 to 2 1/2 years including specialists in agriculture, fisheries, livestock, training,

marketing, land tenure, economics, roads and perhaps sociology with the objective of producing a future development plan; and

(d) in year 4 an evaluation team consisting of a livestock specialist and economist would evaluate the Project.

Herd Projections and Benefits

66. An Ituri herd projection (Table 16) has been developed on the basis that by year 5:

(a) 80% of the herd is dipped;

(b) there is an annual Anthrax inoculation program;

(c) about 30 to 60,000 animals receive some veterinary treatment annually and that;

(d) some elementary grazing management is introduced on some of the land.

Under these assumptions calf mortality of dipped animals would drop from 30 to 15% and mortality in other age groups will drop proportionately; this is less than could be achieved under conditions of good management. If undipped animals are taken into account then for the Ituri herd as a whole, calf mortality would drop to 18%, calving rate increase by 5% and average weight of animals would rise by 6 kg over 10 years. The growth rate of the herd would double and in 10 years the herd would have increased 40% in numbers and overall mortality dropped from 12% to 8% 1/. Offtake of cattle would have increased from 10% to 14% 2/. An increased percentage of young male stock will be taken off for sale to fattening ranches while there will be a percentage reduction of sales of animals over 5 years. However the relative percentage of exploitation of the five age groups has been roughly maintained on the grounds that pressure for cash, local customs, type of animal killed and the slow pace of change in rural communities will only slightly affect the composition of the herd. Male offtake will therefore be as follows:

1/ Deaths as percentage of herd at beginning of year plus births.

2/ Offtake as percentage of herd at end of year.

Male Offtake (see Table 16)

		Year 0		Year 13	
Bulls/steers	9-24 months	2,336	11.2%	7,634	19.8%
" "	24-36 months	9,052	43.2%	15,700	40.8%
" "	36-48 months	3,507	16.7%	6,261	16.3%
" "	48-60 months	1,460	6.9%	2,727	7.1%
" "	over 60 months	4,672	22.0%	6,159	16.0%
		21,027	100.0%	38,481	100.0%

67. The carrying capacity of Ituri is difficult to estimate. Cattle are unevenly distributed at present. Many existing grazing areas could take more stock and if the animals were evenly distributed over Ituri and grazing improvements made, carrying capacity could be greatly increased. It has therefore been assumed that the present herd could grow by at least 40% providing there was some distribution between areas and improved grazing practices were introduced in areas presently showing signs of grazing pressure. Serious localized overgrazing is more likely to occur after the development period of the project. To evaluate the benefits of the project the mission levelled off the growth of the female herd by year 10, and thereafter kept it constant as further growth would be dependent on more infrastracture development. Therefore from year 10 onwards the culling rate of cows and heifers over 3 years has been raised from 9 to 12% to stop further herd growth. Experience with traditional herds elsewhere suggests that stock-owners will want to increase their herd with or without improvement. If the capacity of the grazing has been reached at that time the herd numbers would rise and fall about the mean, depending on weather conditions, slowly causing degeneration of the grazing. If development continues to increase the grazing capacity then females could be used for increasing the breeding herd. At this point however it is not productive to speculate what will happen too far into the future until the Project starts and its acceptance can be assessed.

68. Using these assumptions it is therefore estimated that under the Project the herd would increase from 292,000 head to 418,000 in 13 years; without the Project it would increase to 350,000 head in 13 years and 386,000 head by year 20. Liveweight offtake would increase from 7,100 tons to 15,100 tons in 13 years of which 6,600 tons could be ascribed to the Project. In the same period milk available for home consumption might rise from 5.7 million liters to 9.4 million liters of which 2.6 million would be due to the Project (Table 17).

69. Individual farmers herds vary considerably in number, age, and sex. There is no typical herd size. On a statistical basis it is estimated that the Irumu farmer has an average of 29 head and farmers in other areas

about 12 or 13 head. Using assumptions adopted in the main herd and applying them to a herd of 12 cattle (the average number in Aru) it is possible to show that if a farmer dipped his cattle and applied medicines and inoculants to 10% to 20% of his herd his net cash income from cattle sales could rise from Z 97 per year to Z 222 in 10 years, and his herd capital value would increase over 50%; without the Project it might rise to Z 129 (Table 4). In fact if he was in a well controlled collectivity he would do somewhat better since his calf mortality might be nearer 12 to 15% rather than the 18% calf mortality assumed for the whole herd. He could also expect an increase in milk production from the extra cows of about 290 liters per annum which has a market value of 4 to 6K per liter in local markets.

ANNEX /ANNEXE 3
Table /Tableau 1

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

AVERAGE ANNUAL RAINFALL RECORDS

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

PLUVIOMETRIE
MOYENNE ANNUELLE

Station/ Postes	Number of years/ Nombre d'années	Period/ Période	Average/ Moyenne	Average No of Days/ Moyenne de jours	Annual extremes/ Cotes extremes annuelles	
					Min.	Max.
			mms		mms	mms
Adia	12	34/45	1422,3	125	1200,1	1758,8
Bunia	8	37/44	1259,2	168	1118,1	1358,8
Blukwa	10	34/43	1149,1	132	1289,	1663,6
Dekelele	9	37/45	1393,3	159	1160	1671,4
Fataki	12	34/45	1198,7	111	1002,6	1395,9
Gina	7	36/42	1418,8	100	1133	1584
Gety	14	32/45	1549	122	1279,6	1918
Irumu	11	34/45	1275	101	936,25	1591,4
Kasenyi	11	34/45	994	87	848,2	1119,9
Kerekere	8	38/45	1383,5	116	1128,8	1803
Kilomines	5	39/45	1640	177	1227,2	2322,46
Rana	7	33	1327	110	1010,5	1578,3
	-	40/45	-	-	-	-
Kwandruma	13	33/45	1290,3	113	1026,7	1434,7
Mahagi port	13	12/17	-	-	-	-
	-	37/48	1112	87	700,2	1740,9
Mongbwalu	15	29/43	1817	-	1350	2350
Nioka	12	34/45	1231,5	150	968	1668,29
Nyarembe	8	36/41	-	-	-	-
		45	1244	106	1107,7	1403,7

Source: Preparation Report

Source: Rapport de Préparation

November 21, 1975

le 21 novembre 1975

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

NIOKA - CLIMATIC DATA

PROJECT DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

NIOKA - DONNEES CLIMATIQUES

Months/ Mois	Rainfall/ Precipitations (20 years)/ (20 ans)	Maximum temperature/ (t^{o}max.) (10 years)/ (10 ans)	Minimum temperature/ (t^{o} min.) (10 years)/ (10 ans)	Daily mean Temperature/ (t^{o} moy. journalière) (10 years)/ (10 ans)	Effective insolation/ (Insolation effective) (6 years)/ (6 ans)	Insolation in % of possible insolation/ (Insolation en % de l'insolation possible) (6 years)/ (6 ans)	Relative humidity at 12:00 hrs/ Humidité relative a 12.00 hrs (9 years)/ (9 ans)	Daily relative humidity/ Humidite relative Journalière) (9 years)/ (9 ans)	Evaporation Piche under cover/ Evaporation (8 years)/ (8 ans)
	mms	^{o}C	^{o}C	^{o}C	hours	%	%	%	cc
January/ janvier	30.1	27.0	12.2	19.6	237.0	63.9	41.3	55.0	118.3
February/ février	48.3	27.5	12.7	20.1	203.0	60.0	40 6	54.6	165.7
March/ mars	105 4	27 2	13.7	20 5	193.5	51 5	47 1	61.6	155.1
April/ avril	143.3	25.9	13.9	19.9	185 6	50.8	56 3	69 3	105.4
May/ mai	123.2	25.4	13.6	19 5	185.0	48 8	60 8	72.6	92 4
June/ juin	108.7	24.3	12.4	18.4	173.9	47 4	61.0	72.9	75.4
July/ juillet	118.8	23.0	12.1	17 6	132 4	34.9	64 4	75 9	71.9
August/ août	187.5	23.2	12.5	17.9	124.2	32.8	66.6	78 0	57 5
September/ septembre	199.7	24.2	12.4	18.3	143.3	39 3	64 7	77 2	63 3
October/ octobre	133 7	24.6	13 0	18.9	165.9	44.3	61.4	84.3	79.0
November/ novembre	92.2	25 2	13.1	19.2	222.9	61.7	52.2	66 0	117 2
December/ décembre	53.5	25 6	12.7	19.1	230.8	62 0	47.6	61 8	141.0
Annual Average Moyenne annuelle	1,344.4	25.3	12.9	19.1	2,196.0	49.7	55.3	68.4	1,322.1

Source: "Management and Use of Grasslands" SA RISOPOULOS Pasture and Fodder Crop Studies, FAO Rome 1966.
Aménagement et Utilisation des pâturages, SA RISOPOULOS - Etudes de Pâtures et des Plantes Fourragères FAO Rome 1966.

November 21, 1975

le 21 novembre 1975

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Area, Stocking Rate, Stock-ownership and Cropping Area 1974

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Zones: Superficie et Distribution du Bétail, de la Propriété du Bétail et Distribution des Cultures - 1974

A. Ituri Stock Numbers and Area by Zones

A. Distribution du Bétail et de la Superficie par Zones en Ituri

	ARU	MAHAGI	DJUGU	IRUMU/GETY	TOTAL	
Total Area Ha	6,874	5,164	9,223	7,977	29,236	Superficie totale (en ha)
Total Cattle Nos (000)	114	43	32	108	297	Nombre total de bovins (en milliers)
Total Goats Nos (000)	154	52	55	45	306	Nombre total de chèvres (en milliers)
Total Sheep Nos (000)	49	8	12	7	76	Nombre total de moutons (en milliers)
Total Pigs Nos (000)	-	8	19	11	38	Nombre total de porcs (en milliers)

B. Stock Ownership 1974 — Nos. (000)

B. Propriété du Bétail en 1974 - Nombre de têtes en milliers

	Cattle/ Bovins	Goats/ Chèvres	Sheep/ Moutons	Pigs/ Porcs	
Government Farms	0.2	-	-	0.1	Exploitations gouvernementales
Parastatal Organisations	6.2	-	-	-	Organisations semi-publiques
Large Farms	2.5	-	-	-	Grandes Exploitations
Mission Farms	1.1	1.0	2.0	0.7	Exploitations des missions
Traditional Livestock	287.0	305.0	74.0	37.0	Elevage traditionnel
Annex					Annexe
	297.0	306.0	76.0	37.8	

C. Traditional Farming Areas

C. Régions agricoles traditionnelles

Stock Population	ARU	MAHAGI	DJUGU	IRUMU/GETY	TOTAL	Nombre de Bétail
Cattle Nos	112	39	30	106	287	Nombre de bovins
Excluding Calves Nos	90	31	24	85	230	(Le nombre des veaux étant exclu)
Goats Nos	154	52	55	44	305	Nombre de chèvres
Sheep Nos	48	7	12	7	74	Nombre de moutons
Pigs Nos	-	8	19	10	37	Nombre de porcs
Animal Units Cattle, Goats, Sheep	130	43	37	95	305	Unités de bétail: bovins - chèvres - moutons
Stocking Rate 1/						Capacité de Charge 1/
ha/A.U. based on Total Area	5.3	12.0	24.9	8.4	9.6	Ha/unité de bétail, basé sur la superficie totale
Estimate of Area occupied by Traditional farmers km^2	6,924	4,748	7,701	7,391	26,764	Estimation de la superficie occupée par des exploitants traditionnels km^2
Area estimated unusable or unavailable km^2	975	1,118	721	447	3,261	Superficie estimée inutilisable ou non-disponible km^2
Estimated area cultivated	709	784	883	336	2,712	Estimation des superficies cultivées
Grazing available km^2	5,240	2,846	6,097	6,608	20,790	Pâturages disponibles en km^2
Ha/A.U. of grazing 1/	4.0	6.6	16.4	6.9	6.8	Ha/unité de bétail: Pâturages
Population						Population
Population 1973 (000)	192	236	358	186	972	Population 1973 (milliers)
Est.No crop farmers	33.7	41.4	62.8	32.6	170.5	Estimation du nombre des cultivateurs
Est. No cattle owners	8.9	3.0	3.0	3.7	18.6	Estimation du nombre de propriétaires de bétail
No. Cattle/Livestock owner 2/	12.6	13.0	10.0	29.0	15.6	Nombre de bovins/propriétaire de bétail 2/
Ha. Cultivation per Family	2.1	1.9	1.4	1.1	1.6	Hectares cultivés par famille

D. Major Crops (Ha'000)

D. Principales cultures (en milliers de hectares)

Haricots	24.4	22.9	29.5	7.8	84.6	Haricots
Maize	16.7	15.9	26.1	9.6	68.3	Maïs
Cassava	16.2	21.1	12.6	8.3	58.1	Cassava
Sweet Potatoe	0.7	8.8	13.9	3.9	27.3	Patate douce
Groundnuts	11.1	3.0	.7	2.7	17.5	Arachides
Arabica Coffee	0.3	3.8	2.9	-	7.0	Café Arabica
Cotton	-	2.6	-	-	2.6	Coton
Rice	0.5	0.4	0.6	0.8	2.3	Riz
Robusta Coffee	1.0	0.1	0.2	0.5	1.8	Café Robusta
Legume	-	-	1.5	-	1.5	Légumineuses
Tea/Quinine	70.9	78.4	88.3	33.6	271.2	Thé/Quinine

1/ Stocking rates must be taken cautiously as the information on areas available are conflicting. Excludes calves, 1 sheep and goat equivalent 1 stock unit.

2/ About 5,000 do not cultivate.

Source: Project application, veterinary and agricultural report of 1974 for Ituri.

December 2, 1975

1/ Les capacités de charge doivent être considérées avec prudence car les renseignements obtenus sur les superficies disponibles sont contradictoires; veaux non-compris, 1 mouton et 1 chèvre = 1 unité de bétail

2/ Environ 5.000 ne font pas de culture.

Source: Application du projet, rapport vetérinaire et agricole de 1974 pour l'Ituri.

le 2 décembre 1975

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

ESTIMATE OF INCOME FROM TRADITIONAL CATTLE HERD IN THE TRADITIONAL SECTOR

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

ESTIMATION DU REVENU PROVENANT DE L'ELEVAGE DANS LE SECTEUR TRADITIONNEL

Year/Année	No. of Cattle/ Nombre de Bétail	Offtake/ Exploitation	No. of Cattle Sold/ Nombre de Bétail Vendu	Average Price/Kg LW/ Prix Moyen/ kg de poids vif	Value of Production 1/ Valeur de Production 1/	Value of Consumption Out of Market 115 Kg LW 2/ Valeur de Consommation Hors du Marché 115 kg de poids vif 2/	Value of Cash Sales/ Valeur de Ventes au Comptant	Incremental Cash Surplus/ Excédent Différentiel de Trésorerie	Estimated Cost of Dipping Drugs/Mineral 3/ Estimation des Frais d'Immersion Médicaments/ Minéraux 3/	Incremental Cash Surplus/Deficit/ Excédent/Déficit Différentiel de Trésorerie
		%		Makuta	Z	Z	Z	Z	Z	Z
0	12	10.7	1.28	56	162.0	64.80	97.2	-	-	- -
1	12.2	10.8	1.31	60	177.6	69.0	108.6	11.4	13.4 (24.4)	(2.00)
2	12.6	10.8	1.36	60	184.4	69.0	115.4	18.2	13.8 (25.2)	4.4
3	13.1	11.1	1.45	60	196.6	69.0	127.6	30.4	14.4 (26.2)	16.0
4	13.7	11.2	1.53	60	207.5	69.0	138.5	41.2	27.4	13.8
5	14.3	11.7	1.67	60	226.5	69.0	157.5	60.3	28.6	31.7
6	15.1	11.9	1.79	60	242.7	69.0	173.7	76.5	30.2	46.3
7	15.7	12.7	1.99	59 4/	265.2	67.9	197.3	100.1	31.4	68.7
8	16.1	13.6	2.19	59	291.9	67.9	224.0	126.8	32.2	94.6
9	16.6	13.8	2.29	59	305.2	67.9	237.3	140.1	33.2	106.9
10	17.0	14.2	2.41	59	321.3	67.9	253.4	156.2	34.0	122.2
Without Project - Year 10/ Sans Projet - Annee 10	13.8	10.7	1.48	59	197.3	67.9	129.4	32.2	-	32.2

1/ Estimated average weight of all animals consumed and sold: 226 kg lw.

2/ At present estimated 40% not passing through markets assumed to be eaten or sold to neighbors i.e. 115 kg. Prices before development second category 62 k/kg and third category 54 k/kg and first year 80k& 54krespectively.

3/ Dipping 1.50 k per animal and drugs, minerals and salt 50 k per animal; Total 2.00 k per animal In first 3 years dips subsidized at 60 k but drugs fully charged making a total cost of 1.10 k. Figures in brackets in firstthree years give cost without subsidy.

4/ Price declines because of selling younger animals at the lower grade.

1/ Le poids moyen de tout le bétail consommé et vendu est estimé à 226 kg de poids vif.

2/ A présent on suppose que le 40% ne passant pas par les marchés est consommé par et vendu aux voisins, soit 115 kg. Avant le développement, les prix étaient de 62 makutas le kg pour la première catégorie, 54 makutas le kg pour la deuxième catégorie et de 80 et 54 makutas respectivement pour la première année.

3/ Immersion, 1.50 makutas par tête, et médicaments, minéraux et sels 50 makutas par tête; total 2,00 makutas par tête. Au cours des 3 premières années les immersions seraient subventionnées à raison de 60 makutas mais les médicaments seraient entièrement payés au prix coûtant de de 1,10 makutas. Les chiffres entre parenthèses dans les trois premières années donnent le coût sans subvention.

4/ La baisse du prix est due aux ventes de bétail plus jeune et de qualité inférieure.

ANNEX/ANNEXE 3
Table/Tableau 4

July 20, 1976

Le 20 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

New Local Technical Staff Requirement, Building Program and Number of Stock being dipped and receiving Medicines and Inoculants

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Nouveau Besoin en Techniciens Locaux, Programme de Construction et Nombre d'Animaux qui devront suivre le traitement antiparasitaire

	Before Development/ Avant Developpement	Years/Années — New Staff/Units Required / Nouveau personnel/Unités requises 1	2	3	4	5	No. of Staff Req'd./ Besoin en Personnel	Total at Full Development/ Total à Plein Rendement						
Technical Staff (See also Annexes)														
Veterinarians counterparts	1	-	-	1	-	-	1	2						
Field/North	-	1	-	-	-	-	1	1						
Animal Production graduate counterpart	-	-	-	-	1	-	1	1						
Assistant Veterinarian/Animal Production HQ or Equivalent Grade Field/Zone	4	2	1	-	-	-	3	7						
Abattoir	2	-	-	-	-	-	-	2						
Clinic	-	-	-	-	-	1	1	1						
Stores	1	-	-	-	-	-	-	1						
Infirmiers Markets/Abattoirs	5	-	-	-	-	-	-	5	Reduce by 1 or 2 in first two years					
Pharmacy/Clinic	9	-	-	-	-	-	-	5	Reduce to 6 in second year and 5 in fifth					
Field (Table 6) 1/	48	11	12	14	10	-	47	95						
Vet. Station	2	-	-	-	-	-	-	0						
Total trained staff	72	-	-	-	-	-	-	120						
Aid Infermiers - Untrained	128	-	-	-	-	-	-	105	Reduction over five years					
	200	-	-	-	-	-	-	225						
CONSTRUCTION									CONSTRUCTION BY ZONES					
Dips:									IRUMU	GETY	DJUGU	MAHAGI	ARU	
Existing (Minor repairs)	27	27	-	-	-	-	-	27	4	8	2	6	7	
Require major repairs	9	-	9	-	-	-	-	9	2	1	0	4	2	
New	-	-	6	15	15	-	36	36	6	2	8	3	17	
Total Dips	36	27	15	15	15	-	-	72	12	11	10	13	26	
Spray Races		-	2	4	6	-	10	12	1	2	6	3	0	
Total dipping facilities in Operation	-	27	44	63	84	84	84	84	-	-	-	-	-	
Est. of Cattle being dipped weekly at year end (000)	-	90	138	191	250	280	-	280	-	-	-	-	-	
Est. total cattle population (000)	-	298	307	319	333	350	-	350	-	-	-	-	-	
Dispensaries														
Existing (repairs)	39	25	7	7	-	-	-	39	7	10	7	7	8	
New	-	2	10	14	19	-	45	45	6	3	9	9	18	
Total Dispensaries		27	17	21	19			84	13	13	16	16	26	
Total Dispensaries in Grades		27	44	65	84	84	-	84	-	-	-	-	-	
Stores - Zones - New	-	5	-	-	-	-	5	5	1	1	1	1	1	
- Sector - New	-	-	10	11	-	-	21	21	4	3	4	5	5	
HQ Offices - Workshop	-	1	-	-	-	-	1	1	-	-	-	-	-	
Junior Staff Houses	-	-	-	-	-	-	-	-	-	-	-	-	-	
Existing (repairs)	30	10	20	-	-	-	-	30	7	8	2	7	6	
New	-	-	10	20	20	-	50	50	6	4	11	9	20	
Total Junior Staff Houses								80	13	12	13	16	26	
Est. Number of Stock to Receive Inoculants/Medicines														
Cattle - Anthrax inoculation (000)	14	100	200	300	320	330	330	-	-	-	-	-	-	
- Typanocidal drugs (000)	1	2	5	10	10	10	10	-	-	-	-	-	-	
- Helminthics (000)	1	8	14	20	26	34	34	-	-	-	-	-	-	
- Other Medicines (000)	1	3	5	9	13	17	17	-	-	-	-	-	-	
- Salt/Minerals (000)	-	2	5	8	12	17	17	-	-	-	-	-	-	
- Goats, Sheep, Pigs (000)	-	2	4	8	16	32	32	-	-	-	-	-	-	

Personnel téchnique (voir aussi les annexes)

Vétérinaires (personnel national)
sur le terrain/Nord
Personnel de contrepartie chargé de la production animale
Aide vétérinaire/production animale, siège
ou grade équivalent - sur le terrain/zone
abattoir
clinique
magasins
Infirmiers: marchés/abattoirs
pharmacie/clinique
sur le terrain (Annexe 6) 1/
centre vétérinaire
Total du personnel formé
Aides - infirmiers: non formés

CONSTRUCTION

Bassins d'immersion:
- en place (réparations mineures)
- nécessitent d'importantes réparations
- nouveaux

Total
Couloirs d'asversion
Nombre total de bassins d'immersion en fonction
Estimation à la fin de l'année du nombre de bétail (en milliers) immersé chaque semaine
Estimation du nombre des bovins (en milliers)
Dispensaires
- en place (réparations)
- nouveaux

Nombre total de dispensaires
Nombre total de dispensaires selon les grades
Magasins: zones - nouveaux
secteur - nouveaux
Bureaux du siège - atelier
Logements pour le personnel subalterne
- en place (réparations)
- nouveaux

Nombre total de logements pour le personnel subalterne

Estimation du nombre de têtes de bétail devant recevoir médicaments et vaccins
Bovins - inoculation contre le charbon (milliers)
- medicaments contre les inflammations du tympan et de la conque
- helminthes
- autres médicaments
- sels minéraux
- chèvres, moutons, porcs

1/ Redistribution of existing infirmiers will fill early vacancies combined with some retraining of aids and new recruitment.

1/ La redistribution des infirmiers en place, de même la formation d'aides et le recrutement d'un nouveau personnel permettront de remplir les premiers postes vacants.

December 2, 1975

le 2 décembre 1976

ANNEX/ANNEXE 3
Table/Tableau 5

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Animal Health and Production Services

Disposition of Staff in Zones

PROJET DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Services de Santé et de Production Animales

Disposition du Personnel Dans les Zones

	Grade	Pre-Development/ Avant le Developpement	Year/Année 1	2	3	4	5	
Bunia Dispensary, Township and Kisanyi Sector								Dispensaire de Bunia, Secteur de Township et de Kisenyi
Assistant Veterinarian	Asst. Vet.	(1)	1	1	1	1	1	Aide vétérinaire
Infirmier	Inf.	(2)	1	1	1	1	1	Infirmier
Assistant Infirmier	Aide	(5)	5	4	3	3	3	Aide-Infirmier
Clerk		(1)						Employé
Zone Irumu								Zone d'Irumu
Zone Chief	Asst. Vet.	-	1	1	1	1	1	Chef de Zone
	Inf.	(1)						
Zone Infirmier (Assistant)	Inf.	(1)	1	1	1	1	1	Infirmier de Zone (Aide)
Sector Chiefs	Inf.	(4)	4	4	4	4	4	Chefs de Secteur
Dispensary/Dip Infirmiers	Inf.	(2)	4	6	10	10	10	Dispensaire/Infirmiers
Dispensary/Assistant Infirmiers	Aide	(20)	19	18	17	16	16	Dispensaire/Aides Infirmiers
Storeman		(1)	1	1	1	1	1	Magasinier
Clerk		(1)	1	1	1	1	1	Employé
Office Messenger		(1)	1	1	1	1	1	Messager
Watchman		(1)	1	1	1	1	1	Gardien
Laborers		(2)	2	1	1	1	1	Ouvriers
Zone Gety								Zone de Gety
Zone Chief	Asst. Vet.	(1)	1	1	1	1	1	Chef de Zone
Zone Infirmier (Assistant)	Inf.	(1)	1	1	1	1	1	Infirmier de Zone (Aide)
Sector Chiefs	Inf.	(3)	3	3	3	3	3	Chefs de Secteur
Dispensary/Dip Infirmiers	Inf.	(1)	6	8	9	9	9	Dispensaire/Infirmiers
Dispensary/Assistant Infirmiers	Aide	(22)	20	18	16	13	13	Dispensaire/Aides-Infirmiers
Storeman		-	1	1	1	1	1	Magasinier
Clerks		(1)	1	1	1	1	1	Employés
Office Messenger		(1)	1	1	1	1	1	Messager
Watchman		(1)	1	1	1	1	1	Gardien
Zone Djugu								Zone de Djugu
Zone Chief	Asst. Vet.	-	1	1	1	1	1	Chef de Zone
	Inf.	(1)						
Zone Infirmier (Assistant)	Inf.	(1)	1	1	1	1	1	Infirmier de Zone (Aide)
Clinic Pharmacy Infirmiers	Inf.	(1)	1	1	1	1	1	Infirmiers à la Pharmacie de la Clinique
Clinic Assistant	A I	(2)	2	2	2	2	2	Assistant à la Clinique
Sector Chiefs	Inf.	(5)	5	5	5	5	5	Chefs de Secteur
Dispensary/Dip Infirmiers	Inf.	(3)	3	3	6	8	8	Dispensaire/Infirmiers
Dispensary Assistant Infirmiers	Aide	(18)	18	19	20	20	20	Dispensaire/Aides-Infirmiers
Clerks		(1)	1	1	1	1	1	Employés
Storeman		-	1	1	1	1	1	Magasinier
Office Messenger								Messager
Watchman		(1)	1	1	1	1	1	Gardien
Zone NIOKA/MAHAGI								Zone de Nioka/Mahagi
Zone Chief	Asst. Vet.	(1)	1	1	1	1	1	Chef de Zone
Technician (Vet. Asst.)	Asst. Vet.	(1)	1	1	1	1	1	Technicien (Aide Vétérinaire)
Zone Infirmiers (Assistant)	Inf.	(3)	1	1	1	1	1	Infirmiers de Zone (Aides)
Clinic/Pharmacy Infirmiers	Inf.	-	1	1	1	1	1	Infirmiers Pharmacie/Clinique
Clinic Assistants	Aide	(3)	3	2	2	2	2	Aides en Clinique
Sector Chiefs	Inf.	(6)	6	6	6	6	6	Chefs de Secteur
Dispensary/Dip Infirmiers	Inf.	(2)	4	7	8	8	8	Dispensaire/Infirmiers
Assistant Infirmiers	Aide	(14)	14	14	14	16	14	Aides-Infirmiers
Clerks		(1)	1	1	1	1	1	Employés
Storeman		(1)	1	1	1	1	1	Magasinier
Office Messenger		(1)	1	1	1	1	1	Messager
Watchman		(1)	1	1	1	1	1	Gardien
Zone ARU								Zone d'Aru
Veterinarian (North)	Vet.	-	1	1	1	1	1	Vétérinaire (Nord)
Chief de Zone	Asst. Vet.	-	1	1	1	1	1	Chef de Zone
	Inf.	(1)						
Zone Infirmier	Inf.	-	1	1	1	1	1	Infirmier de Zone
Clinic/ Pharmacy Infirmiers	Inf.	(4)	3	3	3	3	3	Infirmiers Pharmacie/Clinique
Clinic Pharmacy Assistants	Aide	(5)	4	4	4	4	4	Aides Pharmacie/Clinique
Sector Chiefs	Inf.	(6)	6	6	6	6	6	Chefs de Secteurs
Dispensary/Dip Infirmiers	Inf.	(-)	7	11	17	25	25	Dispensaire/Infirmers
Assistants	Aide	(30)	28	27	26	26	26	Aides
Clerks		(1)	1	1	1	1	1	Employés
Storeman		(1)	1	1	1	1	1	Magasinier
Office Messenger		(-)	1	1	1	1	1	Messager
Mason/Carpenter		(1)	1	1	1	1	1	Maçon/Menuiser
Watchman		(1)	1	1	1	1	1	Gardien
Laborers		(1)	1	1	1	1	1	Ouvriers

ANNEX/ANNEXE 3
Table/Tableau 7

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Growth of Cattle, Goats, Sheep Population in the Traditional Areas

Croissance du Cheptel Dans Les Régions Traditionnelles (Bovins-Chèvres-Moutons)

A. Cattle/Bovins

Year/ Année	Numbers (000)/ Nombre de Têtes (en milliers)	% Charges in Herd Numbers/ Frais en % Par Rapport au Nombre de têtes
1955	288	
1956	293	≠ 1.6
1957	297	≠ 1.4
1958	306	≠ 3.0
1959	309	≠ 1.1
1960		-
1961		-
1962	308	-
1963	291	- 2.2
1964	215	- 25.7
1965	235	≠ 8.9
1966	254	≠ 7.8
1967	257	≠ 1.6
1968	260	≠ 1.3
1969	266	≠ 2.2
1970	270	≠ 1.6
1971	276	≠ 2.0
1972	280	≠ 1.5
1973	284	≠ 1.4
1974	287 (Est.)	≠ 1.4
1975	292 (Est.)	≠ 11.4

B. Goats, Sheep, Pigs ('000)/Chévres-Moutons-Porcs (en milliers)

Year/ Année	Goats/ Chévres	Sheep/ Moutons	Pigs/ Porcs
1971	263	75	24
1972	290	75	19
1973	238	56	23
1974	308	82	38

December 2, 1975

Le 2 décembre 1975

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Ituri Cattle and Population Density by Collectivities 1974

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Densité du Cheptel et de la Population en Ituri par collectivité en 1974

		Population	Area/ Superficie km²	Density/ Densité inh/km²	No. of Cattle/ Nombre de Bovins	Cattle Density/ km² Densité du Cheptel Bunia/km² 1/
ARU	Zaki	70,023	1,108	69	31,009	30
	Kaliko	27,047	1,455	19	8,290	6
	Kakwa	27,246	1,099	25	12,400	12
	Nyo	8,884	232	38	6,585	28
	Ofso	7,955	130	61	5,984	46
	Lu	27,942	579	47	27,129	46
	Aluru	20,133	642	31	20,048	31
	Ndo	12,391	1,769	7	66	-
	Sub-total/total partiel	201,021	6,924	29	111,511	16
MAHAGI	Anghal	84,867	858	99	8,289	16
	Djuko/Pandoro	114,330	1,360	84	12,952	10
	War/Palara	34,891	508	69	6,773	13
	Mokambo) Wagongo)	38,826	347	119	1,282	4
	Alw-Djuganda	19,379	960	20	9,750	10
	Walendu-Watsi	12,612	715	18	280	1
	Sub-total /total partiel	304,905	4,748	64	39,326	8
DJUGU	Waldndu Djabi	59,291	989	60	2,298	2
	Walendu Ditsi	83,295	1,398	60	6,799	5
	Walendu - Tatsi	38,611	586	66	6,003	10
	Baniari	31,535	2,052	15	74	-
	Ndo-Okebo	10,504	194	54	248	1
	Mambisa	15,765	256	44	174	1
	Mahendi	5,191	1,226	4	10	-
	Bahema-Nord	86,969)			6,645	
	Bahema - Badjere	24,626)	900 Est		1,743	
	Bahema- Banywagi	30,787)			5,777	
	Sub-total/ Sous total	386,574	7,701		29,767	4
IRUMU	Babemo - Sud	24,913	623	40	10,047	16
	Walendu - Bindi	47,104	1,050	45	31,679	30
	(Baboa) Bahema Bake	23,378	199	117	6,621	33
	Basiri	14,328	630	23	7,349	12
	Mobalu	17,132	404	42	12,905	32
	Andisoma	17,286	224	77	3,487	17
	Bahema d'Kumu	12,534	n.a	n.a	n.a	n.a
	Babelele	12,203	363	37	9,464	26
	(Walese)Walendu - Vonkutu	16,016	3,077	5	1,614	1
	Bahema- Boga	5,917	369	16	6,255	17
	Bahema Mitego	2,997	277	11	1,124	4
	Bahema Tschabi	3,991	155	26	14,584	94
	Sub-total /total partiel	197,799	7,391		105,130	14
	(w/o Bunia)					
	Total/ total	1,087,299	26,764	40	285,734	11 1/

1/ See also Table 3.

Source: Preparation Report

1/ Voir également Tableau 3.

Source: Rapport de préparation

December 1, 1975

le 1er décembre 1975

ANNEX/ANNEXE 3
Table/Tableau 9

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Animal Health and Production Services

Services de Production et de Santé Animales

Distribution of Dips, Spray Races, Dispensaries, Stores and Dispensary Housing

Distribution des Bassins d'Immersion, des Couloirs d'Aspersion, des Dispensaires, des Magasins et Logements du Service Vétérinaire

Zone/ Zone	Sector/ Secteur	Dispensary/ Dispensaire	Dipping Tank/ Bassin d'Immersion	Spray Race/ Couloir d'Aspersion	Dispensary/ Dispensaire	House/ Logement	Store/ Magasin	No. of Cattle Served By Dispensary/ Nombre de Bovins Traités Par le Dispensaire
ARU								
	ARU						1 (c)	
							1 (c)	
		Opima	1 (r)		1	1		4,800
		Otse	1 (c)		1 (c)	1 (c)		4,050
		Edyofe	1 (c)		1 (c)	1 (c)		3,000
	N'DERI						1 (c)	
		N'Deri	1		1	1		5,700
		Anyara	1		1	1		6,020
		Atsinia	1		1	1 (c)		5,100
		Oria	1		1	1		3,900
		Adja	1 (c)		1 (c)	1 (c)		4,200
		Robu Z.	1 (c)		1 (c)	1 (c)		3,500
	YUKU						1 (c)	
		Aranga	1 (r)		1 (c)	1 (c)		4,900
		Dibwa	1		1	1		4,200
		Binga	1 (c)		1 (c)	1 (c)		4,000
		Ambudio						
		Adjoigny	1 (c)		1 (c)	1 (c)		3,700
		Ameri	1 (c)		1 (c)	1 (c)		3,900
		Essebi	1 (c)		1 (c)	1 (c)		5,200
		Adravu	1 (c)		1 (c)	1 (c)		3,350
	MADO				1		1 (c)	
		Mado	1		1 (c)	1 (c)		6,000
		Oli	1 (c)		1 (c)	1 (c)		3,100
		Robu K.	1 (c)		1 (c)	1 (c)		2,850
		Kumuru	1 (c)		1 (c)	1 (c)		6,200
		Rumu	1 (c)		1 (c)	1 (c)		5,500
	ADRANGA						1 (c)	
		Terecka	1		1	1		6,200
		Adranga	1 (c)		1 (c)	1 (c)		4,300
		Zamba	1 (c)		1 (c)	1 (c)		3,500
		Mada	1 (c)		1 (c)	1 (c)		4,500
	NIOKA							
		Nioka					1 (c)	
		Muchapa					1 (c)	
		Zaa	1		1	1 (c)		2,500
		Djupaliri	1		1 (c)	1 (c)	1 (c)	1,300
	N'GOTE							
		N'Gote	1 (r)		1	1		2,400
		Mont Rona	1		1	1		2,600
		Mont Ota	1 (c)		1 (c)	1 (c)		1,300
	DJALAS-SIGA							
		Djalassiga	1	1 (c)	1	1	1 (c)	700
		Ambissi	1		1	1 (c)		4,600
		M'biki	1 (c)		1 (c)	1 (c)		4,600
	NYAMBERE						1 (c)	
		Awisi	1		1	1		3,000
		Kambitatu	1 (r)		1 (c)	1 (c)		2,100
		Djegu	1 (r)		1 (c)	1 (c)		2,600
	MAHAGI						1 (c)	
		Djunpagoua						
		Sa	1		1	1		2,900
		Ora	1 (r)		1 (c)	1 (c)		2,300
		Kabassa	1 (c)		1 (c)	1 (c)		4,000
		Mahagi Port			1 (c)	1		1,300
		Atiko			1 (c)	1		1,000

Zone/ Zone	Sector/ Secteur	Dispensary/ Dispensaire	Dipping Tank/ Bassin d'Immersion	Spray Race/ Couloir d'Aspersion	Dispensary/ Dispensaire	House/ Logement	Store/ Magasin	No. of Cattle Served By Dispensary/ Nombre de Bovins Trait Par le Dispensaire
DJUGU							1 (c)	-
	N'JE						1 (c)	
		N'Je		1 (c)	1			900
		Bule	1		1	1 (c)		1,800
		Njaudha		1 (c)	1 (c)	1 (c)		1,250
		Fataki	1 (c)		1	1 (c)		3,800
	BUBA						1 (c)	
		Buba	1 (c)		1	1 (c)		2,700
		Kwendruma		1 (c)	1			960
		Libi	1 (c)		1	1		2,300
		Sumbuso	1 (c)		1	1 (c)		1,700
	BLUKWA						1 (c)	
		Blukwa	1 (c)		1 (c)	1 (c)		2,850
		Masambuku	1 (c)		1 (c)	1 (c)		2,500
		Tchumbu		1 (c)	1	1 (c)		1,000
	TAMBAKI						1 (c)	
		Tambaki	1		1 (c)	1 (c)		5,600
		Ezekere	1 (c)		1 (c)	1 (c)		3,500
		Kulu	1 (c)		1 (c)			
	NIZI						1 (c)	
		Nizi		1 (c)	1 (c)			800
		Niangaray		1 (c)	1 (c)	1 (c)		850
IRUMU							1 (c)	
	BUDANA						1 (c)	
		Budana	1		1	1		2,200
		Lengabo	1 (c)		1 (c)	1 (c)		2,200
		Kunda	1 (c)		1 (c)	1 (c)		3,200
	IRUMU						1 (c)	
		Irumu	1		1	1		1,500
		Kadanza	1 (c)			1 (c)		5,000
		Bogota	1			1		6,000
		Peleka	1 (c)			1		4,200
		Komanda		1 (c)	1			800
IRUMU	N'DENGUE							
		N'dengue	1 (r)		1	1	1 (c)	6,400
		Barazana	1 (c)		1 (c)	1 (c)		5,700
		Mazanguina	1 (c)		1 (c)	1 (c)		7,500
		N'gadzo	1		1	1		5,800
	MWANGA							
		Mwanga	1 (r)		1	1	1 (c)	2,500
GETY							1 (c)	
	GETY						1 (c)	
		Munobi	1		1	1		5,200
		Badzanga	1		1	1		3,900
		Kumatsi	1		1	1		5,300
		Nyabiri	1		1	1		5,300
	BOGA						1 (c)	
		Boga	1		1	1		3,600
		Kumatsi	1		1	1		6,000
		Mitego	1 (c)		1 (c)	1 (c)		4,500
		Nyanzigue		1 (c)	1 (c)			1,500
		Kasenyi		1 (c)	1 (c)			500
	BOGORO						1 (c)	
		Bogoro	1		1	1 (c)		7,200
		Soke	1		1	1		3,500
		Songolo	1 (r)		1	1 (c)		7,200
		Kagaba	1 (c)		1	1 (c)		3,500

(c) = to be constructed.
(v) = major repairs.
(r) = To be repaired.

(c) = à construire.
(v) = reparations majeures.
(r) = a réparer

Summary:

Resume:

Existing/ en place	27	-	39	30	-
Repair/ à réparer	9	-	-	-	-
Construct/ à construire	36	12	45	50	26
Total	72	12	84	80	26

November 1976

1e novembre 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Financing of Revolving Fund for Drugs, Inoculants, Dips 1/
(Z'000)

PROJET DE DEVELOPPMENT DE L'ELEVAGE EN ITURI

Financement du Fonds Renouvelable Pour Médicaments, Vaccins, Immersion 1/
(en milliers de zaires)

	Year/Année 1	2	3	4	5	Total	
Medicines Revolving Fund 1/							Fonds Renouvelable Pour Médicaments 1/
Helminthics - Cattle 2/	6.7	11.7	16.7	21.7	30.0	86.8	Vermifuges - bétail 2/
Veterinary Medicines - Cattle 3/	5.0	8.3	15.0	21.7	28.4	78.4	Médicaments vétérinaires - bétail 3/
Trypanocidal Drugs 4/	1.7	5.0	6.7	7.5	8.3	29.2	Médicaments trypanocides 4/
Minerals and Salt	6.7	16.7	26.7	40.0	56.7	146.8	Minéraux et sel
Medicines - Goats, Sheep, Pigs	0.8	1.6	3.3	6.6	13.1	25.4	Médicaments - chèvres, moutons, porcs
Medicines - Poultry, Dogs, etc.	3.2	4.0	4.8	5.6	6.4	24.0	Médicaments - volaille, chiens, etc.
Stocking-up	3.2	3.2	-	-	-	6.4	Approvisionnement
Total	27.3	50.5	73.2	103.1	142.9	397.0	Total
Government/IDA Contribution	27.3	26.4	25.9	29.9	39.8	149.3	Contribution du Gouvernement/IDA
Farmer Contribution 5/	-	24.1	47.3	73.2	103.1	247.7	Contribution des éleveurs 5/
Dipping Costs - Revolving Fund							Frais d'Immersion - Fonds Renouvelable
Cattle Nos. dipped per week at End Year ('000)	90	138	191	250	280		Nombre de bétail immersé par semaine à la fin de l'année (en milliers)
Dipping Costs (Z) 6/	67	150	217	285	359	1,078	Frais d'immersion 6/
Suggested Annual Dipping Fee Including 15% Contingency Element (k) 7/	60	60	60	150	150	150	Redevance annuelle d'immersion suggérée y compris 15% provisions pour imprévus (K) 7/
Government Contribution Z ('000)	67	104	147	188	39	545	Contribution du gouvernement (en milliers de zaïres)
Farmer Contribution Less 15% Contingency Element in Fee Z ('000) 5/	-	46	70	97	320	533	Contribution des éleveurs moins 15% provisions pour imprévus sous forme de redevance 5/ (en milliers de zaïres)
Total Costs Dips and Medicines							Total Frais d'Immersions et Médicaments
Government Contribution for Dips and Medicines	94.3	130.4	172.9	217.9	78.8	694.3	Contribution du gouvernement pour immersions et médicaments
Farmer Contribution for Dips and Medicines	-	70.1	117.3	170.2	423.1	780.7	Contribution des éleveurs pour immersions et médicaments
Total	94.3	200.5	290.2	388.1	501.9	1,475.0	Total

1/ Excluding Government paid compulsory Anthrax program. Projected cattle numbers treated (Table 5).
2/ Costs per dose Devonix Z 1.50 Thibenzole Z 1.00 Hexachlorethane Z 0.14.
3/ For example, Brucellocis Z 0.25 Penicillin, Streptomycin Z 0.79 per dose.
4/ Z 0.33 per dose, Antracide/Berenyl.
5/ For this exercise farmers contribution is credited in following year since dipping and veterinary materials will be required to be purchased well in advance of their use. Charges however would be made as soon as dipping commenced.
6/ Asuntol Z 15 per kg.
7/ Z 1.28 per head for chemical plus 15% = Z 1.47 say Z 1.50 per head. Subsidized for first three years. Fees would have to be adjusted if costs changed.

1/ Programme obligatoire d'Anthrax subventionné par le gouvernement non-compris. Nombre de bétail prévu déjà traité (Tableau 5).
2/ Coûts par dose: Devonix 1,50 zaïres, Thibenzol 1,00 zaïres, Hexachlorethane 0,14 zaïres.
3/ Par exemple, Brucellose 0,25 zaïres, Pénicilline, Streptomycine 0,79 zaïres par dose.
4/ 0,33 zaïres par dose, Anthracide/Berenyl.
5/ Pour cet exercice la contribution des éleveurs est imputée a l'année suivante car l'équipement vétérinaire et d'immersion doit être acheté bien à l'avance de son emploi. Toutefois, les redevances seront dues où l'immersion commencera.
6/ Asuntol 15 zaïres le kg.
7/ 1,28 zaïres par tête pour produits chimiques plus 15% = 1,47 zaïres, soit 1,50 zaïres par tête. Subventionnée les trois premières années. Les redevances devront être ajustées suivant les changements des coûts.

July 21, 1976

le 21 juillet 1976

ANNEX/ANNEXE 3
Table/Tableau 10

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Animal Health and Production Services

Suggested Deployment of Infirmiers in Relation to Siting of Dips

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Services de Production et de Santé Animales

Répartition suggérée des infirmiers en relation avec la localisation des bassins d'immersion

Groups of dips in a given diameter circle

Nombre de bassins d'immersion dans un diamètre donné

Diameter of circle enclosing dips km	Zone — No. of dips in Group / Nombre de bains en groupes: Aru	Mahagi	Djugu	Irumu Gety Kisenyi	Total	Diamètre de la surface où se trouvent les bains
20 km	4 ≠ 4	3 ≠ 3 ≠ 4	3 ≠ 3	5	29	20 km
18 km	6 ≠ 3	-	-	4	13	18 km
16 km	-	-	3	4	7	16 km
14 km	4	-	2 ≠ 2	-	8	14 km
12 km	-	2	-	4	6	12 km
10 km or less	2 ≠ 2	2	-	3 ≠ 4	13	10 km ou moins
Isolated dips	1	2	3	2	8	Bains isolés
Total No. of dips	26	16	16	26	84	Total des bains
No. of groups	9	7	6	8	30	Nombre de groupes
Estimated No. of cattle (1980)	137	47	37	128	349	Estimation du nombre de bovins (1980)
Estimated No. of sheep, goats, pigs (1974)	202	66	86	61	415	Estimation du nombre de moutons, chèvres et porcs (1974)
Estimated No. of cattle farmers ('000)	8.9	3.0	3.0	3.7	18.6	Estimation du nombre d'éleveurs (en milliers)
Estimated No. of stock owners ('000) 1/	14.4	4.5	4.5	6.6	30.0	Estimation du nombre de propriétaires de bétail
Estimated total No. of farmers (1974)	33.7	42.7	64.3	34.6	175.3	Estimation du nombre total d'exploitants
Suggested No. of infirmiers at dispensaries (Year 5) 2/	25	8	8	20	61.0	Nombre envisagé d'infirmiers dans les dispensaires (5ème année)
(Present No.) ('000)	-	(2)	(3)	(3)	(8)	(Nombre actuel en milliers)
Estimated No. of cattle/ infirmier at dispensaries (Year 5)	5.5	5.8	4.6	6.4	5.7	Estimation du nombre de bovins par infirmier dans les dispensaires (5ème année)
Other Technical Staff in Zones (Year 5)						Autre personnel technique dans les zones (5ème année)
Assistant veterinarians	1	2	1	3	7	Aides vétérinaires
Zone & clinic infirmiers	4	2	2	2	10	Infirmiers de clinique et de zone
Sector infirmiers	6	6	5	7	24	Infirmiers de secteur
No. of cattle ('000) per zone technical staff	3.8	2.8	2.3	4.0	3.5	Nombre de bovins (en milliers) par technicien de zone
No. of stock owners ('000) per zone technical staff	0.4	0.3	0.3	0.2	0.3	Nombre de propriétaires de bétail par technicien de zone
Total No. of farmers ('000) per zone technical staff	0.9	2.5	4.0	1.1	1.7	Total du nombre d'éleveurs (en milliers) par technicien de zone
Alternative Staffing of Infirmiers at Dispensaries Based on Groups	14	8	8	12	42	Personnel tournant d'infirmiers dans les dispensaires, basé par groupes
No. of cattle per infirmier in Year 5 ('000)	9	6	6	10	8.3	Nombre de bovins par infirmier la 5ème année (en milliers)

Note: See para 55 for explanation of distribution of infirmiers.

1/ Mission estimate of all stock owners excluding poultry and rabbits. Cattle owners 18,600.

2/ Based on 6,000 cattle per infirmier in Year 5, plus 10% increase in staff numbers for leave, sickness, etc. with modifications for Djugu where 2 extra infirmiers are included to deal with small stock and 6,500 animals have been used for Irumu to take into account the smaller number of stock and better grouping of dips.

March 8, 1976

Note: Voir le paragraphe 55 pour les explications concernant la répartition des infirmiers.

1/ Estimation faite par la mission de propriétaires de bétail, les propriétaires de volaille et de lapins non-compris.
Propriétaires de bovins - 18.600

2/ Le chiffre est basé sur 6.000 bovins par infirmier à l'année 5 plus une augmentation de 10% dans le nombre de personnel pour les congés locaux, les congés de maladie, etc., avec des modifications pour Djugu où 2 infirmiers supplémentaires sont inclus pour s'occuper d'un petit bétail; 6.500 têtes ont été comptées pour Irumu pour prendre en considération un nombre moins important de bétail et une meilleure disposition des bassins d'immersion.

le 8 mars 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Veterinary and Animal Production Services

Services Vétérinaires et de Production Animale

Investment Costs
(Z'000)

Coûts d'Investissement
(en milliers
de zaïres)

	Unit/ Unité	Unit Cost/ Coût par Unité	Year/Année 1	2	3	4	5	Total Years/ Total Années 1 - 5	Foreign Exchange/ Dévise Total	Foreign Exchange/ Dévise %	
INVESTMENT CATEGORY											CATEGORIE D'INVESTISSEMENT
Housing and Construction											Logements et Travaux Divers
Renovation of Senior Staff Housing	No.	-	-	23.0	-	-	-	23.0	6.5	28	Rénovation des logements pour le personnel principal
Infirmier Houses Construction	No.	7.3	-	73.0	146.0	146.0	-	365.0	102.2	28	Construction de maisons pour les infirmiers
Infirmier Houses Repair	No.	0.5	5.0	10.0	-	-	-	15 0	4.2	28	Réparations de maisons pour les infirmiers
Dipping-Tanks and Yards Construction	No.	9.5	-	57.0	142.5	142.5	-	342.0	147.1	43	Construction bassins d'immersion et
Major Repair	No.	3.0	-	27.0	-	-	-	27.0	12.4	46	réparations majeures
Minor Repair	No	5.0	13.5	-	-	-	-	13 5	5.5	41	réparations mineures
Spray Racer and Yards	No.	3.0	-	6.0	12.0	18.0	-	36.0	16.6	46	Couloirs d'aspersion
Dispensary Construction	No.	3.0	6.0	30.0	42.0	57.0	-	135.0	37.8	28	Construction de dispensaires
Minor Repairs	No	0.5	12.5	3.5	3.5	-	-	19.5	5.1	26	réparations mineures
Headquarters Store/Workshops	No.	26.5	26.5	-	-	-	-	26.5	4.0	28	Magasins/ateliers du siège
Zone Stores	No	2.8	14.0	-	-	-	-	14.0	4.0	28	Magasins locaux
Sector Stores	No.	0 9	-	9.0	9.9	-	-	18 9	5.3	28	Magasins du secteur
Extension Bunia Office (incl. repair exist)	-	62.0	62.0	-	-	-	-	62.0	17.4	28	Aggrandissement du bureau de Bunia (y compris réparations existantes)
Water, Electricity, Access HQ	-	4.5	4.5	-	-	-	-	4.5	1.0	23	Eau, electricité, accès au siège
			144.0	238.5	355.9	363.5	-	1,101.9	369.1	34	
VEHICLES AND EQUIPMENT											VEHICULES ET MATERIEL
Station Wagon 4-Wheel Drive	No.	13.0	13.0	-	-	-	-	13.0	8.8	68	Station-wagon tout-terrain
Long Wheel Base 4-Wheel Drive	No.	12.0	72.0	-	12.0 8/	60.0 8/	-	144.0	118.1	82	Camionnette tout-terrain
Small Car or Pick-Up	No.	5.5	49.5	11.0	-	44.0 8/	5.5 8/	110.0	77.0	70	Petite voiture ou camionnette
Lorry	No.	15.0	30.0	15.0	-	-	30.0 8/	75.0	50.2	67	Camion
Motor Bikes	No.	0.6	4.8	3.0	-	4.8 8/	3.0 8/	15.6	12.8	82	Motocyclettes
Bicycles	No.	0.15	11.4	-	-	-	-	11.4	4.9	43	Bicyclettes
Veterinary Equipment HQ 1/	-	14.3	10.0	4.3	-	-	-	14.3	10.4	73	Equipement vétérinaire-siège 1/
Zone 2/	-	2.0	5.0	5.0	-	-	-	10.0	7.3	73	- zone 2/
Sector 3/	-	1.4	23.4	6.5	-	-	-	29.9	2.2	73	- secteur 3/
Dispensary 4/	-	2.8	7.7	4.8	6.0	5.3	-	23.8	17.4	73	- dispensaire 4/
Water Pumps Including Installations	No.	0.8	4.0	4.0	-	-	-	8.0	7.0	87	Pompes à eau y compris installations
Hand Sprayers	No.	0 15	1.7	1.7	1.2	-	-	4.6	3.8	83	Pulvérisateurs à main
Workshop Equipment HQ	-	5.0	5.0	-	-	-	-	5.0	4.2	84	Matériel pour l'atelier du siège
Radio	-	34.0	34.0	-	-	-	-	34.0	24.8	73	Radio
Vehicle Spare Parts 5/	-	-	42.0	-	-	-	-	42.0	30.7	73	Pièces de rechange des véhicules
Office Furniture and Equipment	-	-	6.5	3.2	-	-	-	9.7	5.4	56	Mobilier et équipement de bureaux
			320.0	58.5	19.2	114.1	38.5	550.3	385.0	70	
LIVESTOCK IMPROVEMENT											AMELIORATION DE L'ELEVAGE
Legume and Grass Seed 6/	-	-	0.5	1.0	1.0	1.0	1.0	4.5	2.8	62	Semis de légumineuses
Demonstration Materials	-	-	1.6	1.6	1.6	1.6	1.6	8.0	5.2	65	Matériaux de démonstration
Fencing - Demonstration	-	-	-	1.6	1.6	1.6	1.6	6.4	4.2	65	Clôture - démonstration
Credit for Farmers 7/	-	-	-	-	32.4	32.4	35.2	100.0	53.0	53	Crédit pour les éleveurs
			2.1	4.2	36.6	36.6	39.4	118.9	65.2	54	
Total			466.1	301.2	411.7	514.2	77.9	1,771.1			Total
Foreign Exchange			277.1	107.2	156.5	232.0	46.5	-	819.3	46	Devise

1/ Replacement and supply of various equipment including microscopes, balances, sterilizers, dryer, etc.
2/ Freezer, refrigerator, microscope, balances, etc. replacement of old equipment such as sterilizers and driers.
3/ Refrigerator, microscope, seringes, needles, mirror, surgical equipment, Berdizzos, sampling equipment
4/ Syringes needles, mirrors, surgical equipment, Berdizzos sampling materials, refrigeration units for vaccines and holding samples.
5/ 25% of value vehicles purchased in first year.
6/ Stylosanthes seed 2 5 per kg, 3 to 5 kg per hectare.
7/ Funds to establish a small project credit fund for lending to farmers for on-farm improvements such as fencing, small buildings, improved stock, equipment, legume seed, water, etc. The establishment and operation of the fund would be subject to approval of procedures by IDA.
8/ Replacement of vehicles.

NOTE: The level of first year expenditure assumes that the project is fully staffed and operational during the first year. Delays would reduce these expenditure levels.

1/ Remplacement et approvisionnement de matériaux divers y compris microscopes, bascules, stérilisateurs, séchoir, etc
2/ Glacière, réfrigerateur, microscope, bascules, etc , remplacement de vieux matériaux comme stérilisateurs et séchoirs.
3/ Réfrigerateur, microscope, seringues, aiguilles, miroir, matériel de chirurgie, Berdizzos, matériel d'echantillonage
4/ Seringues, aiguilles, miroirs, matériel de chirurgie, Berdizzos, matériaux d'échantillonage, unités de réfrigeration pour vaccins et pour echantillons.
5/ 25% de la valeur des vehicules achetés la première année.
6/ Semences de stylosanthes 5 Zaires le kg à raison de 3 à 5 kg à l'hectare
7/ Fonds pour l'établissement d'un petit fonds de crédit pour prêts aux éleveurs leur permettant d'apporter des améliorations à leurs fermes, telles que clôtures, petits bâtiments, développement du cheptel, équipement, semences de légumineuses, eau, etc. Les procédures d'établissement et de gestion du fonds seraient soumises à l'approbation de l'IDA.
8/ Remplacement des véhicules.

NOTE: Le niveau des dépenses de la première année assume que le projet est complètement équipé et opérationnel pendant la première année. Les délais réduiront ces niveaux de dépenses.

June 17, 1976

le 17 juin 1976

ANNEX/ANNEXE 3
Table/Tableau 12

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Veterinary and Animal Production Services

Staff Salaries and Allowances 1/
(Z)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Services Vétérinaires et de Production Animale

Salaires et Traitements du Personnel 1/
(Z)

	Grade/Salary grade/salaire	Before Development/ Avant le Projet	Year/Année 1	2	3	4	5	6	
HQ Bunia									Siège de Bunia
Technical Staff									Personnel Technique
Project Manager (Expatriate 1st 3 years) 2/		50,000	-	50,000	50,000	50,000	50,000 2/	3,250	3,250	Directeur du projet (expert recruté à l'étranger les 3 premières années)
Deputy Project Manager (Counterpart) 2/	(Al)	2,750	2,750	2,750	2,750	3,250	3,250 2/	-	-	Directeur adjoint du projet (personnel national)
Veterinarian (Expatriate)		45,000	-	40,300	45,000	45,000	45,000	45,000	-	Vétérinaire (expert recruté à l'étranger)
Veterinarian Counterpart and South	(Al)	2,500	-	-	-	2,500	2,500	2,500	2,500	Vétérinaire (personnel national)
Animal Production Officer (Expatriate)		45,000	-	30,000	45,000	45,000	45,000	15,000	-	Fonctionnaire chargé de la production animale (expert recruté à l'étranger)
Animal Production Counterpart	(Al)	2,500	-	-	-	-	2,500	2,500	2,500	Fonctionnaire chargé de la production animale (personnel national)
Animal Production Assistant		1,225	-	-	1,225	2,450	2,450	2,450	2,450	Assistant chargé de la production animale
Building Specialist (Expatriate)		34,800	-	17,400	34,800	17,400	-	-	-	Spécialiste du bâtiment (expert recruté à l'étranger)
Extension Specialist (Expatriate)		43,500	-	34,800	43,500	43,500	8,700	-	-	Service de vulgarisation (expert recruté à l'étranger)
Extension Infirmier (Radio)		925	-	460	925	925	925	925	925	Infirmier de vulgarisation (Radiologie)
Market Inspectors	Inf	925	1,850	1,850	1,850	1,850	1,850	1,850	1,850	Inspecteurs des marchés
Abattoir Inspectors	Vet. Assts.	1,225	2,450	2,450	2,450	2,450	2,450	2,450	2,450	Inspecteurs des abattoirs
Abattoir Assistants	Inf	925	2,775	1,850	1,850	2,775	2,775	2,775	2,775	Assistants des abatteirs
HQ Clinic Pharmacy-Technician	Vet. Assts.	-	-	-	-	-	-	1,225	1,225	Technicien de la pharmacie à la clinique du siège
HQ Clinic Pharmacy-Stores Officers	Vet. Assts.	1,225	1,225	1,225	1,225	1,225	1,225	1,225	1,225	Fonctionnaires chargés des pharmacies/magasins à la clinique du siège
HQ Clinic Pharmacy Assistants	Inf	925	8,325	8,325	5,550	5,550	5,550	4,625	4,625	Assistants de la pharmacie à la clinique du siège
HQ Clinic Pharmacy Aides	Aide	575	2,875	2,875	1,725	1,725	1,725	1,725	1,725	Aides de la pharmacie à la clinique du siège
HQ Clinic Pharmacy Storeman		925	925	925	1,850	1,850	1,850	1,850	1,850	Magasinier de la pharmacie à la clinique du siège
Consultant (Pasture)		17,400	-	-	17,400	-	-	-	-	Consultant (pâturage)
HQ Support Staff (Bunia)									Personnel de Soutien au Siège (Bunia)
Director of Administration/Finance (Expatriate)		43,500	-	43,500	43,500	43,500	43,500	-	-	Directeur de l'administration/finance (expatrié)
Director of Administration/Finance Counterpart	Ag Bu 1	1,090	-	-	-	-	1,090	1,090	1,090	Directeur de l'administration/finance (contrepartié)
Administrative Assistant (Accounts/Personnel)	Ag Ax 1	675/860	675	675	860	860	860	860	860	Assistant administratif (comptabilité/personnel)
Administrative Assistant (Procurement/Stores)	Ag Ax 1	675	-	435	675	675	675	675	675	Assistant administratif (passation de marchés/magasins)
Administrative Assistant (Stores Audit)	Ag Bu 1	1,090	-	750	1,090	1,090	1,090	1,090	1,090	Assistant administratif (contrôle des stocks)
Secretaries Grade I	Ag Bu 2	860	1,720	2,345	2,580	2,580	2,580	1,720	1,720	Secrétaires grade I
Typists/Clerks/Secretaries		675	2,025	2,465	2,700	2,700	2,700	2,700	2,025	Dactylographes/employés/secrétaires
Clerks Accounts/Personnel		675	675	1,115	1,350	1,350	1,350	1,350	1,350	Employés comptabilité/personnel
Clerks Stores Records		675	675	1,115	1,350	1,350	1,350	1,350	1,350	Employés des archives des magasins
Mechanical/Workshop Specialist (Expatriate)		34,800	-	26,100	26,100	-	-	-	-	Specialiste en mécanique et en réparation (expatrié)
Mechanic	Ag Bu 1	1,090	-	815	1,090	1,090	1,090	1,090	1,090	Mécanicien
Assistant Mechanics		575	-	865	1,150	1,150	1,150	1,150	1,150	Aides - mécaniciens
Junior Mechanics/Greasers		400	-	750	1,200	1,200	1,200	1,200	1,200	Apprentis - mécaniciens - graisseurs
Drivers		575	2,910	6,750	8,050	8,050	8,050	8,050	8,050	Chauffeurs
Drivers Assistants		400	-	500	800	800	800	800	800	Aides chauffeurs
Carpenters/Masons		575	1,150	1,150	1,150	1,150	1,150	1,150	1,150	Menuisiers/maçons
Office Messengers/Watchmen/Laborers		400	2,450	2,450	2,450	2,450	2,450	2,450	2,450	Messagers/fardiers/ouvriers
HQ Support Staff (Kinshasa)									Personnel de Soutien au Siège (Kinshasa)
Administrative/Supplies Officer	Ag Bu 1	1,090	-	1,090	1,090	1,090	1,090	1,090	1,090	Fonctionnaire administratif/fournitures
Clerks		675	-	1,075	1,350	1,350	1,350	1,350	1,350	Employés de bureau
Driver		575	-	425	575	575	575	575	575	Chauffeur
Bunia and Kinshasa HQ Staff			35,455	289,580	355,285	300,460	251,850	119,360	58,415	Personnel des Sièges de Bunia et de Kinshasa
Field Staff (See Annex Table)									Personnel Sur le Terrein (voi annexe tableau)
Veterinarian (North)		2,500	-	1,875	2,500	2,500	2,500	2,500	2,500	Vétérinaire
Assistant Veterinarian		1,225	4,900	6,835	8,575	8,575	8,575	8,575	8,575	Aide - Vétérinaire
Infirmier		925	44,400	49,485	60,125	72,150	83,250	87,875	87,875	Infirmier
Aide Infirmier		575	58,625	64,975	62,100	59,800	58,650	58,650	58,650	Aide Infirmier
Storeman		675	2,025	3,375	3,375	3,375	3,375	3,375	3,375	Magasinier
Clerks		675	3,375	3,375	3,375	3,375	3,375	3,375	3,375	Employés de bureau
Office Messenger		400	2,000	2,000	2,000	2,000	2,000	2,000	2,000	Messager
Watchmen		400	2,000	2,000	2,000	2,000	2,000	2,000	2,000	Gardiens
Mason/Carpenter		575	-	-	-	575	575	575	575	Magon/menuisier
Laborers		400	1,200	1,200	800	800	800	800	800	Ouvriers
			128,525	135,120	144,850	155,150	165,100	169,725	169,725	
Veterinary Farms (6 farms 1,427 ha 187 cattle)									Centre Vétérinaires (6 Centres 1.427 ha 187 bovins)
Infirmiers		925	1,850	-	-	-	-	-	-	Infirmiers
Aide Infirmiers		575	2,300	-	-	-	-	-	-	Aide Infirmiers
Laborers/Herdsmen (mostly paid by collectivity)		400	12,800	-	-	-	-	-	-	Ouvriers/pâtres (la pluyant payée par la collectivité)
Watchmen		400	-	2,400	2,400	2,400	2,400	2,400	2,400	Gardiens
			16,950	2,400	2,400	2,400	2,400	2,400	2,400	
TOTAL PERSONNEL COSTS			180,930	427,100	502,535	458,010	419,350	291,215	230,540	COUT TOTAL EN PERSONNEL

1/ Salaries include where applicable basic salary, special allowance, family allowance, wife allowance, child allowances, house or rent allowance and special indemnities.

2/ Expatriate Project Manager for first three years thereafter in an Advisory capacity in fourth year. Zairian to take over at end of third year.

1/ Les salaires comprennent le cas échéant: le salaire de base, l'allocation spéciale, l'allocation spéciale, l'allocation pour la femme, les allocations pour les enfants, l'allocation ou le loyer pour la maison et les indemnités spéciales.

2/ Directeur du projet recruté à l'étranger pour les 3 premières années: à la quatrième année il travaillera en capacité de conseiller. A la fin de la troisième année le personnel local prendra la relève.

February 9, 1977

le 9 février 1977

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT — PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Veterinary and Animal Production Services — Services Vétérinaires et de Production Animale

Operating Costs (Z'000) — Coûts d'Exploitation (en milliers de zaïres)

	Before Development/ Avant le Projet	Year/Année 1	2	3	4	5	Total Years 1-5/ Total Années 1-5	Foreign Exchange/ Devise Total	Foreign Exchange/ Devise %	
OPERATING EXPENSES										COUTS D'EXPLOITATION
Personnel Costs (Annex 3, Table 13)										Frais de Personnel (Annexe 3, Tableau 13)
Salaries and Allowance Local Staff	180.9	185.0	197.2	213.6	227.2	231.2	1,054.2	-	-	Salaires et traitements du personnel local
Expatriate Salaries and Allowances	-	242.1	305.3	244.4	192.2	60.0	1,044.0	1,044.0	100	Salaires et traitements des experts recrutés à l'étranger
Total	180.9	427.1	502.5	458.0	419.4	291.2	2,098.2	1,044.0	51	Total
Foreign Exchange	-	242.1	305.3	244.4	192.2	60.0	1,004.0	-	-	Devises
Other Costs										Autres Frais
Running Expenses										Frais d'Exploitation
Vehicle Operation and Maintenance 1/										Exploitation et entretien des véhicules 1/
Landrovers	9.7	19.2	27.4	27.4	27.4	27.4	126.8	92.3	73	Voitures tout terrain
Cars/Pick-Ups	-	13.3	21.7	21.7	21.7	21.7	100.1	73.1	73	Voitures/camionnettes
Lorries	-	7.7	15.5	15.5	15.5	10.3	64.5	47.2	73	Camions
Motorbikes	-	1.2	2.7	2.7	2.7	2.7	12.0	8.7	73	Motocyclettes
Bicycles	-	.6	.6	.6	.6	.6	3.0	1.1	37	Bicyclettes
Running of Spray Races	-	-	.2	1.2	3.0	5.0	9.4	6.8	72	Couloirs d'Aspersion
Travel and Subsistence										Voyage et Subsistance
Local Travel and Subsistence 2/	5.6	5.6	6.4	7.2	7.2	7.2	33.6	14.6	44	Voyage local et subsistance 2/
Regional Travel 3/	2.0	2.0	2.5	2.5	2.5	2.5	12.0	7.5	62	Voyage regional 3/
Travel to Kinshasa 4 /	3.1	7.9	9.0	9.0	7.9	7.9	41.7	26.4	63	Voyage à Kinshasa 4/
Travel Outside Zaire 5/	5.7	5.7	6.8	8.5	8.5	6.8	36.3	29.8	82	Voyage hors du Zaire 5/
Private Car/Bicycle Allowances 6/	.5	7	.8	8	.8	.8	3.9	2.4	62	Allocations pour voiture privée/bicyclette
House Rent for Expatriates 7/	-	17.6	20.9	13.9	9.3	4.6	66.3	15.0	23	Loyer pour les maisons des etrangers (expatries)
Office Supplies and Renewals	1.7	2.5	2.5	2 5	2.5	2.5	12.5	7 8	63	Equipement de bureaux et renouvellements
Maintenance of Buildings/Dispensaries 8/	-	3.3	6.3	9.4	12.6	15.2	46.8	15.7	33	Entretien de bâtiments/dispensaires 8/
Maintenance of Dips 9/	-	-	-	5.0	6.0	8.0	19.0	6.3	33	Entretien des bassins d'immersion 9/
Repair and Renewal of Spray Races 10/	-	-	-	.5	1.3	2.6	4.4	2 4	55	Réparation et renouvellement des couloirs 10/ d'aspersion
Utilities, Water, Electricity, Telephone	1.6	1.6	1.9	1.9	1.9	1.9	9.2	3.0	32	Facilites, eau, electricite, téléphone
Workshops, Miscellaneous and Renewals	-	.8	.8	1.0	1.0	1.0	4.6	3.5	76	Ateliers, divers et renouvellements
Sub-Total	29.9	87.7	126.0	131.3	132.4	128.7	606.1	363.6	60	Total partiel
Veterinary Supplies 11/										Provisions Vétérinaires 11/
HQ Clinic and Pharmacy General	1.6	2.5	3.3	3.3	3.3	3.3	15.7	11.7	74	Clinique et pharmacie générale du siège
Zone Clinics and Pharmacy 12/	1.6	2.5	3.3	3.3	3.3	3.3	15.7	11.7	74	Cliniques et pharmacie locales 12/
Dispensaries 13/	.8	4.5	7.3	10.8	14.0	14.0	50.6	37.1	73	Dispensaires 13/
Dipping Materials 14/	- 14/	67.0	150.0	217.0	285.0	359.0	1,078.0	787.0	73	Matériaux d'immersion 14/
Anthrax 15/	1.5	10.8	21.7	32.5	33.6	35.8	134.4	30.3	23	Le Charbon
Helminthias - Cattle	1.7	6.7	11 7	16.7	21.7	30.0	86.8	63.3	73	Helminthiase - bétail 15%
Other Inoculants/Veterinary Medicines Cattle	3.3	5.0	8.3	15.0	21.7	28.4	78.4	57.2	73	Autres inoculations/médecine vétérinaire - bétail
Minerals and Salt	-	6.7	16.7	26.7	40.0	56.7	146.8	107 2	73	Minéraux et sel
Trypanocidal Drugs	.5	1.7	5.0	6.7	7.5	8 3	29.2	21.4	73	Trypanocidal
Inoculants, Medicines for Goats/Sheep/Pigs	-	.8	1.6	3 3	6.6	13.1	25.4	16.2	64	Inoculations, medicaments pour chèvres/ moutons/porcs
Animal Production Demonstration Materials	-	1.7	3.3	5.0	5.0	5.0	20.0	14.6	73	Production Animale, Démonstration des Matériaux
Inoculants, Drugs for Poultry/Dogs, etc.	2.4	3.2	4.0	4.8	5.6	6.4	24.0	10.4	44	Inoculations, médicaments pour volaille/chiens, etc.
Stocking-up/Miscellaneous	.3	3.2	3.2	.6	.6	.6	8.9	4.5	55	Approvisionnements/divers
Sub-Total	13.7	116.3	239 4	345.7	447 9	563.9	1,713.2	1,172.6	68	Total partiel
Total Other Costs	43.6	204.0	365.4	477.0	580.3	692.6	2,319.3	-	66	Total autres coûts
Foreign Exchange	26.6	128.2	237.5	313.5	388.5	468.4	-	1,536.1		Devises
Total Personnel and Other Costs	224.5	631.1	867.9	935.0	999.7	983.8	4,417.5	-	-	Total personnel et autres coûts
Total Foreign Exchange	26.6	370.3	542.8	557.9	580.7	528.4	2,580.1	2,580.1	58	Total devises

1/ Landrover Z 3,410 pickup/car Z 1,670; lorry Z 5,150; motorbike Z 200; bicycle Z 8 24,000 km per year; repairs by workshop staff

2/ Local fares and subsistence for staff on duty and on transfer with their families.

3/ Fares to Kisangani by air Z 213 and taxi transport Z 33.

4/ Bunia to Kinshasa and return @ Z 390

5/ Includes travel by three existing expatriates Z 5,070.

6/ 5 k/km for private cars up to 800 km/month, 2 k/km for motorbikes up to 300 km/month.

7/ House rent Z 2,790 - 3,720 per annum.

8/ 1-1/2 of value, estimated value of existing buildings at beginning of Project Z 580,900 increased by end year 5 to Z 1,216,750

9/ 1-1/2 of value.

10/ Maintenance 7% of value, replacement after 10 years

11/ Number of stock to be treated (Table 5) and costs (Table 10)

12/ Z 668 per clinic

13/ Z 167 per dispensary

14/ Some funds were spent in 1973/74 See Tables 5 & 10 for number and cost of stock to be dipped 1-1/2 gram Asuntol/animal/week, Z 15 per kg, plus dips filled twice a year

15/ Anthrax inoculation 11 k per animal

NOTE The level of first year expenditure assumes that the project is fully staffed and operational during the first year. Delays would reduce these expenditure levels.

February 9, 1977

1/ Voitures tout-terrain 2.050 Zaires; 3.410 zaïres; camionnettes/voitures 1.670 zaïres, camion 5.150 zaïres; motocyclette 200 zaïres; bicyclette 8 zaïres, 24.000 km par an, réparations par le personnel d'atelier.

2/ Frais de déplacement pour le personnel en service, pour raisons protessionnelles ou avec leurs familles.

3/ Frais de déplacements à Kisangani par avion 213 zaires et par taxi 33 zaires

4/ De Bunia à Kinshasa et retour 240 Zaires.

5/ Y compris les voyages de trois experts déjà sur place 5 070 zaïres.

6/ 4 k/km pour voitures privées jusqu'a 800 km/mois, 2 k/km pour motocyclettes jusqu'a 300 km/mois

7/ Loyer de 2.790 - 3.720 Zaires par an.

8/ 1-1/2% de la valeur; l'estimation de la valeur des bâtiments existants au début du projet etait de 580 900 Zaires; elle est montée dans l'année 5 à 1 216 750 Zaires

9/ 1-1/2 de la valeur

10/ Entretien 7% de la valeur; remplacement après 10 ans

11/ Voir tableaux 5 et 10 pour le nombre et coûts de bétail prévu pour le traitement

12/ 668 Zaires par clinique

13/ 167 Zaires par dispensaire

14/ Des fonds ont été dépenses en 1973/74 Voir tableaux 5 et 10 pour le nombre de bétail immersé et le coût des immersions. 1 1/2 gramme d'Asuntol par semaine par animal, 15 zaïre/kg, plus renouvellement du dip 2 fois par an.

15/ Inoculation d'Anthrax 11 makutas par animal.

NOTE: Le niveau des dépenses de la première année assume que le projet est complètement équipé et opérationnel pendant la première année. Les délais réduiront ces niveaux de dépenses.

le 9 fevrier 1977

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Veterinary and Animal Production Services

Estimate of Dip Construction Costs (3,000 gal. Capacity)

	Zaire
Made from (Portland) cement of highest quality. Broken stone to pass a 20 mm sieve, sand medium coarse and clean.	
Materials	
Cement 9,300 kg 186 bags @ Z12	2,232
Broken Stone 26 cu m @ Z7.50	195
Sand 13 cu m @ Z4	52
Iron bar 136 km steel rod @ 83 k (or 90 kg barbed wire)	113
Plastering	
Cement 1,250 kg 25 bag @ Z12	300
Sand 3 cu m @ Z4	12
Roof 20 sheets @ Z10	200
Posts 28, 2.1 m, 15 cm diameter) 44, 1.8 m, 10 cm diameter)	190
Struts 6, 1.3 m 10 cm ")	
Rail 400 m 10 cm "	210
Boards for frames and shuttering 275 m 23 cm x 2.5 cm	150
Wood Preservative	120
Piping, nails, furrow work, miscellaneous	500
	4,274
Labor 1,200 man days	1,500
Transport 80 tons (16 loads)	
Project Transport 8 loads x 200 km(costed in Project operation costs) -	
Hired Transport 8 loads x 200 km @ 13 k per km/ton	1,040
	6,874
Add 15% to take costs to 1976 level	1,031
	7,905
Add construction profit margin 20%	1,581
TOTAL:	9,486
Say:	Z 9,500

Source: Adapted from plans prepared by Cooper, McDougall and Robertson, Ltd. for their cattle dip pamphlet.

June 29, 1976

ZAIRE

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Services de Production et de Santé Animales

Estimation du Coût de Construction des Bassins d'Immersion (Contenance: 3.000 litres)

Construit en ciment (Portland) de la meilleure qualité, débris de pierres pouvant passer dans un tamis de 20 mm, sable propre de grain moyen.	
Matériaux	
Ciment 9.300 kg - 186 sacs @ 12 zaïres	
Débris de pierres m cube @ 7,50 zaïres	
Sable 13 m cube @ 4 zaïres	
Barre de fer 136 km de tiges d'acier à 80 makutas (ou 90 kg de fer barbelé)	
Plâtrage	
Ciment 1.250 kg 25 sacs 12 zaïres	
Sable 3 m 4 zaïres	
Toiture 20 plaques à 10 zaïres	
Poteaux 28, 2,1 m, 15 cm dia.) 44, 1,8 m, 20 cm dia.)	
Etais	
Traverses	
Planches pour les encadrements de fenêtres et les volets 275 m 23 cm x 2,5 cm	
Solution protectrice pour traiter le bois	
Tuyauterie, clous, travaux de terrassement, divers	
Main d'oeuvre 1.200 hommes-jours	
Transport 80 tonnes (16 chargements)	
Transport dans le cadre du projet 8 chargements x 200 km inclus dans les coûts d'exploitation du projet	
Location de moyens de transport	
+20 % pour ajustement aux prix de 1976	
+ 18% de marge bénéficiaire sur la construction	
TOTAL	
Soit:	

Source: D'après les plans de la Société Ltd. Cooper, McDougall et Robertson élaborés pour leur dépliant sur la balnéation du bétail.

le 29 Juin 1976

ANNEX/ANNEXE 3
Table/Tableau 15

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Ituri Herd Projection

End of Year

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Evolution du Troupeau en Ituri

Fin de L'année

	Pre-Development/ Avant Le Project	Year/Année 1	2	3	4	5	6	7	8	9	10	11	12	13-20	
Herd Composition															**Composition du Troupeau**
Cows/Heifers over 3 years 1/	138,700	140,975	143,460	146,218	148,731	154 265	159,526	164,280	168,414	173,343	177,137	177 137	177,137	177,137	Vaches/génisses de plus de 3 ans 1/
Calves weaned	57,232	59,054	62,635	66,119	70,973	76,135	81 103	83 520	84,577	88,127	90,056	90,056	90,056	90,056	Veaux sevrés
Heifers 9-24 months	23,944	24 724	25 954	27,841	29,555	32,081	34.525	36 781	37 877	38,356	39 966	40,820	40,820	40,820	Génisses 9-24 mois
Bulls/Steers 9-24 "	22,484	22,864	23 976	24,898	26,283	27,858	29,237	31 145	31 654	32 054	33,401	34 132	34,132	34 132	Taurillons/bouvillons 9-24 "
Heifers 24-36 "	21 316	21,862	22,696	23,930	25,809	27,427	29.739	32 005	33 616	35,544	35,981	36.450	37 228	37 228	Génisses 24-36 "
Bulls/Steers 24-36 "	11,388	11 445	11 661	12,448	12,823	13,142	14 321	14 385	15 324	15,575	15 772	16,434	16,794	16,794	Taurillons/bouvillons 24-36 "
Bulls/Steers 36-48 "	7,008	7 038	7,096	7,207	7,718	7,912	8,083	8,708	8 747	9,164	9,314	9,432	9,828	9,828	Taurillons/bouvillons 36-48 "
Bulls/Steers 48-60 "	5 256	5 208	5,229	5 280	5 377	5,765	5,928	6,047	6,514	6 412	6,673	6,688	6,688	6,688	Taurillons/bouvillons de plus de 60 mois
Bulls/Steers over 60 "	4,672	4,751	4,782	4,874	4,991	5,142	5,317	5 539	5,613	5 778	5,904	5 904	5 904	5,904	
Total Animals (Inc. calves weaned)	292,000	297,921	307,489	318,815	333,260	349,727	367,779	382,410	392,336	404 353	414,204	417,053	418,587	418,587	Total Animaux (y compris veaux sevrés)
Mortality															**Mortalité**
Breeding cows	9,490	9,440	9,282	9,304	9,188	9,303	9,448	9,841	10,206	10,505	10,862	11,081	11,106	11,469	Vaches reproductives
Calves	24,601	24,121	22,006	20,880	18,865	17,967	17,803	18,333	19,839	19,345	19,767	19,768	19,767	19,767	Veaux
Heifers	3,504	3 291	2,953	2,818	2,810	2,661	2,741	2,919	3,007	3,044	3,172	3.242	3,242	3,242	Génisses
Bulls/Steers	3,504	3,291	2,953	2,818	2,810	2,661	2,741	2,919	3,007	3,044	3.172	3,242	3,242	3 242	Taurillons/bouvillons
Heifers	2 044	1.795	1,731	1,557	1,531	1,478	1,540	1.657	1,765	1,818	1,841	1,918	1,959	1,959	Taurillons/bouvillons
Bulls/Steers	1,752	1,686	1,600	1,438	1,369	1,314	1,337	1,403	1.495	1,519	1,538	1,603	1,638	1,638	Taurillons/bouvillons
Bulls/Steers	584	558	538	536	548	551	552	601	604	644	654	662	690	705	Taurillons/bouvillons
Bulls/Steers	292	343	331	326	317	332	332	339	366	367	384	391	396	413	Taurillons/bouvillons
Bulls/Steers	584	486	468	461	447	446	458	472	486	509	512	528	529	529	
Total	46,355	45,011	41,862	40,138	37,885	36,713	36,952	38,484	40,775	40,795	41,902	42,435	42,569	42 964	Total
Local consumption/Sales															**Consommation Locale/Ventes**
Cows and heifers over 36 months	9,490	9,601	10,095	10,634	11,230	11,972	12,718	15,141	17,665	18,182	20,888	24,900	25,344	25,759	Vaches/génisses de plus de 36 mois
Heifers 9-24 months	584	601	620	658	694	745	799	851	876	888	925	946	946	946	Génisses 9-24 mois
Bulls/Steers 9-24 "	2,336	2,461	2,598	3,602	3,967	4,968	6,090	6,488	7,099	7,190	7,490	7,654	7,654	7,654	Taurillons/bouvillons 9-24 "
Heifers 24-36 "	292	287	297	467	501	650	802	863	1,400	1 515	1,534	1.598	1,633	1,633	Génisses 24-36 "
Bulls/Steers 24-36 "	9,052	9,353	9,603	10,090	10,706	11,827	12,200	13,449	14,326	14,560	14,744	15,364	15,700	15,700	Taurillons/bouvillons 24-36 "
Bulls/Steers 36-48 "	3,504	3,792	3,811	3,918	4,182	4,360	4,507	5,012	5,034	5,516	5,607	5,678	5,916	6,261	Taurillons/bouvillons 36-48 "
Bulls/Steers 48-60 "	1,460	1,457	1,478	1,490	1,513	1,621	1,652	1,697	1,828	1,968	2,107	2.235	2,348	2,727	Taurillons/bouvillons 48-60 "
Bulls 5 years and over	4,672	4,691	4,709	4,676	4,716	4,780	5 132	5,234	5,487	5,480	5,774	6,145	6,159	6,159	Taureaux de 5 ans et plus
Total	31,390	32,243	33,211	35,535	37,509	40,923	43 900	48,735	53,715	55,659	59,069	64,520	65,700	66,839	Total
Technical Coefficients															**Coefficients Techniques**
% of herd dipped	0 0	30.0	45 0	60.0	75.0	80 0	80 0	80.0	80 0	80 0	80 0	80.0	80 0	80 0	Bétail immergé %
Calving rate 2/ %	59 0	59.0	59 1	59.5	60.0	61 0	62.0	62.0	62 0	62 0	62.0	62 0	62 0	62 0	Taux de vêlage %
Calf mortality 0- 9 months %	30 0	29 0	26.0	24.0	21 0	19.0	18.0	18 0	18 0	18 0	18.0	18.0	18.0	18 0	Taux de mortalité des veaux de 0-9 mois %
Mortality 9-24 " %	12 0	11 5	10 0	9.0	8 5	7 5	7 2	7 2	7 2	7 2	7.2	7.2	7 2	7 2	Taux de mortalité 9-24 " "
Mortality 24-36 " %	8.0	7 51	7.0	6.0	5 5	5 0	4.8	4.8	4 8	4 8	4.8	4.8	4.8	4.8	Taux de mortalité 24-36 " "
Mortality Cows %	6.0	5 9	5.7	5.6	5.4	5.3	5.2	5.2	5.2	5.2	5.2	5 2	5 2	5.2	Taux de mortalité vaches "
Mortality Other stock %	5.0	4.9	4.7	4.6	4 4	4.3	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	Taux de mortalité autre bétail
Cows/Heifer over 36 months calving rate %	6.0	6.0	6.2	6.4	6 6	6.8	7.0	8 0	9.0	9.0	10 0	11.6	11.9	12.0	Taux de vêlage des vaches/génisses de plus de 36 mois %
Heifer sales/consumption 9-24 m %	2.1	2.1	2.1	2.1	2 1	2.1	2 1	2.1	2.1	2 1	2.1	2.1	2 1	2 1	Ventes/consommation de génisses 9-24 " "
Bull/Steer sales/consumption 9-24 m %	8 6	8 6	8 8	11 5	12 0	14 0	16 0	16 0	17.0	17 0	17.0	17 0	17 0	17 0	Ventes/consommation de taurillons/bouvillons 9-24 " "
Heifer sales/consumption 24-36 m %	1 2	1.2	1 2	1.8	2.0	2.2	2 5	2 5	4 0	4.0	4 0	4 0	4 0	4 0	Ventes/consommation de génisses 24-35 " "
Bull/Steer sales/consumption 24-36 m %	40.3	41 6	42 0	42.0	43.0	45 0	46.0	46 0	46 0	46 0	46 0	46.0	46.0	46.0	Ventes/consommation de taurillons/bouvillons 24-36 " "
Bull/Steer sales/consumption 36-48 m %	33 0	33 3	33 3	33 6	33 6	34 9	34 3	35 0	35 0	36 0	36 0	36.0	36.0	36.0	Ventes/consommation de taurillons/bouvillons 36-48 " "
Bull/Steer sales/consumption 48-60 m %	20 8	20.8	21 0	21 0	21.0	21 0	21 0	21 0	21 0	22 5	23.0	24 0	25.0	27 7	Ventes/consommation de taurillons/bouvillons 48-60 " "
Disposal wt Heifers 9-24 m kg	130 0	130 0	130 0	130.0	131 0	132 0	133 0	134 0	135 0	136 0	136.0	136.0	136 0	136 0	Poids ou placement des génisses 9-24 " kg
Disposal wt Males 9-24 m kg	140 0	140.0	140 0	141.0	141 0	142 0	143 0	144 0	145 0	146.0	146 0	146.0	146 0	146 0	Poids ou placement des males 9-24 " "
Disposal wt Heifers 24-36 m kg	170 0	170.0	170 0	171 0	171 0	172.0	173 0	174 0	175 0	176 0	176.0	176 0	176 0	176 0	Poids ou placement des génisses 24-36 " "
Disposal wt Males 24-36 m kg	185.0	185.0	185 0	186 0	186.0	187 0	188 0	189.0	190 0	191 0	191.0	191.0	191 0	191 0	Poids ou placement des males 24-36 " "
Disposal wt Males 36-48 m kg	240 0	240 0	240 0	241.0	241 0	242.0	243 0	244.0	245 0	246 0	246.0	246.0	246 0	246.0	Poids ou placement des males 36-48 " "
Disposal wt Males 48-60 m kg	280.0	280.0	280 0	281 0	281.0	282.0	283 0	284 0	285 0	286 0	286.0	286.0	286.0	286 0	Poids ou placement des males 48-60 " "
Bulls/Steers over 5 years kg	310 0	310 0	310 0	311.0	311 0	312 0	313 0	314 0	315 0	316 0	316.0	316.0	316 0	316.0	Taurillons/bouvillons de plus de 5 ans
Cull Cows and Heifers over 3 years kg	240 0	240.0	240 0	241 0	241 0	242 0	243 0	244 0	245 0	246 0	246.0	246.0	246 0	246.0	Vaches de reforme et génisses de plus de 3 ans
Offtake 2/ %	10 7	10 8	10 8	11.1	11 2	11 7	11 9	12 7	13 6	13 8	14 2	15 0	15 7	16 0	Exploitation (taux d'extraction) %

1/ In order to relate herd projections more to local statistics, heifers over 3 years are included in the cow herd, although many heifers will not calve until 4 years old or more.

2/ Cattle sold during year as percentage cattle remaining at end of year. The increase in offtake after year 10 is due to the levelling off of the herd in year 10 (see text para 67).

1/ Afin de pouvoir rendre les projections de l'évolution du troupeau plus réalistes par rapport aux statistiques locales, on a inclus les génisses de plus de 3 ans dans le troupeau de vaches, même si généralement les génisses ne vêlent pas avant l'âge de quatre ans ou plus.

2/ Pourcentage du bétail vendu par rapport au bétail restant en fin d'année. L'augmentation de l'exploitation après l'année 10 est due à la stabilisation du troupeau dans l'année 10 (voir para 67 du texte).

ANNEX/ANNEXE 2
Table/Tableau 15

July 12, 1976

le 12 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Quantity and Value of Increased Production

From the Ituri Cattle Herd

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Production Supplémentaire de Bovins en Ituri: Quantité et Valeur

	Pre-Development/ Avant le développement	Year/Année 1	2	3	4	5	6	7	8	9	10	11	12	13-20
A. PRODUCTION Liveweight Offtake 1/														
Estimated liveweight offtake with project (metric tons)	7103	7278	7482	7949	8333	9028	9672	10782	11984	12456	13250	14587	14866	15163
Estimated liveweight offtake without project (metric tons) 2/	7103	7203	7303	7405	7509	7614	7721	7829	7938	8049	8162	8276	8392	8510
Estimated increase due to project (metric tons)	-	75	179	544	824	1414	1951	2953	4046	4406	5088	6311	6474	6653
Increased Milk Production for Consumption														
Estimated milk available for consumption with project-liter (000) 3/ due to increased cattle in milk	5723	5905	6263	6612	7097	7613	8110	8352	8457	8812	9006	9006	9006	9006
Increased milk production through better management-liter (000) 4/	-	-	-	7	21	76	162	250	338	441	450	450	450	450
Milk production with project-liter (000)	5723	5905	6263	6619	7118	7689	8272	8602	8795	9253	9456	9456	9456	9456
Estimated milk production without project-liter (000) 2/	5723	5803	5884	5967	6051	6135	6221	6308	6396	6486	6577	6670	6762	6857
Estimated incremental milk production-liter (000)	-	102	379	652	1067	1554	2051	2294	2399	2767	2879	2786	2694	2599
B. VALUE (based on prices in Section C below)														
Value of incremental liveweight production Z(000)	-	45	108	327	494	843	1162	1745	2382	2601	2990	3701	3793	3906
Value of 66% of incremental milk production at 4k per liter Z(000)	-	3	10	17	28	41	54	60	63	73	76	74	71	69
Total incremental value	-	48	118	344	522	884	1216	1805	2445	2674	3066	3775	3864	3975
C. PRICES PER KG LIVEWEIGHT														
Value of liveweight of animals under 260 kg liveweight	-	54	54	54	54	54	54	54	54	54	54	54	54	54
Value of liveweight of animals over 260 kg liveweight	-	80	80	80	80	80	80	80	80	80	80	80	80	80

A. PRODUCTION

Exploitation: Poids vif 1/

Estimation de l'exploitation avec le projet: poids vif en tonnes

Estimation de l'exploitation sans le projet: poids vif en tonnes 2/

Estimation de l'augmentation due au projet (en tonnes)

Production Supplémentaire de lait pour la consommation

Estimation de la production de lait disponible pour la consommation avec le projet - (en milliers de litres) - due à une augmentation de vaches laitières 3/

Production supplémentaire de lait due à une meilleure gestion (en milliers de litres) 4/

Production de lait avec le projet (en milliers de litres)

Estimation de la production supplémentaire de lait (en milliers de litres)

Production supplémentaire estimative de lait (en milliers de litres)

B. VALEUR (basée sur les prix de la section C ci-après)

Valeur de la production supplémentaire: poids vif en milliers de Z.

Valeur de 66% de la production supplémentaire de lait à 4 k le litre

Valeur supplémentaire totale

C. PRIX PAR KG DE POIDS VIF

Valeur du poids vif des animaux ayant moins de 260 kg de poids vif

Valeur du poids vif des animaux ayant plus de 260 kg de poids vif

1/ This includes animals slaughtered by farmer for family consumption, sale in markets for local consumption and export, and sales mature and immature cattle to ONDE.

2/ Assumes a herd growth rate of 1.4%.

3/ It is assumed that cows with calves yield 400 liters per lactation of which the calf could be deprived of 100 litres for home consumption.

4/ Commencing in year 3 increased milk production for home consumption with 0.1 liter per cow in milk; year 4, 0.3 liter/cow; year 5, 1 liter; year 6, 2 liters; year 7, 3 liters; year 8, 4 liters; year 9, 5 liters.

1/ Le chiffre inclut les animaux tués par l'éleveur pour la consommation familiale, la vente aux marchés pour la consommation locale et l'exportation, et les ventes de bovins et de bouvillons à l'ONDE.

2/ Suppose un taux de croissance du troupeau de 1,4%.

3/ L'on suppose que les vaches ayant des veaux produisent 400 litres de lait pour l'allaitement; pour la consommation familiale, le veau pourrait en être privé de 100 litres.

4/ En commençant à l'année 3, la production supplémentaire de lait pour la consommation familiale sera de 0,1 litre par vache en lactation; à l'année 4, de 0,3 litre/vache; à l'année 5, de 1 litre; à l'année 6, de 2 litres; à l'année 7, de 3 litres; à l'année 8, de 4 litres; et à l'année 9, de 5 litres.

July 8, 1976

le 8 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Training

Summary of Main Training Objectives

1. Projected output of trained veterinary staff suggests that there will be enough personnel graduating for the requirements of the Project (Appendix 1). The training of these staff, however, is mainly theoretical and there is insufficient practical training. The technical quality of existing junior staff in Ituri is capable of improvement. The first objective of the Project will therefore be to improve the technical knowledge and extension techniques of existing Project staff and provide them with the necessary aids. The second objective will be to develop training projects for livestock farmers using:

(a) on-farm training techniques;

(b) film shows, radio programs; and

(c) existing farmers training establishments at Totoba and Gopka.

Thirdly, an attempt will be made to improve the livestock course content of the two staff training centers in Ituri at Loda and Pimbo. Project experience may enable improvements to be made in the course content at the various veterinary schools in Zaire (Appendix 1).

2. To develop these objectives the Project unit would have an Extension and Training Specialist, a counterpart and several junior staff stationed at headquarters in Bunia (this staff and costs contained in Annex 3, Tables 13 and 14). The main tasks would be:

(a) to review the training requirements of staff and farmers;

(b) to improve the extension efficiency of Project field staff through training on the job and through special training programs to be developed by the proposed new Ngabu training center at Nioka. Time would be spent mainly in the field with staff. The staff at the Ngabu Training Center would concentrate on developing course content and the center's development in full cooperation with the extension specialist;

(c) to develop standard recommendations and manuals for use in field work;

(d) to develop a radio and mobile visual aids program; and

(e) to assist the Totoba and Gopka institutes to develop their programs;

3. The General Department of Agriculture has established an Information and Training Bureau, which among other activities organizes refresher courses for agents attached to the department's extension services. This bureau has not yet had the opportunity to prepare similar courses for veterinary service personnel, but Project staff would liaise closely with it.

A. In-Service Training - NGABU Training Center

4. The country's veterinary education system provides the following levels of training for Government animal production and health services (Appendix 1).

- Veterinarians trained at the National University of Zaire or educated abroad;

- Assistant veterinarians trained at the Butembo (Kivu) and Mbandaka (Equator) schools;

- Veterinary Infirmiers and Infirmiers aides trained at the Loda (Ituri) and Sandoa (Shaba) schools.

5. At all levels, education is more theoretical than practical and is designed primarily to impart theories related to veterinary science. Veterinarians leave school, insufficiently prepared to face administrative, organizational and leadership responsibilities. The teaching system of training centers for Assistant Veterinarians and Infirmiers is primarily concerned with preparing students for subsequent admission to the University. Due to this fact, general education is stressed over and beyond vocational training. On the vocational level, practical training accounts for only 15% of the learning process, out of which a significant part is devoted to laboratory work. Thus, students are inadequately prepared to confront their future professional responsibilities which will consist primarily of dealing with peasant farming problems.

6. At full development the Ituri Project Unit will have a junior field staff of 100 Infirmiers and 105 aides who will require in-service training. ONDE ranches and abattoirs will have training requirements. For this purpose it is necessary to develop a small training center in Ituri.

The refurbishing of existing unused buildings at the old Ngabu laboratories on the Nioka Research Center was chosen for this purpose because: (a) it was centrally situated in the Project area, (b) it already had buildings and land, (c) the research center had excellent demonstration material which could be used at little extra cost (d) staff at the research center could be drafted from time to time to help with lecture work. The alternative of providing new facilities at the existing Loda or Pimbo centers (paras 14 to 18) was turned down at this stage since they would have required more extensive improvements involving the present course structure and facilities and an examination of total training requirements at these centers.

7. The Ngabu center has a housing unit, large dining room and eight double rooms and kitchen sufficient to accommodate 16 trainees. Furnishings are required. Adequate buildings nearby, requiring some refurbishing are available for lecture rooms, stores, office space and housing for staff. A new house, however, would be needed for the technical assistance expert in charge of the center. Stock buildings are available on the center although new demonstration buildings built out of materials commonly available to the peasant farmers would also be built. An area of land would be demarcated for the center and some stock (cattle, pigs, rabbits) provided for sole use by the center. Much teaching, however, would be undertaken using stock and pastures on the Nioka Research Center.

8. The teaching staff would consist of a principal and a lecturer. For the first three years the principal would be an expatriate provided under German technical assistance. He would be a member of the Ituri Project Unit team.

9. The principal would be trained in agriculture and animal production, specializing in education and communication techniques. He will:- organize the center and define, in collaboration with the Project management, both the contents and length of training programs; make all necessary contact with institutions which might be in a position to offer assistance; teach all subjects which are not specifically technical, in which endeavor he will be assisted by the scientific staff attached to the station.

10. An assistant veterinarian counterpart would take responsibility following the departure of the technical assistance expert. He will be given a few months training in an institution specializing in vocationally-oriented adult education.

11. Courses for staff will last one to two weeks and will be specially designed to meet the needs of a particular extension program. Emphasis will be placed on practical training and dealing with the immediate farming problems associated with Project implementation. Training would be spread out over several courses. Once adequate numbers of staff have received training, special courses might be extended to various leaders in the farming community such as chiefs and representatives of grazing associations. The long term future of the centre would be considered when the project is near completion and follow up requirements are known.

12. The cost of renovations and equipment for the Ngabu center is estimated at Z 155,760 (Table 1), and the cost of training over 5 years, including Technical Assistance, Z 332,000 (Table 2).

B. Farmer Training

13. Catholic missions have established two farmer training centers - one in Totoba near Bunia with an enrollment capacity of thirty the other in Gopka, a few kilometers from Loda, with capacity for approximately 15 farmers. These centers organize training programs in which demonstration and practical experience or field work constitute the major elements of the educational experience. Courses have been organized which vary from 1 week to 1 year in duration. However, the length of the course, separation from families and the impossibility for trainees to return home to care for their farms during the course limit the number of volunteers, so that the courses are usually only one third or one quarter full. Principals of these centers suggest that extension activities should be carried out:

- in the villages themselves so that farmers are not forced to travel long distances;

- or during day visits to the market place, dispensary or the dipping tank, for example.

Formal training courses can only cover a small part of the population and in the first instance should be directed at those individuals destined to play a special role in the development process such as village extension agents or heads of grazing associations. The Totoba and Gopka centers wish to collaborate with the Project in organizing these training programs and to offer the use of their facilities. Efforts will be made to use Totoba and Gopka more fully but with the experience of these two centers in mind it is intended that most farmer training will be done on farms, in villages or at the dispensaries and dipping tanks. This will be one of the tasks of assistant veterinarians and Infirmiers who will be instructed in communication techniques during training programs at the Nioka center. The program will be assisted by:

(a) commentated filmstrips and slides - A truck equipped with all necessary equipment will be placed under responsibility of the Project management to be used for this purpose. Some slides and audio visual material would be made by project staff other material would be purchased;

(b) radio broadcasts in Swahili - The radio broadcasting services have already attempted to organize special educational programs dealing with agriculture.

The Project would work closely with the radio and television networks' special services departments to prepare programs dealing with Project themes and programmed to follow closely the animal breeding and farming cycles. In addition to funds for Ngabu the Project will supply funds (Z 53,000) for visual aid materials and the mobile film unit as well as some finance for running a few short courses at Totoba and Gopka centers (Table 3).

C. Agricultural Staff Training Schools in the Project Zone

14. There are two agricultural staff training schools in Ituri managed by the Department of National Education: The Loda veterinary school and the agricultural school in Pimbo. The Loda Veterinary school, established in 1952, was originally concerned with training foreign settlers who came to the country to establish their own farms. In 1958, this institution was converted into a veterinary Infirmier school offering a two-year course of study to an enrollment capacity of 30 students per year. Students are admitted after having completed a general orientation program (usually two years after completing their elementary studies).

15. Courses are taught by the Director (an assistant veterinarian who has graduated from Butembo), and two Rwandan assistant veterinarians. At the time of appraisal, there were two assistant veterinarian teaching positions. The course has recently been increased to three years so increasing numbers by 50%, making it necessary to construct new dormitories and classrooms. Due to insufficient funds, the school director has used unpaid workers from the Loda community to construct them and they are still incomplete. There is a school farm of 700 hectares of grazing and forest land. The farm carries 63 head of cattle, of which 7 died during 1974 from anthrax and seven cows aborted during the same period. In addition the pig enterprise of 60 hogs was discontinued in 1975 due to the high costs of feeding. Apart from staff salaries which were paid directly by the Department of Finance the school's only other income in 1974/75 for running the center were student enrollment fees (at the rate of Z 41 per student), proceeds from the sale of hogs (a total of Z 250), receipts from the sale of coffee (Z 96), and an additional Z 300 from rental of a truck which was assigned for school use. These funds are insufficient for the upkeep of a school with an enrollment figure of 66 students and which will admit 100 students beginning in 1975/76. All funds were used for maintenance of the student body, at the expense of:

(a) replacement of equipment and supplies;

(b) providing practical student field work (which explains why the education system revolves primarily around teaching of theory); and

(c) the upkeep of school buildings which are in urgent need of repair.

It would require a considerable amount of funds to bring the Loda school and farm up to the necessary standard.

16. Pimbo Agricultural Training school trains junior officials of the agriculture department. Until 1974 this school was operated by a Catholic mission. Its physical facilities are still in good condition. However, the limited resources of the education department do not enable it to grant this educational institution the subsidies which will most definitely be required in the near future to keep it in reasonable condition.

17. If the Ituri Livestock Development Project proceeds satisfactorily it is likely to be followed by a series of projects dealing with general agricultural development. More trained personnel will be required as well as more in-service training. Therefore, although no funds are proposed under this Project for the improvement of these two centers it would be valuable to begin to explore the possibility of consolidating the Loda and Pimbo schools into a single unit, with the following advantages:

(a) reduction in overhead expenses of these institutions by uniting the administrative personnel of the two schools into a single staff;

(b) consolidation of the teaching staff so that they feel less isolated - a step which, could improve future recruitment;

(c) provison of better and expanded facilities at no additional cost; and

(d) most important of all, provision of trained agents who show themselves as better adapted to development needs.

18. Some funds required for such a study have been provided for within the framework of the present Project in order to ensure the initiation of the reorganization effort just as soon as its need becomes obvious (Annex 9).

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Training Courses for Veterinary Staff in Zaire

Veterinarians

1. Veterinarians are qualified after completing a six-year course at the School of Veterinary Science on the Lubumbashi Campus of the University of Zaire 1/. Some veterinarians have studied at various universities abroad while the others have not. There are currently 40 qualified veterinarians in Zaire (including expatriate technical assistance) of which only 3 are employed by the Department of Animal Production and Health, on the A0 staff level. The others are employed either by other government agencies (ONDE, University of Zaire, Armed Forces...) or by commercial enterprises where the salary level is higher. Each year 5-8 new veterinarians graduate from the University. The country's need for veterinarians in 1990 is projected to be 120. The university's training capacity is sufficient to satisfy this demand.

Assistant Veterinarians

2. Assistant veterinarians are trained at the Butembo (Kivu) and Mbandaka (Equator) schools to which they are admitted upon completion of their elementary-level studies. They complete a two-year general orientation program followed by a four-year program of zootechnical and veterinary education. The annual training capacity of these schools is between 15 and 20 assistant veterinarians. There are currently approximately 80 assistant veterinarians on the A2 staff of the Department of Animal Production and Health. The projected demand for 1990 is 600 to 700 assistant veterinarians. These needs will not be satisfied by the existing schools. The second education project provides for aid to the Butembno and Gandajika schools 2/, each of which has an enrollment capacity of 230 students. Better performance by these schools would enable them to cover the country's needs.

1/ Beginning in 1976, any student in the School of Veterinary Science who has completed 3 years of study and who has obtained the corresponding degree may be recruited by the government veterinary services as part of its A1 staff.

2/ Appraisal of a second education project in Zaire, September 9, 1975 Annexes 9 and 10.

Veterinary Infirmier

3. Veterinary Infirmiers are trained in the Loda (Ituri) and Sandoa (Shaba) training schools to which they are admitted after having completed a general orientation course and in which they proceed to complete a three-year course of zootechnical and veterinary education similar in nature to that pursued in the Butembo and Mbandaka schools. It is possible for a student graduating from Loda or Sandoa with a diploma to enroll in the last year of study of the schools for assistant veterinarians. Upon completing their prescribed course of study, veterinary Infirmiersare recruited by Government veterinary services as part of their A3 managerial staff. Students who have completed their training but who have been unable to obtain their diploma may be hired as veterinary Infirmier aides, whose duties and functions are, in many instances, identical to those of full-pledged Infirmiers. The Loda and Sandoa schools each produce an average of from 25 to 30 veterinary Infirmiers per year.

Course Output

4. Forecasts of output from veterinary schools indicate that the country's needs n 1990 will be largely satisfied:

Veterinary Service Personnel

Staffing, Training and Demand (1973-1990) 1/

	Veterinarians 2/	Technicians	Vet. Infirmiers
Manpower in 1973	14	106	1,052
Estimated demand for 1990	120	600	2,400
Expansion needs	106	494	1,348
Eliminated wastage of 1973 staff 3/	6	43	426
Total training needs	112	537	1,774
Estimated Supply 4/	424	745	NA 5/

1/ This table has been reproduced from Annex 4 of the appraisal report for the second education project.
2/ Includes third year graduates recruited as Al staff members.
3/ Estimated at the rate of 3% per year.
4/ Includes a 3% annual loss factor.
5/ A portion of these needs will be covered by graduates from Loda and Sandoa.

ZAIRE

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Total training needs	112	537	1,774
Estimated Supply 4/	424	745	NA 5/

1/ This table has been reproduced from Annex 4 of the appraisal report for the second education project.
2/ Includes third year graduates recruited as Al staff members.
3/ Estimated at the rate of 3% per year.
4/ Includes a 3% annual loss factor.
5/ A portion of these needs will be covered by graduates from Loda and Sandoa.

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Investment Costs - Ngabu Training Unit
(2)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Coûts d'Investissement - Ngabu l'Unité de Formation
(Zaïres)

	Year/Année 1	2	3	4	5	Total/ Total	Foreign Exchange/ Devises Total	%	
INVESTMENTS									**INVESTISSEMENTS**
Ngabu									Ngabu
Trainee housing (1)	15,960					15,960	6,860	43	Logement des stagiaires (1)
Housing for center director (2)	23,412					23,412	6,560	28	Logement du chef de centre (2)
Housing facilities for middle and lower-level staff (3)	31,200					31,200	8,740	28	Logement de l'adjoint et des cadres subalternes (3)
School building (4)	3,192					3,192	1,370	43	Bâtiment scolaire (4)
Office equipment (5)	4,062					4,062	2,270	56	Matériel administratif (5)
Pig and stock housing (6)	1,500					1,500	-	-	Porcherie et autres bâtiments pour le bétail
Audio-visual materials (7)	2,610					2,610	2,610	100	Matériel audiovisuel (7)
Vehicles (8)	36,912			36,912		73,824	56,840	77	Véhicules (8)
Total	118,848			36,912		155,760	85,250	55%	Total
Foreign Exchange	56,830			28,420		85,250			Devises

1/ Renovation of existing building, painting, equipment for community facilities facilities (kitchen, washroom), restoration of restroom and bath facilities, furniture and household goods.
2/ Construction and furniture. To be omitted if housing can be made available elsewhere on the station.
3/ Refurbishing and outfitting of 6 unoccupied houses at the Ngabu center.
4/ Furniture and equipment for the building located behind the laboratories and presently unoccupied.
5/ 2 typewriters, 1 roneograph, 1 photocopier, 1 calculator, office equipment (center director, counterpart, secretary, accountant, supervisor).
6/ Buildings to shelter, approximately 50 hogs and a small-scale stock-farm (rabbits, chickens)constructed of local materials.
7/ 1 slide projector, 1 16 mm film projector, 1 screen, 1 taperecorder, 1 kw generating unit.
8/ 2 land rovers, 1 3-ton truck. Vehicles will be replaced in year 4.

1/ Restoration des bâtiments existants, peintures, équipements pour aménagements communautaires, aménagements cuisine et salle-de-bain, restoration des toilettes, mobilier et équipements domestiques.
2/ Construction et mobilier. A supprimer si un logement peut être rendu disponible sur la station parmi les logements de cadres.
3/ Aménagement et équipement de 6 maisons existantes et inutilisées au centre de Ngabu center.
4/ Mobilier et équipement du bâtiment situé à l'annere des laboratoires et présentement inoccupé.
5/ 2 machines à écrire, 1 machine à ronéotyper, 1 photocopieuse, 1 machine à calculer, mobilier de bureau (chef de centre, adjoint, secrétaire, comptable, surveillant).
6/ Bâtiments pour abriter une cinquantaine de porcs et une ferme d'élevage (lapins et poulets) à petite échelle construits de matériaux locaux.
7/ Projecteur de diapositive, projecteur de film 16 mm, un écran, un magnétophone, générateur de 1 kw.
8/ 2 land-rovers, un camion de trois tonnes, les véhicules seront remplacées à l'année 4.

July 23, 1976

le 23 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ngabu - Training Unit

Ngabu - L'Unité de Formation Professionnelle

Operating Costs of Education Unit
(Z)

Coûts de Fonctionnement de L'Unité de Formation
(zaïres)

	Grade/Salary/ Grade/Salaire	Year/Année 1	2	3	4	5	Total/ Total	Foreign Exchange/ Coût en Devises Total	%	
Ngabu										Ngabu
Salaries 1/										Salaires 1/
Head of Center	52,200	52,200	52,200	52,200	-	-	156,600	156,600	100	1 Chef de centre
Counterpart (1)	2,500	1,875	2,500	2,500	2,500	2,500	11,875	-	-	Personnel national (1)
Lecturer	1,225	-	-	613	1,225	1,225	3,063	-	-	1 Conférencier
Typist, Accounts and Stores Clerks	675	1,688	2,025	2,025	2,025	2,025	9,788	-	-	Dactylo, employé comptabilité/magasin
Drivers (3)	575	1,150	1,725	1,725	1,725	1,725	8,050	-	-	3 Chauffeurs
Laborers (4)	400	1,600	1,600	1,600	1,600	1,600	8,000	-	-	4 manoeuvres
Cooks/Laundryman (2)	575	863	1,150	1,150	1,150	1,150	5,463	-	-	1 Cuisinier 1 Blanchisseur
Sub-Total		59,376	61,200	61,813	10,225	10,225	202,839	156,600		Total Partiel
Foreign Exchange		52,200	52,200	52,200	-	-	-	156,600	77	Devises
Other Costs										Autres Coûts de Fonctionnement
Vehicle Operation and Maintenance 2/	70	10,508	12,593	12,593	12,593	12,593	60,880	44,457	73	Fonctionnement et entretien des véhicules 2/
Subsistence for Trainees 3/	20	3,870	5,108	5,108	5,108	5,108	24,302	5,464	22	Subsistance des stagiaires 3/
Demonstration Materials/Films	80	3,384	3,384	3,384	3,384	3,384	16,920	13,920	82	Matériels de démonstration/films
Upkeep of Animals	20	1,238	1,238	1,238	1,238	1,238	6,190	1,392	22	Entretien des animaux
Maintenance of Buildings 4/	30	1,572	3,144	3,144	3,144	3,144	14,148	4,698	33	Entretien des bâtiments 4/
Counterpart Training	100	-	2,610	-	-	-	2,610	2,610	100	Stage à l'etranger de l'homologue
Utilities, Electricity, etc.	30	550	550	550	550	550	2,750	922	34	Fonctionnement du groupe electricité
Office Supplies	60	329	329	329	329	329	1,645	1,044	63	Equipements de bureau
Sub-Total		21,451	28,956	26,346	26,346	26,346	129,445	74,507	57	Total partiel
Foreign Exchange		12,511	17,470	14,842	14,842	14,842	-	74,507		Devises
Total Ngabu Salaries and Other Costs		80,827	90,156	88,159	36,571	36,571	332,284			Total Salaires et Autres Dépenses - Ngabu
Total Foreign Exchange		64,711	69,670	67,042	14,842	14,842	-	231,107		Total Devises

1/ Including family and other allowances.
2/ 25,000 km/year landrovers 14.2 K/km and lorries 21.7 K/km.
3/ Z 1 for 15 courses of 11 days for 20 men.
4/ 2% of estimated value of Z 157,200.

July 23, 1976

1/ Y compris, allocations familiales, voyages et congés, etc.
2/ 25.000 km/an à 14,2 K/km le landrovers et 21,7 K/km pour les camions.
3/ Z 1 pour 15 stages de 11 jours pour 20 participants.
4/ 2% de la valeur des bâtiments estimée à Z 157.200.

le 23 juillet 1976

ANNEX/ANNEXE 4
Table/Tableau 2

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Investment and Operating Costs of Film and Visual Aids Unit and Upkeep Costs for Project Student Courses at Totoba and Gopka
(Z)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Coûts d'Investissement et de Fonctionnement pour l'Unité Mobile Audio-Visuelle et pour les Coûts de Pension des Cours d'Etudiant à Totoba et Gopka
(zaires)

	Unit Cost/ Cout Unité	Year/Année 1	2	3	4	5	Total/ Total	Foreign Exchange/ Devises Total	Foreign Exchange/ Devises %	
INVESTMENTS										INVESTISSEMENTS
Visual Aid Van and Equipment	17,400	17,400	-	-	17,400	-	34,800	34,800	100	Camion audio-visuel et projections
Audio Visual Aid Materials and Equipment	4,250	2,550	1,700	-	-	1,700	5,950	4,900	82	Matériel audiovisuel et équipement
Total Cost		19,950	1,700	-	17,400	1,700	40,750	39,700		Coût total
Foreign Exchange		19,500	1,400	-	17,400	1,400		39,700	97	Devises
OPERATING COSTS										COUTS D'EXPLOITATION
Salaries and Allowances 1/										Salaires et allocations 1/
Driver	575	440	575	575	575	575	2,740	-	-	Chauffeur
Visual Aids Operator	925	690	925	925	925	925	4,390	-	-	Opérateur audio-visuel
Total Personnel Costs		1,130	1,500	1,500	1,500	1,500	7,130	-		Coût total personnel
Other Costs										Autres Coûts
Operation of Vehicle and Equipment 2/	6,700	5,025	6,700	6,700	6,700	6,700	31,825	23,140	73	Fonctionnement des véhicules et d'équipement 2/
Local Travel and Subsistence	-	165	330	330	330	330	1,485	960	65	Frais de déplacement à l'intérieur
Visual Aids and Materials/Films	-	-	830	1,660	1,660	1,660	5,810	4,270	73	Matériel visuel/achat films
Maintenance of trainees 3/	-	770	1,550	1,550	1,550	1,550	6,970	1,570	22	Pension des stagiaires 3/
Total Other Costs		5,960	9,410	10,240	10,240	10,240	46,090	29,940		Total Autres Coûts
Foreign Exchange		3,930	6,060	6,650	6,650	6,650	-	29,940	65	Devises
Total Operating Costs		7,090	10,910	11,740	11,740	11,740	53,220	29,940	56	Total Coûts de fonctionnement
										Devises

1/ Includes family and other allowances.
2/ 2,500 km/yr Z 5,430 plus repairs and operations of other equipment.
3/ 5 10-day training sessions for 20 people at Z 1.55 per day.

June 22, 1976

1/ Allocations familiales et autres inclus.
2/ 2.500 km/an Z 5.430 plus réparations et fonctionnement des autres équipements.
3/ 5 stages de 10 jours pour 20 stagiaires à 1,55 zaïres par jour.

le 22 juin 1976

ANNEX/ANNEXE 4
Table/Tableau 3

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Ranches

A. Background

General

1. The highlying savannah areas of Ituri region have a high potential for stock raising. Before Independence Europeans established farms and ranches with over 60,000 head of beef and dairy cattle in this area to supply fresh meat and milk to the plantations, mines and the population of the Upper Ituri region. Cattle on the Ituri ranches were mostly local Lugware, Alur and Bahema breeds. European breeds - primarily Friesian, Brown Swiss, Shorthorn, and Jersey - were also used to upgrade local breeds; the cross-breeds exhibited substantially improved milk and meat yields.

2. The Nioka research center ran a successful program to improve the performance of local breeds for more than twenty years during the pre-Independence period and demonstrated the value of cross breeding with European breeds of cattle. Research on pastures was mainly concentrated on efficient utilization of natural pastures by paddocking, rotational grazing and selective weeding-out of unpalatable grass species. Trials with improved grass species and legumes were also promising. Ituri ranches benefited from these results and up to Independence Ituri farmers were moving from an extensive system of farming to a more intensive system approaching one animal per hectare.

3. The civil unrest of the 1960's led to the departure of the European farmers and the depletion of the ranches so that by 1975 only 10,000 head of cattle remained on a few larger farms. The Nioka research station also went through a difficult period but is being revived and restaffed with the aid of German Technical Assistance. The station presently has 2,700 cattle on 11,000 ha (2,500 ha fenced).

Government's Objective

4. The Government wishes to see the large farm sector restored to:

(a) increase meat production by stocking up the ranches;

(b) absorb and fatten immature and unfinished young stock from the traditional herds;

(c) develop a larger number of improved breeding animals, bulls and heifers, for the traditional sector;

(d) develop a nucleus herd of crossbred dairy animals by using dairy bulls for future development of a smallholder dairy industry.

5. The Government has chosen to develop first the ranches presently administered by "Office des Mines d'Or de Kilo-Moto". The responsibility for development of these ranches would be transferred to the State ranching organization, ONDE. The mission was asked to consider the financing of five ranches totalling 26,600 ha with about 3,000 head of cattle. Before 1959 these ranches had about 20,000 head of cattle. Kerekere the largest ranch is located in the North. Asada and Ladde are located near each other about 60 km South of Kerekere. Near Bunia to the South is Dele ranch, which consists of four farms: Dele, Makabo, Tindah and Songolo. Yegu farm is located near the mining headquarters of Bambumines, North of Bunia. The situation of these ranches before Independence, at present and proposed for full Project development are as follows:

			----------Head of Cattle----------		
Ranch	Zone	Area (ha)	1959 (Mission Estimate)	1975	1985 On Project Ranches
Kerekere (4 farms)	Mahagi	16,600	9,000	2,425	11,080
Asada	"	5,000	4,000	260	3,280
Ladde	"	5,000	2,500	0	-
Yegu	Djugu	1,320	500	400	-
Dele (4 farms)	Irumu	5,000	4,000	817	4,320
Total Ranches		32,920	20,000	3,902	18,680
Project Ranches		26,600	-	3,460	18,680

6. The mission does not support investment in Yegu and Ladde ranches at this stage. Yegu, a dairy and forest farm, was excluded because it is adequately developed for its present purpose and is closely integrated with the mining operation. Due to the collapse of a major bridge Ladde is now

inaccessible and its investment requirements are not known. The ranches chosen for development would be sufficient to absorb the projected number of breeding and fattening stock available from the traditional sector. The three ranches selected for development, Kerekere, Asada and Dele cover 26,600 ha and presently have about 2,700 head of cattle.

B. General Features of Ituri Project Ranches

Ecology

7. The three Project ranches are located a little north of the equator at about the latitude 2^{o} and longitude between 30^{o} and 31^{o}. The altitude ranges from 1,200 m to 1,400 m. Rainfall on the ranches varies from 1,300 mm to 1,500 mm and is fairly well distributed over most of the year. The dry season lasts between 3 and 4 months in the North, where Kerekere and Asada ranches are situtated and from 2 to 3 months in the South at Dele ranch. The dry months are December, January and February. Temperatures vary from 12^{o}C to 27^{o}C. The land is hilly and well watered. The vegetation consists of open savannahs with grasses of Hyparrhenia, Loudetia, Eragrostis and Cymbopogon. Forest areas can be found along streams. The temperate climate, ample rainfall and good grassland give the area a good potential for cattle raising.

Present State of Ranches

8. The ranches are in a run-down condition due to inadequate management and lack of funds for proper maintenance and operation. Present income barely covers essential operating costs. Records and accounting systems are poor. The Ranch Manager, a local Zairian is inexperienced in modern ranching techniques and although he tries hard he has too much to supervise and few staff with any qualification to help him. The ranches are connected by poor roads and he and his staff are often without means of transport.

Grazing and Cattle Management

9. The ranches have no systematic grazing management and utilization of pastures is poor. At present only a small part of the area is used. Most fences are broken and cattle are herded during the day and driven into kraals at night. Unutilized pastures are burnt periodically and often grazed by neighboring traditional herds. Parts of some ranches have been overgrazed in the past and invasion of unpalatable grasses and bush have occurred.

10. Management of cattle is weak. Good animal husbandry practices are neglected. Few calves are castrated. Some bulls are of poor quality. Irregular supplies of drugs and dipping materials as well as total lack of

mineral salts has led to high mortality, poor growth rates and low calving percentages. The cattle are generally of a poorer quality and smaller than those of a similar breed at Nioka.

11. Cattle are divided in small herds of 60-120 head. The ratio of herders per 100 animals is too high. The Ranch Manager has too many ranches to supervise, connected with poor roads, and is often without any means of transport. He also has few qualified staff to assist him.

Animal Health

12. Mortality of calves and other stock on the ranches is high. Principal causes are East Coast Fever, Anaplasmosis and Piroplasmosis. Anthrax is also present. Tsetse flies are sometimes found in the lower forest galleries but Trypanosomiasis is not a serious problem on the Project ranches. Liver Fluke and internal parasites are common and require regular treatment. Cysticercosis is present and control methods are required to cut down its incidence.

C. General Project Objectives

Ranch Development and Production

13. The objectives of developing the three Project ranches will be three-fold, namely: to increase beef production to the pre-Independence level, absorb and fatten surplus unfinished cattle from the traditional sector and provide dairy-type heifers to the smallholders as a basis for a future dairy scheme in Ituri. Beef production will take place on all three ranches by building up breeding herds and purchasing and fattening unfinished cattle. The existing small breeding herds on Kerekere and Dele ranches will be enlarged by purchasing 1,500 heifers. Half would come from traditional farmers and half might be Boran heifers from Kenya. At the same time about 100 good breeding bulls will be purchased to upgrade the breeding herds, partly by purchasing bulls from the Nioka Station and partly by importing dual purpose dairy bulls from Kenya. Breeding herd and fatteners cattle numbers would be expanded from the present 2,500 head (A.U.) to about 7,300 head at full development and about 660 beef cattle and about 220 culled cows will be sold from the two breeding herds. In addition if dairy bulls are used from Year 8 a considerable number of upgraded, dairy heifers will be available and could be the basis of a milk scheme for smallholders in Ituri. At full development almost 400 dairy heifers annually would be available for such a scheme.

14. Fattening of cattle purchased from the traditional herd will take place on all three ranches. To simplify management, Asada will only fatten

cattle while Kerekere and Dele ranches will have both fattening and breeding activities. Two types of cattle will be purchased for fattening:

(a) immature younger steers and bulls around 140 kg liveweight to be fattened for two years and sold at 300-310 kg liveweight; and

(b) older steers and bulls of about 185 kg liveweight and fattened during a 6-9 months period and sold at about 290 kg liveweight.

To purchase the stock Ranch Managers will attend local markets or use the service of ONDE's Buyer's purchasing stock for the Bunia abattoir. About 7,000 steers annually would be brought for the 3 ranches.

15. A number of improvements on ranches will be made. Ranch infrastructure will be built up to reasonable standards, fire-breaks, road and bridges will be built or repaired, bush cleared, Stylosanthes and other leguminous plants introduced, perimeter fences, paddocks and night-kraals rebuilt to implement rotational grazing, herd management will be improved through proper animal husbandry practices (castration, marking, culling, record-keeping, etc.). Animal health control will be strengthened by building and repairing dipping-tanks, timely supplying of drugs and vaccines, training of existing personnel and recruiting more personnel in line with increased herd numbers. Vehicles will be purchased for pasture improvement and other ranch work. Four-wheel drive vehicles, motorcyles and bicycles will be provided to ensure transport of key personnel.

Marketing

16. At present most beef produced on Kilo-Moto ranches is reserved for sale at a subsidized price to the population of the mines. Of the 300 animals presently produced on the farms 250 are trekked to the mines for sale and the remainder are sold locally. The mines' annual consumption is estimated to be 450 head, the remainder being brought in by local traders.

17. Present production for the 3 ranches should increase to 7,800 head by Year 10. Ranches will sell to Kilo-Moto the animals needed to feed the population of the mines at the regular market price and the remainder (about 6,200) will be sold to Bunia abattoir, where they will be processed for export to Kinshasa. These animals should generally grade 1st or 2nd and command reasonable prices. Animals are currently moved between ranches and to the mines on the main roads. With the Project, cattle would move on the rehabilitated stockroute (see Annex 2, paras 43-44).

Organization and Management

18. The development of the three Project ranches is a difficult task and strong management and sound organization are musts for a successful

Project. ONDE will be responsible for the ranch component of the Project. ONDE is already well established and has gained experience in management of the ranches in Shaba and now also has a good knowledge of the Bank's procedures (Annex 7). During the Project's build-up the Project ranches will be managed by an expatriate ranch manager, located at Kerekere ranch, and assisted by a Zairian deputy ranch manager, who will take over after the departure of the expatriate ranch manager.

19. The expatriate Ranch Manager will be responsible to the Director General of ONDE. He will be a member of the Project's coordination committee and coordinate with the main Project on all matters concerning purchase of fattening stock from the traditional sector and coordination of common aspects relating to stockroutes and slaughtering of cattle. The Ranch Manager, besides overseeing harmonious development of all three ranches will be responsible for training of local staff at all levels. Key ranch staff will be sent for further training to the new ranch school presently being established at Muhila ranch under the First Livestock Development Project (PMMK).

Financial Situation and Financing

20. The financial situation of the ranches in unclear. The mission had no access to any financial documents either on the ranches or at the mine headquarters in Bambumines. It was, therefore, impossible to prepare either balance sheets or profit and loss account statements. Salaries of ranch employees and workers are paid by the Kilo-Moto Company, which appears to keep some accounts for its ranches. Some data on daily or quarterly income and expenses were also found on each ranch. Based on this information, the missipon estimates that the ranches are presently operating at a loss. As a condition of effectiveness the ranches would be transferred to ONDE with all existing assets and free of liabilities. An inventory of assets would be made by auditors at project commencement and new accounts established.

21. At 1975 producer prices Project ranch investment yielded negative financial rates of return. Using the May 1976 threefold increase in producer prices as minimum prices and adjusting for cost increases the financial rate of return on Kerekere was 7%, Dele was 10% and Asada was 12%; Asada's steer fattening operation being very sensitive to changes in steer prices. The financial rate of return on the combined ranches was 9%; A 10% increase in investment, operating cost and steer purchase price reduced this by 4 percentage points to 5%. Bearing in mind the risks involved in ranch development and the need to get acceptable rates of return on capital the mission has determined a set of prices which will provide an adequate return on ranch investments. Since the main outcome of the investments will be to produce more first and second grade meat it is proposed to increase both of these grades by 30% as follows:

	Official Prices		Proposed Prices
	Feb. 1973	May 1976	
	----------per kg liveweight--------		
Quality steers and heifers over 350 kg	.24	.70	.91
Quality steers heifers and cows in good condition 260-350 kg	.19	.62	.80
Quality culled bulls and animals under 260 kg	.17	.54	.54

Using the proposed prices as minimum prices, ranch development would yield an overall rate of return of 19%. A sensitivity analysis shows that a 10% increase in the cost of investments, operating costs and steer prices would reduce the rate of return by 4% points to 15%; a reduction in income by 10% would reduce it by 5 points to 14%. A combination of these two factors, which is a possibility would reduce the return to 11%. The individual financial rates of return for Kerekere, Dele and Asada are 14, 22 and 25%, respectively. The lower rates of return on Kerekere and Dele compared with Asada are due to build up of the breeding herd on these two ranches and the higher rate for Dele is partly because it is more developed than Kerekere and the income from steer fattening in the ranch budget has been based on the more profitable single year fattening of steers from the traditional herd while Kerekere herd budgets are based in two year fattening. In practice both ranches are likely to have an equal number of one year and two year fattening animals. While the rate of return for Asada ranch is attractive the risks are appreciably greater than the ranches with a nucleus breeding herd. It is uncertain whether farmers will always want to sell their unfinished animals in the quantity and at the time required or at the particularly favorable price (to the ranch) of only 54 K per kg liveweight. A 10% increase in costs and 10% decline in benefits would reduce the Asada rate of return to 14% and a two year delay in achieving benefits would reduce it to 11%.

22. In considering financing and relative emphasis of development on the three ranches it would be the initial objective that Kerekere and Dele ranches would become the nucleus ranches. Although the prime objective will be the fattening of cattle from the traditional areas it will be necessary to build up the breeding herds on these two ranches to a level that would allow them to continue economically and support the management infrastructure developed without having to depend on fattening stock for income (in case such stock became unavailable at any time). These ranches would receive priority for fattening stock and Asada would begin to be developed using surplus purchased animals that need not to be taken on the other two ranches. It is therefore, important that the development of the three ranches should be considered as an integrated unit with development on each taking place in relation to the overall availability of breeding stock and the build up of the nucleus breeding herds. In order to build up equity capital on the ranches

and give them a sound financial structure all funds for fixed investments, breeding stock and technical assistance will be passed to ONDE as a grant while working capital for the first three years will be provided as a loan at 11.5%, interest repayable over 20 years commencing repayment in the eighth year. The working capital loan will involve 100% of operating costs in the first year, and 100% of incremental costs in years 2 and 3. Ranch income will fully cover costs by the sixth year. Although Kerekere will have small cash flow deficits in the development period, the consolidated income from all ranches should provide a small cash surplus in all years. The margin for error (or delay) is small and any subsequent cash flow deficits would have to be met by Government. Ranch profits would accrue to ONDE for the financing of further livestock development in Zaire. The following summarizes the finance required for the three ranches over the 5 years.

	Investment Grant (Incl. TA)	Working Capital Loan	Total	Estimated Income from Sale of Stock
	----------Z 1000----------			
Kerekere	893	153	1,046	638
Asada	215	114	329	548
Dele	452	143	595	780
	1,560	410	1,970	1,966
US$ (1000)	1,793	472	2,265	2,260

D. Kerekere Ranch

23. This ranch is a complex of four adjacent ranches located 50 km southwest of Aru and 110 km north of the Nioka Station. Kerekere ranch of 16,500 ha, includes the two smaller Kalaga and Gelinga ranches (8,400 ha) and Vumba ranch (8,100 ha). The river Aru crosses the ranches and separates Kerekere and Vumba. The ranch, located 2 degrees North of equator, at an elevation of 1,350 m, has a relatively temperate climate. There are two distinct seasons with a 4 months dry season from December to March; the rainfall is about 1,500 mm; August has the heaviest rain and January is the driest month. The soil is stony, and the pastures consist of grass species such Hyparrhenia, Brachiaria and Setaria. Sporobolus, an unpalatable grass, is invading the pastures in places, and weeding and bush clearing is needed. Due to lack of fire-breaks the pastures are often burned during the dry season. Many small rivers cross the ranch. The fences and buildings were severely damaged during the rebellion period and need to be rebuilt.

24. The herd is mixed consisting mainly of local Lugware crossed with Friesian, Brown Swiss and Shorthorn. At present the ranch is stocked with about 2,400 head of cattle, but the potential capacity is possibly 11,000 head.

There are about 80 employees, a few Veterinary attendants and a ranch manager who has a heavy workload overseeing all Kilo-Moto ranches with inadequately trained people to assist him; records and accounts are in arrears. Management needs to be strengthened.

25. The Project would rehabilitate the infrastructure by setting up new perimeter fences, building night kraals, establishing fire-breaks and carrying out bush and weed clearing of pastures. Pasture improvement would be done during the Project period by planting Stylosanthes seed; equipment would be provided for this purpose. After the Project period, seed would be harvested by hand and used for further planting. Houses for staff would be built and veterinary installations repaired. The Project would stock the ranch by expanding the existing herd partly by natural growth, partly by importing Boran heifers from Kenya and partly by upgrading the existing herd with imported dairy bulls from Kenya. Approximately half of the ranch area would be used for breeding purposes and the other half for fattening by purchasing whatever is available of young steers and bulls from the traditional sector; these steers and bulls would be purchased at approximately 140 kg liveweight, fattened during a 2-year period and sold at 300-310 kg liveweight; at full development the ranch would be able to buy about 2,500 young steers annually from the traditional markets.

26. The breeding herd would be built up to carry 1,600 breeding cows and produce about 500 slaughter steers annually and about 300 upgraded heifers, which would be available for the farmers and form the basis of a future dairy development scheme in Ituri. A total of 70 breeding bulls would be needed during the 5 year Project development period. About half of the bulls would be purchased locally at Nioka breeding station and the balance, exotic dairy bulls, would be imported from Kenya. Approximately 1,000 heifers would be purchased during the Project's first 3 years; about half would be purchased locally and the balance would be Boran heifers imported from Kenya. Fattening steers would be sold to mining centers in Watsa, Mongwalu and Nizi with the remainder going to the Bunia abattoir. As the ranch is without any means of transportation for its management and staff, the Project would provide a truck, tractors and 4-wheel drive vehicles for the ranch. Management of the ranch would be strengthened by recruitment of an expatriate ranch manager based at Kerekere ranch; he would also supervise development of Asada and Dele ranches.

27. Herd projection, investment costs, operating costs and cash flows are given in Tables 2, 3, 4 and 5. Although the ranch would receive some income from sales of stock, in the first 5 years an additional Z 1 million would be required of which Z 873,000 would be for investments and Z 153,000 would be for working capital. Income from sales should exceed expenses in Year 8 with deficits being met from surpluses from other ranches.

E. Asada Ranch

28. Asada ranch is situated on the Asada river some 60 km south of Kerekere ranch and about 160 km north of Bambumines, the Kilo-Moto gold mine

headquarters. The ranch is located in open country and covers about 5,000 ha of which about 4,000 ha is good pasture land consisting of grasses such as Panicum Maximum, Loudetia, Hyparrhenia and Setaria. The pastures are better than at Kerekere ranch. The dry season lasts about 4 months between October and February and the heaviest rain falls in August and September. The ranch used to carry 4,000 head of cattle but at present has only 260 head, recently transferred from Kerekere ranch. The ranch is supervised by the Ranch Manager at Kerekere. The infrastructure of Asada ranch is fairly good; most houses for ranch personnel are intact, but fences are broken and there is some bush invasion.

29. The adjacent Ladde ranch of about 5,000 ha used to stock 2,500 head of cattle but is now completely abandoned; houses are demolished and bridges and roads deteriorated; squatters occupy many parts of the area.

30. In order to simplify management of all ranches, only fattening of steers would take place at Asada ranch. At full development approximatley 1,000 steers for fattening over 2 years and 1,500 one year fattening steers would be purchased annually. The expatriate ranch manager at Kerekere ranch, 60 km away, would supervise Asada ranch which would be run by a Zairian, an Assistant Veterinarian (A2). The main investment items would be perimeter fencing, establishment of fire-breaks, some bush clearing, construction of a few houses, purchase of vehicles and motorcycles, equipment for pasture improvement and Stylosanthes seed.

31. Herd projection, investment costs, operating costs and cash flows are given in Tables 6, 7, 8 and 9. Finance would be required for the first 5 years for ranch improvements and financing the purchase of steers and working capital. Income from sales should exceed expenses in year 6. Although the ranch would receive income from sale of stock, in the first 5 years an additional Z 329,000 would be required of which Z 215,000 would be for investments and Z 114,000 for incremental working capital.

F. Dele Ranch

32. The ranch consists of four sectors: Dele (1,200 ha), Makabo (1,300 ha), Tindah (1,200 ha) and Songolo (1,300 ha), a total of 5,000 ha. The ranch is located 5 km south of Bunia, the Project headquarters. Both Dele, Makabo and Tindah have flat open land with fairly good pastures of Hyparrhenia diplandra, Imperata and Loudetia; the unpalatable grass Sporobolus is invading and lowering the quality of the pastures; the land of Songolo sector is hilly and has an altitude of 1,240 m. The river Tindah crosses the area The bridge over the Tindah river between Makabo and Tindah sectors has been seriously damaged and is in need of repair to allow the development of Tindah and Songolo sectors. The annual rainfall is about 1,200 mm with a 3 month dry season from December to February. The infrastructure is deteriorating; 800 ha of Dele sector has fences, access roads need to be improved,

demolished houses to be reconstructed, a bridge repaired, fences repaired, fire-breaks made, and dipping tanks rebuilt. There is a small herd of about 800 head of cattle, mainly crosses between the local Bahema cattle (Ankole breed) and Brown Swiss and other exotic breeds.

33. Common diseases on the ranch are Liver Fluke (Distomatose) and East Coast Fever (Theirleriose); weekly dipping of cattle is necessary. Inoculation against Blackleg (Charbon Symptomatic) is needed once a year.

34. At full development the ranch would carry about 4,000 head of cattle. Both breeding and fattening operations would take place. The breeding herd would be increased to 600 breeding cows, partly by expanding and improving the existing herd, partly by purchase of local heifers and partly by import of Boran heifers from Kenya. During the 5 year Project period 28 breeding bulls would be needed of which about half would be exotic dairy bulls from Kenya; about 110 crossbred dairy heifers would then be available annually to the traditional livestock sector. Approximately 60 culled cows and 180 steers would be available for slaughter. For fattening purposes about 2,000 steers and bulls (2-3 years old) would be purchased annually, making about 1,900 steers available for slaughter at Bunia abattoir. Paddocks would be re-established to practice a systematic grazing. As fires often occur on the pastures, fire-breaks would be established and further pasture improvements undertaken by planting of Stylosanthes.

35. The expatriate manager would oversee operations but the ranch would be run by a Zairian with veterinary or animal production training of the A2 level. The main investment items would be fencing, establishment of fire-breaks, some bush clearing, construction of few houses, purchase of vehicle and motorcycle, dips and equipment for pasture improvement and Stylosanthes seed.

36. Herd projection, investment costs, operating costs and cash flows are given in Tables 10, 11, 12 and 13. Finance would be required for the first 5 years for ranch improvements and the financing for the purchase of steers and working capital. Income from sales should exceed expenses in Year 5. Although the ranch would receive some income from sales of stock, in the first 5 years an additional Z 595,000 would be required of which Z 452,000 would be for investments and Z 143,000 for incremental working capital.

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Kerekere, Dele and Asada Ranches

Source and Application of Funds

(Z)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ranches de Kerekere, de Dele et d'Asada

Origine et Emploi des Fonds

(Zaires)

	Before Development / Avant Développement	Years/Années 1	2	3	4	5	6	7	8	9	10-20	
SOURCES OF FUNDS												ORIGINES DES FONDS
Sales	41,214	47,270	219,830	372,650	585,080	741,720	884,490	1,137,970	1,505,320	1,859,430	1,940,770	Ventes
Development Grant 1/		305,750	472,515	349,825	233,210	198,825						Don pour le développement 1/
Development Loan 2/		211,938	101,507	96,557								Prêts à long terme 2/
Total Sources	41,214	564,958	793,852	819,032	818,290	940,545	884,490	1,137,970	1,505,320	1,859,430	1,940,770	Total des Fonds Disponibles
USE OF FUNDS												Emploi des Fonds
Fixed Investment Costs		176,550	308,190	248,500	166,260	142,250						Coûts d'Investissement en capital
Purchase of Breeding Cattle		77,000	112,125	49,125	14,750	4,375						Achat de Bétail d'Elevage
Capital Replacement Costs						89,055	53,405	40,260	12,325	96,300	60,479 5/	Coûts de Remplacement du Capital
Operating Costs 3/	42,306	176,418	227,945	259,432	275,296	296,306	275,950	305,085	318,817	320,035	319,705	Coûts d'Exploitation 3/
Purchase of Fattening Stock		87,720	137,700	202,770	275,400	370,710	488,700	614,250	614,250	614,250	614,250	Achat de Bétail d'Embouche
Loan Instalments 4/									106,599	106,599	106,599	Remboursements du Prêt 4/
TOTAL USES	42,306	517,688	785,960	759,827	731,706	902,696	818,055	959,595	1,051,991	1,137,184	1,101,033	Total des Fonds Employés
Annual Surplus (Deficit)	(1,086)	47,270	7,892	59,205	86,584	37,849	66,435	178,375	453,329	722,246	839,737	Excédent (ou déficit) annuel de trésorerie

SOURCE Tables 5, 9 and 13.

1/ Including fixed investment costs, purchase of breeding animals and technical assistance.

2/ Working Capital.100% of operating costs in first year and 100% of incremental cost in years 2 and 3.

3/ Technical assistance included

4/ Interest at 11.5%. Repayment over 13 years, 7 years grace period for both interest and principal

5/ Average replacement costs for years 10-20

July 15, 1976

SOURCE: Tableaux 5, 9 et 13

1/ Y compris coûts d'investissement fixes, achat de bétail d'élevage et assistance technique.

2/ Fonds de roulement. 100% des coûts d'exploitation de la première année et 100% des coûts d'exploitation supplémentaire pour les années 2 et 3.

3/ Assistance technique incluse

4/ Intérêt à 11.5% par an, amorti en 13 ans après 7 ans d'amortissement pour paiement d'intérêt et remboursement du principal

5/ Moyenne des coûts de remplacement pour les années 10-20

Le 15 juillet 1976

ANNEX/ANNEXE 5
Table/Tableau 1

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Kerekere Ranch - 16,600 ha 1/

Herd Projection

Ranch de Kerekere - 16,600 ha 1/

Evolution du Troupeau

	Without Project/ Sans projet	Year/Année 1	2	3	4	5	6	7	8	9	10	11-20	
Herd Composition													**Composition du troupeau**
Bulls	33	38	38	43	61	63	64	64	64	64	64	64	Taureaux
Breeding Cows	685	819	793	1,107	1,673	1,600	1,600	1,600	1,600	1,600	1,600	1,600	Vaches reproductrices
Calves Weaned	574	411	532	515	775	1,171	1,120	1,120	1,120	1,120	1,120	1,120	Veaux sevrés
Heifers 1-2 years	221	273	198	255	250	378	568	543	543	543	543	543	Génisses 1-2 ans
Heifers 2-3 years	97	460	762	190	247	242	367	551	527	527	527	527	Génisses 2-3 ans
Heifers 3-4 years	242	92	442	732	184	240	235	356	534	511	511	511	Génisses 3-4 ans
Steers 1-2 years	316	273	197	255	249	377	567	543	543	543	543	543	Bouvillons 1-2 ans
Steers 2-3 years	64	300	262	189	247	241	366	550	527	527	527	527	Bouvillons 2-3 ans
Steers 3-4 years	116	61	288	252	183	240	234	355	533	511	511	511	Bouvillons 3-4 ans
Steers 4-5 years	61	110	59	276	244	178	233	227	344	517	496	496	Bouvillons 4-5 ans
Steers over 5 years	16	58	-	-	-	-	-	-	-	-	-	-	Boeufs de plus de 5 ans
Steers and Bulls 2 years, Purchased 2/	-	332	475	665	1,092	1,710	2,375	2,375	2,375	2,375	2,375	2,375	Bouvillons et taurillons de 2 ans, achetés 2/
Steers and Bulls 3 years, Purchased 2/	-	-	315	315	451	632	1,037	1,624	2,256	2,256	2,256	2,256	Bouvillons et taurillons de 3 ans, achetés 2/
Total Animals	2,425	3,227	4,361	4,794	5,656	7,072	8,786	9,908	10,966	11,094	11,073	11,073	Nombre total d'animaux
Total A.U. 3/	1,851	2,816	3,829	4,279	4,881	5,901	7,646	8,788	9,846	9,974	9,953	9,953	U.G.B. totale 3/
Mortality													**Mortalité**
Bulls	-	2	2	2	1	2	2	2	2	2	2	2	Taureaux
Cows and replacements	-	46	36	49	55	56	55	55	59	64	63	63	Vaches et génisses pleines
Heifers 1-2 years	-	14	8	11	8	10	18	17	17	17	17	17	Génisses 1-2 ans
Heifers 2-3 years	-	11	11	8	8	8	11	17	16	16	16	16	Génisses 2-3 ans
Heifers 3-4 years	-	5	18	30	13	7	7	11	17	16	16	16	Génisses 3-4 years
Steers 1-2 years	-	14	8	11	8	10	18	17	17	17	17	17	Bouvillons 1-2 ans
Steers 2-3 years	-	16	11	8	8	8	11	17	16	16	16	16	Bouvillons 2-3 ans
Steers 3-4 years	-	3	12	10	6	7	7	11	17	16	16	16	Bouvillons 3-4 ans
Steers 4-5 years	-	6	2	12	8	5	7	7	11	16	15	15	Bouvillons 4-5 ans
Steers over 5 years	-	4	7	2	8	7	5	7	7	10	16	18	Boeufs plus de 5 ans
Steers and Bulls 2 years, Purchased 2/	-	18	18	25	35	58	90	125	125	125	125	125	Bouvillons et taurillons 2 ans, achetés 2/
Steers and Bulls 3 years, Purchased 2/	-	-	17	17	24	33	55	86	119	119	119	119	Bouvillons et taurillons 2 ans, achetés 2/
Total Mortality	-	139	150	185	182	211	286	372	423	434	438	437	Mortalité totale
Purchases													**Achats**
Bulls 4/	-	10	10	15	25	10	9	8	8	8	8	8	Taureaux 4/
Heifers 5/	-	250	500	250	0	0	0	0	0	0	0	0	Génisses 5/
Steers and Bulls 2 years, Purchased 2/	-	350	350	500	700	1,150	1,800	2,500	2,500	2,500	2,500	2,500	Bouvillons et taurillons 2 ans, achetés 2/
Total Purchases	-	610	860	765	725	1,160	1,809	2,508	2,508	2,508	2,508	2,508	Achats totaux
Sales													**Ventes**
Culled Cows	50	62	82	79	111	167	160	160	160	160	160	160	Vaches de réforme
Heifers 3-4 years	0	0	0	0	0	34	25	20	137	310	288	288	Génisses 3-4 ans
Steers over 5 years	150	15	161	57	268	237	173	226	220	334	501	481	Boeufs de plus de 5 ans
Culled Bulls	2	3	8	8	6	6	6	6	6	6	6	6	Taureaux de réforme
Steers, purchased 2/	0	-	-	315	315	451	632	1,037	1,624	2,256	2,256	2,256	Bouvillons, achetés 2/
Total Sales	202	80	251	459	700	895	996	1,449	2,147	3,066	3,211	3,191	Ventes totales
Technical Coefficients													**Coefficients techniques**
Weaning Rate %	-	60	65	65	70	70	70	70	70	70	70	70	Taux de sevrage %
Adult Mortality %	-	5	4	4	3	3	3	3	3	3	3	3	Taux de mortalité des adultes %
Mortality - Steers purchased 6/	-	5	5	5	5	5	5	5	5	5	5	5	Taux de mortalité - bouvillons, achetés 6/
Cow Culling Rate %	-	9	10	10	10	10	10	10	10	10	10	10	Taux de vaches de réforme
Bull Culling Rate %	-	10	20	20	15	15	10	10	10	10	10	10	Taux de taureaux de réforme
Stocking Rate - ha/A.U.	-	5.9	4.4	3.8	3.7	3.1	2.3	1.9	1.7	1.7	1.7	1.7	Taux de charge - ha/U.G.B.

1/ Kerekere Ranch includes Vumba, Gelinga and Kalaga Farms; approximately half of the acreage will be used for breeding and the other half for fattening purposes.
2/ For fattening for 18-24 months; purchased at 140 kg LW, sold at 300 to 310 kg LW.
3/ Total animals minus calves weaned.
4/ Purchased partly from Nioka and imported.
5/ Includes both locally purchased (50%) and imported (50%)

6/ Include 2% losses.

November 21, 1975

1/ Le ranch de Kerekere comprend les fermes de Vumba, Gelinga et Kalaga, environ la moitié de la superficie sera utilisée pour le troupeau d'élevage et l'autre moitié pour l'embouche.
2/ Pour l'embouche de 18-24 mois: achetés à 140 kg de poids vif, vendus à 300-310 kg de poids vif.
3/ Nombre total d'animaux moins les veaux sevrés.
4/ Achetés en partie à Nioka et importés du Kenya.
5/ Comprend celles achetées localement (50%) et celles importées (50%)
6/ Inclus 2% de pertes.

le 21 novembre 1975

ANNEX/ANNEXE 5
Page/Tableau 2

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

ANNEX/ANNEXE 5
Table/Tableau 5

Kerekere Ranch - 16,600 ha 1/

Ranch de Kerekere - 16,600 ha 1/

Investment Costs
(Z)

Couts d'Investissement
(zaïres)

	Unit/ Unité	Unit Cost Coût par unité	Year 1/Année 1 Units/ Unités	Year 1/Année 1 Cost Coût	Year 2/Année 2 Units/ Unités	Year 2/Année 2 Cost/ Coût	Year 3/Année 3 Units/ Unités	Year 3/Année 3 Cost/ Coût	Year 4/Année 4 Units/ Unités	Year 4/Année 4 Cost/ Coût	Year 5/Année 5 Units/ Unités	Year 5/Année 5 Cost/ Coût	Total Years 1-5/ Total Années 1-5 Units/ Unités	Total Years 1-5/ Total Années 1-5 Cost/ Coût	Total Cost/Coût Totale Local/ Locale	Total Cost/Coût Totale Foreign Exchange/ Devises	Foreign Exchange/ Devises %	
INVESTMENT CATEGORY																		**CATEGORIE D'INVESTISSEMENT**
Ranch Infrastructure																		**Infrastructure du Ranch**
Bridge	Each	2,080	-	-	1	2,080	-	-	-	-	-	-	1	2,080	1,180	900	43	Pont
Firebreaks and Tracks 2/	Km	18	10	180	10	180	10	180	10	180	10	180	50	900	900	0	0	Coupe-feu et pistes 2/
Fences 3/	Km	580	10	5,800	20	11,600	20	11,600	20	11,600	20	11,600	90	52,200	18,270	33,930	65	Clôtures 3/
Night-kraals 4/	Each	690	5	3,450	5	3,450	5	3,450	5	3,450	5	3,450	25	17,250	6,040	11,210	65	Kraals de Nuit 4/
Bush Clearing 5/	Ha	18	500	9,000	500	9,000	500	9,000	500	9,000	500	9,000	2,500	45,000	45,000	-	-	Débroussaillement 5/
Sub-Total				18,430		26,310		24,230		24,230		24,230		117,430	71,390	46,040		Total Partiel
Buildings and Cattle Facilities																		**Bâtiments et Installations Pour Bétail**
Construction of Dipping Tank 6/	Each	9,500	-	-	1	9,500	-	-	-	-	-	-	1	9,500	5,410	4,090	43	Construction de bassin d'immersion 6/
Repair of Dipping Tank 7/	Each	3,140	-	-	1	3,140	-	-	-	-	-	-	1	3,140	2,100	1,040	33	Reparation de bassin d'immersion 7/
Crush	Each	1,260	-	-	1	1,260	1	1,260	-	-	-	-	2	2,520	1,560	960	38	Couloir Avec Joug
Construction of Section Chief's house (A2)	Each	12,800	-	-	1	12,800	1	12,800	1	12,800	1	12,800	4	51,200	36,860	14,340	28	Construction de la maison de l'assistant Vétérinaire (A2)
Construction of Infirmiers House (A3)	Each	7,300	-	-	2	14,600	2	14,600	2	14,600	2	14,600	8	58,400	42,050	16,350	28	Construction de la maison des infirmiers
Construction of Herdsmen's House	Each	4,700	-	-	5	23,500	10	47,000	10	47,000	10	47,000	35	164,500	118,440	46,060	28	Construction de la maison des bouviers
Repair of Herdsmen's House	Each	470	10	4,700	15	7,050	25	11,750	-	-	-	-	50	23,500	16,920	6,580	28	Réparation de la maison des bouviers
Construction of Veterinary Dispensary	Each	4,800	-	-	1	4,800	1	4,800	-	-	-	-	2	9,600	6,910	2,690	28	Construction du dispensaire vétérinaire
Repair of Veterinary Dispensary	Each	480	1	480	2	960	-	-	-	-	-	-	3	1,440	1,040	400	28	Reparation du dispensaire vétérinaire
Furniture and Equipment 8/	Set	850	2	1,700	3	2,550	1	850	-	-	-	-	6	5,100	920	4,180	82	Immobilier et Equipement 8/
Sub-Total				6,880		80,160		93,060		74,400		74,400		328,900	232,210	96,690		Total Partiel
Vehicles and Equipment																		**Véhicules et Matériel**
Truck	Each	15,000	1	15,000	-	-	-	-	-	-	-	-	1	15,000	4,950	10,050	67	Camion
Tractor	Each	11,800	-	-	1	11,800	2	23,600	-	-	-	-	3	35,400	6,370	29,030	82	Tracteur
Equipment 9/	Set	7,100	-	-	1	7,100	2	14,200	-	-	-	-	3	21,300	3,830	7,470	82	Equipement 9/
Four-Wheel Drive Vehicle	Each	12,000	1	12,000	1	12,000	-	-	-	-	-	-	2	24,000	4,320	9,680	82	Véhicule Tout-Terrain
Motorcycle	Each	600	1	600	2	1,200	2	1,200	-	-	-	-	5	3,000	540	2,460	82	Motocyclette
Bicycle	Each	128	5	640	10	1,280	10	1,280	-	-	-	-	25	3,200	1,820	1,380	43	Bicyclette
Small Equipment 10/	Set	1,520	1	1,520	1	1,520	1	1,520	-	-	-	-	3	4,560	820	3,740	82	Petit Matériel 10/
Radio 11/	Each	3,380	1	3,380	-	-	-	-	-	-	-	-	1	3,380	610	2,770	82	Phonie 11/
Sub-Total				33,140		34,900		41,800		-		-		109,840	23,260	86,580		Total Partiel
Pasture Improvement																		**Développement de Pâturage**
Stylosanthes Seed 12/	Kg	5	-	-	250	1,250	250	1,250	250	1,250	250	1,250	1,000	5,000	850	4,150	83	Semences de Stylosanthes 12/
Seedbed Preparation and Sowing	Ha	8	-	-	50	400	50	400	50	400	50	400	200	1,600	1,080	520	32	Travaux de Semis
Sub-Total				-		1,650		1,650		1,650		1,650		6,600	1,930	4,670		Total-Partiel
Purchase of Breeding Cattle																		**Achat de Bétail**
Bulls, Local (Nioka) 13/		375	5	1,875	5	1,875	5	1,875	10	3,750	5	1,875	30	11,250	11,250	-	-	Taureaux, locaux (Nioka) 13/
Bulls, Imported 13/		500	5	2,500	5	2,500	10	5,000	15	7,500	5	2,500	40	20,000	67,500	20,000	100	Taureaux, importés 13/
Heifers, Local 14/		135	125	16,875	250	33,750	125	16,875	-	-	-	-	500	67,500		-	-	Génisses, locales 14/
Heifers, Imported 14/		150	125	18,750	250	37,500	125	18,750	-	-	-	-	500	75,000	-	75,000	100	Génisses, importées 14/
Sub-Total				40,000		75,625		42,500		11,250		4,375		173,750	78,750	95,000		Total Partiel
Technical Assistance 15/				31,320		31,320		31,320		31,320		31,320		156,600	-	156,600	100	Assistance Technique 15/
Working Capital Requirements 16/				92,247		27,755		33,256		-		-		153,252	107,277	45,975	30	Montant du Fonds de Roulement 16/
Total Investment Costs				222,017		277,720		267,810		142,850		135,975		1,046,372	514,817	531,555	51	Total Coûts d'Investissement
(Of which Foreign Exchange)				(114,024)		(146,166)		(135,165)		(70,600)		(65,600)						(Dont Devises)

1/ Includes Vumba, Gelinga and Kalaga sectors.
2/ 20-man-days per km; 1 man-day of 60 K (casual labor).
3/ Perimeter fencing only.
4/ Night-kraal of approximately 10 ha for herd of 200 head.
5/ 20 man-days per ha; each man-day of 60 K.
6/ One dipping tank to be constructed at Vumba sector.
7/ At Ake in Vumba sector.
8/ Equipment for veterinary dispensary include refrigerator.
9/ Includes trailers, rotary-cutters and equipment for pasture development.
10/ Hoes, axes and sows.
11/ Sub-station to be linked to the Project's radio network.
12/ 5 kg seed per ha on 50 ha yearly.
13/ Partly from Nioka station and partly imported.
14/ Partly locally and partly imported.
15/ Part of expatriate ranch manager's salary to be charged to Kerekere Ranch.
16/ Working capital is 100% of operating costs for first year and 100% of incremental operating costs of of year 2 and 3. (Excluding salary of Expatriate Ranch Manager).

NOTE: The level of first year expenditure assumes that the project is fully staffed and operational during the first year. Delays would reduce these expenditure levels.

June 29, 1976

1/ Y compris les secteurs de Vumba, de Gelinga et de Kalaga.
2/ 20 homme-journées par km; 1 homme-journée à 60 K.
3/ Clôture périphérique seulement.
4/ Kraal de nuit de 10 ha environ pour un troupeau de 200 têtes.
5/ 20 hommes-journée par ha; un homme-journée à 60 K.
6/ Un seul dipping tank sera construit dans le secteur de Vumba.
7/ Dans la sous-section de Ake du secteur de Vumba.
8/ L'équipement pour le dispensaire vétérinaire inclut un réfrigérateur.
9/ Y compris remorques, rotary-cutters, et matériel pour le développement des pâturages.
10/ Houes, haches et scies.
11/ Poste secondaire qui sera relié au réseau de phonie du projet.
12/ 5 kg de graines par ha; 50 ha par année seront ensemencés.
13/ En partie achétes à la station de Nioka, en partie importés.
14/ En partie achétes localement et en partie importés.
15/ Une partie du salaire du directeur du ranch sera aux frais du ranch de Kerekere.
16/ Le fonds de roulement représente 100% des coûts d'exploitation de la première année et 100% des coûts d'exploitation supplementaires pour les années 2 et 3. (le salaire du directeur du ranch recruté à l'étranger non-compris).

NOTE: Le niveau des dépenses de la première année assume que le projet est complètement équipé et opérationnel pendant la première année. Les délais réduiront ces niveaux de dépenses.

le 29 juin 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Kerekere Breeding and Fattening Ranch - 16,600 ha

Sales and Operating Expenses and Profit and Loss Account
(Z)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ranch d'Elevage et d'Embouche de Kerekere - 16,600 ha

Revenus et Coûts d'Exploitation
(zaïres)

ANNEX/ANNEXE 5 .
Table/Tableau 4

	Unit Cost/ Coût par Unité	Before Development/ Avant Développement	End of Year/Fin de l'Année 1	2	3	4	5	6	7	8	9	10	11-20	
CATEGORY														CATEGORIE
Sales														Ventes
Culled Cows		5,460	12,900	17,060	16,500	23,270	35,400	34,300	34,690	35,070	35,460	35,840	35,840	Vaches de réforme
Heifers 3-4 years		-	-	-	-	-	6,260	4,640	3,740	25,860	59,020	55,300	55,300	Genisses 3-4 ans
Steers over 5 years		27,080	5,190	55,760	19,760	93,160	83,020	61,080	80,410	78,880	120,660	182,360	175,080	Boeufs de plus de 5 ans
Culled bulls		320	730	1,940	1,940	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	Taureaux de réforme
Younger steers, purchased 1/		-	-	-	76,100	76,610	109,680	154,710	253,860	400,150	555,886	559,490	519,490	Bouvillons et tearillons, achetés 1/
Total Sales		32,860	18,820	74,760	114,300	194,500	235,830	256,190	374,160	541,420	772,460	834,449	827,170	Ventes Totales
Operating Costs														Coûts d'Exploitation.
Wages and Salaries 2/														Salaires et Traitements 2/
Expatriate ranch manager 3/	52,200		31,320	31,320	31,320	31,320	31,320	-	-	-	-	-	-	Directeur du Ranch(recruté à l'étranger) 3/
Deputy ranch manager (local) 4/	6,000		6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	Directeur Adjoint du Ranch (local) 4/
Section Chief (A2) 5/	1,150		1,150	2,300	3,450	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	Chef de Secteur (A2) 5/
Infirmier veterinarian (A3) 6/	875		1,750	3,500	5,250	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	Infirmier Vétérinaire (A3) 6/
Foreman 7/	410		820	1,230	1,640	2,460	2,460	2,460	2,870	3,280	3,280	3,280	3,280	Contremaître 7/
Herdsman 8/	250		7,000	9,000	11,000	11,000	13,000	17,000	22,000	24,500	25,000	25,000	25,000	Bouvier 8/
General Laborers 9/	290		1,160	2,030	2,610	2,610	2,900	4,060	4,930	5,800	5,800	5,800	5,800	Ouvriers 9/
Carpenters and masons	295		1,180	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	Menuisiers et maçons
Drivers	355		1,065	2,130	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	Chauffeurs
Mechanics	355		220	355	710	710	710	710	710	710	710	710	710	Mecaniciens
Account	625		625	625	625	625	625	625	625	625	625	625	625	Comptable
Clerk and typist	500		500	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	Employé de bureau et Dactylographe
Teachers	560		1,120	1,680	2,240	2,800	3,360	3,920	3,920	3,920	3,920	3,920	3,920	Enseignants
Infirmiers	875		875	875	875	875	875	875	875	875	875	875	875	Infirmiers
Sub-Total		25,250	54,795	64,405	71,920	75,380	78,230	59,450	59,730	63,370	64,010	64,010	64,010	Total Partiel
Animal Health														Santé des Animaux
Drugs and vaccine 10/	4.25		11,988	15,666	18,441	18,930	22,683	29,869	37,369	41,846	42,390	42,390	42,390	Produits vétérinaires et vaccin 10/
Mineral salts 11/	2.10	-	5,914	7,741	9,112	9,353	11,084	14,660	18,455	20,677	20,945	20,901	20,901	Sels minéraux 11/
Sub-Total	6.35	100	17,882	23,407	27,553	28,283	33,767	44,329	55,824	62,523	63,335	63,291	63,291	Total Partiel
Maintenance of Ranch Infrastructure and Buildings														Entretien de l'Infrastructure et bâtiments du Ranch
Firebreaks and tracks 12/	9		90	180	270	360	450	450	450	450	450	450	450	Coupe-feu et pistes 12/
Fences and night-kraals 13/		-	-	660	1,050	1,485	1,890	3,150	3,150	3,150	3,150	3,150	3,150	Clôtures et kraals de nuit 13/
Construction 14/		3,144	3,144	3,647	5,763	8,104	10,072	12,042	12,042	12,042	12,042	12,042	12,042	Bâtiments 14/
Sub-Total		400	3,234	4,487	7,083	9,949	12,412	15,642	15,642	15,642	15,642	15,642	15,642	Total Partiel
Vehicles and Equipment - Running Costs														Véhicules et Matériel - Frais de Fonctionnement
Truck	5,170	-	5,170	5,170	5,170	5,170	5,170	5,170	5,170	5,170	5,170	5,170	5,170	Camion
Tractor	2,835		2,835	8,505	14,175	14,175	14,175	14,175	14,175	14,175	14,175	14,175	14,175	Tracteur
Four-wheel drive vehicle	3,420		3,420	6,840	6,840	6,840	6,840	6,840	6,840	6,840	6,840	6,840	6,840	Véhicule tout-terrain
Motorcycle	200	-	200	600	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	Motocyclette
Bicycle and small equipment		420	975	1,520	1,520	1,520	1,520	1,520	1,520	1,520	1,520	1,520	1,520	Bicyclette et petit matériel
Generator		1,500	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	Groupe Electrogène
Sub-Total			13,715	23,760	30,375	30,375	30,375	30,375	30,375	30,375	30,375	30,375	30,375	Total Partiel
Miscellaneous 15/		-	7,481	8,803	9,847	10,535	10,728	10,190	11,078	11,603	11,661	11,661	11,661	Divers 15/
Purchase of Feeder Steers 1/		-	26,460	26,460	37,800	52,920	86,940	136,080	189,000	189,000	189,000	189,000	189,000	Achat des bouvillons d'embouche 1/
Total Operating Expenses Before Depreciation and Interest		31,250	123,567	151,322	184,578	207,262	252,232	296,066	361,629	372,653	374,023	373,889	373,889	Dépenses Totales d'Exploitation Avant Amortissement et Intérêt
Depreciation 16/		2,000	9,708	20,468	31,978	35,703	38,293	41,293	41,293	41,293	41,293	41,293	41,293	Amortissement 16/
Interest 17/			10,608	13,800	17,624	17,624	17,624	17,624	17,624	17,624	16,980	16,275	15,456	Intérêt 17/
Total Operating Cost		33,250	143,882	185,590	234,180	260,609	308,149	348,983	420,546	431,570	432,296	431,457	430,647	Coûts Totaux d'Exploitation
Net Income		(390)	(125,063)	(110,830)	(119,880)	(66,109)	(72,319)	(92,793)	(46,386)	109,850	340,164	402,993	396,523	Revenu net
Technical Coefficients														Coefficients Techniques
Liveweight of culled cows (kg)		260	260	260	261	262	265	268	271	274	277	280	280	Poids vif des vaches de réforme (kg)
Liveweight of heifers (kg)		220	222	224	226	228	230	232	234	236	238	240	240	Poids vif des génisses (kg)
Liveweight of steers from breeding herd (kg)		380	380	380	381	382	385	388	391	394	397	400	400	Poids vif des boeufs du troupeau d'élevage (kg)
Bulls from breeding herd (kg)		450	450	450	450	450	450	450	450	450	450	450	450	Taureaux du troupeau d'élevage (kg)
Fattened younger steers (kg)		300	300	302	302	304	304	306	306	308	308	310	310	Bouvillons a l'embouche (kg)
Prices 19/														Prix 19/
1. Category: Steers and heifers over 350 kg liveweight.		.25/70	.91	.91	.91	.91	.91	.91	.91	.91	.91	.91	.91	1. Catégorie Boeufs et genisses au-dessus de 350 kg de poids vif.
2. Category: Steers and culled cows in good condition, from 250-350 kg liveweight and heifers over 220 kg liveweight.		.22/.2	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	2. Catégorie; Boeufs et vaches de réformes en bon point, de 250-350 kg de poids vif et génisses au-dessus de 220 kg de poids vif
3. Category: Culled bulls and animals under 280 kg liveweight.		.17/	.54	.54	.54	.54	.54	.54	.54	.54	.54	.54	.54	3. Catégorie: Taureaux de réforme et animaux au-dessous de 280 kg de poids vif

1/ Fattening of young steers during a 2-year period, purchased at 140 kg liveweight (see Herd Projection, Annex 5, Table 2), sold at 300/310 kg liveweight.
2/ Salaries are according to ONDE's salary scale which includes social benefits but excludes housing allowances.
3/ The expatriate Ranch Manager would also supervise Asada and Bele ranches and his salary shared in proportion of 60%, 20% and 20%.
4/ The Deputy Ranch Manager would stay in post after Year 5 when the expatriate Ranch Manager leaves.
5/ Each Section Chief at the level of Assistant Veterinarian (A2) would be responsible for each of 4 sections. Kerekere, Yumba, Kalaga and Goringe.
6/ Two Infirmiers per section.
7/ One Foreman for each 12 herdsmen.
8/ Two herdsmen per herd of 200 head of cattle; each herd having a night-kraal.
9/ One general laborer for each 500 animal unit (A.U.).
10/ Z 4.25 per A.U.
11/ Z 2.10 per A.U.
12/ Z 6 per km
13/ 5% of construction cost from Year 1-5; 5% from Year 6-20; value of existing fences negligible.
14/ 2% of construction cost beginning with year following construction. Assumes value of old construction at Z 100,000.
15/ 5% of Operating Expenses (less cattle purchases) for auditing, insurance and travel, Z 3,000 will be allocated to ONDE's HQ in Kinshasa to meet additional expenses.
16/ 10% of investment for fences, night-kraals, crushes, tractor equipment and radio; 25% of investments for truck, tractors, four-wheel drive vehicles for motorcycles and bicycles and 20% for investments of small equipment, furniture and equipment for dispensaries, pasture establishment and replacement of breeding bulls (approximately 8 bulls annually from Year 6).
17/ Nominal interest payments on long-term loan (see Table 5).
18/ Information on present costs and income is incomplete but in 1975 the ranch was short of funds and running at a loss. It is assumed that the price increase in May 1976 will allow the ranch to just cover costs.
19/ Prices changed May 1976.

July 7, 1976

1/ Bouvillons à engraisser pendant une période de 2 ans; achetés à 140 kg de poids vif (voir évolution du troupeau Annexe 5, Tableau 2); vendus à 300/310 kg de poids vif.
2/ Traitement selon le barème de l'ONDE inclut charges sociales mais exclut frais de logement
3/ Le directeur(expatrié)du ranch surveillera aussi les ranchs d'Asada et Bele et son salaire sera repartie en proportion de 60, 20 et 20%.
4/ Le Directeur adjoint du ranch remplacera le Directeur expatrié après son depart à la fin de l'année 5.
5/ Chaque Chef de Secteur au niveau Assistant Veterinaire (A2) sera responsable pour chacun des 4 secteurs: Kerekere, Yumba, Kalaga et Goringe.
6/ Deux infirmiers par section
7/ Un contremaître pour 12 bouviers.
8/ Deux bouviers pour un troupeau de 200 têtes de bétail; chaque troupeau ayant son kraal de nuit.
9/ Un ouvrier par 500 têtes de bétail.
10/ 4,25 z par unité de gros bétail (A.U.)
11/ 2,10 z par unité de gros bétail (A.U.)
12/ 6 z par km.
13/ 5% des coûts de construction des années 1-5; 5% des années 6-20; la valeur des clôtures existantes est négligeable.
14/ 2% des coûts de construction à partir de la première année de construction. Valeur de la vieille construction estimée 100.000 zaïres.
15/ 5% des coûts d'exploitation (moins les achats de bétail) pour couvrir la vérification des comptes, assurance et voyage; 3.000 zaïres seront alloués au siège de l'ONDE à Kinshasa pour les frais divers.
16/ 10% des coûts d'investissement des clôtures, kraals de nuit, équipement agricole et phonie; 25% des coûts d'investissement des camions, tracteurs et véhicules tous terrains et 20% des coûts d'investissement des motocyclettes, bicyclettes et petit matériel,mobilier et matériels pour les dispensaires, renouvellement des pâturages et remplacement des taureaux d'élite (approximativement 8 taureaux par an à partir de l'année 6).
17/ Charges d'intérêt imputées au service de prêt à long terme (voir Tableau 5).
18/ Renseignements sur présents coûts et recettes sont incomplets, mais en 1975, le ranch était à court de fonds et fonctionnait à perte. Il a été assumé que l'augmentation de prix de mai 1976 permettrait au ranch de couvrir tout juste les frais.
19/ Prix modifiés en mai 1976.

le 7 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Kerekere Breeding and Fattening Ranch - 16,000 Ha

Sources and Application of Funds

(Z)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ranch d'Elevage et d'Embouche de Kerekere - 16.000 hectares

Origines et Emploi des Fonds

(zaïres)

	Before Development/ Avant Developpement	Year/Annee 1	2	3	4	5	6	7	8	9	10	11-20	
Sources of Funds													Origine des Fonds
Sales	32,860	18,820	74,760	114,300	194,500	235,830	256,190	374,160	541,420	772,480	834,440	827,170	Ventes
Development Grant 1/		129,770	249,965	234,560	142,850	135,975	-	-	-	-	-	-	Don pour le développement 1/
Development Loan 2/		92,247	27,755	33,256	-	-	-	-	-	-	-	-	Prêt à long-terme 2/
Total Sources	32,860	240,837	352,480	382,116	337,350	371,805	256,190	374,160	541,420	772,480	834,440	827,170	Total des Fonds Disponibles
Uses of Funds													Emploi des Fonds
Fixed Investment Costs		58,450	143,020	160,740	100,280	100,280	-	-	-	-	-	-	Coûts d'investissement en capital
Cattle Breeding Stock		40,000	75,625	42,500	11,250	4,375	-	-	-	-	-	-	Bétail de reproduction
Capital Replacement Costs		-	-	-	-	28,555	36,930	34,400	5,370	31,555	35,840	31,266 5/	Coûts de remplacement en capital
Operating Costs 3/		97,107	124,862	146,778	154,362	165,332	153,986	172,629	183,652	185,023	184,889	184,889	Coûts d'exploitation 3/
Purchase of Feeder Steers		26,460	26,460	37,800	52,920	86,940	136,080	189,000	189,000	189,000	189,000	189,000	Achat de bétail d' embouche
Loan Installments 4/		-	-	-	-	-	-	-	40,266	40,266	40,266	40,266	Remboursement du prêt 4/
Total Uses	33,250	222,017	369,967	387,818	318,812	385,482	326,996	396,029	418,288	445,844	449,995	445,421	Total des Fonds Employés
Annual Cash Surplus (Deficit)	(390)	18,820	(17,487)	(5,702)	18,538	(13,677)	(70,806)	(21,869)	123,132	326,636	384,445	381,749	Excédent (ou déficit) annuel de Trésorerie

1/ Including fixed Investment Costs, purchase of breeding stock and Technical Assistance.
2/ Working capital
3/ Technical Assistance included.
4/ Interest at 11.5%. Repayment over 13 years, 7 years grace period for both interest and principal
5/ Average replacement costs for years 10-20.

1/ Y compris coûts d'investissement fixes, achat de bétail d'élevage et assistance technique
2/ Fonds de roulement.
3/ Assistance technique incluse
4/ Intérêt à 11.5% par an, amorti en 13 ans après 7 ans différé d'amortissement pour paiement d'intérêt et remboursement du principal.
5/ Moyenne des coûts de remplacement pour les années 10-20.

July 9, 1976

le 9 juillet 1976.

ANNEX/ANNEXE 5
Table/Tableau 5

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Asada Ranch - 5,000 ha

Herd Projection

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ranch d'Asada - 5.000 ha

Evolution du Troupeau

	Without Project/ Sans projet	Year/Année 1	2	3	4	5	6	7	8	9-20	
Herd Composition 1/											Composition du troupeau 1/
Steers 1-2 years	34	142	142	190	285	427	665	950	950	950	Bouvillons 1-2 ans
Steers 2-3 years	83	32	135	135	180	271	406	632	902	902	Bouvillons 2-3 ans
Steers 2-3 years (9-12 month fattening)	-	190	380	570	760	950	1,235	1,425	1,425	1,425	Bouvillons 2-3 ans
Total Animals	117	364	657	895	1,225	1,648	2,306	3,007	3,277	3,277	Nombre total d'animaux
Mortality											Mortalité
Steers 1-2 years	2	8	8	10	15	23	35	50	50	50	Bouvillons 1-2 ans
Steers 2-3 years	4	2	7	7	10	14	21	33	48	48	Bouvillons 2-3 ans
Steers 2-3 years (9-12 month fattening)	-	10	20	30	40	50	65	75	75	75	Bouvillons 2-3 ans
Total Mortality	6	20	35	47	65	87	121	158	183	173	Mortalité totale
Purchases											Achats
Steers 1-2 years	0	150	150	200	300	450	700	1,000	1,000	1,000	Bouvillons 1-2 ans
Steers 2-3 years (9-12 month fattening)	0	200	400	600	800	1,000	1,300	1,500	1,500	1,500	Bouvillons 2-3 ans
Total Purchases	0	350	550	800	1,100	1,450	2,000	2,500	2,500	2,500	Achats Totaux
Sales											Ventes
Steers 3-4 years (after 18-24 month fattening)	0	79	30	135	135	180	271	406	632	902	Bouvillons 3-4 ans
Steers 3-4 years (after 9-12 month fattening)	0	-	190	380	570	760	950	1,235	1,425	1,425	Bouvillons 3-4 years
Total Sales	0	79	220	515	705	940	1,221	1,641	2,057	2,327	Ventes totales
Technical Coefficients											Coefficients Techniques
Mortality (%) 2/	-	5	5	5	5	5	5	5	5	5	Mortalité (%) 2//
Stocking Rate - ha/A.U.	-	13.7	7.6	5.6	4.1	3.0	2.2	1.7	1.5	1.5	Taux de charge - ha/U.G.B.
Purchase Price of 18-24 Month Young Steers (Z) 3/	-	75.60	78.40	81.20	85.40	88.20	88.20	88.20	88.20	88.20	Prix d'achat de bouvillons de 18-24 mois (zaïres) 3/
Purchase Price of 24-48 Month Fattening Steers (Z) 4/	-	99.90	103.60	107.30	112.85	116.55	116.55	116.55	116.55	166.55	Prix d'achat des bouvillons d'embouche de 24-48 mois (zaïres) 4/
Weight of Finished Young Steers Fattened for 18-24 Months (kg)	(See Table 3)	300	302	320	304	304	306	308	308	310	Poid des bouvillons (kg) engraissés pendant 18-24 mois) Voir Tableau 4
Weight of Finished Fattening Steers Fattened for 6-9 Months	(See Table 3)	270	270	271	272	275	278	281	284	287	Poid des bouvillons d'embouche engraissés pendant 6-9 mois)
	-										
	-										

1/ 1-2 year old steers fattened for 18-24 months; 2-3 year old for 6 to 9 months.
2/ Include 2% losses.
3/ Liveweight of about 140 kg.
4/ Liveweight of about 185 kg.

1/ Boeufs de 1-2 ans engraissés pour 18-24 mois; 2-4 ans pour 6 à 9 mois.
2/ Inclus 2% perte.
3/ Poids vif approximatif 140 kg; prix moyen K/kg.
4/ Poids vif approximatif 185 kg; prix moyen K/kg.

June 30, 1976

le 30 juin 1976

ANNEX/ANNEXE 5
Table/Tableau 6

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Asada Fattening Ranch- 5,000 ha

Investment Costs
(Z)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ranch d'Embouche d'Asada - 5 000 ha

Coûts d'Investissement
(Z)

	Unit/ Unité	Unit Cost/ Coût par Unité	Year 1/Année 1 Units/ Unités	Year 1/Année 1 Cost/ Coût	Year 2/Année 2 Units/ Unités	Year 2/Année 2 Cost/ Coût	Year 3/Année 3 Units/ Unités	Year 3/Année 3 Cost/ Coût	Year 4/Année 4 Units/ Unités	Year 4/Année 4 Cost/ Coût	Year 5/Année 5 Units/ Unités	Year 5/Année 5 Cost/ Coût	Total Years 1-5/ Total Années 1-5 Units/ Unités	Total Years 1-5/ Total Années 1-5 Cost/ Coût	Total Cost/ Coût Totale Local/ Locale	Foreign Exchange/ Devises Total	Foreign Exchange/ Devises %	
INVESTMENT CATEGORY																		CATEGORIE D'INVESTISSEMENT
Ranch Infrastructure																		Infrastructure du Ranch
Firebreaks and Tracks 1/	Km	18	5	90	10	180	10	180	5	90	-	-	30	540	540	-	-	Coupe-feux et pistes 1/
Fences 2/	Km	575	4	2,300	8	4,600	8	4,600	8	4,600	8	4,600	36	20,700	7,240	13,460	65	Clôtures 2/
Night-Kraals 3/	Each	690	1	690	2	1,380	3	2,070	3	2,070	3	2,070	12	8,280	2,900	5,380	65	Kraal de nuits 3/
Bush-Clearing 4/	Ha	18	200	3,600	200	3,600	200	3,600	200	3,600	200	3,600	1,000	18,000	18,000	-	-	Débroussaillement 4/
Sub-Total				6,680		9,760		10,450		10,360		10,270		47,520	28,680	18,840		Total-Partiel
Buildings and Cattle Facilities																		Bâtiments et Installations Pour Bétail
Construction of Dipping Tank	Each	9,500	-	-	1	9,500	1	9,500	-	-	-	-	2	19,000	10,830	8,170	43	Construction dipping-tank
Construction of Ranch Manager's House (A2)	Each	12,800	1	12,800	-	-	-	-	-	-	-	-	1	12,800	9,210	3,590	28	Construction maison asst. vét. (A2)
Construction of Infirmier's House (A3)	Each	7,300	-	-	1	7,300	1	7,300	1	7,300	-	-	3	21,900	15,770	6,130	28	Construction maison inf. vét. (A3)
Repair of Herdsmen's Houses	Each	470	5	2,350	5	2,350	-	-	-	-	-	-	10	4,700	3,390	1,310	28	Reparation maison des bouviers
Furniture and Equipment	Set	850	1	850	-	-	-	-	-	-	-	-	1	850	150	700	82	Mobilier et équipement
Sub-Total				16,000		19,150		16,800		7,300		-		59,250	39,350	19,900		Total Partiel
Vehicles and Equipment																		Véhicules et Matériel
Tractor with Equipment 5/	Set	16,900	1	16,900	1	16,900	-	-	-	-	-	-	2	33,800	5,960	27,840	82	Tracteur et matériel 5/
Four-Wheel Drive Vehicle	Each	11,800	1	11,800	-	-	-	-	-	-	-	-	1	11,800	2,060	9,740	82	Véhicule tout terrain
Motorcycle	Each	600	1	600	1	600	-	-	1	600	-	-	3	1,800	320	1,480	82	Motorcyclette
Bicycle	Each	130	3	390	3	390	3	390	-	-	-	-	9	1,170	670	500	43	Bicyclette
Small Equipment 6/	Set	1,520	1	1,520	-	-	-	-	-	-	-	-	1	1,520	270	1,250	82	Petit matériel 6/
Radio 7/	Each	3,380	1	3,380	-	-	-	-	-	-	-	-	1	3,380	600	2,780	82	Phonie 7/
Sub-Total				34,590		17,890		390		600		-		53,470	9,880	43,590		Total Partiel
Pasture Improvement																		Développement de Paturage
Stylosanthes Seed 8/	Kg	5	-	-	100	500	100	500	100	500	100	500	400	2,000	1,330	1,670	83	Semences de stylosanthes 8/
Seedbed Preparation and Sowing	Ha	8	-	-	20	160	20	160	20	160	20	160	80	640	430	210	33	Travaux de semis
Sub-Total				-		660		660		660		660		2,640	1,760	1,880		Total Partiel
Technical Assistance 9/				10,400		10,400		10,400		10,400		10,400		52,000	-	52,000		Assistance Technique 9/
Working Capital Requirements 10/				57,710		29,058		26,977		-		-		113,740	79,618	34,122	30	Fonds de Roulement 10/
Total Investment Costs				125,380		86,913		65,677		29,320		21,330		328,620	158,288	170,332	52	Coûts d'Investissement
(Of which foreign exchange)				(62,803)		(44,365)		(29,664)		(18,220)		(15,280)						(dont devises)

1/ 20 man-days per km (casual labor).
2/ Perimeter fencing only
3/ Night-kraal of approximately 10 ha for herd of 200 head.
4/ 20 man-days per ha (casual labor).
5/ Includes trailers rotary-cutters and equipment for pasture development.
6/ *Equipment for veterinary dispensary* including refrigerator.
7/ Sub-station linked to the Project's radio network.
8/ 5 kg seed per ha; 50 ha annually.
9/ Part of expatriate ranch manager's salary to be charged to Asada ranch.
10/ Working capital is 100% of operating costs for first year and 100% of incremental operating costs for year 2 and 3.

NOTE: The level of first year expenditure assumes that the project is fully staffed and operational during the first year. Delays would reduce these expenditure levels.

June 30, 1976

1/ 20 h.j. par km (journalier).
2/ Clôture peripherique seulement
3/ Kraal de nuit de 10 ha environ par troupeau de 200 têtes
4/ 20 h.j. par ha (journalier).
5/ Y compris remorques, rotavators niveleuses, et matériel pour le développement des pâturages.
6/ L'équipement pour le dispensaire vétérinaire inclus un réfrigérateur.
7/ Station secondaire qui sera reliée au réseau de radio du projet.
8/ 5 kg de graines par ha; 50 ha seront ensemences par année.
9/ Une partie du salaire du directeur du ranch recruté à l'étranger sera payée par le ranch d'Asada.
10/ Fonds de roulement represente 100% des coûts d'exploitation de la première année et 100% des coûts d'exploitation supplémentaires pour les années 2 et 3.

NOTE Le niveau des dépenses de la première année assume que le projet est complètement équipé et opérationnel pendant la première année. Les délais réduiront ces niveaux de dépenses.

le 30 juin 1976

ANNEX/ANNEXE 5
Table/Tableau 7

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Asada Fattening Ranch - 5,000 ha

Sales and Operating Expenses and Profit and Loss Account
(Z)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ranch d'Embouche d'Asada - 5.000 ha

Revenus et Coûts d'Exploitation
(zaires)

ANNEX/ANNEXE 5
Table/Tableau 8

Unit Cost/ Coût par Unité	End of Year/Fin de l'Année- 1	2	3	4	5	6	7	8	9	10-20	
CATEGORY											CATEGORIE
Sales											Ventes
Steers 3-4 years 1/	18,960	7,250	32,620	32,830	43,780	66,390	99,390	135,720	222,250	223,700	Bouvillons 3-4 ans 1/
Steers 3-4 years 2/	-	41,040	82,380	124,030	165,370	211,280	267,750	323,760	327,180	330,600	Bouvillons 3-4 ans 2/
Total Sales	18,960	48,290	115,000	156,860	209,150	277,620	367,140	479,480	549,430	554,300	Ventes Totales
Operating Costs											Coûts d'Exploitation
Purchase of Younger Steers 1/	11,340	11,340	15,120	22,680	34,020	52,920	75,600	75,600	75,600	75,600	Achat des bouvillons et taurillons 1/
Purchase of Older Steers 2/	19,980	39,960	59,940	79,920	99,900	129,870	149,850	149,850	149,850	149,850	Achat des bouvillons et taurillons 2/
Total Purchase of Steers	31,320	51,300	75,060	102,600	133,920	182,790	225,450	225,450	225,450	225,450	Achat total des boeufs
Wages and Salaries 3/											Salaires et Traitements 3/
Salary to Expatriate Ranch Manager 4/ 52,200	10,440	10,440	10,440	10,440	10,440	-	-	-	-	-	Directeur du ranch (expatrié) 4/
Ranch Manager 5/ 2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	Directeur adjoint du ranch 5/
Infirmiers 875	875	875	875	1,750	1,750	1,750	2,625	2,625	2,625	2,625	Infirmier
Foremen 410	-	-	-	200	410	820	820	820	820	820	Contremaître
Herdsmen 6/ 250	750	1,250	1,500	2,000	2,750	3,750	5,000	5,500	5,500	5,500	Bouvier 6/
General Laborers 7/ 290	1,160	1,160	1,740	1,970	2,320	2,900	2,900	2,900	2,900	2,900	Ouvriers réguliers 7/
Carpenters and Masons 295	590	590	590	590	590	590	590	590	590	590	Menuisiers et maçons
Drivers 355	710	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	Chauffeurs
Mechanics 355	355	355	355	355	355	355	355	355	355	355	Mécaniciens
Accountant 625	625	625	625	625	625	625	625	625	625	625	Comptable
Typist 500	500	500	500	500	500	500	500	500	500	500	Dactylographe
Teacher 560	560	560	560	560	560	560	560	560	560	560	Enseignant
Infirmier 875	875	875	875	875	875	875	875	875	875	875	Infirmier
Sub-Total	19,940	20,795	21,625	23,430	24,740	16,290	18,415	18,415	18,415	18,415	Total Partiel
Animal Health											Santé Animale
Drugs and Vaccine	1,548	2,794	3,808	5,211	7,009	9,808	12,790	13,938	13,938	13,938	Produits vétérinaires et vaccins
Mineral Salts	759	1,369	1,866	2,554	3,436	4,809	6,270	6,832	6,832	6,832	Sels minéraux
Sub-Total	2,307	4,163	5,672	7,765	10,445	14,617	19,060	20,770	20,770	20,770	Total Partiel
Maintenance of Ranch Infrastructure and Buildings											Entretien de l'infrastructure du ranch et des bâtiments
Firebreaks and Tracks	46	139	232	279	279	279	279	279	279	279	Coupe-feux et pistes
Fences and Night-Kraals	-	246	429	610	795	1,320	1,320	1,320	1,320	1,320	Clôtures et kraals de nuit
Buildings	1,886	2,200	2,578	2,924	3,065	3,065	3,065	3,065	3,065	3,065	Bâtiments
Sub-Total	1,932	2,585	3,239	3,813	4,139	4,664	4,664	4,664	4,664	4,664	Total Partiel
Vehicles and Equipment											Véhicules et Matériel
Tractors 5,000	5,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	Tracteur
Four-Wheel Drive Vehicle 3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	Véhicule tout-terrain
Motorcycle 200	200	400	400	600	600	600	600	600	600	600	Motocyclette
Bicycle and Small Equipment	373	454	525	525	525	525	525	525	525	525	Bicyclette et petit matériel
Sub-Total	8,993	14,274	14,345	14,545	14,545	14,545	14,545	14,545	14,545	14,545	Total-Partiel
Miscellaneous 8/	3,658	4,091	4,244	4,478	4,693	4,456	4,634	4,920	4,920	4,920	Divers 8/
Total Operating Expenses Before Depreciation and Interest	88,150	97,206	124,185	156,631	192,482	237,362	286,968	288,764	288,764	288,764	Coûts d'Exploitation avant Provisions pour Amortissements et Intérêt
Depreciation 9/	7,842	12,352	13,229	13,229	14,273	15,072	15,072	15,072	15,072	15,072	Provisions pour Amortissements 9/
Interest 10/	6,636	9,978	13,080	13,080	13,080	13,080	13,080	13,080	12,602	12,070	Intérêt 10/
Total Operating Costs	82,628	119,538	150,494	182,940	219,835	265,514	315,120	316,916	316,438	315,906	Total Coûts d'Exploitation
Net Income	(63,668)	(71,248)	(35,494)	(26,080)	(10,685)	12,106	52,020	162,564	232,992	238,394	Revenu Net
Technical Coefficients											Coefficients Techniques
Sales - Liveweight of steers fattened 18-24 months	300	300	302	304	304	306	306	308	308	310	Ventes - poids vif des bouvillons engraissés pendant 18-24 mois
Sales - Liveweight of steers fattened 6-9 months	270	270	271	272	275	278	281	284	287	290	Ventes - poids vif des bouvillons engraissés pendant 6-9 mois
Prices											Prix
2nd Category: Steers at 260-350 kg liveweight	80	80	80	80	80	80	80	80	80	80	2ème catégorie: Boeufs de 260-350 kg de poids vif
3rd Category: Culled bulls and animals under 260 kg liveweight	54	54	54	54	54	54	54	54	54	54	3ème catégorie: Taureaux de réforme et animaux au-dessus de 260 kg de poids vif.

1/ Younger steers to be fattened during a 2-year period; purchased at 140 liveweight and sold at 300/310 kg liveweight. (including steers now on ranch).
2/ Older steers fattened during a 9-12 months period;purchased at 185 kg liveweight and sold at 270/290 kg liveweight.
3/ Salaries according to ONDE's salary scale.
4/ Share of expatriate ranch manager's salary: 20%
5/ Ranch manager will be an Assistent Veterinarian (A2).
6/ One herdsman per 150 head of cattle.
7/ One laborer per 500 head of cattle.
8/ 5% of Operating Expenses (less cattle purchases) for auditing, insurance and travel: 21,000 will be allocated to ONDE's Hq in Kinshasa to meet additional expenses.
9/ 10% of investment for fences, night-kraals, crushes, tractor equipment and radio; 25% of investments for truck, tractors, four-sheel drive vehicles, and 20% for investments of motorcycles and bicycles, small equipment, furniture and equipment for dispensaries, pasture establishment and replacement of breeding bulls.
10/ Imputed interest payments on long-term loan (see Table 9).

1/ Bouvillons à engraisser pendant une période de 2 ans; achetés à 140 kg de poids vif et vendus à 300-310 kg de poids vif (y compris ceux actuellement au ranch)
2/ Boeufs engraissés pendant une période de 9-12 mois: achetés à 185 kg de poids vif et vendus à 270-290 kg de poids vif.
3/ Traitements selon le barème des traitements de l'ONDE.
4/ La part de salaire du directeur expatrié du ranch: 20%
5/ Le directeur du ranch sera un assistant vétérinaire (A2).
6/ Un bouvier pour 150 têtes de bétail.
7/ Un ouvrier pour 500 têtes de bétail.
8/ 5% des coûts d'exploitation (moin achat bétail) pour couvrir la vérification des comptes comptables; assurance et voyage; Une contribution de 1.000 zaïres sera allouée au siège de l'ONDE à Kinshasa pour les frais divers
9/ 10% des coûts d'investissement des clôtures, kraals de nuit, equipement agricole et phonie; 25% des coûts d'investissement des camions, tracteurs et véhicules tous terrains et 20% des coûts d'investissement des motocyclettes, bicyclettes, petit matériel, mobilier et matériels pour les dispensaires, renouvellement des paturages et remplacement des taureaux reproducteurs.
10/ Charges d'intérêt imputées au service de prêt à long terme (voir Tableau 9).

July 8, 1976

le 8 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Asada Fattening Ranch - 5,000 Ha

Source and Application of Funds
(Z)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ranch d'Asada - 5,000 Ha

Origine et Emploi des Fonds
(zaïres)

	Year/Année 1	2	3	4	5	6	7	8	9	10-20	
Sources of Funds											**Origine des Fonds**
Sales	18,960	48,290	115,000	156,860	209,150	277,620	367,140	479,480	549,430	554,430	Ventes
Development Grant 1/	67,710	57,900	38,740	29,360	21,370	-	-	-	-	-	Don pour le développement 1/
Development Loan 2/	57,710	29,058	26,977	-	-	-	-	-	-	-	Prêt à long-terme
Total Sources	144,380	135,248	180,717	186,220	230,520	277,620	367,140	479,480	549,430	554,430	Total des Fonds Disponibles
Use of Funds											Emploi des Fonds
Fixed Investments Costs	57,270	47,460	28,300	18,920	10,930	-	-	-	-	-	Coûts d'investissement en capital
Capital Replacement Costs	-	-	-	-	30,315	7,365	390	1,225	30,315	10,800 4/	Coûts de remplacement en capital
Operating Costs 3/	36,830	45,908	49,125	54,031	58,562	54,572	61,518	63,314	63,314	63,314	Coûts d'exploitation 3/
Purchase of Fattening Steers	31,320	51,300	75,060	102,600	133,920	182,790	225,450	225,450	225,450	225,450	Achat de bétail d'embouche
Loan Installments 4/	-	-	-	-	-	-	-	29,657	29,657	29,657	Remboursement du prêt
Total Uses	125,420	144,668	152,485	175,551	233,727	244,727	287,358	319,646	348,736	329,221	Total des Fonds Employés
Annual Surplus (Deficit)	18,960	(9,420)	28,232	10,668	(3,207)	32,893	79,782	159,834	200,694	225,209	Excédent (ou déficit) annuel de Trésorerie

1/ To finance fixed Investment Costs and Technical Assistance.
2/ Working capital.
3/ Technical Assistance included.
4/ Interest at 11.5% Repayment over 13 years, 7 years grace period for both interest and principal.
5/ Average replacement costs for years 10-20

1/ Pour financer les coûts d'investissement en capital et l'assistance technique.
2/ Fonds de roulement.
3/ Assistance technique incluse.
4/ Intérêt à 11.5% par an, amorti en 13 ans après 7 ans de différé d'amortissement pour paiement d'intérêt et remboursement du principal.
5/ Moyenne des coûts de remplacement pour les années 10-20.

July 9, 1976

le 9 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Dele Ranch - 5,000 ha 1/

Herd Projection

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ranch de Dele - 5.000 ha 1/

Evolution du Troupeau

	Without Project/ Sans projet	Year/Année 1	2	3	4	5	6	7	8	9	10	11-20	
Herd Composition													**Composition du troupeau**
Bulls	10	10	10	23	28	24	24	24	24	24	24	24	Taureaux
Breeding Cows	252	242	211	566	700	600	600	600	600	600	600	600	Vaches reproductrices
Calves Weaned	118	151	157	137	396	490	420	420	420	420	420	420	Veaux sevrés
Heifers 1-2 years	176	56	73	76	67	192	238	204	204	204	204	204	Génisses 1-2 ans
Heifers 2-3 years	3	417	304	70	74	65	186	231	198	198	198	198	Génisses 2-3 ans
Heifers 3-4 years	29	3	400	292	68	72	63	180	224	192	192	192	Génisses 3-4 ans
Steers 1-2 years	74	56	72	75	66	192	238	204	204	204	204	204	Bouvillons 1-2 ans
Steers 2-3 years	49	70	54	69	73	64	186	231	198	198	198	198	Bouvillons 2-3 ans
Steers 3-4 years	25	47	67	52	67	71	62	180	224	192	192	192	Bouvillons 3-4 ans
Steers 4-5 years	69	24	45	64	50	65	69	60	175	217	186	186	Bouvillons 4-5 ans
Steers over 5 years	12	66	-	-	-	-	-	-	-	-	-	-	Boeufs de plus de 5 ans
Steers, Purchased 4/	0	285	570	855	1,140	1,425	1,615	1,900	1,900	1,900	1,900	1,900	Bouvillons, achetés 4/
Total Animals	817	1,427	1,963	2,279	2,789	3,260	3,701	4,234	4,371	4,349	4,318	4,318	Total Animaux
Total A.U. 2/	699	1,276	1,806	2,142	2,333	2,770	3,281	3,814	3,951	3,929	3,898	3,898	U.G.B. 2/
Mortality													**Mortalite**
Bulls	-	1	0	0	1	1	1	1	1	1	1	1	Taureaux
Cows and Replacements	-	14	10	24	26	23	20	20	25	25	24	24	Vaches et génisses pleines
Heifers 1-2 years	-	3	3	3	2	6	7	6	6	6	6	6	Génisses 1-2 ans
Heifers 2-3 years	-	9	2	3	2	2	6	7	6	6	6	6	Génisses 2-3 ans
Heifers 3-4 years	-	0	17	12	2	2	2	6	7	6	6	6	Génisses 3-4 ans
Steers 1-2 years	-	3	3	3	2	6	7	6	6	6	6	6	Bouvillons 1-2 ans
Steers 2-3 years	-	4	2	3	2	2	6	7	6	6	6	6	Bouvillons 2-3 ans
Steers 3-4 years	-	2	3	2	2	2	2	6	7	6	6	6	Bouvillons 3-4 ans
Steers 4-5 years	-	1	2	3	2	2	2	2	5	7	6	6	Bouvillons 4-5 ans
Steers over 5 years	-	4	4	2	2	2	2	2	2	5	7	6	Boeufs de plus de 5 ans
Steers, Purchased 4/	-	15	30	45	60	75	85	100	100	100	100	100	Bouvillons, achetés 4/
Total Mortality	-	56	76	100	103	123	140	163	169	174	174	173	Total Mortalité
Purchases													**Achats**
Bulls	-	3	2	15	8	0	3	3	3	3	3	3	Taureaux
Heifers 2-3 years 3/	-	250	250	0	0	0	0	0	0	0	0	0	Génisses 2-3 ans 3/
Steers 3 years 4/	-	300	600	900	1,200	1,500	1,700	2,000	2,000	2,000	2,000	2,000	Bouvillons 3 ans 4/
Total Purchases	-	553	852	915	1,208	1,500	1,703	2,003	2,003	2,003	2,003	2,003	Total Achats
Sales													**Ventes**
Culled Cows	24	25	24	21	57	70	48	42	60	60	60	60	Vaches de réforme
Heifers 3-4 years	0	0	0	0	75	75	4	1	97	137	108	108	Génisses 3-4 ans
Steers over 5 years	30	11	86	43	62	48	63	67	58	170	210	180	Boeufs de plus de 5 ans
Culled Bulls	2	2	2	2	2	3	2	2	2	2	2	2	Taureaux réformes
Steers, Purchased 4/	0	0	285	570	855	1,140	1,425	1,615	1,900	1,900	1,900	1,900	Bouvillons, achetés 4/
Total Sales	56	38	397	636	1,051	1,336	1,542	1,727	2,117	2,269	2,280	2,250	Ventes totales
Technical Coefficients													**Coefficients techniques**
Weaning Rate %	-	60	65	65	70	70	70	70	70	70	70	70	Taux de sevrage %
Adult Mortality Rate % 5/	-	5	4	4	3	3	3	3	3	3	3	3	Taux de mortalité des adultes % 5/
Mortality - Steers Purchased 4/	-	5	5	5	5	5	5	5	5	5	5	5	Mortalité - Bouvillons et taurillons, achetés 4/
Cow Culling Rate %	-	10	10	10	10	10	8	7	10	10	10	10	Taux de vaches de réforme
Bull Culling Rate %	-	15	15	15	10	10	10	10	10	10	10	10	Taux de taureaux de réforme
Stocking Rate - ha/A.U.		3.9	2.8	2.3	2.1	1.8	1.5	1.3	1.3	1.3	1.3	1.3	Taux de charge - ha/U.G.B.

ANNEX/ANNEXE 5
Table/Tableau 10

1/ Includes Dele sector (1,200 ha), Makabo sector (1,300 ha), Tindah sector (1,200 ha) and Songolo sector (1,300 ha).
2/ Total animals minus calves weaned.
3/ Breeding heifers purchased locally (approximately 50%) and imported from Kenya (approximately 50%).

4/ Purchased at 185 kg LW for 9-12 months fattening.
5/ Include 2% losses.

July 8, 1976

1/ Comprend les secteurs de Dele (1 200 ha), de Makabo (1.300 ha), de Tindah (1.200 ha) et de Songolo (1.300 ha)

2/ Nombre total d'animaux moins les veaux sevrés.
3/ Génisses reproductrices achetées localement (environ 50%) et importées du Kenya (environ 50%).

4/ Achetés à 185 kg de poids vif pour être engraissés pendant 9-12 mois
5/ Inclus 2% de pertes.

le 8 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Dele Ranch - 5,000 ha 1/

Investment Costs
(Z)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ranch de Dele - 5.000 ha 1/

Coûts d'Investissement
(Z)

ANNEX/ANNEXE 5
Table/Tableau 11

INVESTMENT CATEGORY	Unit/ Unité	Unit Cost/ Coût par unité	Year 1/Année 1 Units/ Unités	Year 1/Année 1 Cost/ Coût	Year 2/Année 2 Units/ Unités	Year 2/Année 2 Cost/ Coût	Year 3/Année 3 Units/ Unités	Year 3/Année 3 Cost/ Coût	Year 4/Année 4 Units/ Unités	Year 4/Année 4 Cost/ Coût	Year 5/Année 5 Units/ Unités	Year 5/Année 5 Cost/ Coût	Total Years 1-5/Années 1-5 Units/ Unités	Total Years 1-5/Années 1-5 Cost/ Coût	Total Cost/Coût Total Local/ Local	Total Cost/Coût Total Foreign Exchange/ Devises	Foreign Exchange/ Devises %	CATEGORIE D'INVESTISSEMENT
Ranch Infrastructure																		Infrastructure du Ranch
Bridge 2/	each	40,000	-	-	1	40,000	-	-	-	-	-	-	1	40,000	22,800	17,200	43	Pont 2/
Firebreaks and tracks	km	18	5	90	5	90	5	90	5	90	5	90	25	450	450	0	0	Coupe-feu et pistes
Fences 4/ 3/	km	580	5	2,900	10	5,800	15	8,700	10	5,800	10	5,800	50	29,000	10,150	18,850	65	Clôtures 4/
Night-kraals 5/	each	690	1	690	1	690	1	690	1	690	-	-	4	2,760	970	1,790	65	Kraals de nuit 5/
Access road 6/	km	150	4	600	4	600	-	-	-	-	-	-	8	1,200	1,200	0	0	Route d'accès 6/
Sub-Total				4,280		47,180		9,480		6,580		5,890		73,410	35,570	37,840		Total Partiel
Buildings and Cattle Facilities																		Bâtiments et Installations pour Bétail
Construction of dipping tank 7/	each	9,500	-	-	1	9,500	1	9,500	-	-	-	-	2	19,000	10,830	8,170	43	Construction de bassin d'immersion 7/
Repair of dipping tank 8/	each	3,140	1	3,140	-	-	-	-	-	-	-	-	1	3,140	2,100	1,040	33	Réparation de bassin d'immersion 8/
Veterinary dispensary 9/	each	4,800			1	4,800	1	4,800	1	4,800	-	-	3	14,400	10,370	4,030	28	Construction de maison de l'infirmier vé
Construction of sector chief's house (A3)	each	7,300	-	-	1	7,300	1	7,300	1	7,300	-	-	3	21,900	15,770	6,130	28	Construction de maison du chef de secteur
Construction of herdsmen's houses 10/	each	4,700	3	14,100	5	23,500	5	23,500	5	23,500	5	23,500	23	108,100	77,830	30,270	28	Construction des maisons des bouviers
Repair of herdsmen's houses	each	470	5	2,350	5	2,350	-	-	-	-	-	-	10	4,700	3,380	1,320	28	Reparation des maisons des bouviers
Crush 11/	each	1,300	-	-	1	1,300	-	-	-	-	-	-	1	1,300	930	370	28	Couloir avec joug 11/
Furniture and equipment	set	850	1	850	1	850	1	850	1	850	-	-	4	3,400	610	2,790	82	Mobilier et équipement
Sub-Total				20,440		49,600		45,950		36,450		23,500		175,940	121,820	54,120		Total Partiel
Vehicles and Equipment																		Véhicules et Matériel
Tractor and equipment	set	16,900	1	16,900	1	16,900	-	-	-	-	-	-	2	33,800	6,080	27,720	82	Tracteur et matériel
Four-wheel drive vehicle	each	11,800	1	11,800	-	-	-	-	-	-	-	-	1	11,800	2,120	9,680	82	Véhicule tout-terrain
Motorcycle	each	600	1	600	1	600	1	600	1	600	-	-	4	2,400	430	1,970	82	Motocyclette
Bicycle	each	130	2	260	2	260	2	260	2	260	-	-	8	1,040	590	450	43	Bicyclette 12/
Small equipment 12/	set	1,520	1	1,520	1	1,520	1	1,520	1	1,520	-	-	4	6,080	1,090	4,990	82	Petit Matériel
Radio 13/	each	3,380	1	3,380	-	-	-	-	-	-	-	-	1	3,380	610	2,770	82	Phonie 13/
Sub-Total				34,460		19,280		2,380		2,380		-		58,500	10,920	47,580		Total Partiel
Pasture Improvement																		Développement de Pâturages
Stylosanthes seed 14/	kg	5	250	1,250	250	1,250	250	1,250	250	1,250	250	1,250	1,250	6,250	1,060	5,190	83	Semences de stylosanthes 14/
Seedbed preparation and sowing	ha	8	50	400	50	400	50	400	50	400	50	400	250	2,000	1,340	660	33	Travaux de semis
Sub-Total				1,650		1,650		1,650		1,650		1,650		8,250	2,400	5,850		Total Partiel
Purchase of Breeding Cattle 15/																		Achat de Bétail d'Elevage 15/
Bulls, Local (Nioka)	each	375	1	375	1	375	7	2,625	4	1,500	-	-	13	4,875	4,875	0	0	Taureaux, locaux (Nioka)
Bulls, imported 16/	each	500	2	1,000	1	500	8	4,000	4	2,000	-	-	15	7,500	0	7,500	100	Taureaux, importés 16/
Heifers, local	each	135	125	16,875	125	16,875	-	-	-	-	-	-	250	33,750	33,750	0	0	Génisses locales
Heifers, imported 17/	each	150	125	18,750	125	18,750	-	-	-	-	-	-	250	37,500	0	37,500	100	Génisses, importées 17/
Sub-Total				37,000		36,500		6,625		3,500		-		83,625	38,625	45,000		Total Partiel
Technical Assistance				10,440		10,440		10,440		10,440		10,440		52,200	0	52,200	100	Assistance Technique
Working Capital Requirements 18/				61,901		44,694		36,324						142,999	100,100	42,899	30	Fonds de roulement 18/
Total Investment Costs				170,731		209,344		112,869		61,000		41,480		594,924	309,435	285,489	52	Total Coûts d'Investissements
(Of which foreign exchange)				(87,844)		(98,168)		(50,157)		(31,130)		(18,190)						(Dont devises)

1/ Includes Dele (1,700 ha), Makabo (1,300 ha), Tindah (1,200 ha) and Songolo (1,300 ha) sectors. Both breeding and fattening operations would take place (see Herd Projection, Annex 5, Table 10).
2/ Bridge to be constructed between Makabo and Tindah sectors passing the river Tindah.
3/ 20 man-days per km; man-day each charge to 90 k (20 man-days of 90 k = 1800 k = 182)
4/ Fences include perimeter fencing and re-establishment of paddocks.
5/ One per ranch sector.
6/ Repair of access road between sectors.
7/ Construction of dipping tanks at Tindah and Songolo sectors.
8/ Repair of dipping tank at Makabo sector.
9/ Sector chiefs at the level of Infirmier (A3) would be responsible of each of the sectors Makabo, Tindah and Sogolo.
10/ At full development 33 herdsmen would be needed; 10 houses exist and 23 needed to be built.
11/ Equipment for each veterinary dispensary includes refrigerator.
12/ Hoes, axes, saws, etc., one set for each sector.
13/ To be linked to the Project by radio network.
14/ 5 kg seed per ha, 50 ha sowed yearly
15/ Purchased from Nioka Research Station.
16/ Imported, preferably dairy breeds.
17/ Preferably Boran Heifers.
18/ Working Capital is 100% of operating costs for first year and 100% of incremental operating costs for years 2 and 3.

NOTE. The level of first year expenditure assumes that the project is fully staffed and operational during the first year. Delays would reduce these expenditure levels.

July 8, 1976

1/ Y compris les secteurs de Dele (1.200 ha), de Makabo (1.300 ha), de Tindah (1.200 ha) et de Songolo (1.300 ha). L'élevage et l'embouche auront lieu (voir l'Evolution du Troupeau, Annexe 5, Tableau 10).
2/ Pont à construire sur la rivière Tindah entre les secteurs de Makabo et de Tindah.
3/ 20 homme-jours par km, un homme-jour à 90 k (20 homme-jours de 90 k = 1800 k = 182)
4/ Incluent clôtures périphériques et rétablissement des paddocks.
5/ Un par secteur.
6/ Réparation de route d'accès entre les secteurs.
7/ Construction des bassins d'immersion aux secteurs de Tindah et de Sibgiki.
8/ Réparation du bassin d'immersion au secteur de Makabo.
9/ Les chefs de secteur au niveau d'infirmier vétérinaire (A3) seront responsables de chacun des secteurs de Makabo, de Tindah et de Songolo.
10/ Au plein développement 33 bouviers seront employés; 10 habitations existent déjà et 23 à construire.
11/ L'équipement pour chaque dispensaire vétérinaire inclut un réfrigerateur.
12/ Houes, haches et scies, un ensemble par secteur.
13/ Poste secondaire qui sera relié au réseau de phonie du projet.
14/ 5 kg de graines par ha; 50 ha par année seront ensemencés.
15/ Achetés à la station de recherches de Nioka.
16/ Importés de préférence de races laitières
17/ Génisses Boran de préférence.
18/ Fonds de roulement représente 100% des coûts d'exploitation de la première année et 100% des coûts d'exploitation supplementaires dans les années 2 et 3.

NOTE. Le niveau des dépenses de la première année assume que le projet est complètement équipé et opérationnel pendant la première année. Les délais réduiront ces niveaux de dépenses.

le 8 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Dele Breeding and Fattening Ranch

Sales and Operating Costs

(Z)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ranch d'Elevage et d'Embouche de Dele

Revenus et Coûts d'Exploitation

(zaires)

	Unit Cost/ Coût par unité	Without Project/ Sans projet	End of Year/Fin de l'Année 1	2	3	4	5	6	7	8	9	10-20	
CATEGORY													CATEGORIE
Sales													
Culled cows		7,620	5,200	4,990	4,380	11,950	14,840	10,290	9,100	13,150	13,300	13,440	Vaches de réforme
Heifers 3-4 years		-	-	-	-	13,680	13,800	740	190	18,300	76,080	20,730	Génisses de 3-4 ans
Steers over 5 years		5,415	3,800	29,740	14,910	21,550	16,810	22,240	23,840	20,800	61,410	76,440	Boeufs de plus de 5 ans
Culled bulls		319	490	490	490	490	490	490	490	490	490	490	Taureaux de réforme
Older steers, purchased 1/		-	-	61,560	123,570	186,050	250,800	318,920	363,050	431,680	438,290	440,800	Bouvillons et taurillons, achetés 1/
Total Sales		8,354	9,490	96,780	143,350	233,720	296,740	350,880	396,670	484,420	537,570	551,900	Ventes Totales
Operating Costs													Coûts d'Exploitation
Purchases of older steers 1/			29,940	59,940	89,910	119,880	149,850	169,830	199,800	199,800	199,800	199,800	Achat des bouvillons et tourillons 1/
Wages and Salaries													Salaires et Traitements
Share of salary to expatriate manager 2/	52,200		10,440	10,440	10,440	10,440	10,440	-	-	-	-	-	Part de salaire du directeur du ranch recruté à l'étranger 2/
Ranch manager 3/	2,500		2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	Directeur du ranch 3/
Section chief 4/	875		875	1,750	2,625	3,500	3,500	3,500	3,500	3,500	3,500	3,500	Chef de secteur 4/
Foreman	410		410	410	410	820	820	1,230	1,230	1,230	1,230	1,230	Contremaîtres
Herdsmen	250		3,250	5,250	5,250	5,750	7,000	8,250	8,250	8,250	8,250	8,250	Bouviers
General laborers	290		870	1,450	1,450	1,740	2,030	2,320	2,320	2,320	2,320	2,320	Ouvriers
Carpenters and masons	295		590	590	590	590	590	590	590	590	590	590	Menuisiers et maçons
Drivers	355		710	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	Chauffeurs
Accountants	625		625	625	625	625	625	625	625	625	625	625	Comptables
Typist	500		500	500	500	500	500	500	500	500	500	500	Dactylographe
Sub-total			20,770	24,980	25,455	27,530	29,070	20,580	20,580	20,580	20,580	20,580	Total partiel
Animal Health													Santé Animale
Drugs and vaccine		-	5,428	7,681	9,923	9,923	11,783	13,996	16,221	16,805	16,712	16,580	Produits vétérinaires
Mineral salts		-	2,860	3,766	4,864	4,864	5,776	6,810	7,993	8,238	8,192	8,128	Sels minéraux
		-	8,088	11,447	14,787	14,787	17,559	20,796	24,374	25,043	24,904	24,708	Total partiel
Maintenance of Ranch Infrastructure and Construction													Entretien de l'Infrastructure du Ranch
Firebreaks and tracks			84	167	214	260	307	307	307	307	307	307	Coupe-feu et pistes
Fences and night-kraals			-	375	530	705	863	863	863	863	863	863	Clôtures et kraals de nuit
Buildings			1,572	1,981	2,971	3,889	4,619	5,090	5,090	5,090	5,090	5,090	Bâtiments
Sub-Total			1,656	2,523	3,715	4,854	5,789	6,260	6,260	6,260	6,260	6,260	Total partiel
Vehicles and Equipment													Véhicules et Matériel
Tractors	5,000		500	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	Tracteurs
Four-wheel drive vehicle	3,420		3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	Véhicule tous-terrain
Motorcycle	200		200	600	800	800	800	800	800	800	800	800	Motocyclettes
Bicycle and small equipment	-		343	1,030	1,374	1,374	1,374	1,374	1,374	1,374	1,374	1,374	Bicyclettes et petit matériel
Sub-total			8,963	15,050	15,594	15,594	15,594	15,594	15,594	15,594	15,594	15,594	Total partiel
Miscellaneous 5/			2,874	3,875	3,978	4,138	4,400	4,169	4,330	4,374	4,360	4,360	Divers 5/
Total Operating Expenses before Depreciation and Interest		9,090	72,381	117,115	153,439	186,783	222,262	237,222	270,738	271,924	271,498	271,302	Coûts d'Exploitation Avant Provisions Pour Amortissements et Intérêt
Depreciation 6/			8,435	14 023	17,479	20,016	20,926	20,926	20,926	20,926	20,926	20,926	Provisions pour Amortissements 6/
Interest 7/			7,127	12,267	16,444	16,444	16,444	16,444	16,444	16,444	15,843	15,153	Intérêt 7/
Total Operating Cost		9,056	87,943	143,405	187,317	223,243	259,632	274,592	308,108	309,021	308,267	307,381	Total Coûts d'Exploitation
Net Income		(696)	(78,453)	(46,625)	(43,962)	10,477	37,108	76,088	88,562	175,399	229,253	244,519	Revenu Net
Technical Coefficients													Coefficients techniques
Liveweight of culled cows (kg)		260	260	260	261	262	265	268	271	274	277	280	Poids vif des vaches en réforme (kg)
Liveweight of heifers (kg)		220	222	224	226	228	230	232	234	236	238	240	Poids vif des génisses (kg)
Liveweight of steers from breeding herd (kg)		380	380	380	381	384	385	388	391	394	397	400	Poids vif des boeufs du troupeau reproducteur (kg)
Liveweight of bulls (kg)		450	450	450	450	450	450	450	450	450	450	450	Poids vif des taureaux reproducteurs (kg)
Liveweight of older fattened steers (kg)		270	270	270	271	272	275	278	281	284	287	290	Poids vif des boeufs à l'embouche (kg)
Prices (k)													Prix (k)
1st Category Steers and heifers over 350 kg liveweight		.25/.70	91	91	91	91	91	91	91	91	91	91	1ère catégorie: Boeufs et genisses au dessus 350 kg poids vif
2nd Category Steers and culled cows in good condition liveweight 260-350 kg and heifers over 220 kg liveweight		.22/62	80	80	80	80	80	80	80	80	80	80	2ème catégorie: Boeufs et vaches de réforme, en bon état de 260-350 kg poids vif et génisses au-dessus 200 kg poids vif.
3rd Category Culled bulls and animals under 260 kg liveweight		.17/54	54	54	54	54	54	54	54	54	54	54	3ème catégorie: Taureaux de reforme et animaux au-dessous 280 kg poids vif

1/ Older steers fattened during a 9-12 months period, purchased at 185 kg liveweight and sold at 270-290 kg liveweight.

2/ 20% share of expatriate ranch manager's salary.
3/ Ranch manager will be an Assistant Veterinarian (A2)
4/ A3 level (Infirmier Veterinaire).
5/ 5% of total operating expenses (less purchase of cattle) to cover expenses for auditing, insurance and travel. Z 1,000 will be allocated to CNDF's HQ in Kinshasa to meet additional expenses.
6/ 10% of investment for fences, night-kraals, crushes, tractor equipment and radio, 25% of investments for truck, tractors, four wheel drive vehicles, and 20% for investments of motorcycles and bicycles, small equipment, furniture and equipment for dispensaries, pasture establishment and replacement of breeding bulls.

7/ Imputed interest payments on long-term loan (see Table 13).

1/ Boeufs d'engraissés durant une période de 9-12 mois, achetés à 185 kg de poids vif et vendus à 270-290 kg de poids vif.

2/ La part de salaire du directeur expatrié du ranch - 20%
3/ Le directeur du ranch sera un assistant vétérinaire (A2).
4/ Niveau A3 (Infirmier Vétérinaire).
5/ 5% des coûts d'exploitation (moins achat bétail) pour couvrir les frais de vérification de comptabilité, l'assurance et le voyage; 1.000 zaires seront attribués au siège de l'ONDE pour les frais divers.
6/ 10% des coûts d'investissement des clôtures, kraals de nuit, équipement agricole et phonie; 25% des coûts d'investissement des camions, tracteurs et véhicules tout-terrain et 20% des coûts d'investissement des motocyclettes, bicyclettes, petit matériel, meubles et matériels pour les dispensaires, renouvellement des pâturages et remplacement des taureaux d'élite.
7/ Charges d'intérêt imputées au service de prêt à long-terme (voir tableau 13)

July 8, 1976

le 8 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Dele Ranch - 5,000 Ha.

Source and Application of Funds
(Z)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Ranch de Dele - 5.000 Ha

Origine et Emplois des Fonds
(zaïre)

	Before Development/ Avant Développement	Year/ Année 1	2	3	4	5	6	7	8	9	10-20	
Sources of Funds												Origine des Fonds
Sales	8,354	9,490	96,780	143,350	233,720	296,740	350,680	396,670	484,420	537,520	551,900	Ventes
Development Grant 1/		108,270	164,650	76,525	61,000	41,480	-	-	-	-	-	Don pour le développement 1/
Development Loan 2/		61,981	44,694	36,324	-	-	-	-	-	-	-	Prêt à long-terme 2/
Total Sources	8,354	179,741	306,124	256,199	294,720	338,220	350,680	396,670	484,420	537,520	551,900	Total des Fonds Disponibles
Uses of Funds												Emploi des Fonds
Fixed Investment Costs		60,830	117,710	59,460	47,060	31,040	-	-	-	-	-	Coûts d'investissement en capital
Purchase of Breeding Cattle		37,000	36,500	6,625	3,500	-	-	-	-	-	-	Achat de bétail pour élevage
Capital Replacement Costs		-	-	-	-	30,185	9,110	5,470	5,730	34,480	13,839 5/	Coûts de remplacement en capital
Operating Costs 3/		42,481	57,175	63,529	66,903	72,412	67,392	70,938	71,851	71,648	71,502	Coûts d'exploitation
Purchase of Feeder Steers		29,940	59,940	89,910	119,880	149,850	169,830	199,800	199,800	199,800	199,800	Achat de bétail d'embouche
Loan Installments 4/		-	-	-	-	-	-	-	36,676	36,676	36,676	Remboursement du prêt 4/
Total Uses	9,050	170,251	271,325	219,524	237,343	283,487	246,332	276,208	314,057	342,604	321,817	Total des Fonds Employés
Annual Cash Surplus (Deficit)	(696)	9,490	34,799	36,675	57,377	54,733	104,348	120,462	170,363	194,916	230,083	Excédent (ou deficit) annuel de Trésorerie

1/ Including fixed Investment Costs, purchase of breeding stock and Technical Assistance.
2/ Working capital
3/ Technical Assistance included
4/ Interest at 11.5%. Repayment over 13 years, 7 years grace period for both interest and principal.
5/ Average replacement costs for years 10-20

1/ Y compris coûts d'investissement en capital, achat de bétail d'élevage et assistance technique.
2/ Fonds de roulement.
3/ Assistance téchnique incluse
4/ Intérêt à 11.5% par an, amorti en 13 ans après 7 ans différé d'amortissement pour paiement d'intérêt et remboursement du principal.
5/ Moyenne des coûts de remplacement pour les années 10-20.

July 9 1976

le 9 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Abattoirs

A. Background

1. The main towns of Bunia and Kisangani possess well-built and modern abattoirs. Originally well-equipped, both plants have fallen into disrepair through absence of maintenance and much of the machinery and equipment are now beyond repair. The management is inexperienced and workers generally untrained and as a result the slaughter operations are inefficient and unhygienic, particularly for pigs where the work takes place on the ground outside the abattoirs. Both abattoirs run at a loss. The Bunia abattoir is run by ONDE and its revenue is obtained from slaughter fees for slaughtering stock for local butchers; it is to increase its revenue from its own trading operations involving the purchase of cattle and sale of carcasses to Societe General d'Alimentation (SGA) in Kinshasa. Kisangani is run by the Veterinary Department and its income derives from slaughter fees. The accounting systems of both enterprises are very rudimentary.

Bunia Abattoir

2. The Bunia abattoir is controlled and operated by ONDE. It is located 7 km from the center of town on a well chosen site. The buildings (1,212 m^2) are enclosed by a security fence surrounding a 2 ha section of the 137 ha site. Constructed between 1956 and 1958, the abattoir began working in January 1959. The plant was designed for an annual throughput of 20,000-25,000 cattle, but only minor provision was made for processing pigs. No information is available regarding early operations. Slaughter figures for 1974 give the number of cattle as 3,074 head, pigs 2,303, sheep and goats 108. The throughput for 1975 continues at a slightly higher rate. It is estimated that in 1975 400 cattle and 200 pig carcasses will be exported to Kinshasa (53 and 10 tons of meat respectively).

3. The main building contains a large slaughter and dressing hall, two chill rooms, a freezing room and a sub-zero cold store (363 m^3 capacity) which are joined by a large ante-chamber leading to a loading bay. In addition to the meat section, there are small cold rooms for storing fish, vegetables and butter. Under the same roof is an offal cleaning room, by-products processing department, detention bay, administrative and veterinary offices and toilets as well as a large compressor room serving the cold stores. Attached to the building is a small laundry and a covered area for the boiler. Other buildings include a large store with loading bays on two sides, a small power house and pig pens.

4. The structure of all the buildings are in good sound condition. Walls of the processing areas are white tiled to a height of about 2 m, and except for a few small patches, the tilework is good. Floors and drains are in reasonably sound condition and require little attention, some windows need new grazing and the screening of upper openings calls for renewal. Elsewhere, minor repairs and renovations are required and all buildings need repainting.

5. The bleeding, dressing and detention areas, as well as chill and freezing rooms, ante-chamber and the loading bay are equipped with an overhead round bar runway. A motorized ritual slaughter pen is installed and the bed system is used for flaying and dressing. There are four dressing bays each of which is provided with an electric hoist, dressing trolleys are used and not fixed beds. Originally each bay was equipped with an electric flaying machine but only one remains and that is not in use. Paunches are dropped on the floor, plucks and heads are hung on improvised hooks for examination, although eight standard type offal and head inspection trucks remain unused in the store. Carcasses are split on the rail by cleavers and the sides move on to an overhead track scale then to the chill rooms or dispatch area. Another overhead track scale is situated at the loading bay. The only equipment available for processing pigs is a stunning box, unused; pigs are killed, scalded and scraped by hand on a small patch of concrete some distance from the abattoir.

6. The offal cleaning section contains washing tanks with benches, a mechanical tripe washer is at present dismantled and unusable. The by-products department contains a melter-dryer, centrifuge, disintegrator 1/ and tallow rendering tanks. The boiler is a vertical type, fired by fuel oil and originally fitted with automatic control; the laundry is adequately equipped with a washing machine and spin dryer. The large, well constructed engine room contains five compressors; the plant is adequate for the full capacity of the chill and freeze rooms; the refrigerant is ammonia. A small power house contains one 60 KVA diesel generator unit. Water is supplied by the local water authority, pressure is low and unfortunately, the abattoir is not provided with a head tank. The effluent passes through a water trap before running through a channel to a small stream some 200 meters from the abattoir. There is no maintenance workshops, very few tools were visible and the spare parts in stock negligible. The administration offices are poorly furnished and the veterinary office contains only a small table and stool.

7. Throughout the abattoir, only the compressors, hoists and carcass scale appear to be working. The liveweight scale is unusable and all yields shown in the abattoir reports are estimates, mostly inexperienced guesses. The ritual stunning pen, a costly piece of equipment, is not working. It is claimed that the motor is not capable of turning the pen, but the apparent

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1/ It should not be used for grinding manioc as it has been in the past. The motor has been rewound.

reason is that the chassis and driving wheels are clogged with dirt and hard grease; as a result the method now employed for slaughtering cattle is crude and slow. The frames and wheels of the dressing trolleys are broken, and the one remaining flaying machine is unusable. Unskilled workers, using unsuitable knives, are employed for flaying. Consequently the hides produced at Bunia yield barely half the price per kilo for thos produced in Kivu.

8. There are no paunch tables and no paunch trucks, paunches are dropped on the floor and dragged across the floor to the offal cleaning room; tripes and all intestines are sold and edible products but scant attention is given to hygiene. The well equipped by-products processing department is no longer used; and therefore no by-products produced. This is mainly due to electrical trouble. The disintegrator has been used for grinding manioc, and it would seem that the fine powder has penetrated the uncovered motor, the motor attached to the centrifuge has also burned out. Motors can only be re-wound in Kinshasa (the cost of rewinding together with air freight is almost that of a new motor). The hoist which was used for lifting inedible material to the gentry for loading the melter is missing. A cursory examination through the discharge door revealed that the beater shaft, arms and paddles of the costly melter appear to be in good and sound condition.

9. It was understood that the refrigeration plant is in running order although a few leaks of ammonia were obvious; these appear due to faulty valves and packing. A general check and overhaul where necessary of the entire system is called for. The insulation of the chambers seemed sound but one door of the ante-chamber is in bad shape; however, the stock holds a stock of cork insulation and a carpenter is available locally to carry out the necessary repairs; all the refrigeration door furniture is in good condition. The supply of ammonia presents a problem: the refrigerant is imported from Europe and a charge of Z 45 is made on each cylinder which contains 60 kg. Due to the problems of transport it is not possible to meet the time limit for the return of the cylinders and the deposit is lost. Some 50 empty cylinders, on which a charge of Z 2,250 has been levied, remain in the stores at Bunia.

10. Originally two diesel engined generator units were installed to provide a stand-by plant in the event of a power failure of the municipal supply. One of the units has been removed to provide (it is said) light and power to a village or collectivity, the second unit has been canibalized but could possibly be rebuilt. The boiler has not been used for some considerable time although it is learned that the pump motor is tested occasionally; the control panel calls for attention and new parts needed. The boiler would need to be opened up for examination by a competent person to check if the tubes and boiler plates have suffered through corrosion. The steam pipework throughout the plant appears to be in good condition; however, lagging is needed in some areas. The laundry equipment is not used - here again, electrical faults are blamed.

Kisangani Abattoir

11. The Kisangani abattoir, build around the same time as the Bunia plan, is situated also on a well chosen 10 ha site, located about 6 km from the center of town. The buildings are well constructed and laid-out within an enclosed area of about 2 ha. A 200 m long access road with laterite surface links the abattoir to a tarmac road to town. With renovations and new equipment, the plant could cope readily with an annual slaughter of 18,000 head of cattle and 36,000 pigs. The throughput for 1974 amounted to no more than 2,536 head of cattle, 2,748 pigs and 694 sheep and goats. Kisangani abattoir is under the control of the Veterinary Department.

12. The main building contains slaughter and dressing floors for both cattle and pigs, a large hanging hall, two offal cleaning rooms, three chill rooms connected by a large ante-chamber and engine room. There is also a cellar beneath the pig section which is equipped for a hot water system. The walls of the building are white tiled to a height of 2 m, a small area needs retiling; floors and drains are in good condition and the roof is sound. A number of windows need reglazing and fly-screening renewed. The building has a ceiling of hardboard, not justified for an abattoir and now broken in parts, the remainder of the ceiling should be removed.

13. The administrative offices are in a separate building. This is also well constructed and there is ample accommodation for all needs. Another block of buildings contains cattle pens, a room equipped with a wood fired boiler and adjacent to this is a small concrete apron on which pigs are now being slaughtered and dressed under deplorable sanitary conditions even worse than those at Bunia. Water is obtained from the municipal supply but without a head tank, there is no water pressure in the plant. Effluent, after screening through a waste trap, is disposed of in the river nearby.

14. The cattle race is equipped with a liveweight scale, now corroded and broken beyond repair; a cattle stunning pen is almost in the same condition but might be repairable. The pig section is raised to allow for a hot water system to be installed in the cellar below, there is a pig stunning pen, scalding tank, scraping and gambrelling table - none of which are used; and the area is currently being used as a clockroom. Both slaughter and dressing floors, the hanging hall, ante-chamber and chill rooms are equipped with an excellent overhead twin bar runaway system.

15. The cold room doors have disintegrated or disappeared and so have the door frames together with the surrounding insulation. The refrigeration plant is no longer operating, due it is said to lack of ammonia; a test was carried out a year ago when a cylinder of ammonia was made available and the compressors were found to be functioning satisfactorily. There are two compresssors powered by 26 hp motors and one by a 60 hp motor; the latter has been opened up and the wiring exposed. A diesel fuel fired water heating unit has broken down and hot water is no longer available.

16. In addition to the under-utilized Kisangani abattoir, 4 slaughter slabs operate close to the town, one for the occasional Muslim slaughter, two for small stock and another for pigs. The latter, l'Abattoir des Mamans, which is owned and operated by five local women, is located about 3 km from the center of town and comprises a couple of small wooden shacks and a broken concrete slab which juts onto the river for the ready disposal of stomach contents and effluent. Current slaughter is some 40 pigs daily and the numbers are increasing. It is difficult to imagine a more unhygienic operation.

Hides

17. A feature of both abattoirs is the poor flaying and treatment of hides, particularly at Kisangani where the hides are hacked off the animal in a haphazard, irregular manner and regarded by the butchers as of little or no value.

18. The chief buyer of Bata in Kinshasa confirmed the low grade of Bunia and Kisangani hides. He mentioned that hides produced at Goma, Bukavu and Beni obtained a standard price of Z .34 a kg dried weight. While hides at Bunia only obtain Z .18 a kg dried weight. It was stated that the company is prepared to pay Z .36 a kg for first quality hides; prices quoted are at the point of production.

B. Investments

Bunia Abattoir: Investment

19. The Bunia abattoir buildings would be renovated throughout and repairs carried out where necessary. All existing plant which might be put into use again would be thoroughly overhauled, electric motors and switchgear would be stripped down for repairs and brought back into service. The refrigeration plant would be overhauled and checked by a Zairian refrigeration expert from Kinshasa.

20. New building structures include an extension to the main building for the slaughter and dressing of pigs (see sketch plan No. 1), hide drying and storage shed, a staff amenities block covering change rooms, showers and toilets; a covered slab equipped for Muslim slaughter and also a covered slaughter pen for cattle. The existing toilets which lead directly to the slaughter floor together with the wash hand fountain in the main building would be removed and the area used for hide fleshing and washing (see sketch plan No. 2).

21. Utility storage services will be improved by the addition of a head tank for water storage and to provide a good pressure throughout the plant. The boiler will be completely overhauled and brought in use to provide hot water throughout the plant. A catch basin and filter beds would be constructed to overcome the problem of pollution arising from the disposal of effluent. The existing stand-by unit will be brought back into service, and

an additional unit installed. The stand-by plant is essential to safeguard the existing stock in the event of an outside power failure. Both the security and the perimeter fencing would be renewed.

22. Many items of new plant and equipment would be introduced, the main items include a pig scalding tank, together with dehairing and gambrelling tables. A stainless steel paunching table extending into the offal cleaning room will overcome paunches being dropped on the floor and also aid the meat inspectors in their work. The abattoir would be fully equipped with plant, tools and utensils and with an improved layout to permit the efficient slaughter of cattle, pigs and small stock. Provision has been made for the establishment of a maintenance workshop in the store building where there is ample space available. Equipment and tools will be provided to carry out general maintenance work and day to day repairs.

23. The Project would finance the purchase of insulated vehicles for the meat delivery service that would be established (see para 51 below).

Kisangani Abattoir: Investment

24. Investment in Kisangani would mainly consist of renovating the buildings and re-equipping the abattoir. All the plant and machinery would be overhauled and repaired. The refrigeration plant would be checked by the same Zairian refrigeration expert from Kinshasa who would do the work at Bunia (see para 19 above).

25. New buildings would include the construction of a hide drying shed, and a general store and maintenance workshop.

26. Utility services would be improved with the addition of a head tank for water storage and to provide good pressure throughout the plant. The diesel fuel fired water heating unit would be repaired to provide hot water throughout the plant. An excellent effluent disposal system consisting of a catch basin, filter beds and a channel to irrigated land would be constructed.

27. All equipment in the pig section would be repaired or replaced where necessary to permit the use of the facilities. The abattoir would be equipped with necessary tools and utensils for the efficient slaughtering and processing of animals. The Project would also finance the acquisition of vehicles to establish a meat delivery service.

Cost Estimates

28. Investment cost estimates were prepared after discussions with leading suppliers in Kinshasa and abattoir engineering firms in London as well as recent quotations for similar projects, the estimates are based on prices prevailing at the time of project preparation with allowance for inflation to January 1977. Details are set out in tables 1 and 8 and summarized as follows:

Item	Z '000 Local	Z '000 Foreign	Z '000 Total	US$'000 Local	US$'000 Foreign	US$'000 Total	FE %
Bunia abattoir	126	194	320	145	223	368	61
Kisangani abattoir	62	72	134	71	83	154	53
Technical services	-	122	122	-	140	140	100
	188	388	576	216	446	662	67

Operational Procedures

29. After discussion and general agreement with the responsible authorities, ONDE would take over from the Veterinary Department the control and management of the Kisangani abattoir; ONDE would operate the latter as a joint venture with the Bunia abattoir for the supplies of livestock and the disposal of meat and by-products. An effective and acceptable form of accounting and documentation covering livestock purchases, operation of abattoirs and the meat delivery service would be drawn up by the Financial Controller of ONDE. Tender documents and expenditure budgets for the renovation, plant overhaul and new equipment for both the Bunia and Kisangani abattoir would be prepared by the managerial and technical advisor in conjunction with the Project director and the general manager of ONDE; disbursements of Project funds would be channelled through ONDE.

30. Both abattoirs run at a loss because of poor management and inadequate fees. In order to cover costs and obtain an acceptable financial rate of return on investments it will be necessary to:

(a) Raise slaughter fees to butchers from Z 1 per head for cattle and Z 0.75 for pigs to Z 4.00 and Z 2.50 respectively at Bunia and at Kisangani to Z 4.80 for cattle and Z 3.00 for pigs and Z 1.00 for sheep and goats. Part of the fees would go into a compensation fund to protect butchers against financial losses due to carcass condemnation (para 46) 1/. The fees would also cover the work currently done by butchers on both abattoirs who help with the slaughtering of animals.

(b) Raise holding ground fees.

(c) Make a major effort to purchase hides and skins and process them in the proper manner.

1/ Compensation of cattle: 75% of liveweight price net of transport costs.
Compensation of pigs: 100% of liveweight price net of transport costs.

(d) Use existing machinery to produce by products at Bunia, such as Meat Meal, Blood Meal, Hoof and Horn Meal and Tallow.

(e) Run the abattoirs in the most efficient manner possible.

(f) Stop all slaughtering outside the main abattoirs including that at the Abattoir des Mamans (but excepting Muslim slaughter in Kisangani); it is believed that the veterinary authorities have the necessary powers to enforce the closure.

31. Operating costs for the Bunia and Kisangani abattoirs are given in Tables 2 and 9; projections of revenues (Tables 4 and 10) are based on estimated livestock production and the proportion that should be processed given active management, local demand and support from producers, butchers, and Government staff in the region. The interrelationship with the production aspects of the project, the attitude of butchers, traders and producers and the perennial national problems of transport and supply of inputs provide a number of uncertainties, especially in the early years as experience is gained.

32. At Bunia, if the throughput (Table 5) and output are achieved with estimated costs, it would be possible to cover the costs of running the abattoirs on income from fees, by-products and hides by the second year of the Project. Meat purchased by ONDE would be sold to S.G.A. at an average price of Z 1.45 per kg carcass weight. The financial rate of return for the Bunia abattoir was estimated at 22% (Annex 13). The price of beef used in the calculation of the financial rate of return was Z 1.45/kg carcass, which is an average price for the carcasses which would be sold to S.G.A., ranging from Z 1.15 to Z 1.75. This price of Z 1.45/kg carcass, therefore, reflects both the producer price increase recommended by the mission for the better quality animals and the price differentiation between the three grades of cattle purchased from Z .91 for the first grace, to Z .80 and Z. 54 for the second and third grades respectively. If estimated capital costs were to increase by 10%, the financial rate of return would be lower by one percentage point reducing it to 21%. If estimated capital costs and operating costs, excluding purchases of cattle and hides, were to increase by 10%, the financial rate of return would be lower by 3 percentage points reducing it to 19%. However, if all estimated costs, including purchases of cattle andhides, were to increase by 10%, the financial rate of return would be negative. Alternatively, if during the first three years of the Project, abattoir fees and the sale price of meat, offals, by-products and hides were half the amounts estimated by the mission, which would mean a reduction of 50% in abattoir revenues, the financial rate of return would be lower by 14 percentage points reducing it to 8%. As apparent from the above results of the financial analysis, the most risky variables in the financial performance of the abattoir are the purchase price of cattle and the sale price of beef. (Revenues from sales of beef

carcasses account for more than 80% of estimated revenues at full development by Year 10 in the mission's financial projections for the abattoir). It will be, therefore, essential for the abattoir management to closely monitor its pricing policy for its various sources of revenues.

33. At Kisangani, the main source of income for the abattoir will be the slaughtering fees which at full development by Year 10 will account for about 65% of the abattoir revenues; revenues from the sales of hides and skins would amount to more than 20% of total revenues by Year 10. The financial rate of return was estimated at 12%. The cost of technical assistance has been included in the investment costs. If the estimated capital and operating costs were to be higher by 10%, the financial rate of return would be lower by 7 percentage points, reducing it to 5%. If the throughput of the abattoir were 50% below the throughput projected by the mission in the first three years of the project, the financial rate of return would be lower by 7 percentage points, reducing it to 5%. If the estimated abattoir fees were reduced by 20% to Z 3.85 for cattle, Z 2.40 for pigs and Z .80 for sheep and goats, the financial rate of return would be negative. The level of throughput of the abattoir and the level of abattoir fees are, therefore, the most risky variables for the abattoir to operate profitably. Therefore, it will be essential for the Veterinary Department to enforce the regulation that all animals, except for muslim slaughtering, be slaughtered at the abattoir. Also, it will be essential for the abattoir management to carefully monitor the level of the fees.

34. The estimated cash flows (Table 12) show a small operating deficit in the Bunia abattoir in the first three years of the project (totalling Z 105,000) and a surplus of Z 70,000 in the same period at Kisangani. A small adjustment in the sale price of meat in the first two years could eliminate this deficit. However, it is possible that the Bunia abattoir deficit be greater and that a deficit occur at the Kisangani abattoir in the first three years of the Project if the throughput of the abattoirs proves to be lower than was estimated by the mission or if fees and sale prices are set at inadequate levels. In normal circumstances these deficits as well as the working capital requirements of the Bunia abattoir for the purchase of cattle and hides would be financed by ONDE borrowing either from Government or from local banks.

35. The Bunia abattoir was passed to ONDE in a loss making condition and ONDE has had to support it out of revenues from its newly obtained ranching enterprises. This is unsatisfactory. Under the First Livestock Project it was intended that ONDE should operate strictly on a commercial basis and that it would not be given loss making enterprises unless adequate subventions were made to keep them in operation. If adequate financial and operational management changes are made and all animals being slaughtered in Bunia and Kisangani are slaughtered in the abattoirs, it should be possible to eliminate losses, but this will require direct Government backing in ensuring that butcher follow slaughtering regulations. It is, therefore, in ONDE's interest that separate accounts be maintained for these abattoirs and that the Government be prepared to lend to ONDE to meet any deficits in its abattoir

operations and for working capital requirements if credit facilities are not available from local banks. Fees would be reviewed by Government and ONDE. However, if for some reason ONDE is not permitted to set fees or prices at levels sufficient to operate the abattoirs profitably than Government would provide a subsidy. Assurances are needed on these points. Consideration should be given to require from S.G.A. that it pay on order part of the amounts due for purchased meat, which would allow ONDE to meet some of its working capital requirements.

Implementation Procedures

36. During Project year 1, the two expatriate experts would be recruited. 1/ Tenders would be prepared according to the requirements set out in the investment cost estimates. Renovation of the buildings, renewal of fencing and overhaul of the plant and machinery would commence at both abattoirs. New accounting procedures would be introduced and cattle buying would be organized. Also in year 1 orders would be placed for the new plant and equipment listed in the cost estimates. It is anticipated that for many items, shipment would not be affected until up to 22 weeks from the confirmation of orders and a further 8 weeks will elapse before delivery at the abattoirs, installation of new plant will therefore take place in year 2 when all capital expenditure would be completed. The phasing of invesment costs would be as follows: 2/

Investment Items	Year 1	Year 2	Total
Bunia abattoir-capital investments	188	132	320
Kisangani abattoir-capital investments	91	43	134
Technical assistance	61	61	122
Total	340	236	576

Plant and Equipment

37. Details of the plant, machinery and equipment requirements covering the cattle and pig sections for both Bunia and Kisangani abattoirs are set out in the investment cost tables 1 and 8. The information might be used as a guide when calling for estimates or tenders, it is likely that individual firms may wish to add to the list or suggest alternatives in accordance with their own particular manufacturing program.

38. It is desirable, as far as possible, that all equipment that would come into contact with edible products should be constructed of stainless steel. Working platforms and other heavy equipment should be well galvanized, tubular legs should be standard on all platforms, tables, tanks and so forth, angle iron which collects dirt in the corners should be avoided.

1/ See paras 61-69.

2/ Source: Tables 1 and 8. Includes technical services.

39. A strict routine of preventive maintenance must be introduced and rigidly adhered to. Manufacturers of plant and equipment will give details of the routine maintenance required for each item they supply, they will also furnish a list of recommended spares which should be acquired with the plant. There appears to be a complete absence of spares for the existing plants at the Bunia and Kisangani, this shortcoming would require the early attention of the expatriate engineer to be recruited under the sub-project.

Disposal of Effluent

40. An efficient and sophisticated sewage treatment plant, usually very costly is a necessary adjunct to a slaughterhouse where the effluent is directed into a municipal sewage system or where it might find its way into a river, lake or canal. At both Bunia and Kisangani the effluent is channelled, without treatment into a nearby stream. Since all viscera are sold as edible products, there is not a great deal of material remaining for processing as by-products at Bunia. (Kisangani does not possess a by-products processing plant, therefore, there is no difficulty regarding fats in the sewage and the disposal of effluent should not present any problems of pollution even with the future increased throughput).

41. The site and layout of the buildings make possible a simple gravity process of treatment and disposal, first from the existing waste trap to a catch basin designed to trap fat and solids, then through filter beds and finally to the channel irrigation of crops. The system permits a continuous flow of effluent direct from the plant and without any build up likely to cause bad odors.

42. The slaughterhouse drains would lead to a catch basin which would be located adjacent to the security fence, the catch basin would be a conventional over-under gravity flow type with four chambers. A pump would be installed at the discharge end of the catch basis with the suction pipe leading to a pump in the floor of the last chamber. This permits the catch basin to be pumped free of liquids for periodical cleaning.

43. From the catch basin the effluent gravitates to filter beds which should be located on the outside of the security fence. The size of the filter beds should be about 2.5 m x 6 m enclosed by a surrounding wall about 1.6 m high and with a smooth concrete bottom sloping towards a discharge pipe at one end. A layer of stones about 5 cm to 8 cm in diameter is placed on the bed floor followed by a layer of smaller stones and finally a covering of sand a few centimeters deep. The inlet for the effluent is through a perforated pipe placed above the center of the bed. Two such beds would be needed to permit rotational cleaning which is carried out by changing the sand. The filtered effluent would be channelled to the adjacent land which at Bunia is already being used for horticultural purposes; it is possible to raise a variety of crops with the recovered water which would be as much as 70% of the total amount of water used in the abattoir.

Hygiene

44. The Bunia abattoir would be provided with a separate amenities building which would be equipped with showers, wash basins and toilets; it would also contain first aid facilities. The abattoir already possesses laundry equipment which would be brought into service; similar equipment would be acquired for the Kisangani abattoir.

45. Each person reporting for duty would be required to wash and scrub his hands, preferably in a solution of sodium hypochlorite which could be readily made at the abattoir; each person will be issued with clean overalls, apron and cap and boots and leave whatever clothing, not necessary for work, in the lockers provided. Personnel with bandaged hands or those having colds should be given work which does not involve their contact with meat.

46. After using the toilets and before returning to work all personnel should wash their hands in the amenities building a before entering the abattoir it is desirable that they should walk through a shallow bath containing a solution of disinfectant. Hand washing should be insisted upon again on re-entering the abattoir at the wash hand basins in the processing departments.

47. Prior to the commencement of the day's operation, each section of the abattoir should be washed down thoroughly with hot water. The shift floors should be constantly swept free of waste and washed down. At the conclusion of the day's work, the entire abattoir, floors, walls and equipment should be washed down with hot water, to be followed by spraying with a solution of bacteriacide; particular attention should be given to drains.

48. Any trays or containers used in processing should be left in an inverted position after washing. All knives, stub, cleavers, etc., should be sterilized in boiling water at the end of the day's work and again prior to resuming work the next day. All waste traps should be cleared daily and at least once weekly the catch basin should be pumped free of effluent and thoroughly cleaned. The livestock pens and abattoir surrounds must be cleaned daily and sprayed with insecticides. A constant watch should be kept for possible breeding places for flies and other insects. The abattoir superintendent would be responsible for seeing that these precautions are carried out and good sanitary conditions are maintained throughout the plant.

Meat Inspection

49. 1974 veterinary records for the Bunia abattoir showed that 0.78% of beef carcasses and 0.52% of pork carcasses were condemned, mainly because of generalized cysticercosis. During the same period some 35% of livers were infected, 22% tongues and 15% hearts. The extent of this disease problem clearly indicates that a stringent form of meat inspection must be enforced if the public is to be protected against infection with internal parasites and other diseases likely to be contacted from animals. It is important,

therefore, from the point of view of public health to provide the necessary facilities for the maintenance of an effective meat inspection service.

50. The improved layout of the plant together with new equipment proposed would provide for an effective meat inspection service for both carcasses and offals. To overcome cattle-owner resistance to meat inspection through fear of losses and with the likelihood of slaughtering outside of the abattoirs, compensation would be paid for all carcasses for quarters condemned as unfit for human consumption. Part of the slaughter fees paid by the catle-owner would cover the cost of carcass compensation. Compensation would not be paid for condemnations resulting from emaciation or bruising. The large incidence of disease in offals would prohibit any form of compensation for condemnation.

Meat Delivery Service

51. Any improvement in the standard of sanitary conditions in the abattoirs would to a great extent, be nullified unless equal attention is paid to the methods of transport and distribution of the meat. At both Bunia and Kisangani a meat delivery service would be introduced to transport meat and offals from the abattoir to the markets and shops. In Bunia, the insulated vehicles would also transport chilled and frozen carcasses from the abattoir to the airstrip for export orders. The butchers will be charged a fixed nominal sum for this service: Z .45 will be charged to carry beef carcasses, Z .35 for pork carcasses and Z .15 for mutton or goat. The transport of offals will vary from Z 0.05 to Z 0.20 per set (Tables 3 and 9). This fee includes the cost of plastic bags to carry the offals, necessary to maintain good sanitary conditions in the abattoir and meat truck as well as to identify the owner of the offals. It is desirable that full use should be made of the enclosed, insulated meat trucks which are provided for in the investment costs, once these meat trucks are available the use of taxis, open carts or any exposed or unhygienic means of transport of meat from the abattoirs should be prohibited by the local authorities.

Hides

52. On the basis of Bata's readiness to purchase hides (see para 20 above) it is estimated that improved flaying and treatment of the hides would double the value of the hides produced at the Bunia and Kisangani abattoirs.

53. The project proposes to direct particular attention to the preparation of hides. Using electrical flaying machines and proper skinning knives, only trained staff would remove hides from the carcasses. A specially designed concrete table would be constructed where the hides would be expertly fleshed and then washed. A hide drying shed, complete with frames, is proposed for suspension drying. The abattoir authority, ONDE, would buy the hides, green from the butcher for a fixed sum in cash. A round figure of Z 2.25 is suggested; this is slightly more than the butcher obtains at present and invariably with delays in payment. The new procedure is therefore expected to obtain acceptance by the butcher. Prior to recent currency

and price changes butchers received just under Z 1.50 per hide; the changes will increase prices and the figure of Z 2.25 is a best estimate of what it might rise to. The hides treated at Bunia and Kisangani would be sold to Bata and apart from those with pre-slaughter damage, it is expected that the hides would achieve a grading of first and seconds.

54. Even with both abattoirs operating at capacity throughput they would process less than 30% of hides produced in the Ituri region. Any major development which is aimed at increasing the number of top grade hides must therefore direct paticular attention to the rural areas. As a beginning to general hide and skin improvement programs, it is proposed to make available at the Bunia abattoir facilities for the training of slaughtermen from the outlying towns of the region.

55. In collaboration with the local authority and butchers, selected trainees would be taught the use of proper skinning tools, the way to flesh and wash hides and the correct methods of suspension drying, including the use of improvised frames. Of the basic standards of hygiene to be followed in slaughter work will be demonstrated to the trainees. On the completion of the course a set of knives, steel, knive box and belt will be made available for use at the rural slaughterhouses.

56. It is expected that as smaller collectivities and the ranches become aware of the increased value of hides, in 1975 they fetched no more than Z .60 - .70 per piece, endeavors will be made to improve upon existing methods of flaying and drying. Moreover efforts will be made to improve some of the 'camp' or fallen hides so many of which are not accounted for, here the prevalence of anthrax must not be disregarded and precautions shall be taken accordingly.

57. The support of Bata, the principal tanner in Zaire, would be forthcoming with skilled personnel to assist in the training in correct flaying techniques. Any large scale hide and skin improvement program, with the ikely use of a mobile demonstration unit to cover the cattle producing areas of Zaire, would call for outside assistance. The possible participation of the FAO/DANIDA program should be investigated.

58. Apart from a small number of wet and dry salted hides prepared in Shaba, the hides reaching the tannery in Kinshasa are shade suspension dried and a number are sun-dried hides. Wet salted hides normally fetch the best prices followed by shade suspension dried. In 1975 the price of salt Z21-20 for a 20 kg bag in Kinshasa was about double in Bunia which prohibited the salting process, because each hide requires some 10 kg of salt. The wet salted hides from Shaba seen in the store at Kinshasa showed definite signs of red heat: the use of 2% sodium silico fluoride mixed in the salt will prevent such staining.

Technical Services

59. The present poor performance of the abattoirs, the lack of effective administration and deterioration of plan and equipment makes it imperative that expert assistance and training form an essential part of the project; the recruitment of two expatriates will be required to implement the abattoir sub-project.

60. Recruitment. Recruiting of foreign specialists and expert staff could be done in one of the following ways:

(a) by an experienced livestock management and consulting company to supply all personnel for the Project through a packaged team with the consulting company assuming full responsibility for selection, replacement and salaries (for each post); Government would require a candidate selection and approval system; or

(b) by Government assuming full recruitment and selection responsiblity, advertising internationally and interviewing for each post; or

(c) by Government requesting assistance from multi-national and/or bi-lateral technical assistance agencies in the recruitment; or

(d) a combination of any of the above.

Expatriate staff must have a working knowledge of French.

61. Managerial and Technical Adviser. An expatriate will be recruited to organize the administration and operations of the abattoirs on a sound and efficient basis. The two existing managers will retain their responsiblity for the day to day management of their plant and marketing operations. They will work to agreed programs established by the Technical Assistance expert in charge of abattoir operations. The experts services will be required for a period of two years.

62. The position will call for a wide experience in the management of a modern abattoir, including the operation of a plant and equipment covering slaughter floor, refrigeration and the treatment of by-products, preferably in a developing country. He will require a sound knowledge of livestock marketing, the wholesale and retail meat trade and the marketing of hides and skins.

63. He will be responsible to the Director of ONDE for the general administration and direction of the sub-project. He will advise the Director of ONDE of tender and contract technical requirements and supervise the operation of building contractors during the stages of plant reconstruction.

The post will require the introduction of financial budgets, costs control and the drafting of reports in a form acceptable to the project director. The adviser will also introduce forms of documentation necessary for the control of butcher service and general administration.

64. He will advise and assist in the training of the incumbent managers.

65. Engineer. A suitably qualified expatriate will be required to supervise the general overhaul of all the existing plant and equipment at the abattoirs and to supervise the installation of new equipment to be obtained umder the sub-project; his services will be required for two years.

66. The position will call for a man possessing recognized qualifications in engineering and having a wide experience as senior engineer of an abattoir, preferably in a developing country.

67. He will have a sound working knowledge of slaughter floor and by-products, processing plant, boilers and refrigeration plant, together with general workshop practice. He will introduce a system of preventive maintenance throughout the abattoir and will advise and train the incumbent senior engineer in the rigid adherence to routine maintenance work.

68. Training. The present manager of the Bunia abattoir would receive 6 months training in abattoir management, plant operation and factory hygiene, preferably in Kenya or Botswana. A suitably qualified man would be selected to undergo similar training prior to assuming the position of manager at Kisangani. The training course is desirable in addition to that obtained under the expatriate adviser.

69. Training in correct flaying techniques and the use of flaying machines and proper skinning knives is essential to the successful operation of the abattoirs. The Bata company in Kinshasa would provide an expert to give on site training at Bunia.

70. It is proposed to extend the hide improvement training program for the benefit of the smaller town in Ituri Region; slaughtermen from these points will be brought into bunia for a short course in correct flaying and drying techniques, skinning knives, steels, butcher belts and knife boxes will be made available for the trainees. Present production of hides in the outlying towns is about 3,500 pieces and valued at Z 23,500. Improved flaying and drying is expected to yield at least double that.

71. Due to the present low throughput the abattoir staff are not gainfully employed and many will be available to assist on renovation works, fencing and plant overhaul, however, by year 11 the sub-project will have created above 79 new jobs at Bunia mainly for lower paid workers (Table 6). The capacity of the abattoir will be increased to 25,000 head of cattle. Desired sanitary standards will be introduced as well as an effective meat inspection service, an important start will have been created in the improvement of

human health. The ranching and fattening sub-project will provide the abattoirs with a supply of improved slaughter stock which will be made available for consuming areas like Kinshasa. These carcasses to a value of Z 4.7 million annually (by year 11 of the Project) will be essentially import replacements and a savings in foreign exchange. The full use of all by-products for processing into animal feed-stuffs will assist in the development of rural pig and poultry production. By placing particular emphasis on the careful treatment of hides, the returns obtained for improved hides will make a considerable contribution to the operating costs of the abattoirs and increase revenue will accrue to ONDE; the importation of quality hides by the Bata company would no longer be justified. It is expected that the value of hides would be doubled as a result of improvements made under the sub-project.

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Bunia Abattoir

Investment Costs

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir de Bunia

Coûts d'Investissement

Investment Item	Unit / Unité	Unit Cost / Coût Unitaire (Z)	Year 1 / Année 1 No. of Units / No. d'Unités	Year 1 / Année 1 Cost / Coût (Z'000)	Year 2 / Année 2 No. of Units / No. d'Unités	Year 2 / Année 2 Cost / Coût (Z'000)	Total Units / No. Total d'Unités	Total Costs / Coûts Totaux (Z'000)	Total Costs / Coûts Totaux (US$ eq.)	F.E. Component / Devises %	F.E. Component / Devises (Z'000)	Catégorie d'Investissements
A Site Works												**A Travaux d'Aménagement du site**
Renewal, security fence	km	920	.63	58	-	-	.63	.58	67			Renouvellement de la clôture de sécurité
perimeter fence	km	552	5.50	3 04	-	-	5.50	3.04	3.50			Renouvellement de la clôture périphérique
Concrete/asphalt apron at wading bay	m²	34	48	1 63	-	-	48	1.63	1 87			Tablier en béton/asphalte de la rampe de chargement
Sub-total A				5 25		-		5.25	6 04	43	2.26	Total partiel A
B Buildings												**B Bâtiments**
Extension to main building for pig slaughter	m²	235	54	12 69	-	-	54	12 69	14 59			Agrandissement du Bâtiment principal pour l'abattage des porcs
Renewal slaughter race for pigs	m	10	30	30	-	-	30	30	.34			Renouvellement de la file pour l'abattage des porcs
Slaughter pens for cattle	m²	93	240	22 32	-	-	240	22 32	25.66			Box d'abattage des bovins
Conversion toilet section of main building for hide fleshing and washing	m²	60	40	2.40	-	-	40	2.40	2.76			Transformation de la section-toilettes du bâtiment principal en chambre pour l'équarrissage et le lavage des peaux
Amenities block, change room showers and toilets	m²	270	70	18.90	-	-	70	18 90	21.74			Salle des vestiaires douches et toilettes
Hide drying shed with frames, store	m²	145	140	20.30	-	-	140	20.30	23.35			Sechoir à peaux y-compris les cadres et l'entrepôt
Covered slaughter slab, muslim	m²	110	35	3.85	-		35	3.85	4.43			Aire d'abattage couverts pour les abattages musulmans
Sub-total B				80 76				80 76	92.87	22	17.97	Total partiel B
C Utility Services												**C Travaux de Plomberie**
Water head tank (6 000 gals) with stand 25 m high	no	13,973	1	13.97	-	-	1	13.97	16 07			Reservoir à eau (6,000 gals) avec montant de 25 m de haut
Chlorination dosing unit	no	560	1	56	-	-	1	.56	64			Groupe de Javellisation
Galvanized pipes and fittings	lot	3,725	1	3 73	-	-	1	3.73	4.29			Tuyaux galvanisés et accessoires
Effluent catch basin, filter beds with channell to irrigated lands	lot	11,180	1	11.18	-	-	1	11.18	12 86			Elimination des eaux usées, bassin de décantation, lits d'épuration avec canaux d'adduction jusqu'aux terrains d'irrigation
Sub-total C				29.44				29.44	33.86	54	15 81	Total partiel C
D Electrical 1/												**D Installations électriques** 1/
Diesel generating unit 100 kvs	set	36,018	25%	9.00	75%	27.02	1	36 02	41.42			Groupe électrogène diesel 100 kvw
Wiring and fittings	lot	3,000	"	.75	"	2.25	1	3 00	3 45			Fils électriques et accessoires
Sub-total D				9.75		29 27		39 02	44.87	100	39 02	Total partiel D
E Plant and Equipment 1/												**E Machinerie et Outillage** 1/
Cattle section												Section des bovins
Liveweight scale	no	2,390	25%	60	75%	1 79	1	2 39	2.75			Bascule pour le pesage des animaux vivants
Guillotine door to stunning pen	no	1,095	"	.28	"	82	1	1.10	1.27			Porte à guillotine pour le box d'abattage
Captive bolt, pistol, good cartridges	lot	340	"	09	"	25	1	34	39			Pistolet à culasse 6000 cartouches
Beef dressing trolleys, 1 fixed, 2 swivel wheels rubber tyred	no	290	"	36	"	1.09	5	1 45	1.67			Chariots de dépouillage avec 2 roues fixes 2 roues pivotantes, et des pneus de caoutchouc
Flying machines, electrical	no	795	"	80	"	2.38	4	3 18	3 66			Equarrissoirs électriques
Paunching table stainless steel - tubular legs	no.	915	"	.46	"	1 37	2	1 83	2.10			Table à panses en acier inoxidable, à pieds tubulaires
Carcass splitting saw electrical	no	1,710	"	.43	"	1 28	1	1 71	1.97			Scie électrique pour decouper les carcasses
Operators platforms	no.	935	"	.47	"	1 40	2	1.87	2.15			Plateformes pour les bouchers
Tables 2m x 1m stainless steel top Galv. tubular legs	no.	640	"	.32	"	96	2	1 28	1 47			Tables 2m x 1m avec le dessus en acier inoxidable et les pieds tubulaires en acier galvanisé
Hide barrows galv rubber tyred wheels	no.	70	"	07		.21	4	.28	.32			Brouettes à peaux en acier galvanisé avec des roues à pneus de caoutchouc
Wash hand basins, stainless steel	no.	550	"	.28	"	82	2	1 10	1 27			Lavabos en acier inoxidable
Knife sterilizer boxes, stainless stee wall mounting, steam heating	no.	175	"	.13	"	40	1	53	.61			Autoclave mural à vapeur pour la stérilisation des couteaux avec des boîtes en acier inoxidable

May 10, 1976

le 10 mai 1976

ANNEX/ANNEXE 6
Table 1(A)/Tableau 1(A)

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Bunia Abattoir

Investment Costs

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir de Bunia

Coûts d'Investissement

ANNEX/ANNEXE 6
Table/Tableau 1 (B)

Investment Item	Unit / Unité	Unit Cost / Coût Unitaire (Z)	Year 1 / Année 1 No of Units / No d'Unités	Year 1 / Année 1 Cost / Coût (Z'000)	Year 2 / Année 2 No of Units / No. d'Unités	Year 2 / Année 2 Cost / Coût (Z'000)	Total Units / No Total d Unités	Total Cost / Coûts Totaux (Z'000)	Total Cost / Coûts Totaux (US$ eq)	%	F E Component / Devises (Z'000)	Catégorie d Investissements
Pig section												Section des porcs
Liveweight scale	no.	795	25%	20	75%	.60	1	.80	.92			Bascule pour le pesage des animaux vivants
Pig stunning equipment: transformer, 2 pairs electrothaler tongs	set	460	"	.12	"	.34	1	.46	.53			Outillage pour l'abattage des porcs: transformateur 2 paires de pincettes à électrodes
Pig bleeding shackles, skid type	no.	7	"	.04	"	.10	20	.14	.16			Entraves pour la saignée des porcs (type à glissière)
Scalding tank with manual lifting cradle		1,295	"	.30	"	1.00	1	1.30	1.50			Echaudoir à benne manoeuvrée par un levier manuel
Dump rail, complete with fittings	set	220	"	.06	"	.16	1	.22	.25			Rail de décharge avec tous les accessoires
Pig dump table galvanized	no.	560	"	.14	"	.42	1	.56	.64			Table de décharge des porcs en acier galvanisé
Gambrels 21" skidtype	no	7	"	.25	"	.79	150	1.05	1.21			Grappins de 21" type à glissière
Table,stainless steel 2^m x 1^m tubular legs	no.	640	"	.16	"	.48	1	.64	.74			Table en acier inoxidable à pieds tubulaires, 2m x 1m
Washhand basin, stainless steel	no.	550	"	.14	"	.41	1	.55	.63			Lavabos en acier inoxidable.
Knife,sterilizer box, stainless steel												Boîte de stérilisation en acier inoxidable, pour les couteaux
Wall mounting, steam heating	no.	175	"	.06	"	.13	1	.18	.21			Autoclave mural à vapeur
Dressing hoist	no.	1,590	"	.43	"	1.27	1	1.70	1.96			Palans de dépeçage
Items common to both sections												Outillage commun aux deux sections
Blood blow tank	no.	1,555	25%	.39	"	1.17	1	1.56	1.79			Réservoir à sang
Paunch tables, 4.5m x 1m	no.	915	"	.23	"	.69	1	.92	1.06			Tables à panses de 4,5m x 1m
Portable offal bins, galv. rubber tyred wheels	no.	70	"	.07	"	.21	4	.28	.32			Seaux portatifs pour les abats, en acier galvanisé et des roues à pneus de caoutchouc
Meat trucks galvanized rubber tyred wheels	no.	440	"	.33	"	.99	3	1.32	1.52			Chariots à viande en acier galvanisé et des roues pneus de caoutchouc
Waste bins with lids galvanized	no.	30	"	.08	"	.22	10	.30	.35			Poubelles à couvercle en acier galvanisé.
Saw/cleaver sterilizing boxes, stainless steel wall mounting, steam heating	no.	240	"	.06	"	18	1	.24	.28			Autoclave mural en acier inoxidable et boîtes de stérilisation pour les couteaux et les scies
Stacking trays for red offals, aluminium anodized	no.	30	"	.40	"	1.10	50	1.50	1.73			Plateaux qui s'empilent pour les abats (en aluminium).
Grindstone	no.	160	"	.04	"	.12	1	.16	.18			Meule
Meynell water economy sprays, flexible hose	no.	60	"	.09	"	.27	6	.36	.41			Pulvérisateurs Meynell avec tuyau souple
Platform scale capacity 200K	no.	120		.03	"	.09	1	.12	.14			Bascule à plateau- capacité de 200 kg
Scoop pan scale with set weights	no.	80	"	.02	"	.06	1	.08	.09			Bascule à plateau-godet avec poids pré-établis
Skinning knives 6"	no.	5	"	.05	"	13	36	.18	.21			Couteaux de dépouillage 6"
Boning knives 6"	no.	5	"	.05	"	.13	36	.18	.21			Couteaux à os 6"
Steak knives 10"	no.	7	"	.06	"	.19	36	.25	.29			Couteaux à viande 10"
Butcher belts	no.	7	"	.06	"	.19	36	.25	.29			Ceintures de bouchers
Butcher knife cases	no.	9	"	.08	"	.24	36	.32	.37			Boîtes à couteaux de bouchers
Steels, round	no.	9	"	.08	"	24	36	.32	.37			Fusils à aiguiser
Hand saws, with spare blades	no	12	"	.02	"	.05	6	.07	.08			Scies à main avec des lames de rechange
Cleavers	no.	24	"	.04	"	.10	6	.14	.16			Couperets
Cutting boards	no.	9	12	.03	-	.08	12	.11	.13			Planches à découper
Packing section and cold stores												Section d'emballage et chambres froides
Lifting truck, manual 1^m x 1.5^m	no.	590	25%	.14	75%	.42	1	.56	.64			Chariot à levier manuel, 1m x 1.5m
Pallets, wooden	no	16	40	.64	-	-	40	.64	.74			Paillasses de bois
Tables, 2^m x 1^m galvanized tubular legs	no.	400	25%	.20	75%	.60	2	.80	.92			Tables à pieds tubulaires en acier galvanisé de 2m x 1m.
Platform scale, capacity 200 dial type	no.	795	"	.20		.60	1	.80	.92			Bascule à plateau, capacité de 200 kg, à cadran.
Offal cleaning section												Section pour le nettoyage des abats
Offal washing tanks, 1.5m x .8m x .5m galvanized with tubular stand	no.	220	2	.44	-	-	2	.44	.51			Bassins pour laver les abats de 1,5m x 0m x 5m en acier galvanisé de 2m x 1m.
Offal cleaning tables - 2m x 1m galvanized	no.	140	2	.28	-	-	2	.28	.32			Tables à pieds tubulaires en acier galvanisé de 2m x 1m.
By-Products section												Section des sous-produits
Blood coagulating tank 1.5m x 1m x .75m	no.	220	1	.22	-	-	1	.22	.25			Bassin de coagulation du sang de 1,5m x 1m x 75cm.
Manual hoist, with brake, wire rope and swivel hook	no.	480	25%	.12	75%	.36	1	.48	.55			Palan manuel à frein, cable métallique et crochet à pivot.
Platform scale, capacity 200 kg	no.	120	"	.03	"	.09	1	.12	.14			Balance à plateau, capacité de 200 kg
Hide shed equipment hide frames, wooden	no.	10	120	.30	-	.90	120	1.20	1.40			Hangar à peaux, outillage et cadres de bois.
Platform scale capacity 200 kg	no.	120	25%	.03	75%	.09	1	.12	.14			
Sub-total E				11.14		28.40		39.54	45.53	96	37.96	Total partiel

May 11, 1976

le 11 mai 1976

ZAIRE

ANNEX/ANNEXE 6
Table/Tableau 1 (c)

ITURI LIVESTOCK DEVELOPMENT PROJECT

Bunia Abattoir

Investment Costs

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir de Bunia

Coûts d'Investissement

Investment Item	Unit / Unité	Unit Cost / Coût Unitaire (Z)	Year 1 / Année 1 No. of Units / No. d'Unités	Year 1 / Année 1 Cost / Coût (Z'000)	Year 2 / Année 2 No. of Units / No. d'Unités	Year 2 / Année 2 Cost / Coût (Z'000)	Total Units / No. total d'Unités	Total Costs / Coûts Totaux (Z'000)	Total Costs / Coûts Totaux (US$ Eq.)	F.E. Component / Devises %	F.E. Component / Devises (Z'000)	Investment Item
F Maintenance Workshop												F. Atelier d'Entretien
Work benches, wooden	no.	55	4	.22	-	-	4	.22	.25			Bancs de travail en bois
Bench grinding machine, motorized	no.	150	1	.15	-	-	1	.15	.17			Meule à moteur
Bench drilling	no.	90	1	.09	-	-	1	.09	.10			Perceuse à moteur
Metal cutting	no.	60	1	.06	-	-	1	.06	.07			Chalumeau
Hand tools, drill, grinder electric	lot	120	1	.12	-	-	1	.12	.14			Outils (à main) perceuse et meule électriques
Oxy-acetylene welding equipment	lot	570	1	.57	-	-	1	.57	.66			Outillage de soudure (Oxyacetylene)
Electric welding equipment	lot	890	1	.89	-	-	1	.89	1.02			Outillage de soudure (électrique)
Tool boxes, complete mechanics	no.	70	5	.35	-	-	5	.35	.40			Boites à outils complètes de mécaniciens
" " " electrician	no.	30	2	.06	-	-	2	.06	.07			" " " électriciens
" " " carpenter	no.	100	1	.10	-	-	1	.10	.12			" " " charpentiers
Vices, sheer legs, chain hoist, jacks	lot	400	1	.40	-	-	1	.40	.46			Palans, criques, étaux
Grease pressures guns, wrenches and sundry tools	lot	300	1	.30	-	-	1	.30	.35			Burette de graissage à pression, clés anglaises et outils divers
Sub-total F				3.31				3.31	3.81	95	3.14	Total partiel F
G Transport												G Transport
Meat delivery truck 7-8 ton, insulated body	no.	29,670	25%	7.42	75%	22.25	1	29.67				Camion de livraison de viande, 7-8 tonnes) avec
Meat delivery van 30 cwt insulated body		8,900	"	2.23	"	6.67	1	8.90				Camionnette de livraison, 30 cwt) isolation
Land rovers SWB		8,900	"	4.45	"	13.35	2	17.80				Land-rovers, SWB
Sub-total G				14.10		42.27		56.37	64.82	91	51.33	Total partiel G
H Administration & vet office furniture and equipment Sub-total	lot	2,710	1	2.71	-	-	1	2.71	3.12	33	.90	H Mobilier et équipement pour le bureau administratif et celui du vétérinaire
I Renovations & Repairs									[illegible]			I Réparations et mise à neuf
General overhaul of all plant, machinery 4/	lot	4,875	1	4.88	-	-	1	4.88	5,61			Révision de tous les équipements, des machines du
Generator unit and rewinding motors	lot	17,155	1	17.16	-	-	1	17.16	19.73			générateur et des moteurs 4/
General stores and spares	lot	7,225	-		1	7.23	1	7.23	8.32			Outillage général et pièces de rechange
Sub-total				22.04		7.23		29.27	33.66	33	9.72	Total partiel I
J Installation costs, new plant sub total	lot	1,380	-		1	1.38	1	1.38	1.59	-	-	Frais d'installation des nouveaux équipements
R Freight, insurance charges, to site - sub-total K 3/	lot	23,215	-		1	23.22	1	23.22	26.70	69	16.07	K Frais de transport et d'assurance jusqu'au lieu de construction - Total partiel K 3/
L Architect & engineers fees - sub-total L 5/	lot	9,370	1	9.37	-	-	1	9.37	10.77	-	-	L Honoraires de l'Architecte et des ingénieurs - Total partiel L 5/
Totals A-L				187.87		131.77		319.64	367.59	61	194.18	Total A-L
Technical Services 6/												Services Techniques 6/
Managerial & technical adviser				26.10		26.10		52.20	60.03		52.20	Conseiller technique et de gestion
Engineer				19.57		19.58		39.15	45.02		39.15	Ingénieur
Total technical services				45.67		45.68		91.35	105.05	100	91.35	Total services techniques
Estimated total investment cost - Bunia Abattoir				233.54		177.45		410.99	472.64	69	285.53	Estimation du coût d'investissement total pour l'abattoir de Bunia

1/ Prices calculated f.o.b. North European ports.
2/ Amount of payment required on confirmation of order, 25% for items so marked under D, E & G.
3/ Freight estimated on shipments from North European ports to Matadi at 17 1/2% of cost with 12 1/2% local transport on items under D and E (less local goods) and F.
4/ Local labor costs included but not expatriate engineer.
5/ 10% of A & B which is a conservative estimate concurrent with international practice.
6/ 75% of technical service costs allocated to Bunia and 25% to Kisangani.

1/ Prix calculés f.o.b. à partir des ports européens.
2/ Montant des arrhes à verser sur commande, 25% des articles inscrits sous D. E et G.
3/ Frais de transport par bateau à partir des ports européens jusqu'à Matadi, estimés à 17 1/2% du coût total et 12 1/2% pour le transport domestique, pour les articles inscrits sous D et E (moins les articles de fabrication locale) et F.
4/ Coûts de la main d'oeuvre locale inclus, mais pas ceux de l'ingénieur étranger.
5/ 10% de A et B, ce qui est une estimation conservatrice concordant à la pratique internationale.
6/ 75% des coûts des services techniques sont attribués à Bunia, et 25% à Kisangani.

May 10, 1976

le 10 mai 1976

ITURI LIVESTOCK DEVELOPMENT PROJECT

Bunia Abattoir

Operating Costs

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir De Bunia

Coûts De Fonctionnement

			Before Project Avant le Projet	Year 1 Année 1	Year 2 Année 2	Year 3 Année 3	Year 4 Année 4	Year 5 Année 5	Year 6 Année 6	Year 7 Année 7	Year 8 Année 8	Year 9 Année 9	Year 10 Année 10	Year 11-20 Année 11-20	
Number of Animals Processed	Cattle	Local[1]	3,200	3,295	3,395	3,500	3,600	3,710	3,820	4,015	4,175	4,340	4,515	4,695	Consommation locale[1] Bovins, nombre d'animaux abattus
		export	600	1,000	1,300	3,280	4,775	7,105	8,290	11,730	17,205	19,320	21,765	25,945	Exportation
		Total	3,800	4,295	4,695	6,780	8,375	10,815	12,110	15,745	21,380	23,660	26,280	30,640	Total
	Pigs	local	2,300	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	Consommation locale Porcs
		Export	200	1,000	1,300	1,700	2,100	2,700	3,200	3,800	4,400	5,100	5,800	5,800	Exportation
		Total	2,500	3,500	3,800	4,200	4,600	5,200	5,700	6,300	6,900	7,600	8,300	8,300	Total

	Unit Unité	Unit Cost Coûts Unitaire	(Z '000) Total Cost Coût Total												
A. Services[2]															A Charges[2]
Water	Head	.62	2.50	2.64	2.77	3.73	4.61	5 63	6 30	7.94	10.43	11.53	12 78	14.61	Eau
Electricity	"	3.60	2.84	3.16	4.17	5 16	6 30	7 05	8.86	11.67	14.91	16 30	16.35		Electricité
Fuel oil	"	(2.73	1.81	1 98	2.66	3 29	4.02	4.50	5.67	7.45	8.24	9.13	10 44		Fuel
Refrigerants, lubricants	Year	374	3.74	3 97	4.21	4,47	4 74	5.03	5.34	5.66	6 01	6.37	6.76		Réfrigerants, lubrifiants
Sub-total			8.83	10.93	11.82	14 72	17.53	20.89	22.88	27.83	35.21	38.69	42.56	48.16	Total partiel
Transport[3]															Transport
Meat delivery truck	Km	.40	-	-	.43	1 15	1.66	2 38	2 82	3.84	5.50	6 30	6 95	8.16	Camion de livraison de viande
Meat delivery van	"	.24	-	-	2.40	2 40	2.40	2.40	2 40	2.40	3.25	3.25	3.75	3.25	Camionnette de livraison de viande
Land rovers - SWB	"	.21	-	3.15	3.15	3 15	3 15	3 68	4.20	5.25	5.25	7 88	7.88	7.90	Land rover - SWB
Sub-total				3 15	6.00	6.70	7.21	8.46	9.42	11 49	14.00	17.43	18.09	19 31	Total partiel
Miscellaneous[4]															Divers[4]
Knives, tools etc.	Year	845	-	-	.85	.90	.95	1 00	1.05	1.12	1.20	1.30	1.40	1 50	Couteaux et outils etc.
Industrial clothing	"	1,200	-	-	1.20	1.27	1.35	1 42	1.50	1.58	1.65	1 73	1.80	1.90	Vêtements de travail
Cleaning materials, insecticides etc	-	1,200	-	1.20	1.25	1 30	1.35	1 40	1 45	1.50	1.55	1.60	1.65	1.70	Produits de nettoyage, insecticides, etc
Office expenses, telephone, telegrams, etc.	-	1,690	-	1.70	1.80	1 90	2.00	2.10	2 20	2.30	2.40	2.50	2 60	2 70	Dépenses de bureau, téléphone, telegrammes etc
Sub-total			2.71	2.90	3.10	3.37	3.65	5 92	6.20	6.50	6.80	6.83	7.45	7 80	Total partiel
Maintenance[5]	Year	11,630	2 75	11.65	11.65	11.65	11 63	11 65	11.65	11.65	11.65	11.65	11.65	11 65	Entretien
Packing materials	Head														Matériaux d'emballage
Plastic offal bags/by-products bags/rope	-	.12	-	.94	1.02	1.32	1.56	1.92	2 32	2.85	3 39	3 75	4 15	4.67	Sacs à viscères en plastique/sacs à dérivés/corde
Beef carcass wraps[6]	-	1.30	.03	1.30	1.69	4.26	6.21	9 24	10.78	15.25	22.37	25 12	28.29	33 73	Emballages de carcasses de boeufs
Pork carcass wraps[6]	-	.70	.08	.70	.91	1 19	1.47	1 89	2 24	2.86	3.08	3 57	4 06	4.06	Emballages de carcasse de porc
Sub-total			.11	2.94	3.62	6.77	9.24	13.05	15.34	20.96	28.86	32.44	36 50	42.46	Total partiel
Administration Staff[7]															Personnel d'administration[7]
Manager	Man-year	3,100	-	3.10	3.10	3.10	3 10	3.10	3.10	3.10	3.10	3 10	3.10	3 10	Directeur
Accountant/cashier	-	1,210	-	1 21	1.21	1 21	1.21	1.21	1.21	1.21	1.21	1 21	1.21	1 21	Comptable/caissier
Clerk, typist	-	550	-	1.10	1 10	1.10	1.10	2.20	2 20	2.75	2 75	3 30	3 30	3 85	Employes de bureau/dactylos
Slaughterhouse															Abattoir
Superintendent	Man-year	860	-	.86	.86	.86	86	86	86	.86	.86	86	.86	86	Surveillant
Chief engineer	-	1,120	-	1 12	1 12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1 12	1 12	Ingénieur en chef
Cattle/pig pens	-	310	-	.62	.62	.93	1 55	1.55	1.55	1.55	1.86	2 17	2.17	2.48	Box à bovins/porcs
Slaughter/dressing floors	-	430	-	5.59	6 02	6.88	7.31	8 60	9.03	9 89	12.47	13.76	15.05	16 77	Aire d'abattage/d'écorchement
Offal cleaning	-	310	-	.62	.62	93	.93	1.55	1 55	2.17	2.48	2.79	3 10	3 41	Nettoyage des viscères
By-products	Man-year	310	-	.62	.62	.62	62	.93	.93	93	.93	1 24	1.24	1 24	Sous-produits
Hides	-	310	-	.62	.62	.62	1.24	1 55	1 55	2 17	2.48	2.79	3.10	3.72	Peaux
Hanging hall/packing/despatch	-	380	-	.76	.76	76	1.14	1.90	1 90	2.28	3.04	3.42	3 80	4.56	Hall de suspension/emballage/expédition
Chill rooms/boiler	-	430	-	1.72	1.72	1.72	1 72	1.72	1.72	1 72	1.72	1 72	1.72	1 72	Chambres froides/chaudière
Electrical/refrigeration	-	690	-	1.38	1.38	1.38	1.38	1.38	1.38	1 38	1.38	1.38	1.38	1.38	Electrique/refrigeration
Mechanics	-	550	-	1.10	1.10	1.10	1.10	1 10	1.10	1.10	1.10	1.10	1.10	1 10	Mécaniciens
Drivers	-	550	-	2.20	2.20	2.20	2.20	2 20	2.20	2.20	2.20	2.20	2.20	2 20	Chauffeurs
Guards	-	310	-	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	Gardes
Laundry/amenities	-	310	-	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	Buanderie/vestiaires
Cleaners/labourers	-	310	-	.93	1.24	1.55	1 55	1.86	2 17	2 48	2.79	3.10	3 41	3 72	Nettoyeurs/ouvriers
Storekeeper	-	605	-	61	.61	.61	.61	.61	61	.61	.61	.61	.61	.61	Magasinier
Livestock buyer	-	860	-	.86	.86	.86	.86	.86	86	.86	.86	86	.86	86	Acheteur de bétail
Sub-total			17.12	26.88	27.92	29.61	30.84	38.16	38.90	40.24	44.82	48.09	51.19	55 77	Total partiel
Social Benefits[8]	-		.44	4.03	4.14	4.51	4.63	5.42	5.54	6.04	6.72	7.29	7.68	8.17	Charges Sociales[8]
Hide Purchase[9]	No.	2.25	-	7.41	7.64	7.88	8 10	8.45	8.69	9.03	9 59	9 27	10.16	10.36	Achats de Peaux
Audit, legal fees, Insurance	Year	6,000		6 00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6 00	6.00	Apurement, Honoraires de Notaire, Assurances
Payments for Condemnations[10]															Paiements pour les condamnations d'animaux
Cattle	Head	145	-	3 77	3.77	3.92	4.06	4 20	4.25	4 50	4.79	4 93	5.08	5.37	Bovins
Pigs	-	19	-	.51	.51	.51	.51	.51	.51	.51	.51	51	.51	51	Porcs
Sub-total	-		-	4.28	4.28	4.43	4 57	4.71	4.76	5.01	5.30	5.44	5.59	5 88	total partiel
Total Costs	Year		-	80 17	87.87	97.39	105.42	120.41	127.48	144.35	158.73	184.13	196.89	216.46	Coûts totaux (A)
B. Allowance for vehicle replacement[11]							2.23	16.32	28.93	-	2.23	6.87	9.44	28.93	B. Allocation pour le renouvellement des véhicules 1/
Total operating costs (A) + (B)			31.99	80.17	87.87	97.39	107.65	136.73	156.41	144.35	170.96	190.80	206.53	245.39	Coûts totaux de fonctionnement (A) + (B)
C. Purchase of livestock and hides															Achat de bétail et de peaux
Cattle purchase costs/trekking costs[12]	Head		26.80	212.89	302.10	642.30	937.10	1,336.30	1,573.00	2,185.30	3,131.20	3,626.20	3,987.00	4,596.30	Bovins coûts d'achat et d'acheminement[12]
Pigs	Head	45	3.00	45.00	58.00	76.50	94.50	121.50	144.00	171.00	198.00	229.50	261.00	261.00	Porcs
Hides	Unit		-		69.46	52 95	58 18	52.54	66.18	71.74	80.50	85 41	91 41	99 79	Peaux
Sub-total	Year		22.30	257.80	410.06	771.75	1,089.78	1,518.34	1,783.18	2,428.04	3,409.7	3,939.11	4,339.41	4,957.09	Total partiel
D Contribution to the cost of ONDE[13]	Year	4,650		4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	Participation aux frais de l'ONDE[13]
Total operating Costs			54.29[14]	342.62	502.58	873.79	1,202.08	1,659.73	1,943.24	2,577.04	3,585.31	4,134.56	4,550.59	5,207.13	Coûts totaux de fonctionnement

1/ See Annex 2, Table 2.
2/ Calculated 2 pigs = 1 head cattle for service charges
3/ Calculated on 2 trips per month in year 2 for the truck; 2 trips per day for the van, 10,000 km/year for cattle buyer's land-rover. Utilization of vehicle will increase with cattle throughput.
4/ Miscellaneous items increased annually to cope with increased throughput of livestock.
5/ Calculated 1 1/2% of Z500.000 as estimated value of plant and buildings.
6/ Calculated only on export carcasses.
7/ Sections of labor force increased annually to meet increased throughput of livestock.
8/ Calculated on 15% of salaries.
9/ Purchases made ex-abattoir directly from butchers using abattoir facility, prices based above average presently obtained by butchers.
10/ Calculated on carcass condemnation rate of 0.78% for cattle, 0.52% for pigs; local consumption only
11/ Calculated on truck and van replacement every 5 years, land-rover replacement every 4 years, 10% residual value on all vehicles.
12/ Details Table 3. Includes trekking costs from the North and from the South of Ituri at Z 5 per head.
13/ 1.5 man-year, plus trips to Bunia and per diem.
14/ Best estimated.

1/ Voir Annexe 2, Tableau 2.
2/ Les charges ont été calculées sur la base de 2 porcs = 1 bovin.
3/ Calculés sur la base de 2 voyages par mois l'année 2 du projet pour le camion de livraison. 2 voyages par jour pour la camionnette; 10,000 km/an pour la land-rover de l'acheteur de bétail. L'utilisation des véhicules augmentera avec le nombre d'animaux qui seront à la charge de l'abattoir.
4/ Les divers articles augmenteront chaque année avec l'augmentation des abattages.
5/ Calculé à 1 1/2% de 500.000 zaïres, la valeur estimée des bâtiments et de l'équipement de l'abattoir.
6/ Calculés uniquement selon le nombre des carcasses exportées.
7/ Une partie du personnel augmentera en fonction de l'accroissement des abattages.
8/ Calculés à 15% des salaires
9/ Achats de peaux à l'abattoir directement des bouchers qui feront usage des services de l'abattoir; les prix sont supérieurs aux prix moyens qui sont couramment obtenus par les bouchers.
10/ Calculés sur la base d'un taux de condamnation de 0,78% pour les bovins, 0,52% pour les porcs; uniquement pour la consommation locale.
11/ Calculés sur la base du remplacement du camion et de la camionnette tous les cinq ans, de la land-rover tous les quatre ans, valeur de liquidation de tous les véhicules: 10% du prix d'achat
12/
13/ 1,5 homme-année, plus voyage et allocation journalière.
14/ Meilleur estimation.

July 12, 1976

le 12 juillet 1976

ITURI LIVESTOCK DEVELOPMENT PROJECT

Bunia Abattoir

Operating Revenues

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir de Bunia

Coûts d'Exploitation

ANNEX/ANNEXE 6
Table/Tableau 3

			Unit / Unité	Unit Value / Valeur Unitaire (Z)	Total Amount / Montant Total	Before Project / Avant le Projet	Year 1 / Année 1	Year 2 / Année 2	Year 3 / Année 3	Year 4 / Année 4	Year 5 / Année 5	Year 6 / Année 6	Year 7 / Année 7	Year 8 / Année 8	Year 9 / Année 9	Year 10 / Année 10	Years 11-20 / Années 11-20	
Number of Animals Processed	Cattle	Local[1/]				3,200	3,295	3,395	3,500	3,600	3,710	3,860	4,015	4,175	4,340	4,515	4,695	Consommation Locale[1/] Bovins
		Export				400	1,000	1,300	3,280	4,775	7,105	8,290	11,730	17,205	19,320	21,765	25,945	Nombre d'animaux abattus Exportation
		Total				3,600	4,295	4,695	6,780	8,375	10,815	12,150	15,745	21,380	23,660	26,280	30,640	Total
	Pigs	Local[2/]				2,300	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	Consommation locale[2/]
		Export				200	1,000	1,300	1,700	2,100	2,700	3,200	3,800	4,400	5,100	5,800	5,800	Exportation
		Total				2,500	3,500	3,800	4,200	4,600	5,200	5,700	6,300	6,900	7,600	8,300	8,300	Total
					Total Amount / Montant Total		Total Amount / Montant Total	Total Amount / Montant Total	Total Amount / Montant Total	Total Amount / Montant Total	Total Amount / Montant Total	Total Amount / Montant Total	Total Amount / Montant Total	Total Amount / Montant Total	Total Amount / Montant Total	Total Amount / Montant Total	Total Amount / Montant Total	
							(Z'000)											
(A) Fees																		(A) Redevances
Holding grounds and slaughter pens																		Enclos et boxes d'abattage
	Cattle		head	.15			.49	.51	.53	.54	.56	.58	.60	.63	.65	.68	.70	Bovins
	Pigs		-	.10			.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	Porcs
	Sub-total						.74	.76	.78	.79	.81	.83	.75	.88	.90	.93	.95	Total partiel
Abattoir Service[3/]																		Redevances d'Abattage [3/]
	Cattle		head	4.00			13.18	13.58	14.00	14.40	14.84	15.44	16.06	16.70	17.36	18.06	18.78	Bovins
	Pigs		-	2.50			6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	Porcs
	Sub-total						19.43	19.83	20.25	20.65	21.09	21.69	22.31	22.95	23.61	24.31	25.03	Total partiel
Meat Delivery Service																		Service de Livraison de la viande
	Carcasses: cattle[4/]		head	.45			1.47	1.52	1.56	1.61	1.66	1.72	1.79	1.86	1.94	2.02	2.10	Carcasses: bovins[4/]
	pigs			.35			.87	.87	.87	.87	.87	.87	.87	.87	.87	.87	.87	porcs
	Offals/viscera: cattle		-	.20			.65	.67	.69	.71	.74	.77	.80	.83	.86	.90	.93	Entrailles/visceres: bovins
	pigs		-	.10			.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	porcs
	Sub-total						3.24	3.31	3.37	3.44	3.52	3.61	3.71	3.81	3.92	4.04	4.15	Total partiel
	Sub-total (A)						23.41	23.90	24.40	24.88	25.42	26.13	26.77	27.64	28.43	29.28	30.13	Total partiel (A)
(B) Sales [5/]																		(B) Ventes [5/]
Beef: carcasses			kg	1.45	.66		187.86	260.05	611.06	898.05	1,312.78	1,552.94	2,170.98	3,168.21	3,612.66	3,975.81	4,729.04	Boeuf: carcasses
livers/hearts/tongues			--	.75	.64		2.40	3.12	7.87	11.46	17.05	18.89	28.15	43.29	46.37	52.24	62.27	foies/coeurs/langues
tripes/lungs/spleen			-	.35	.63		2.21	2.21	2.87	7.23	15.67	18.28	25.86	37.94	42.60	47.99	57.21	tripes/poumons/rate
intestines			-	.08	.11		.43	.56	1.42	2.06	3.07	3.58	5.07	7.43	8.35	9.40	11.21	intestins
head, feet, tail			set	6.00	1.52		5.70	7.41	18.70	27.22	40.50	47.25	66.86	98.07	110.12	124.06	147.89	tête, pieds, queue
Sub-total							198.60	273.35	641.92	946.02	1,389.07	1,641.94	2,296.92	3,352.94	3,820.10	4,209.50	5,007.62	Total partiel
Pork: carcass				.85	(5.07)		43.10	57.98	79.28	102.20	135.51	162.21	192.63	223.05	258.50	296.94	296.94	Porcs: carcasses
red offals				.75	.20		2.25	2.93	3.83	4.73	6.08	7.20	8.55	9.90	11.48	13.05	13.05	viscères rouges
intestines				.08	.03		.16	.21	.27	.34	.43	.51	.61	.70	.82	.93	.93	intestins
Sub-total							45.51	61.12	83.38	107.27	142.02	169.92	201.79	233.65	270.80	310.92	310.92	Total partiel
Hides, suspension dried: no.							4,295	20,395	23,390	26,845	30,680	33,160	38,520	46,935	50,775	55,300	62,320	Peaux, séchées par suspension: nombre
amount				4.15			17.82	84.64	97.90	111.41	127.28	137.61	159.86	194.78	210.72	229.50	258.63	montant
Sub-total (B)							261.93	419.11	823.20	1,164.70	1,658.37	1,949.47	2,658.57	3,781.37	4,301.62	4,749.92	5,577.17	Total partiel (B)
(C) By-Products[6/]																		(C) Sous-Produits [6/]
Meat meal			kg	.35			1.21	1.39	1.97	2.43	3.28	3.49	4.50	6.08	6.70	7.43	8.66	Farine de viande
Blood meal			-	.35			2.87	3.13	4.29	5.20	6.59	7.38	9.37	12.43	13.75	15.25	17.54	Farine de sang
Hoof and horn meal			-	.20			6.01	6.57	9.49	11.73	15.14	17.01	22.04	29.93	33.05	36.79	42.90	Farine de cornes et de
Tallow			-	.30			.32	.36	.51	.62	.84	.90	1.16	1.56	1.72	1.91	2.23	Suif sabots
Sub-total (C)							10.41	11.45	16.26	19.98	25.85	28.78	37.07	50.00	55.22	61.38	71.33	Total partiel (C)
Total revenues (A) + (B) +(C)					15.00[7/]		295.75	454.46	863.86	1,209.56	1,709.64	2,004.38	2,717.95	3,859.01	4,385.77	4,840.58	5,678.63	Revenu total (A)+(B)+(C)
Total operating costs							342.62	502.58	873.79	1,209.08	1,659.72	1,943.24	2,577.04	3,585.91	4,134.56	4,550.58	5,207.13	Total Coûts de Fonctionnement
Margin, revenues over operating costs							(46.87)	(48.12)	(9.93)	.48	49.92	61.14	140.91	273.70	250.71	289.99	471.50	Marge bénéficiaire, revenus excédant les frais de fonctionnement

1/ See Table 5
2/ No increase in local pork consumption due to availability of offals from cattle/pig carcasses exported
3/ Fees over compensation against condemnation of carcasses; local consumption only

4/ Calculated on local consumption only
5/ Throughput details Table 5. Sale prices for meat are on average but in practice differential prices will be used reflecting the purchase price and the quality of the meat.

6/ See Table 5.
7/ Estimated on data received for the first eight months of 1975.

1/ Voir tableau 5.
2/ Aucun accroissement de la consommation locale de porc n'est prevu etant donné l'offre de visceres des carcasses de boeufs et de porcs qui seront exportees.
3/ Les taxes d'abattage comprennent l'assurance contre la condamnation des carcasses, pour la consommation locale seulement.
4/ Calculés pour la consommation locale seulement.
5/ Détails du Rendement - Tableau 5. Les prix de vente de viande sont en moyenne, mais différents prix seront utilisés pour refléter le prix d'achat et la qualité de la viande.

6/ Voir tableau 5.
7/ Estimation basée sur les données reçues pour les 8 premiers mois de 1975

July 12, 1976

le 12 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

BUNIA ABATTOIR

Purchase of Cattle

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir De Bunia

Achats de Bétail

	Before Project / Avant le Projet	Year 1 / Année 1	Year 2 / Année 2	Year 3 / Année 3	Year 4 / Année 4	Year 5 / Année 5	Year 6 / Année 6	Year 7 / Année 7	Year 8 / Année 8	Year 9 / Année 9	Year 10 / Année 10	Years 11-20 / Années 11-20	
A. Animals purchased from Traditional herd													A. Achats du Bétail du Troupeau Traditionnel
Number of animals (hd)	200	400	450	475	500	550	830	885	1,090	1,340	1,300	1,640	Nombre d'animaux (têtes)
Liveweight (kg)	310	310	310	311	311	312	313	314	315	316	316	316	Poids vif (kg)
Total weight (kg)	62,000	124,000	139,500	147,725	155,500	171,600	259,790	277,890	343,350	423,440	410,800	518,240	Poids total (kg)
Price per kilo (Z)	.20	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	Prix par kilo (Z)
Sub-total	13,640	99,200	111,600	118,160	124,400	137,280	207,830	222,310	274,680	338,750	328,640	414,590	Total partiel
Number of animals (hd)	200	300	320	340	350	360	370	400	480	570	660	740	Nombre d'animaux (têtes)
Liveweight (kg)	280	280	280	281	281	282	283	284	285	286	286	286	Poids vif (kg)
Total weight (kg)	56,000	84,000	89,600	95,540	98,350	101,520	104,710	113,600	136,800	163,020	188,760	211,640	Poids total (kg)
Price per kilo (Z)	.22	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	Prix par kilo
Sub-total	12,320	67,200	71,680	76,430	78,680	81,220	83,770	90,880	109,440	130,420	151,010	169,310	Total partiel
Number of animals (hd)	-	260	120	1,320	1,940	3,500	3,810	6,110	9,805	10,240	12,485	16,300	Nombre d'animaux (têtes)
Liveweight (kg)	-	240	240	241	241	242	243	244	245	246	246	246	Poids vif (kg)
Total weight (kg)	-	62,400	28,800	318,120	467,540	847,000	925,830	1,490,840	2,402,225	2,519,040	3,071,310	4,009,800	Poids total (kg)
Price per kilo (Z)		.54	.54	.54	.54	.54	.54	.54	.54	.54	.54	.54	Prix par kilo (Z)
Sub-total		33,700	15,550	171,780	252,470	457,380	499,950	805,050	1,297,200	1,360,280	1,658,510	2,165,290	Total partiel (Z)
Number of animals (hd)	400	960	890	2,135	2,790	5,050	5,010	7,395	11,375	12,150	14,445	18,680	Nombre total d'animaux (têtes)
Total liveweight (kg)	118,000	270,400	257,900	561,385	721,390	1,120,120	1,290,330	1,882,330	2,882,375	3,105,500	3,670,870	4,739,680	Poids vif total (kg)
Total costs (Z)	25,960	200,100	198,830	366,370	455,550	675,880	771,550	1,118,240	1,681,320	1,829,450	2,138,160	2,749,190	Coût total (Z)
B. Animals purchased from Ranches 1/													B. Achats du Bétail des Ranchs 1/
From breeding herd													Du Troupeau reproducteur
Number of animals (hd)	-	40	365	210	580	640	480	525	740	1,180	1,335	1,285	Nombre d'animaux (têtes)
Liveweight (kg)	-	305	305	306	307	310	313	316	319	322	325	325	Poids vif (kg)
Total weight (kg)	-	12,200	111,325	64,260	178,060	198,400	150,240	165,900	236,060	379,960	433,875	417,625	Poids total (kg)
Price per kilo (Z)	-	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	Prix par kilo (Z)
Sub-total (Z)	-	9,760	89,060	51,410	142,450	158,720	120,190	132,720	188,850	303,970	347,100	334,100	Total partiel (Z)
From fattening herd													Du Troupeau d'embouche
Number of animals (hd)	-	-	45	935	1,405	2,055	2,800	3,810	5,090	5,990	5,985	5,980	Nombre d'animaux (têtes)
Liveweight (kg)	-	-	285	287	289	291	293	295	297	299	300	300	Poids vif (kg)
Total weight (kg)	-	-	12,825	268,345	406,045	598,005	820,400	1,123,950	1,511,730	1,791,010	1,795,500	1,794,000	Poids total (kg)
Price per kilo (Z)	-	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	Prix par kilo (Z)
Sub-total (Z)	-	-	10,260	214,676	324,836	478,404	656,320	899,160	1,209,380	1,432,810	1,436,400	1,435,200	Total partiel (Z)
Total number of animals (hd)	-	40	410	1,145	1,985	2,695	3,280	4,335	5,830	7,170	7,320	7,265	Nombre total d'animaux
Total liveweight (kg)		12,200	124,150	332,605	584,105	796,405	970,640	1,289,850	1,747,790	2,170,970	2,229,375	2,211,625	Poids vif total
Total cost (Z)		9,760	99,320	266,086	476,286	637,124	776,510	1,031,880	1,398,230	1,736,780	1,783,500	1,769,300	Coût total
C. Total number of animals purchased	400	1,000	1,300	3,280	4,775	7,105	8,290	11,730	17,205	19,320	21,765	25,945	C. Nombre total d'animaux achetés
Total liveweight (tons)	118	299	385	895	1,305	1,916	2,261	3,172	4,630	5,277	5,901	6,952	Poids vif total (tonnes)
Total purchase cost (Z'000)	23.6	209.8	298.2	632.5	922.8	1,313.0	1,548.1	2,150.1	3,079.6	3,566.2	3,921.7	4,518.5	Coût total de l'achat du bétail (en milliers de zaïres)
Trekking costs @ Z 3.00/hd 2/	.80	3.0	3.9	9.8	14.3	21.3	25.0	35.2	51.6	58.0	65.3	77.8	Coûts d'acheminement du bétail @ 2,00 zaïres par tête 2/
Total cost of cattle purchase (Z'000)	24,40	212.8	302.1	642.3	937.1	1,334.3	1,573.0	2,185.3	3,131.2	3,624.2	3,987.0	4,596.3	Coût total de l'achat du bétail (en milliers de zaïres)

1/ Heifers have been included in sales for meat although some of them might have a milk potential and be of interest either to some traditional farmers or to other ranches if development takes place. However, their exclusion would not affect at all the rate of return of the abattoir. For the breeding herd an average weight and price has been used, the former is probably an overestimate while the latter is an underestimate since some animals will be purchased at Category 1 prices. In the income projections meat has been sold at a single price but in practice it will be priced by grade and this will reflect the purchase price of the animals. It must be stressed that the projections made in the annex are estimates based on minimal information and in view of the present changing cost and price situation in Zaire the table should be regarded as defining the information that has to be constantly kept updated if the abattoirs are to become self-financing.

2/ Average trekking costs from the North and from the South of Ituri.

1/ Des génisses ont été inclues dans les ventes pour l'abattage bien que certaines d'entre elles puissent avoir un certain potentiel laitier qui intéresserait soit des fermiers traditionnels, soit d'autres ranches si le développement s'effectue. Toutefois, si ces génisses étaient exclues des achats de bétail, le taux de rentabilité de l'abattoir n'en serait pas affecté. Pour le bétail d'élevage, une moyenne des poids et des prix a été utilisée; la première est probablement une surestimation alors que la deuxième est une sousestimation, car quelques bêtes seront achetées au prix de Catégorie I. Dans les projections des recettes, la viande a été vendue à un seul prix, mais pratiquement, elle sera évaluée d'après la qualité et ceci reflètera le prix d'achat des animaux. Il faut souligner que les projectionsprésentées dans l'annexe sont des estimations basées sur le minimum d'information et, vu le présent état de changement des coûts et des prix au Zaïre, le tableau devrait être considéré comme n'étant qu'une indication des renseignements qui devront être mis à jour si les abattoirs doivent devenir auto-financés.

2/ Coût moyen d'acheminement du bétail entre les coûts d'acheminements du Nord et du Sud de l'Ituri.

July 23, 1976

le 23 juillet 1976

ITURI LIVESTOCK DEVELOPMENT PROJECT

Bunia Abattoir

Throughput, Production of Meat, Offals and by-Products

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir De Bunia

Abattages, Production de Viande, d'abats et de sous-produits

	Before Project Avant le Projet	Year 1 Année 1	Year 2 Année 2	Year 3 Année 3	Year 4 Année 4	Year 5 Année 5	Year 6 Année 6	Year 7 Année 7	Year 8 Année 8	Year 9 Année 9	Year 10 Année 10	Years 11-20 Années 11-20
A. CATTLE												
1. Throughput of the abattoir												
Number of animals for local consumption	3,200	3,295	3,395	3,500	3,600	3,710	3,860	4,015	4,175	4,340	4,515	4,695
Number of animals for export to Kinshasa												
traditional herd cattle												
Category 1 1/	200	400	450	475	500	550	830	885	1,090	1,340	1,300	1,640
Category 2	200	300	320	340	350	360	370	400	480	570	660	740
Category 3	-	260	120	1,320	1,940	3,500	3,810	6,110	9,805	10,240	12,485	16,300
Sub-total	400	960	890	2,135	2,790	4,410	5,010	7,395	11,375	12,150	14,445	18,680
Ranch Cattle												
from breeding herd	-	40	365	210	580	640	480	525	740	1,180	1,335	1,285
from fattening herd	-	-	45	935	1,405	2,055	2,800	3,810	5,090	5,990	5,985	5,980
Sub-total	-	40	410	1,145	1,985	2,695	3,280	4,335	5,830	7,170	7,320	7,265
Total	400	1,000	1,300	3,280	4,775	7,105	8,290	11,730	17,205	19,320	21,765	25,945
Gross Throughput	3,600	4,295	4,695	6,780	8,375	10,815	12,150	15,745	21,380	23,660	26,280	30,640
Condemnations of carcasses for local consumption 2/	25	26	26	27	28	29	30	31	33	34	35	37
Condemnations of carcasses for export to Kinshasa												
Traditional herd cattle												
Category 1	2	3	4	4	4	4	6	7	9	10	10	13
Category 2	2	2	2	3	3	3	3	3	4	4	5	6
Category 3	-	2	1	10	15	27	30	48	76	80	97	127
Sub-total	4	7	7	17	22	34	39	58	89	94	112	146
Ranch Cattle												
from breeding herd	-	1	3	2	5	5	4	4	6	9	10	10
from fattening herd	-	-	1	7	11	16	22	30	40	47	47	47
Sub-total	-	1	4	9	16	21	26	34	46	56	57	57
Total	4	8	11	26	38	55	65	92	135	150	169	203
Total number of condemnations	29	34	37	53	66	84	95	123	168	184	206	240
Net number of carcasses for local consumption	3,175	3,269	3,369	3,473	3,572	3,681	3,830	3,984	4,142	4,306	4,480	4,658
Net number of carcasses for export to Kinshasa												
Traditional herd cattle												
Category 1	198	397	446	471	496	546	824	878	1,081	1,330	1,290	1,627
Category 2	198	298	318	337	347	357	367	397	476	566	655	734
Category 3	-	258	119	1,310	1,925	3,473	3,780	6,062	9,729	10,160	12,388	16,173
Sub-total	396	953	883	2,118	2,768	4,376	4,971	7,337	11,286	12,056	14,333	18,534
Ranch Cattle												
from breeding herd	-	39	362	208	575	635	476	521	734	1,171	1,325	1,275
from fattening herd	-	-	44	928	1,394	2,039	2,778	3,780	5,050	5,943	5,938	5,933
Sub-total	-	39	406	1,136	1,969	2,674	3,254	4,301	5,784	7,114	7,263	7,208
Total	396	992	1,289	3,254	4,737	7,050	8,225	11,638	17,070	19,170	21,596	25,742
Net throughput	3,571	4,261	4,658	6,727	8,309	10,731	12,055	15,622	21,212	23,476	26,076	30,400
2. Meat production for export to Kinshasa 3/												
Traditional herd cattle												
Category 1: yield 48% (kg)	149	149	149	149	149	150	150	151	151	152	152	152
Carcass weight (kg)	29,502	59,153	66,434	70,179	73,904	81,900	123,600	132,548	163,231	202,160	196,080	247,304
Category 2: Yield 48% (kg)	134	134	134	135	135	135	136	136	137	137	137	137
Carcass weight (kg)	26,532	39,932	42,612	45,495	46,845	48,195	49,912	53,992	65,212	77,542	89,735	100,558
Category 3: Yield 48% (kg)	-	115	115	116	116	116	117	117	118	118	118	118
Carcass weight (kg)	-	29,670	13,685	151,960	223,300	402,868	442,260	709,254	1,148,022	1,198,880	1,481,784	1,908,414
Carcass weight sub-total (kg)	56,034	128,755	122,751	267,634	344,049	532,963	615,772	895,824	1,376,465	1,478,582	1,747,599	2,256,276
Ranch Cattle												
from breeding herd: Yield 52% (kg)	-	159	159	159	160	161	163	164	166	167	169	169
Carcass weight (kg)	-	6,201	57,558	33,072	92,000	102,235	77,588	85,444	121,844	195,557	223,925	215,475
from fattening herd. Yield 52% (kg)	-	-	148	149	150	151	152	153	154	155	156	156
Carcass weight (kg)	-	-	6,512	138,272	209,100	307,889	422,256	578,340	777,700	921,165	926,328	925,568
Carcass weight sub-total (kg)	-	6,201	64,070	171,344	301,100	410,124	499,844	663,784	899,544	1,116,722	1,150,253	1,141,043
Gross carcass weight (kg)	56,034	134,956	186,821	438,978	645,149	943,087	1,115,616	1,559,608	2,276,009	2,595,304	2,897,852	3,397,299
Freezing losses 4/	2,241	5,398	7,473	17,559	25,806	39,723	44,626	62,384	91,040	103,812	155,914	135,892
Total net carcass weight (kg)	53,793	129,558	179,348	421,419	619,343	905,364	1,070,990	1,497,224	2,184,969	2,491,492	2,741,938	3,261,407
3. Total weight of livers, hearts & tongues 5/	1,600	4,000	5,200	13,120	19,100	28,420	33,160	46,920	68,880	77,280	87,060	103,780
Condemnations (kg)	320	800	1,040	2,624	3,820	5,684	6,632	9,384	13,764	15,456	17,412	20,756
Net weight of livers, hearts and tongues (kg)	1,280	3,200	4,160	10,496	15,280	22,736	26,528	37,536	55,056	61,824	69,648	83,024
4. Total weight of tripes, lungs & spleens 6/ (kg)	2,892	7,000	9,100	22,960	33,425	49,735	58,030	82,110	120,435	135,240	152,355	182,615
Condemnations (kg)	280	700	910	2,296	3,343	4,974	5,803	8,211	12,044	13,524	15,236	18,162
Net weight of tripes, lungs & spleens(kg)	2,520	6,300	8,190	20,664	30,082	44,761	52,227	73,899	108,391	121,716	137,119	163,453
5. Total weight of intestines 7/ (kg)	2,400	6,000	7,800	19,680	28,650	42,630	49,740	70,380	101,230	115,920	130,590	155,670
Condemnations (kg)	240	600	780	1,968	2,865	4,263	4,974	7,038	10,323	11,592	13,059	15,567
Net weight of intestines (kg)	2,160	5,400	7,020	17,712	25,785	38,367	44,766	63,342	92,907	104,328	117,531	140,103
6. No. of condemned head, tail, feet - sets 8/	20	50	65	164	239	355	415	587	860	966	1,088	1,297
Net number of head, tail, feet - sets	380	950	1,235	3,116	4,536	6,750	7,875	11,143	16,345	18,354	20,677	24,648

A. BOVINS												
1. Abattages												
Nombre d'animaux abattus pour la consommation locale	3,200	3,295	3,395	3,500	3,600	3,710	3,860	4,015	4,175	4,340	4,515	4,695
Nombre d'animaux abattus pour l'exportation vers Kinshasa												
Bétail du troupeau traditionnel												
1ère Catégorie 1/	200	400	450	475	500	550	830	885	1,090	1,340	1,300	1,640
2ème Catégorie	200	300	320	340	350	360	370	400	480	570	660	740
3ème Catégorie	-	260	120	1,320	1,940	3,500	3,810	6,110	9,805	10,240	12,485	16,300
Total partiel	400	960	890	2,135	2,790	4,410	5,010	7,395	11,375	12,150	14,445	18,680
Bétail des ranchs												
Bétail du troupeau reproducteur	-	40	365	210	580	640	480	525	740	1,180	1,335	1,285
Bétail du troupeau d'embouche	-	-	45	935	1,405	2,055	2,800	3,810	5,090	5,990	5,985	5,980
Total partiel	-	40	410	1,145	1,985	2,695	3,280	4,335	5,830	7,170	7,320	7,265
Total	400	1,000	1,300	3,280	4,775	7,105	8,290	11,730	17,205	19,320	21,765	25,945
Effectif brut des abattages	3,600	4,295	4,695	6,780	8,375	10,815	12,150	15,745	21,380	23,660	26,280	30,640
Nombre des carasses saisies parmi celles destinées à la consommation locale 2/	25	26	26	27	28	29	30	31	33	34	35	37
Nombre des carcasses saisies parmi celles destinées à l'exportation vers Kinshasa												
Bétail du troupeau traditionnel												
1ère Catégorie	2	3	4	4	4	4	6	7	9	10	10	13
2ème Catégorie	2	2	2	3	3	3	3	3	4	4	5	6
3ème Catégorie	-	2	1	10	15	27	30	48	76	80	97	127
Total partiel	4	7	7	17	22	34	39	58	89	94	112	146
Bétail des ranchs												
Bétail du troupeau traditionnel	-	1	3	2	5	5	4	4	6	9	10	10
Bétail du troupeau d'embouche	-	-	1	7	11	16	22	30	40	47	47	47
Total partiel	-	1	4	9	16	21	26	34	46	56	57	57
Total	4	8	11	26	38	55	65	92	135	150	169	203
Nombre total des carcasses saisies	29	34	37	53	66	84	95	123	168	184	206	240
Effectif net des abattages pour la consommation locale	3,175	3,269	3,369	3,473	3,572	3,681	3,830	3,984	4,142	4,306	4,480	4,658
Effectif net des abattages pour l'exportation vers Kinshasa												
Bétail du troupeau traditionnel												
1ère Catégorie	198	397	446	471	496	546	824	878	1,081	1,330	1,290	1,627
2ème Catégorie	198	298	318	337	347	357	367	397	476	566	655	734
3ème Catégorie	-	258	119	1,310	1,925	3,473	3,780	6,062	9,729	10,160	12,388	16,173
Total partiel	396	953	883	2,118	2,768	4,376	4,971	7,337	11,286	12,056	14,333	18,534
Détail des ranchs												
Bétail du troupeau traditionnel	-	39	362	208	575	635	476	521	734	1,171	1,325	1,275
Bétail du troupeau d'embouche	-	-	44	928	1,394	2,039	2,778	3,780	5,050	5,943	5,938	5,933
Total partiel	-	39	406	1,136	1,969	2,674	3,254	4,301	5,784	7,114	7,263	7,208
Total	396	992	1,289	3,254	4,737	7,050	8,225	11,638	17,070	19,170	21,596	25,742
Effectif net des abattages	3,571	4,261	4,658	6,727	8,309	10,731	12,055	15,622	21,212	23,476	26,076	30,400
2. Production de viande pour l'exportation vers Kinshasa 3/												
Bétail du troupeau traditionnel												
1ère Catégorie: Rendement 48% (kg)	149	149	149	149	149	150	150	151	151	152	152	152
Poids des carcasses (kg)	29,502	59,153	66,434	70,179	73,904	81,900	123,600	132,548	163,231	202,160	196,080	247,304
2ème Catégorie: Rendement 48% (kg)	134	134	134	135	135	135	136	136	137	137	137	137
Poids des carcasses (kg)	26,532	39,932	42,612	45,495	46,845	48,195	49,912	53,992	65,212	77,542	89,735	100,558
3ème Catégorie: Rendement 48% (kg)	-	115	115	116	116	116	117	117	118	118	118	118
Poids des carcasses (kg)	-	29,670	13,685	151,960	223,300	402,868	442,260	709,254	1,148,022	1,198,880	1,481,784	1,908,414
Total partiel (poids des carcasses) (kg)	56,034	128,755	122,751	267,634	344,049	532,963	615,772	895,824	1,376,465	1,478,582	1,747,599	2,256,276
Bétail des ranchs												
Bétail du troupeau reproducteur: rendement 52% (kg)	-	159	159	159	160	161	163	164	166	167	169	169
Poids des carcasses (kg)	-	6,201	57,558	33,072	92,000	102,235	77,588	85,444	121,844	195,557	223,925	215,475
Bétail du troupeau d'embouche: Rendement 52% (kg)	-	-	148	149	150	151	152	153	154	155	156	156
Poids des carcasses (kg)	-	-	6,512	138,272	209,100	307,889	422,256	578,340	777,700	921,165	926,328	925,568
Total partiel (poids des carcasses) (kg)	-	6,201	64,070	171,344	301,100	410,124	499,844	663,784	899,544	1,116,722	1,150,253	1,141,043
Poids brut des carcasses (kg)	56,034	134,956	186,821	438,978	645,149	943,087	1,115,616	1,559,608	2,276,009	2,595,304	2,897,852	3,397,299
Pertes de congélation 4/	2,241	5,398	7,473	17,559	25,806	39,723	44,626	62,384	91,040	103,812	155,914	135,892
Poids net des carcasses	53,793	129,558	179,348	421,419	619,343	905,364	1,070,990	1,497,224	2,184,969	2,491,492	2,741,938	3,261,407
3. Poids total des foies, coeurs et langues 5/ (kg)	1,600	4,000	5,200	13,120	19,100	28,420	33,160	46,920	68,880	77,280	87,060	103,780
Saisies (kg)	320	800	1,040	2,624	3,820	5,684	6,632	9,384	13,764	15,456	17,412	20,756
Poids net des foies, coeurs et langues (kg)	1,280	3,200	4,160	10,496	15,280	22,736	26,528	37,536	55,056	61,824	69,648	83,024
4. Poids total des tripes, poumons et rates 6/ (kg)	2,892	7,000	9,100	22,960	33,425	49,735	58,030	82,110	120,435	135,240	152,355	182,615
Saisies (kg)	280	700	910	2,296	3,343	4,974	5,803	8,211	12,044	13,524	15,236	18,162
Poids net des tripes, poumons et rates (kg)	2,520	6,300	8,190	20,664	30,082	44,761	52,227	73,899	108,391	121,716	137,119	163,453
5. Poids total des intestins 7/ (kg)	2,400	6,000	7,800	19,680	28,650	42,630	49,740	70,380	101,230	115,920	130,590	155,670
Saisies (kg)	240	600	780	1,968	2,865	4,263	4,974	7,038	10,323	11,592	13,059	15,567
Poids net des intestins (kg)	2,160	5,400	7,020	17,712	25,785	38,367	44,766	63,342	92,907	104,328	117,531	140,103
6. Chiffre total des têtes, pieds et queues saisis (jeu) 8/	20	50	65	164	239	355	415	587	860	966	1,088	1,297
Chiffre net des têtes, pieds et queues (jeu)	380	950	1,235	3,116	4,536	6,750	7,875	11,143	16,345	18,354	20,677	24,648

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

BUNIA ABATTOIR

Throughput, Production of Meat, Offals and by-Products

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

ABATTOIR DE BUNIA

Abattages, Production de Viande, d'Abats et de Sous-produits

	Before Project / Avant le Projet	Year 1 / Année 1	Year 2 / Année 2	Year 3 / Année 3	Year 4 / Année 4	Year 5 / Année 5	Year 6 / Année 6	Year 7 / Année 7	Year 8 / Année 8	Year 9 / Année 9	Year 10 / Année 10	Years 11-20 / Années 11-20
A. PIGS												
1. Number of animals for local consumption [9]	2,300	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Number of animals for export to Kinshasa	200	1,000	1,300	1,700	2,100	2,700	3,200	3,800	4,400	5,100	5,800	5,800
Total	2,500	3,500	3,800	4,200	4,600	5,200	5,700	6,300	6,900	7,600	8,300	8,300
Condemnations of carcasses for local consumption [10]	12	13	13	13	13	13	13	13	13	13	13	13
Condemnations of carcasses for export to Kinshasa	1	5	7	9	11	14	17	20	23	27	30	30
	13	18	20	22	24	27	30	33	36	40	43	43
Net number of carcasses for local consumption	2,288	2,487	2,487	2,487	2,487	2,487	2,487	2,487	2,487	2,487	2,487	2,487
Net number of carcasses for export to Kinshasa	199	995	1,293	1,691	2,089	2,686	3,183	3,780	4,377	5,073	5,770	5,770
Net throughput	2,487	3,482	3,780	4,178	4,576	5,173	5,670	6,267	6,864	7,560	8,257	8,257
2. Meat production for export gross weight of carcasses (kg) [11]	10,348	51,740	67,236	87,932	108,628	139,672	165,516	196,560	227,604	263,796	300,040	300,040
Freezing losses [12]	207	1,035	1,345	1,759	2,173	2,793	3,310	3,931	4,552	5,276	6,000	6,000
Net weight of carcasses	10,141	50,705	65,891	86,173	106,455	136,879	162,206	192,629	223,052	258,520	294,040	294,040
3. Net weight of intestines [13]	400	2,000	2,600	3,400	4,200	5,400	6,400	7,600	8,800	10,200	11,600	11,600
4. Net weight of red offals [14] kg	600	3,000	3,900	5,100	6,300	8,100	9,600	11,400	13,200	15,300	17,400	17,400
C. BY-PRODUCTS												
1. Blood meal [15]												
Cattle (kg)	5,400	6,443	7,043	10,170	12,563	16,223	18,225	23,618	32,070	35,490	39,420	45,960
Pigs (kg)	1,250	1,750	1,900	2,100	2,300	2,600	2,850	3,150	3,450	3,800	4,150	4,150
Total (kg)	6,650	8,193	8,943	12,270	14,863	18,823	21,075	26,768	35,520	39,290	43,570	50,110
2. Hoofs and horn meal [16] (kg)	25,200	30,065	32,865	47,460	58,625	75,705	85,050	110,215	149,660	165,260	183,960	214,480
3. Meat meal												
Condemned cattle carcasses (kg)	3,915	4,590	4,995	7,155	8,910	11,340	12,825	16,605	22,680	24,840	27,540	32,400
Condemned offals of local cows cattle												
Livers, hearts, tongues (kg)	2,560	2,636	2,716	2,800	2,880	2,968	3,088	3,212	3,340	3,472	3,612	3,756
tripes, lungs, spleens (kg)	2,240	1,568	2,377	2,450	2,520	2,597	2,702	2,811	2,923	3,038	3,161	3,287
Intestines (kg)	1,920	1,977	2,037	2,100	2,160	4,260	2,316	2,409	2,505	2,604	2,709	2,817
Sub-total (kg)	6,720	6,181	7,130	7,350	7,560	9,825	8,106	8,432	8,768	9,114	9,482	9,860
Condemned offals and other slaughtered cattle	840	2,100	2,730	6,888	10,028	14,921	17,409	24,633	36,131	40,572	45,707	54,485
Total condemned offals (kg)	7,560	8,281	9,860	14,238	17,588	24,746	25,515	33,065	44,899	49,686	55,189	64,345
Condemned pig carcasses (kg)	676	936	1,040	1,140	1,248	1,404	1,560	1,716	1,872	2,080	2,236	2,236
Total wet weight (kg)	12,151	13,807	15,895	22,537	27,746	37,490	39,900	51,386	69,451	76,606	84,965	98,981
Total dry weight (= meat meal) [17] (kg)	3,038	3,452	3,974	5,634	6,937	9,373	9,975	12,847	17,363	19,152	21,241	24,745
4. Tallow (kg) [18]	911	1,036	1,197	1,690	2,081	2,812	2,993	3,854	5,209	5,746	6,372	7,424

B. PORCS												
1. Nombre d'animaux abattus pour la consommation locale [9]	2,300	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Nombre d'animaux abattus pour l'exportation vers Kinshasa	200	1,000	1,300	1,700	2,100	2,700	3,200	3,800	4,400	5,100	5,800	5,800
Total	2,500	3,500	3,800	4,200	4,600	5,200	5,700	6,300	6,900	7,600	8,300	8,300
Nombre des carcasses saisies parmi celles destinées à la consommation locale [10]	12	13	13	13	13	13	13	13	13	13	13	13
Nombre des carcasses saisies parmi celles destinées à l'exportation vers Kinshasa	1	5	7	9	11	14	17	20	23	27	30	30
Total	13	18	20	22	24	27	30	33	36	40	43	43
Effectif net des abattages pour la consommation locale	2,288	2,487	2,487	2,487	2,487	2,487	2,487	2,487	2,487	2,487	2,487	2,487
Effectif net des abattages pour l'exportation vers Kinshasa	199	995	1,293	1,691	2,089	2,686	3,183	3,780	4,377	5,073	5,770	5,770
Effectif net des abattages	2,487	3,482	3,780	4,178	4,576	5,173	5,670	6,267	6,864	7,560	8,257	8,257
2. Production de viande pour l'exportation vers Kinshasa [11] Poids brut des carcasses (kg)	10,348	51,740	67,236	87,932	108,628	139,672	165,516	196,560	227,604	263,796	300,040	300,040
Pertes de congélation [12]	207	1,035	1,345	1,759	2,173	2,793	3,310	3,931	4,552	5,276	6,000	6,000
Poides net des carcasses	10,141	50,705	65,891	86,173	106,455	136,879	162,206	192,629	223,052	258,520	294,040	294,040
3. Poids net des intestins [13] (kg)	400	2,000	2,600	3,400	4,200	5,400	6,400	7,600	8,800	10,200	11,600	11,600
4 Poids net des viscères rouges [14] kg	600	3,000	3,900	5,100	6,300	8,100	9,600	11,400	13,200	15,300	17,400	17,400
C. SOUS-PRODUITS												
1. Farine de sang [15]												
Sang de boeuf (kg)	5,400	6,443	7,043	10,170	12,563	16,223	18,225	23,618	32,070	35,490	39,420	45,960
Sang de porc (kg)	1,250	1,750	1,900	2,100	2,300	2,600	2,850	3,150	3,450	3,800	4,150	4,150
Total	6,650	8,193	8,943	12,270	14,863	18,823	21,075	26,768	35,520	39,290	43,570	50,110
2. Farine de cornes et de sabots [16] (kg)	25,200	30,065	32,865	47,460	58,625	75,705	85,050	110,215	149,660	165,260	183,960	214,480
3. Farine de viande												
Carcasses de boeufs saisies	3,915	4,590	4,995	7,155	8,910	11,340	12,825	16,605	22,680	24,840	27,540	32,400
abats saisis parmi ceux destinés à la consommation locale (kg)												
Foies, coeurs, langues (kg)	2,560	2,636	2,716	2,800	2,880	2,968	3,088	3,212	3,340	3,472	3,612	3,756
Tripes, poumons, rates (kg)	2,240	1,568	2,377	2,450	2,520	2,597	2,702	2,811	2,923	3,038	3,161	3,287
Intestins (kg)	1,920	1,977	2,037	2,100	2,160	4,260	2,316	2,409	2,505	2,604	2,709	2,817
Total partiel	6,720	6,181	7,130	7,350	7,560	9,825	8,106	8,432	8,768	9,114	9,482	9,860
Abats saisis des autres bovins abattus (kg)	840	2,100	2,730	6,888	10,028	14,921	17,409	24,633	36,131	40,572	45,707	54,485
Poids total des abats saisis (kg)	7,560	8,281	9,860	14,238	17,588	24,746	25,515	33,065	44,899	49,686	55,189	64,345
Carcasses de porcs saisies (kg)	676	936	1,040	1,140	1,248	1,404	1,560	1,716	1,872	2,080	2,236	2,236
Poids brut total (kg)	12,151	13,807	15,895	22,537	27,746	37,490	39,900	51,386	69,451	76,606	84,965	98,981
Poids sec total (= farine de viande) [17] (kg)	3,038	3,452	3,974	5,634	6,937	9,373	9,975	12,847	17,363	19,152	21,241	24,745
4. Suif (kg) [18]	911	1,036	1,197	1,690	2,081	2,812	2,993	3,854	5,209	5,746	6,372	7,424

1/ Categories correspond to various initial liveweights. Category 1: 310 kg; Category 2: 280 kg, Categor. 3: 240 kg.
2/ Condemnation rate 0.78% (1974-75 rate). No allowance made for a decline in the condemnation rate which should occur after the implementation of the veterinary program. No differentiation made between the condemnation rates in the traditional and the ranching sectors.
3/ Carcass yields 48% of liveweight for traditional sector cattle, 52% for ranch cattle.
4/ Freezing losses: of carcass weight.
5/ 4 kg/animal; condemnation rate 20%.
6/ 7 kg/animal, condemnation rate 10%.
7/ 6 kg/animal; condemnation rate 10%.
8/ Condemnation rate 5%.
9/ Number of pigs estimated from current performance
10/ Condemnation rate: 52%.
11/ Carcass weight: 52 kg.
12/ Freezing losses: 20%
13/ 2 kg/pig.
14/ 3 kg/pig.
15/ 1.5 kg/bovin; 5 kg/pig
16/ .7 kg/bovin.
17/ 25% of total wet weight.
18/ 30% of dry weight.

1/ Les categories correspondent aux divers poids vifs : catégorie 1 310 kg, categorie 2 280 kg; categorie 3 240 kg
2/ Taux de condamnation : 0,78% (taux pour 1974-1975 Aucune provision n'a été faite pour une diminution du taux de condamnation en fonction de l'exécution du programme veterinaire Aucune différenciation n'a été faite entre les taux de condamnation des secteur, traditionnel et des ranches
3/ Rendement des carcasses 48% du poids vif pour le bétail du secteur traditionnel, 52% pour le bétail des ranches
4/ Pertes de congelation 4% du poids des carcasses
5/ 4 kg/animal; taux de condamnation: 20%
6/ 7 kg/animal; taux de condamnation 10%
7/ 6 kg/animal; taux de condamnation 10%
8/ Taux de condamnation: 5%
9/ Le nombre de porcs a été estimé en fonction du nombre de porcs abattus à l'heure actuelle.
10/ Taux de condamnation 0,52%
11/ Poids des carcasses: 52 kg.
12/ Pertes de congelation: 2%.
13/ 2 kg/porc
14/ 3 kg/porc.
15/ 1,5/bovin, 5 kg/porc.
16/ .7/bovin.
17/ 25% du poids humide total.
18/ 30% du poids sec total.

February 18, 1976

le 18 février 1976

ANNEX/ANNEXE 6
Table/Tableau 3(B)

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Bunia Abattoir

Labor Projections
(Man-years)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir De Bunia

Projections De Main D'Oeuvre
(Homme -années)

	Year 1 Année 1	Year 2 Année 2	Year 3 Année 3	Year 4 Année 4	Year 5 Année 5	Year 6 Année 6	Year 7 Année 7	Year 8 Année 8	Year 9 Année 9	Year 10 Année 10	Years 11-20 Années 11-20	
Administration Staff												Personnel administratif
Manager	1	1	1	1	1	1	1	1	1	1	1	Directeur
Accountant	1	1	1	1	1	1	1	1	1	1	1	Comptable/caissier
Clerks/typist	2	2	2	2	4	4	5	5	6	6	7	Employés de Bureau/dactylos
Slaughterhouse												Abattoir
Superintendent	1	1	1	1	1	1	1	1	1	1	1	Surveillant
Chief engineer	1	1	1	1	1	1	1	1	1	1	1	Ingenieur en chef
Cattle/pig pens	2	2	3	3	5	5	5	6	7	7	8	Box à bovins/porcs
Slaughter/dressing floors	13	14	16	17	20	21	23	29	32	35	39	Aire d'abattage/de dépouillement
Offal cleaning	2	2	3	3	5	5	7	8	9	10	11	Nettoyage des viscères
By-products	2	2	2	2	3	3	3	3	4	4	4	Sous-produits
Hides	2	2	2	4	5	5	7	8	8	10	12	Peaux
Hanging hall/packing/dispatch	2	2	2	3	5	5	6	8	9	10	12	Hall de suspension/emballage/expédition
Chill rooms/boiler	4	4	4	4	4	4	4	4	4	4	4	Chambres froides/chaudière
Electrician/refrigeration	2	2	2	2	2	2	2	2	2	2	2	Electricien/réfrigération
Mechanics	4	4	4	4	4	4	4	4	4	4	4	Mécanicien
Drivers	4	4	4	4	4	4	4	4	4	4	4	Chauffeurs
Guards	4	4	4	4	4	4	4	4	4	4	4	Gardes
Laundry/Amenities	2	2	2	2	2	2	2	3	3	3	3	Buanderie/vestiaires
Cleaners/laborers	3	4	5	5	6	7	8	9	10	11	13	Nettoyeurs/ouvriers
Storekeeper	1	1	1	1	1	1	1	1	1	1	1	Magasinier
Livestock buyer	1	1	1	1	1	1	1	1	1	1	1	Acheteur de bétail
Total	54	56	61	65	79	81	90	103	112	120	133	Total

ANNEX/ANNEXE 6
Table/Tableau 6

February 18, 1976

le 18 février 1976

ZAIRE

ANNEX/ANNEXE 6
Table/Tableau 7

ITURI LIVESTOCK DEVELOPMENT PROJECT

Bunia Abattoir

Profit and Loss Statement
(Z'000)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir de Bunia

Compte de Profits et Pertes
(en milliers de zaïres)

	Year/Année																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
A. INCOME																					A. REVENU
Abattoir Fees	23.41	23.90	24.40	24.88	25.42	26.13	26.77	27.64	28.43	29.28	30.13	30.13	30.13	30.13	30.13	30.13	30.13	30.13	30.13	30.13	Redevances d'Abattoir
Sales	272.34	430.56	839.46	1,184.68	1,684.22	1,978.25	2,695.64	3,831.37	4,356.84	4,811.30	5,648.50	5,648.50	5,648.50	5,648.50	5,648.50	5,648.50	5,648.50	5,648.50	5,648.50	5,648.50	Ventes
Miscellaneous 1/	-	-	-	-	.89	3.86	-	-	.89	3.86	-	-	.89	-	-	3.86	.89	-	-	-	Divers 1/
Total	295.75	454.46	863.86	1,209.56	1,710.53	2,008.24	2,722.41	3,859.01	4,386.16	4,844.44	5,678.63	5,678.63	5,679.52	5,678.63	5,678.63	5,682.49	5,679.52	5,679.52	5,679.52	5,678.63	Total
B. EXPENSES																					B. DEPENSES
Salaries and Social Benefits	30.91	31.76	33.82	35.47	41.58	42.44	46.28	51.54	55.88	58.87	64.14	64.14	64.14	64.14	64.14	64.14	64.14	64.14	64.14	64.14	Salaires et Avantages Sociaux
Contribution to the cost of ONDE	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	Apport aux frais de l'ONDE
Other Operating Expenses	307.06	466.17	835.32	1,161.96	1,613.49	1,896.15	2,526.11	3,529.12	4,074.03	4,487.07	5,138.34	5,111.64	5,116.08	5,109.41	5,119.05	5,140.57	5,116.08	5,109.14	5,109.14	5,121.28	Autres Frais de Fonctionnement
Interest on borrowed funds	342.62	11.53	14.01	16.56	16.65	16.65	11.11	5.56	-	-	-	-	-	-	-	-	-	-	-	-	Intérêts sur Fonds Empruntés
Sub-Total	348.01	514.11	887.80	1,218.64	1,676.37	1,959.89	2,588.15	3,590.87	4,134.56	4,550.59	5,207.13	5,180.43	5,184.87	5,178.20	5,187.84	5,209.36	5,184.87	5,178.20	5,178.20	5,190.07	Total Partiel
Depreciation of Fixed Assets	13.13	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	32.81	Amortissement des Immobilisations
Depreciation of Vehicles	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	Amortissement des Véhicules
Sub-Total	23.07	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	Total Partiel
Total	371.08	556.86	930.55	1,261.39	1,719.12	1,992.70	2,630.90	3,633.62	4,177.31	4,593.34	5,249.88	5,223.18	5,227.62	5,220.95	5,230.59	5,252.11	5,227.62	5,220.95	5,220.95	5,232.82	Total
Profit (Loss)	(75.33)	(102.40)	(66.69)	(51.83)	(8.59)	15.54	91.51	225.38	208.85	251.10	428.75	455.45	451.90	457.68	448.04	430.38	451.90	458.57	458.57	445.81	Bénéfice (Perte)
Cumulative profit (Loss)	(75.33)	(177.73)	(244.42)	(296.25)	(304.84)	(289.30)	(197.79)	(27.60)	181.25	432.35	861.10	1,316.55	1,768.45	2,226.13	2,674.17	3,104.55	3,556.45	4,015.02	4,473.59	4,919.40	Bénéfices (Pertes) cumulatifs

September 28, 1976

le 28 septembre 1976

ITURI LIVESTOCK DEVELOPMENT PROJECT

Kisangani Abattoir

Investment Costs

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir de Kisangani

Coûts d'Investissement

Investment Item	Unit / Unité	Unit Cost Coût Unitaire (Z'000)	Year 1 No. of Units / No. d'Unités	Year 1 Cost / Coût	Year 2 No. of Units / No. d'Unités (Z 000)	Year 2 Cost / Coût	Total Units Total Unitaire	Total Units Total d'Unités	Total Cost Coût Totaux US$ equivalent	F.E. Component %	F.E. Component Amount (Z'000)	Détail d'Investissement
A. Buildings												A. Bâtiments
General stores & maintenance workshop	m^2	125	80	10 00	-		80	10 00				Entrepôt et atelier d'entretien
Hide drying shed with frames and store	m^2	145	100	14 50	-		100	14 50				Séchoir à peaux y compris les cadres et l'entrepôt
Repairs to surrounds of refrigerator doors and renewing framework	lot	2,230	1	2.23	-		1	2 23				Réparations de l'accès à la chambre froide portes et renouvellement des cadres
Refrigerator doors	no.	1,270	5	6 35	-		5	6.35				Portes de la chambre froide
Tile pens	m^2	80	80	6.40	-		80	6.40				Porcherie
Sub-total A				39 48				39.48	42.40	22	8.77	Total partiel A
B. Utility Services												B. Travaux de Plomberie
Water, head tank (3,000 gals.) with stand 25 m	no.	8,385	1	8.39	-		1	8.35				Reservoir a eau (3,000 gals.) avant montant, 25 m de haut
Chlorination dosing unit	no.	560	1	.56	-		1	.56				Groupe de javellisation
Galvanized pipes & fittings	lot	1,865	1	1.87	-		1	1.87				Tuyaux galvanises et accessoires
Effluent, catch banks, filter beds with channel to irrigated land	lot	7,450	1	7 45	-		1	7.45				Elimination des eaux usees, bassin de décantation, lits d'épuration avec canaux d'adduction jusqu'aux terrains irrigés
Sub-total B				18 27				18 27	21 01	54	9.80	Total partiel B
C. Plant and Equipment												C. Machinerie et Outillage
Liveweight scale, cattle	no.	2,390	25%	60	75%	1.79	1	2 39				Bascule pour le pesage des animaux vivants
Captive bolt pistol - 3,000 cartridges	lot	220	"	.06	"	.16	1	22				Pistolet d'abattage à culasse, 3,000 cartouches
Beef dressing trolleys, 2 fixed & 2 swivel wheels, rubber tyres	no.	299	"	.22	"	.65	3	87				Chariot d'écornement, roues fixes, 2 roues pivotantes, pneus de caoutchouc
Flaying machines, electrical	no.	795	"	.40	"	1 19	2	1.59				Equarrissoirs électriques
Carcass splitting saw, electrical	no.	1,710	"	.43	"	1 28	1	1 71				Scie électrique pour découper les carcasses
Operators platform	no.	935	"	24	"	70	1	94				
Tables 2m x 1m stainless steel Tabular legs	no.	640	"	.32	"	.96	2	1 28				Tables 2m x 1m, dessus en acier inoxidable, pieds tubulaires en acier galvanisé
Paunch/hide barrows, galv. rubber tyred wheels	no.	70	"	07		.21	4	.28				Brouettes à panses, en acier galvanisé, tres à pneus de caoutchouc
Wash hand basins, stainless steel	no.	550	"	.28		.82	2	1 10				Lavabos en acier inoxidable
Knife sterilizer boxes stainless steel, wall mounting electrically heated	no.	175	"	.05		13	1	18				Autoclave metal a vapeur pour la stérilisation des couteaux, chauffage électrique
Saw, cleaver sterilizing box, wall mounting electrical heating	no.	240	"	06		18	1	24				Autoclave mural pour la sterilisation des scies et fendoirs, chauffage électrique
Liveweight scale, pigs	no.	795	"	20		60	1	.80				Bascule pour le pesage des porcs vivants
Pig stunning equipment, transformer, 2 pairs electro tkaler tongs	set	460	"	12		34	1	.46				Outillage pour l'abattage des porcs, tranformateur, 2 paires de pincettes à electrodes
Scalding tank with manual lifting cradle	no.	1,295	"	33		97	1	1 30				Echaudoir à bonne manoeuvré par un levrier manuel
Gambrels 21" with back hook	no.	7	"	.21		.63	120	84				Grappins de 21" avec crochet
Portable offals bins, galv. rubber tyred wheels	no.	70	"	02		70	2	14				*Seaux portables pour les abats, acier galvanisé, roues* à pneus de caoutchouc
Waste bins with lid, galvanized	no.	30	"	.05		13	6	18				Poubelles à couvercle, acier galvanisé
Grindstone	no.	160	"	04		12	1	.16				Meule
Meynell water economy sprays, flexible hose	no.	60	"	06		18	4	24				Arrosoirs Meynell à tuyau souple
Platform scale	no.	120	"	.03		.09	1	12				Bascule à plateau
Scoop pan scale with set weights	no.	80	"	02		06	1	.08				Bascule à plateau cuvette, poids fixes
Stacking trays for red offals, aluminium anodised	no.	30	"	.19	"	.56	25	.75				Plateaux qui s'emboitent pour les abats rouges, (en aluminium)
Skinning knives 6"	no.	5	"	03	"	09	24	.12				Couteau à ecorcher 6"
Boning knives 6"	no.	5	"	03	"	09	24	.12				Couteaux à désosser 6"
Steak knives 10"	no.	7	"	04	"	13	24	.17				*Couteaux à viande 10"*
Butcher belts	no.	7	"	04	"	13	24	17				Ceintures de bouchers
Butcher knife cases	no.	9	"	06	"	16	24	.22				Boîte à couteaux de boucher
Steel round	no.	9	"	06	"	16	24	22				Fusils à aiguiser
Hand saws with spare blades	no.	17	"	01	"	04	4	.05				Scies à main avec lames de rechange
Cleavers	no.	24	"	02	"	05	4	.07				Couperets
Cutting boards	no.	9	8	07	-	-	8	.07				Planches à découper
Pallets for refrigerator	no.	16	25%	08	75%	24	20	32				Paillasses de bois pour la chambre froide
Offal washing tank 1.5 m x 5 m x 5 m galv. with stand	no.	220	"	.06	"	.16	1	.22				Evier pour nettoyer les viscères 1.5 m x 8 m x 5 m en acier galvanisé avec support
Offal cleaning tables 2 m x 1 m galv.	no.	140	"	.04	"	10	2	14				Tables pour nettoyer les viscères, 2 m x 1 m, en acier galvanisé
Manual hoist with brake & swivel hook	no.	480	"	.12	"	.36	1	.48				Pallans manuels avec frein et crochet pivotant
Hide frames - wooden	no.	10	60	.60	-	-	80	80				Cadres de bois pour suspendre les peaux
Sub-total C				5.28		13.56		18.84	21 67	95	17.92	Total partiel C
D. Maintenance, Workshop tools												D. Entretiens des outils de l'atelier
Work benches, wooden	no.	55	2	.11	-	-	2	.11				Etablis
Hand tools, drill grinder electric	lot	120	1	12	-	-	1	12				Outils, perfotarrice, meule électrique
Tool boxes complete mechanics	no.	70	2	.14	-	-	2	.14				Boîtes à outils complètes d'électricien
" " " coal boxes complete electrician	no.	30	1	.03	-	-	1	.03				Boîtes à outils complètes de mécanicien
" " " cap carpenter	no.	100	1	.10	-	-	1	.10				" " " de charpentier
Vices, sheet legs chain hoist, jacks	lot	600	1	.60	-	-	1	.60				Palans, étiques, étaux
Grease, pressure guns, wrenches, sundry tools	lot	300	1	.30	-	-	1	.30				Burette de graissage à pression, des clefs anglaises et outils divers
Sub-total D				1.40				1.40	1 61	96	1 54	Total partiel D
E. Transport												E. Transport
Meat delivery truck - 5 ton insulated body	no.	17,805	25%	4.45	75%	13 36	1	17.81				Camion de livraison, 5 tonnes, interieur isolé
Pick-up van	no.	7,915	"	1.98	"	5.94	1	7 92				Camionnette de livraison
Sub-total E				6.43		19 30		25 73	29.60	93	23.41	Total partiel E
F. Office Furniture & Equipment, laundry												F. Fournitures de bureau, equipement, buanderie
Sub-total F	lot	3,730	2	3 73	-	-	2	3 73	4 29	54	2.00	Total partiel F
G. Renovations & repairs to all buildings	lot	3,450	1	3 45	-	-	1	3 45	3 97	-	-	G. Reparations et mise a neuf des bâtiments
General overall of plant, machinery and rewinding motors	lot	7,675	1	7 68	-	-	1	7 68				Revision de tous les équipements, des machines et des moteurs
General stores and spares	lot	3,510	-	-	1	3 61	1	3.61				Outillage divers et pièces detachées
Sub-total G				7 68		3.61		11.29	12.98	44	4.96	Total partiel G
H. Installation costs, new plant												H. Coûts d'installation des nouveaux équipements
Sub-total H	lot	552	-	-	1	.55	1	55	.63	-	-	Total partiel H
I. Freight, Insurance charges to site												I. Frais de transport et d'assurance jusqu'au lieu de construction
Sub-total I	lot	6,130	-	-	1	6.13	1	6 13	7 05	69	4.24	Total partiel I
J. Architect & Engineers fees												J. Honoraires de l'architecte et des ingenieurs
Sub-total J	lot	5,780	1	5 78			-	5 78	6 67	-	-	Total partiel J
												Totaux A à J
Totals A - J	lot			91.00		42 15		134 15	154 28	54	72.33	Hausse de prix à la fin de 1975 15%
Estimated investment cost												*Coût d'investissement estime*
Technical Services												Services Techniques
Managerial & technical advisor				8 70		8 70		17 40				Conseiller technique et de gestion
Engineer				6.52		6 53		13 05				Ingenieur
Total technical services				15.22		15.23		30 45	35.02	100	30 45	Total services techniques
Estimated total investment cost Kisangani abattoir				106 22		58 38		164.60	189 30	63	102.64	Estimation du coût d'investissement total pour l'abattoir de Kisangani

1/ Prices calculated fob European ports.
2/ Amount of payment required on confirmation of order, 25% for items so marked under C & E.
3/ Freight estimated on shipments from North European ports to Matadi at 17½% of cost with 12½% local transport on items under C (less local goods) & D.
4/ Local labor costs included but not expatriate labor.
5/ 10% of A to G which is a conservative estimate concurrent with international practice.

1/ Prix calculés fob à partir des ports européens
2/ Montant des arrhes à verser sur commande, 25% des articles inscrits sous C & E.
3/ Frais de transport par bateau à partir des ports européens jusqu'à Matadi, à 17½ du coût total et 12½% pour le transport domestique pour les articles inscrits sous C (moins les articles de fabrication locale) et D
4/ Coûts de la main d'oeuvre locale inclus, mais pas ceux de l'ingénieur étranger
5/ 10% de A et G ce qui est une estimation conservatrice concordant avec la pratique internationale

May 10, 1976

10 mai 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Kasangani Abattoir

Operating Costs

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir de Kasangani

Coûts de Fonctionnement

			Before Project / Avant le Projet	Year/Année 1	2	3	4	5	6	7	8	9	10	11-20
Number of animals Processed -	Cattle[1]		2,610	2,690	2,770	2,850	2,930	3,120	3,243	3,375	3,510	3,650	3,790	3,950
	Pigs		14,000	14,700	15,435	16,200	17,000	17,860	18,760	19,700	20,680	21,720	22,800	23,940
	Sheep & goat		6,500	6,760	7,030	7,310	7,600	7,910	8,220	8,550	8,890	9,250	9,620	10,000
				11,167	11,680	12,168	12,697	13,368	13,995	14,650	15,332	16,052	16,791	17,586

Bovins [1]/ Nombre d'animaux abattus
Porcs
Moutons et chèvres

	Unit / Unité	Unit Cost / Coût Unitaire	Total Cost/Coût total (en milliers de zaïres) 1	2	3	4	5	6	7	8	9	10	11-20	Unité
(A) Services[2]														(A) Charges[2]
Water	head	36	4 02	4.20	4 38	4.57	4 81	5.04	5 27	5 52	5 78	6.04	6 33	tête
Electricity	"	41	4 58	4.79	4 99	5 21	5 48	5.74	6.01	6 29	6.58	6.86	7.21	"
Fuel oil	"	21	2.35	2 45	2 56	2 67	2.81	2 94	3 08	3 22	3.37	3.53	3 69	"
Refrigerants	year	600	60	65	71	.78	.85	93	1 00	1 10	1 18	1 30	1 43	année
Sub-total			11.55	12 09	12 64	13 23	13 95	14.65	15.36	16.13	16 97	17.73	18 66	
Transport[3]														Transports[3]
Meat delivery truck	km	31	4 22	4.42	4.64	4 87	5 11	5.36	5 62	5 89	6.18	6 48	6.80	km
Meat delivery van	"	21	2.73	2 86	3 00	3.15	3 31	3.47	3 64	3 82	4 00	4.20	4.40	km
Sub-total			6 95	7.28	7 64	8.02	8.42	8.83	9 26	9 71	10 18	10.68	11 20	
Miscellaneous[4]														Divers[4]
Knives, tools etc.	year	507	-	.51	.53	55	57	59	.61	63	.65	67	70	année
Industrial clothing	"	845	-	.87	.89	.91	93	95	97	99	1 09	1.01	1.05	"
Cleaning materials, insecticides etc.	"	930	95	.97	.99	1.01	1.03	1 05	1 07	1 09	1.11	1 13	1 15	"
Office expenses, telephone, telegrams etc.	"	760	78	80	82	.84	.86	.88	90	92	94	96	98	"
Sub-total			1.93	3 15	3.23	3.31	3.39	3 47	3 55	3 63	3 71	3 79	3.88	
Maintenance	"	4,650	4 65	4 65	4 65	4 65	4.65	4 65	4.65	4 65	4 65	4.65	4.65	année
Packing materials plastic offal bags, hide rope	"	.17	1 22	1.24	1 36	1.28	1 30	1 32	1.34	1.36	1 38	1 40	1.42	Lôt
Staff: Administrative														Personnel: Administratif
Manager	man-year	3,020	3.02	3.02	3.02	3 02	3.02	3 02	3.02	3.02	3 02	3 02	3.02	homme-année
Accountant/cashier	"	1,120	1 12	1 12	1.12	1.12	1 12	1 12	1 12	1.12	1.12	1 12	1.12	"
Clerks/typist	"	550	1 10	1 10	1 65	1 65	1.65	2.20	2 20	2 20	2 20	2.20	2.75	"
Slaughterhouse[5]														Abattoir[5]
Superintendent	man-year	860	86	86	86	.86	86	86	86	86	86	86	86	
Cattle/pig pens	"	310	62	.62	62	.93	.93	.93	.93	.93	1 24	1.24	1 24	
Slaughter/dressing floors		430	6.45	6.88	7 31	7.74	7.74	8 17	8 17	8 60	9 03	9 46	9 89	
Offal cleaning		310	.93	.93	.93	1 24	1 24	1 24	1.55	1 55	1 55	1.86	1 86	
By-product/condemnations		310	.31	.31	31	.31	.31	31	31	31	31	31	31	
Hides		310	62	62	62	.62	62	.62	62	62	62	62	62	
Hanging hall/despatch		380	76	.76	76	1 14	1 14	1.14	1.14	1 14	1.14	1 52	1 52	
Chill rooms/boiler		430	1.29	1.29	1.29	1 29	1 29	1 29	1 29	1 29	1 29	1 29	1 29	
Electrician/engineer		860	.86	.86	.86	.86	86	86	.86	.86	86	86	86	
Mechanics		550	1 10	1 10	1 10	1 10	1.10	1 10	1 10	1 10	1.10	1 10	1 10	
Drivers		550	1 10	1 10	1 10	1.10	1.10	1.10	1 10	1 10	1 10	1.10	1 10	
Guards		310	1 24	1.24	1.24	1.24	1.24	1.24	1 24	1 24	1 24	1.24	1 24	
Cleaners/laundry/laborers		310	1 55	1 55	1 86	1.86	1.86	2 17	2 17	2 48	2.48	2 79	2.79	
Sub-total			22.93	23.36	24 65	26 08	26 08	27 37	27 68	28 42	29 16	30.59	31.57	
Social benefits[6]			3.44	3 50	3 70	3 91	3 91	4.10	4 15	4 26	4 37	4 59	4 74	Avantages Sociaux 6/
Hide and skin purchases[7]														Achats de peaux[7]
Hides	no.	2.25	6.05	6.23	6.41	6.59	7.02	7.30	7.59	7.90	8.21	8.53	8 89	Peaux de bovins
Skins(sheep and goats)	no.	.75	5.07	5.27	5.48	5.70	5.93	6.17	6.41	6.67	6.94	7.22	7.50	Peaux de chèvres/moutons
Sub-total			11.12	11.50	11.89	12.29	12.95	13.47	14.00	14.57	15.15	15.75	16.39	
Audit, legal fees, insurance		3,750	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	Apurement, honoraires de notaires, assurance
Payments for condemnations[8]														Paiements pour les condamnations 8/
Cattle		145	2.90	3.03	3.19	3.34	3.48	3.63	3.77	3.92	4.06	4.35	4.50	Bovins
Pigs		39	2.96	3.12	3.27	3.43	3.63	3.82	3.98	4.21	4.41	4.64	4.84	Porcs
Sub-total			5.86	6.17	6.46	6.77	7.11	7.45	7.75	8.13	8.47	8.99	9.34	
Total operating costs (A)	year		73.20	76.69	79.87	83.29	85.51	89.06	91.49	94.61	97.74	101.94	105.80	Coûts totaux (A)
(B) Vehicle replacement[9]			-	-	-	-	-	6.43	16.72	-	-	-	6.43	(B) Renouvellement des véhicules[9]
Total operating costs (A) + (B)			73.20	76.69	79.87	83.29	85.51	95.49	108.21	94.61	97.74	101.94	112.03	Coûts totaux de fonctionnement (A) + (B)
(C) Contribution to the cost of OMVE H.Q.[10]	year	2,325	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	(C) Apport aux frais du siège de l'OMVE [10] année
Total operating Costs (A) - (C)			75.52	78.01	82.19	85.61	87.83	97.81	110.53	96.93	100.06	104.26	114.35	Coûts totaux de fonctionnement (A) - (C)

1/ Cattle: see Annex 2, Table 2 - pigs, sheep and goats: year 1 based on slaughter figures for 1974 together with operations outside slaughter slabs; throughput increased annually, pigs 5%, sheep and goats 4%.
2/ Calculated 2 pigs or 6 sheep/goats = 1 head cattle for service charges.
3/ Calculated on 13,000 km and 13,000 km respectively in year 1 and increased annually to cope with gradually increased throughput of livestock.
4/ Miscellaneous costs increased annually to cover gradually increased throughput of livestock.
5/ Sections of labor force increased annually to meet gradually increased throughput of livestock.
6/ Calculated on 15% of salaries.
7/ Purchases made ex-abattoir directly from butchers/traders using abattoir facility, prices based slightly above average presently obtained by butchers.
8/ Calculated on carcass condemnation rate of 0,78% cattle and 0.52% pigs, s.a. sheep and goats.
9/ Every 7 years - scrap value: 10% of purchase price.
10/ One man-year for supervision, 2 trips per year plus per diem.

1/ Bovins, voir Annexe 2, Tableau 2 - porcs, moutons et chèvres année 1 basée sur le chiffre des abattages pour 1974 y inclus les opérations aux aires d'abattage, le nombre des abattages s'accroîtra au taux annuel de 5% pour les porcs, 4% pour les moutons et les chèvres.
2/ Pour les charges, 2 porcs ou 6 moutons/chèvres = 1 bovin.
3/ Calculés sur la base de 13.000 km et 13.000 km respectivement en l'année 1, avec accroissement annuel en fonction de l'accroissement des abattages.
4/ Coûts divers avec accroissement annuel en fonction de l'accroissement des abattages
5/ Sections du personnel accrues en fonction de l'accroissement annuel des abattages.
6/ Calculées sur la base de 15% des salaires.
7/ Achats effectués directement à la sortie de l'abattoir, aux bouchers/marchands se servant de l'abattoir, les prix indiqués sont légèrement supérieurs aux prix pratiqués actuellement.
8/ Calculés sur la base d'un taux de condamnation des carcasses de 0,78% pour les bovins, 0,52% pour les porcs.
9/ Tous les 7 ans - valeur résiduelle: 10% du prix d'achat.
10/ Un homme-année pour la supervision; 2 voyages par an plus per diem.

June 23, 1976

le 23 juin 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Kisangani Abattoir

Operating Revenues
(Z'000)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir de Kisangani

Revenus d'Exploitation
(en milliers de zaïres)

	Before Project / Avant le Projet	Year/Année 1	2	3	4	5	6	7	8	9	10	11-20	
Number of animals Processed[1] - Cattle	2,610	2,690	2,770	2,850	2,930	3,120	3,245	3,375	3,510	3,650	3,790	3,950	Nombre d'animaux abattus[1] - Bovins
- Pigs	14,000	14,700	15,435	16,200	17,000	17,860	18,760	19,700	20,680	21,720	22,800	23,940	- Porcs
- Sheep & goats	6,500	6,760	7,030	7,310	7,600	7,910	8,220	8,550	8,890	9,250	9,620	10,000	- Moutons et chèvres

	Unit / Unité	Unit value / Value Unité	Amount/Montant										
(A) Fees													(A) Charges
Holding grounds/slaughter pens	head												Enclos et boxes d'abattage
Cattle	-	.15	.40	.42	.43	.44	.47	.49	.51	.53	.55	.57	.59	Bovins
Pigs	-	.10	1.47	1.54	1.62	1.70	1.79	1.89	1.97	2.07	2.17	2.28	2.39	Porcs
Sheep and goats	-	.25	.34	.35	.37	.38	.40	.41	.43	.44	.46	.48	.50	Moutons et chèvres
Sub-total			2.21	2.31	2.42	2.52	2.66	2.79	2.91	3.04	3.18	3.23	3.48	Total partiel
Abattoir Service[2]														Taxes d'abattage[2]
Cattle	head	4.80	12.91	13.30	13.68	14.06	14.98	15.58	16.20	16.85	17.52	18.19	18.96	Bovins
Pigs	-	3.00	44.10	46.31	48.60	51.00	53.58	56.28	59.10	62.04	65.16	68.40	71.82	Porcs
Sheep and goats	-	1.00	6.76	7.03	7.31	7.60	7.91	8.22	8.55	8.89	9.25	9.62	10.00	Moutons et chèvres
Sub-total			63.77	66.64	69.59	72.66	76.47	80.08	83.85	87.78	91.93	96.21	100.78	Total partiel
Meat delivery service														Service de livraison de viande
Carcasses - cattle	head	.45	1.21	1.25	1.28	1.32	1.40	1.46	1.52	1.58	1.64	1.71	1.78	Carcasses de bovins
" Pigs	-	.35	5.15	5.40	5.67	5.95	6.25	6.57	6.90	7.24	7.60	7.98	8.38	" Porcs
Sheep and goats	-	.15	1.01	1.05	1.10	1.14	1.19	1.23	1.28	1.33	1.39	1.44	1.50	" Moutons et chèvres
Sub-total			7.37	7.70	8.05	8.41	8.84	9.26	9.70	10.15	10.63	11.13	11.86	Total partiel
Viscera - cattle	head	.20	.54	.55	.57	.59	.62	.65	.68	.70	.73	.76	.79	Viscères de bovins
Pigs	-	.10	1.47	1.54	1.62	1.70	1.79	1.88	1.97	2.07	2.17	2.28	2.39	" - Porcs
Sheep and goats	-	.05	.34	.35	.37	.38	.40	.41	.43	.44	.46	.48	.50	" - Moutons et chèvres
Sub-total			2.35	2.44	2.56	2.67	2.81	2.94	3.18	3.21	3.36	3.52	3.68	Total partiel
Sub-total (A)			75.70	79.09	82.62	86.26	90.78	95.07	99.64	104.18	109.10	114.09	119.80	Total partiel (A)
(B) Sales														(B) Ventes
Hides, suspension dried	no.	4.15	11.16	11.50	11.83	12.16	12.95	13.47	14.01	14.57	15.15	15.73	16.39	Peaux de bovins, séchées par suspension
Skins, suspension dried	no.	1.65	11.15	11.60	12.06	12.54	13.05	13.56	14.11	14.67	15.26	15.87	16.50	Peaux de chèvres, séchées par suspension
Sub-total (B)			22.31	23.10	23.89	24.70	26.00	27.03	28.12	29.24	30.41	31.60	32.89	Total partiel (B)
Total operating revenues (A) +(B)			98.01	102.19	106.51	110.96	116.78	122.10	127.76	133.42	139.51	145.69	152.69	Total Revenus d'Exploitation (A) + (B)
Total operating expenses			75.52	79.01	82.19	85.61	87.83	97.81	110.53	96.93	100.06	104.26	114.35	Total Revenus d'Exploitation
Margin, operating revenues over costs			22.49	23.18	24.32	25.35	28 95	24.29	17.23	36.49	39.45	41.43	38.34	Marge bénéficiaire, revenus d'exploitation excédant les coûts

1/ Cattle: see Annex 2, Table 2; pigs, sheep and goats based on slaughter figures together with operations at outside slaughter slabs. Throughput increased annually; pigs 5%, sheep and goats 4%
2/ Fees over compensation against condemnations of carcasses.
3/ Based on prices obtained for good quality hides ex-Kivu and in discussion with Kinshasa tanners.

1/ Bovins: voir Annexe 2, Tableau 2, porcs, moutons et chèvres; basés sur les relevés des abattages pour 1974 y compris les abattages effectués aux aires d'abattage en dehors de l'abattoir. Les abattages augmenteraient au taux annuel de 5% pour les porcs, 4% pour les moutons et les chèvres.
2/ Les taxes d'abattages comprennent l'assurance contre la condamnation des carcasses.
3/ Basés sur les prix obtenus pour les peaux du Kivu de bonne qualité et sur les entretiens de la mission avec les tanneurs de Kinshasa

June 24, 1976

le 24 juin 1976

ZAIRE

ITURI LIVSTOCK DEVELOPMENT PROJECT

Kisangani Abattoir

Profit and Loss Projections

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoir de Kisangani

Compte de Profits et Pertes

	Before Project / Avant le Projet	Year/Annee 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
A INCOME																						A. REVENU
Abattoir fees		75 70	79.09	82 62	86 26	90.78	95 07	99 64	104 18	109 10	114.09	119.80	119 80	119.80	119.80	119.80	119.80	119.80	119.80	119.80	119.80	Redevances d'abattoir
Sales		22 31	23.10	23.89	24 70	26.00	27 03	28.12	29.24	30,41	31 60	32.89	32 89	32 89	32.89	32.89	32.89	32.89	32.89	32.89	32.89	Ventes
Miscellaneous 1/		-	-	-	-	-	-	2.57	-	-	-	-	2.57	-	-	-	-	2.57	-	-	-	Divers 1/
Total		98 01	102 19	106.51	110 96	116 78	122.10	130 33	133 42	139 51	145.69	152.69	155 26	152 69	155 69	152 69	152.69	155.26	152.69	152.69	152.69	Total
B EXPENSES																						B. DEPENSES
Salaries and social benefits		26 37	26 86	28.35	29 99	29.99	31.47	31.83	32.68	33.53	35.18	36.31	36 31	36.31	36.31	36.31	36.31	36 31	36.31	36.31	36.31	Salaires et avantages sociaux
Contribution to the cost of ONDE		2.32	2.32	2.32	2 32	2 32	2 32	2 32	2 32	2 32	2 32	2.32	3 32	2.32	2 32	2 32	2.32	2.32	2 32	2 32	2 32	Apport aux frais de l'ONDE
Other operating expenses		46.83	49.83	51 52	52.30	55 52	57 59	59.66	61.93	64.21	66.76	69.29	69.29	69.29	69.29	69.29	69.29	69 29	69.29	69 29	69.29	Autres dépenses de fonctionnement
Sub-Total		75.52	79 01	82 19	85.61	87 83	91.38	93.81	96 93	100 06	104 26	107 92	107 92	107 92	107 92	107 92	107 92	107.92	107.92	107 92	107.92	Total partiel
Depreciation of fixed assets 2/		9.46	15.52	15.52	15.52	15 52	15.52	15 52	15.52	15 52	15.52	15 52	15.52	15.52	15.52	15.52	15 52	15.52	15 52	15.52	15.52	Amortissement des Immobilisations 2/
Depreciation of vehicles		4.29	4.29	4 29	4 29	4.29	4 29	4.29	4.29	4.29	4 29	4.29	4 29	4 29	4.29	4.29	4.29	4.29	4.29	4 29	4.29	Amortissement des Véhicules
Total		86.27	98 81	102.00	105.42	107 64	111 19	113.62	116.74	119.87	124 07	127.73	127 73	127.73	127.73	127 73	127.73	127 73	127.73	127.73	127 73	Total
Profit (loss)		11.74	3.38	4 51	5 54	9.14	10 91	16 71	16 68	19.64	21 62	24.96	27 53	24.96	24.96	24.96	24.96	27.53	24 96	24.96	24 96	Profit (perte)
Cumulative profit (loss)		11 74	15 12	19.63	25 17	34.31	45.22	61 93	78.61	98.25	119.87	144.83	172.36	199 32	222.28	247.24	272.20	299.73	324.69	349 65	374.61	Profit (perte) cumulatif (ve)

1/ Scrap value of vehicles.
2/ 4.0% p a for buildings over 25 years; 5% p a for plant and equipment over 19 years.

1/ Valeur résiduelle des véhicules.
2/ 4 0% p.a, pour les édifices pendant 25 ans, 5% p a pour les équipements pendant 19 ans.

June 28, 1976

le 28 juin 1976

ANNEX/ANNEXE 6
Table/Tableau 11

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Abattoirs - Cash Flow
(Z' 000)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Abattoirs - Cash Flows
(en milliers de zaïres)

	Year/Année																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
BUNIA																					**BUNIA**
Outflow																					**Sortie de fonds**
Investment 1/	233.54	177.45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Investissement 1/
Operating Costs	392.625	502.58	873.79	1,199.85	1,643.40	1,913.31	2,577.04	3,583.08	4,127.89	4,560.23	5,178.20	5,178.20	5,178.20	5,178.20	5,178.20	5,178.20	5,178.20	5,178.20	5,178.20	5,178.20	Coûts de Fonctionnement
Replacement	-	-	-	2.23	16.32	28.93	-	2.23	6.67	9.64	28.93	2.23	6.67	-	9.64	31.16	6.67	-	-	11.87	Renouvellementdes véhicules
Long-term Loans	5.39	11.53	14.01	16.56	16.65	59.39	59.39	59.39	-	-	-	-	-	-	-	-	-	-	-	-	Prêts à long terme
Total	581.55	691.56	887.80	1,218.64	1,676.37	2,002.63	2,636.43	3,644.70	4,134.56	4,550.59	5,207.13	5,180.43	5,184.87	5,178.20	5,187.84	5,209.36	5,184.87	5,178.20	5,178.20	5,190.07	Total
Inflow																					**Entrée de fonds**
Development Grant	233.54	177.45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	IDA/Gouvernement
Revenue from sales & fees	295.75	454.46	863.86	1,209.56	1,709.64	2,004.38	2,717.95	3,859.01	4,385.27	4,840.58	5,678.63	5,678.63	5,678.63	5,678.63	5,678.63	5,678.63	5,678.63	5,678.63	5,678.63	5,678.63	Ventes et charges
Long-term Loans 2/	52.26	59.65	23.94	9.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Prêt à long terme 2/
Total	581.55	691.56	887.80	1,218.64	1,709.64	2,004.38	2,717.95	3,859.01	4,385.27	4,840.58	5,678.63	5678.63	5,678.63	5,678.63	5,678.63	5,678.63	5,678.63	5,678.63	5,678.63	5,678.63	Total
Annual surplus/ (deficit)	-	-	-	-	33.27	1.75	81.52	214.31	250.71	209.99	471.50	498.20	493.76	500.43	490.79	469.27	493.76	500.43	500.43	488.56	Surplus (déficit) 2/
Cumulative surplus/ (deficit)	-	-	-	-	33.27	35.02	116.54	330.85	581.56	791.55	1,263.05	1,761.25	2,255.01	2,755.44	3,246.23	3,715.50	4,209.26	4,709.69	5,210.12	5,698.68	
KISANGANI																					**KISANGANI**
Outflow																					**Sortie de fonds**
Investment 1/	106.22	58.38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Investissements 1/
Operating Costs	75.52	79.01	82.19	85.61	87.83	91.32	93.88	96.93	100.06	104.26	107.92	107.92	107.92	107.92	107.92	107.92	107.92	107.92	107.92	107.92	Coûts de Fonctionnement
Replacement	-	-	-	-	-	6.43	16.72	-	-	-	6.43	16.72	-	-	-	6.43	16.72	-	-	-	Renouvellement des véhicules
Total	181.74	137.39	82.19	85.61	87.83	97.81	110.53	96.93	100.06	104.26	114.35	124.64	107.92	107.92	107.92	114.35	124.64	107.92	107.92	107.92	Total
Inflow																					**Entrée de fonds**
Development Grant	106.22	58.38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	IDA/Gouvernement
Revenue from sales & fees	98.01	102.19	106.51	110.96	116.78	122.10	127.76	133.42	139.51	145.69	152.69	152.92	152.92	152.92	152.92	152.92	152.92	152.92	152.92	152.92	Ventes et charges
Total	204.32	160.57	106.51	110.96	116.78	122.10	127.76	133.42	139.51	145.69	152.69	152.92	152.92	152.92	152.92	152.92	152.92	152.92	152.92	152.92	Total
Annual Surplus/(deficit)	22.49	23.80	24.32	25.35	28.95	24.29	17.23	36.49	39.45	41.43	38.34	28.05	44.77	44.77	44.77	38.57	28.28	44.77	44.77	44.77	Surplus (déficit) annuel
Cumulative Surplus/ (deficit)	22.49	46.29	70.61	95.96	124.91	149.20	166.43	202.92	242.37	283.80	322.14	350.19	394.96	439.73	484.50	523.07	551.35	596.12	640.89	685.66	

1/ Including technical services; excluding contingencies.

2/ From Commercial Banks, with 11.5% p.a. interest rate

September 27, 1976

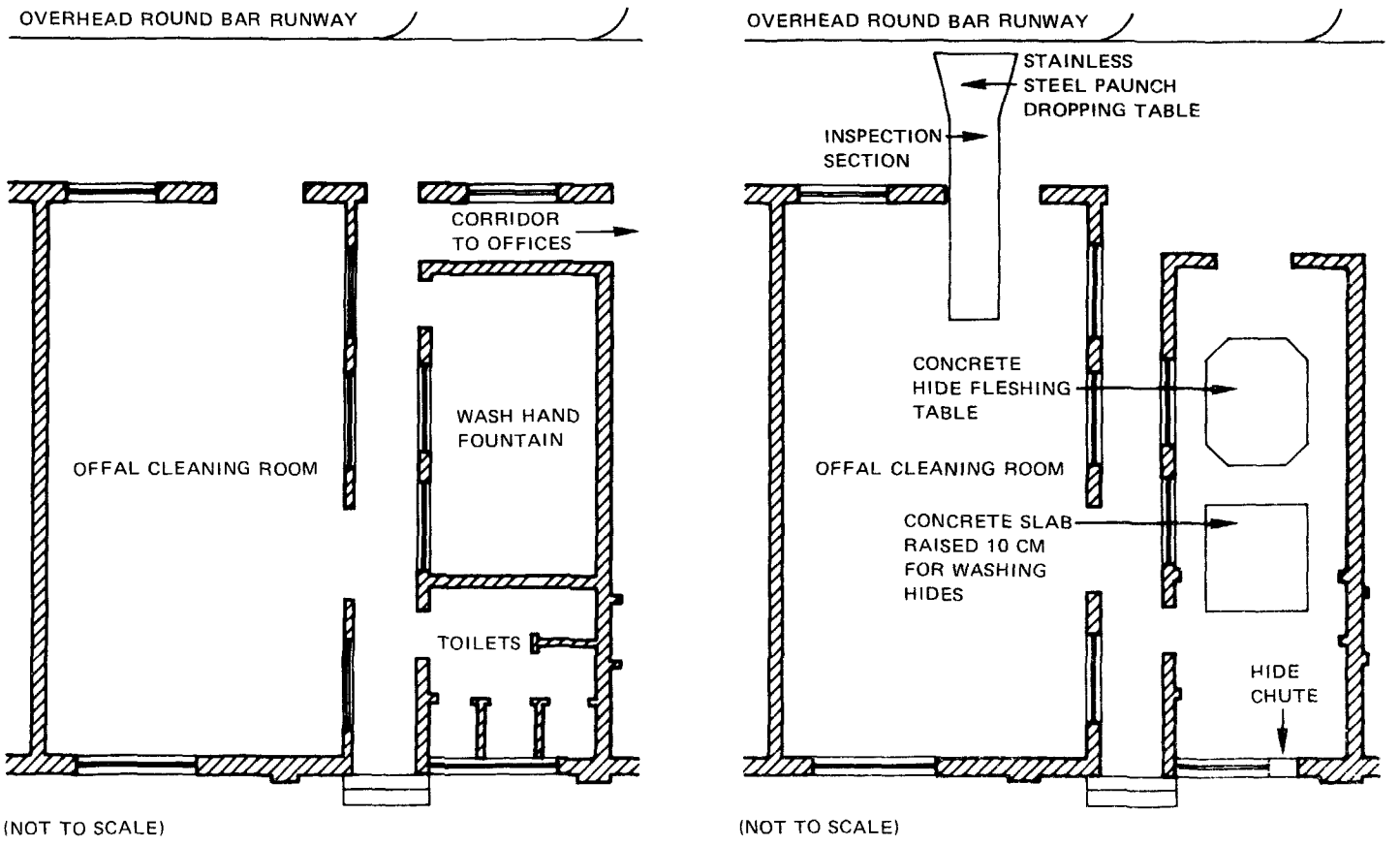
1/ Y compris les services techniques; provisions pour frais imprévus non-comprises.

2/ Des Banques Commerciales avec un taux d'intérêt de 11.5% p.a.

Le 27 septembre 1976

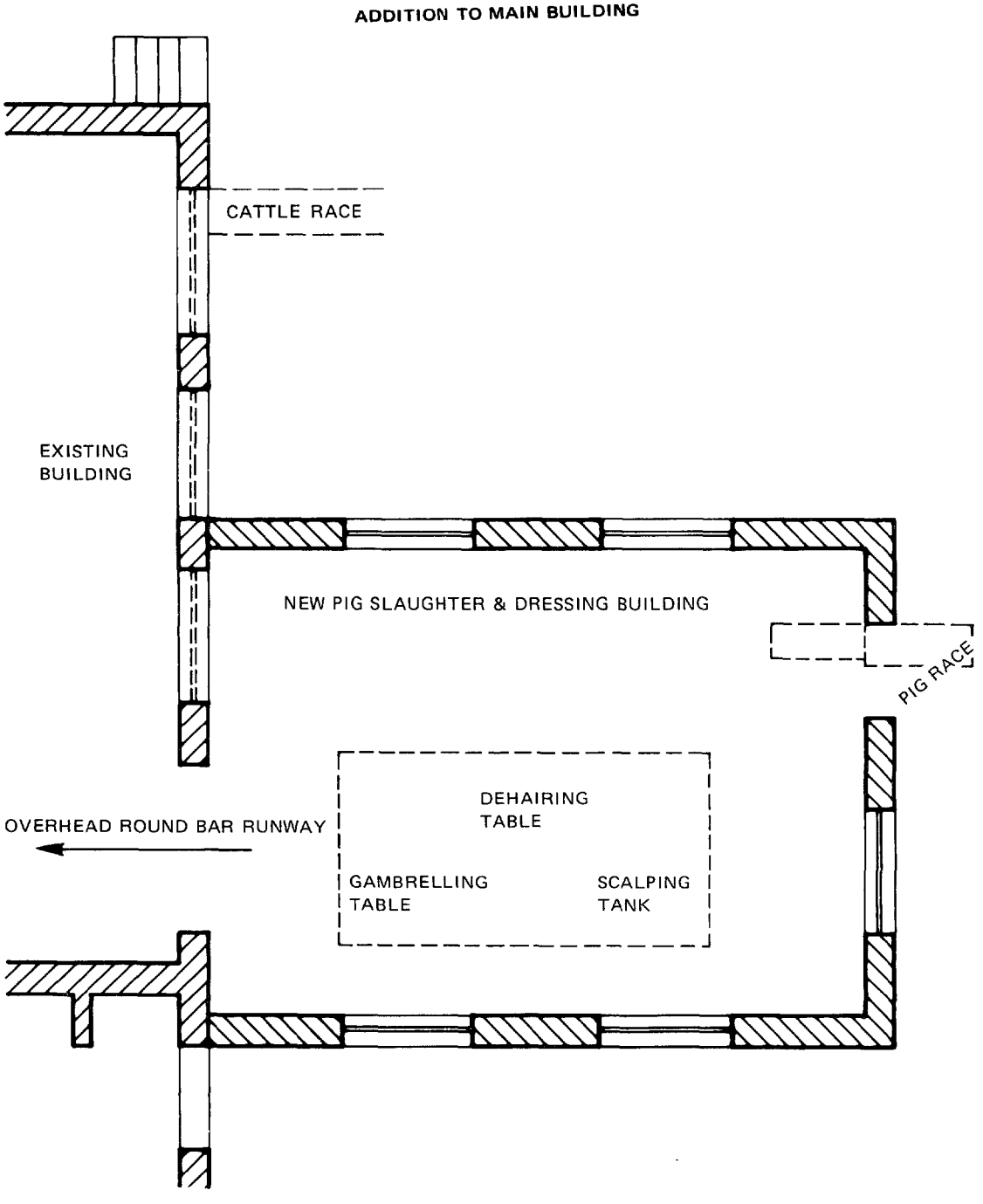
ANNEX/ANNEXE 6
Table/Tableau 12

REPUBLIC OF ZAIRE
ITURI LIVESTOCK DEVELOPMENT PROJECT
BUNIA ABATTOIR



World Bank—15381

REPUBLIC OF ZAIRE
ITURI LIVESTOCK DEVELOPMENT PROJECT
BUNIA ABATTOIR



(NOT TO SCALE)

World Bank–15380

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

National Ranching Development Authority
(Office National De Developpement de l'Elevage)

General

1. ONDE was established under the first IDA livestock project (Credit 398-CK). Its objective was:

> "To promote livestock development, and more particularly to rehabilitate and run specified public ranches and also facilitate the development of semi-private enterprises, more especially of Zairians" (Appraisal Report No. 100-a, Annex 10).

As a first stage in its development it was made responsible for three ranches to be developed under the Project: Muhila, Mitwaba and Kayembe-Mukulu in the province of Shaba. However, following the Zairianization measures taken on November 30, 1973 (i.e., the nationalization of all big privately-owned ranches), ONDE was given more responsibility than had been planned for the early stages of its existence. It was entrusted with the management of five additional ranches, one abattoir in Bunia, one butchery in Kamina, veterinary laboratories in Kinshasa and Lubumbashi. As a result the Headquarters were moved from Lubumbashi to Kinshasa. In Government ONDE is regarded as one of the most efficient state organizations.

2. In addition to ONDE there are now three other organizations involved in ranching operations, namely: the DPN (Le Domaine Presidentiel de la N'Sele), CELZA (Cultures et Elevages du Zaire) and the SGA (Societe Generale d'Alimentation). During 1974 responsibility for management of the newly nationalized ranches changed hands between the different agencies several times.

Ranches

3. ONDE now operates a total of 8 ranches (5 in Shaba and one each in Kinshasa and Bandundu) with 99,781 head of cattle (see table below). The first livestock project is extending Muhila and Kayembe-Mukulu ranches and developing Mitwaba. Lomani and Katongola ranches are well developed while La Luilu is understocked. Kabuba and Gunga are virtually unstocked and undeveloped. They have tsetse problems and need Ndama cattle.

ONDE RANCHES AND CATTLE POPULATION
(December 31, 1974)

Ranches	Ha ('000)	No. of Cattle Dec. 31 1974	Dec. 1975	Steer Av. Wt. at 4 Yr.	Type of Cattle
First Livestock Project Ranches					
Muhila	260 to 520	27,888	30,640		
Mitwaba	45 to 124	939	1,198		
Kayembe-Mukulu	35	4,426	4,637		
Sub-total		33,253	36,475	450 kg	Afrikander Crosses
Zairianized Ranches					
Lomami (ex-Pastoral)	213	25,320		485 kg	Afrikander/Zebu
Katongola (ex-Grelka)	283	35,051		550 kg	Afrikander/Zebu/Tarpar-kar/Santa Grertrudis
La Luilu (ex-Sandoa)	94	5,769		375 kg	Afrikander/Tswana
Kabuba (Kinshasa)	NA /1	248		295 kg	Ndama
Gungu (Kwangu Kwilu)	NA	230		310 kg	Ndama
Sub-Total		66,528			
Total		99,781			

/1 Potential for 4 ranches of 25,000 head.
Source: ONDE 1974 Annual Report.

4. Other major ranches in Zaire include:

	Cattle	Management
Pepa (Shaba	46,000	CELZA
Mateba (Bas Zaire	40,000	"
Kambayi (Kasai)	28,000	"
Mpaka (kasai)	18,000	"
Kolo (Bas Zaire)	45,000	DPN
Kundelungu (Shaba)	33,000	SGA
	210,000	

Source: ONDE 1974 Annual Report.

A number of other smaller ranches exist. In 1968 it was estimated that 304,000 cattle were kept by large pastoral companies, 104,000 by private cattle owners and 38,500 by missions).

Resources of ONDE

5. The capital of ONDE consists of: (a) transferred assets of the production entities under its responsiblity (8 ranches, 2 veterinary laboratories, 1 slaughterhouse, 1 butcher shop), (b) grants from the Government, (c) reserves accumulated and operating surplus. When it was set up, it was deemed that ONDE would also receive loans from the Government to develop and operate its enterprises and, that it would raise funds from local banks and overseas bodies according to normal commercial practices. So far ONDE has only relied on loans from Government.

6. At appraisal information on non-IDA enterprises was incomplete. Unaudited consolidated accounts for 1974 of enterprises outside the IDA project (two ranches Lomami, La Luilu, abattoir, butchery and laboratories) showed a small surplus of Z 106,000. Surpluses emanated from two ranches, Lomami (Z 111,856) and La Luilu (Z 11,059). Bunia abattoir and laboratories lost money. The laboratories receive a subvention from Government. Because of their recent acquisition accounts for one large ranch, Katongola and two undeveloped ranches Kabuba and Gungu were not available; the former ranch was making a profit, the latter ranches losing money. Subsequent to appraisal the unaudited consolidated accounts for 1975 for all of ONDEs enterprises show that ONDE made a profit of Z 199,000 in 1975 (Tables 1 and 2). Only the larger operations had been audited by independent auditors but ONDE has since made arrangements for the smaller entities to be audited also. The enterprises showing surpluses were the Katongola, La Luilu and IDA Project ranches and Kamina butchery and Lubumbashi laboratory. The audited accounts for the IDA project for 1974 show an expected loss of Z 333,000 followed by a profit of Z 582,000 in 1975 before provisions of Z 160,000 are deducted (Table 3); the latter profit being largely due to a 47% increase in the value of the herd which had increased in numbers by 9.6% (33,253 to 36,475 cattle). To obtain some idea of the scale of the different operations the following sales were recorded in 1974 and 1975.

	1974	1975
	Z ('000)	Z('000)
3 First Livestock Project Ranches	354,752	360,308
Lomami Ranch	296,623	440,037
La Luilu Ranch	109,059	42,374
Kamina Abattoir	208,950	290,600
Bunia Abattoir	1,258	32,064
Lubumbashi Laboratory	19,028	50,174
Kinshasa Laboratory	1,421	25,552
Katongola Ranch	n.a.	656,185
Gungu Ranch	n.a.	1,198

Personnel

7. ONDE currently employs 2,805 people of whom 22 have college or higher education degrees. It also employs 25 expatriates. ONDE is concerned with the welfare of its employees operating 3 schools and 13 dispensaries on its ranches.

The Project

8. The proposed Project would enlarge ONDE's responsibilities with four new production entities: (a) the 3 ranches of Kerekere, Asada and the Dele which would be transferred from Kilomines, (b) the Kisangani abattoir. ONDE should be able to cope with these added responsiblities. Since it is operating the abattoir in Bunia it would be logical for ONDE to also operate the abattoir in Kisangani. This would permit coordination of activities and realize economies in investment mainly in procurement and more importantly in technical services. In addition, ONDE's responsiblity as a commercial enterprise should bring about improved efficiency and profitability of both abattoirs.

9. The overall commercial viability of ONDE's enterprises are marginal and certainly below that envisaged when ONDE was established under the first project. Under the Project the proposed producer meat price changes and the acceptance of regular price adjustments associated with a producer meat price index should restore the profitability of its major activity, ranching, to a more commercially acceptable level. The latter being essential if ONDE is to fulfill its role as the major ranching development institution in Zaire capable of using funds from commercial banks and other credit institutions. The commercialization of the abattoirs should remove another loss maker leaving the position of the laboratories still uncertain and in need of Government subvention if they are not to remain an unwarranted drain on ONDE's financial resources.

10. The Project would also contribute to strengthening ONDE as an institution by recruiting and financing an expatriate financial adviser whose major task would be to reorganize ONDE's accounting system, and train accountants in ranch accounts practices. He would also advise on the general financial policy to be followed by ONDE as well as on procurement practices, etc. An experienced ranch maanger and two technicians to renovate and reorganize the abattoirs would also be provided.

11. As ONDE's financial resources are insufficient to develop the ranches and abattoirs it would receive Z 1,970,000 from Government for ranch development and Z 576,000 for capital and technical assistance costs of the abattoirs. All but Z 410,000 for ranch working capital would be in the form of a grant as equity to the enterprises. The loan would be for 20 years at 11.5% interest. Cash flow and loan repayment of ranches Annex 5, Table 1. Government would also provide or make arrangements for commercial banks to provide the working capital for the abattoirs. The profitability of the enterprises will very much depend on the prices of meat and level of fees set by the Government (cash flow table for ranches: Annex 5, Table 1, Abattoirs - Annex 6, Table 12).

September 20, 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

PROJET DE DEVELOPPEMENT D'ELEVAGE EN ITURI

ONDE - Consolidated Balance Sheet - 1975

Bilan Consolide de 1'ONDE - 1975

ASSETS				ACTIF
Fixed Assets				**Immobilisations**
- Land and Concessions		57,834,190		- Terrains et concessions
- Buildings and Constructions	566,648,654			- Immeubles et constructions
Depreciation	219,462,054			Amortissements
		347,186,600		
- Rolling Stock	315,948,950			- Matériel roulant
Depreciation	197,109,279			Amortissements
		118,839,671		
- Furniture	52,517,293			- Mobilier
Depreciation	9,670,417			Amortissements
		42,846,876		
- Tools and Various Materials	153,289,154			- Outillage et matériel diverses
Depreciation	70,975,938			Amortissements
		82,313,216		
Other Fixed Assets				**Autres valeurs immobiliseés**
- Expenses of Establishment		20,502,404		- Frais d'établissement
- Deposits and Guarantees		7,203,620		- Cautions et garanties
- Investments		35,066,085		- Portefeuille et participations
- Others		89,960	711,882,622	- Cobayes
Value of Operation				**Valeurs d'exploitation**
- Herd Value		6,613,896,298		- Cheptel
- Various Stock		316,878,189	6,930,774,487	- Stocks produits divers
Current and Available				**Réalisables et disponibles**
- Customers		217,276,701		- Clients
- Various Debtors		338,754,877		- Débiteurs divers
- Doubtful Debts		8,234,500		- Débiteurs douteux
- Banks		235,433,146		- Banques
- C.C.P		210,623		- C.C.P
- Cash		96,038,551	895,948,398	- Caisses
-				
Other Debtors' Accounts			33,289,701	Autres comptes débiteurs
			8,571,895,208	
LIABILITIES				**PASSIF**
Equity Capital				**Capitaux propres**
- Capital		5,236,534,735		- Capital
- Government Grant		428,821,000		- Dotations de l'Etat
- Grant from UNDP		100,000,000		- Dotation PNUD
- Reserves		242,155,680		- Réserves
- Various Provisions		271,426,289		- Provisions diverses
			6,278,937,704	
Redeemable on Long-Term				**Exigible à L.T.**
- IDA Loans		720,130,340		- Emprunt IDA
- Government Loans		50,000,000		- Emprunt état Zairois
			770,130,340	
Redeemable on Short-Term				**Exigible à C.T.**
- Suppliers		110,334,884		- Fournisseurs
- Various Creditors		458,134,382		- Créditeurs diverses
			568,469,266	
Increased Value of Zairianized Assets			706,336,555	Zairianization
Other Creditors Accounts			48,900,026	Autres comptes créditeurs
Profit			199,121,317	Pertes et profits
			8,571,895,208	

February 17, 1977

le 17 février 1977

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

PROJET DE DEVELOPPEMENT D'ELEVAGE EN ITURI

1. ONDE Account of General Operation - 1975

1. Compte d'Exploitation Générale de l'ONDE - 1975

EXPENSES			DEBIT
- Stock of Various Products 1/1		136,118,760	- Stocks produits divers au 1/1
- Adjustment of Stocks		214,754,416	- Régularisation stocks
- Various Product Purchases	186,465,414		- Achats produits divers
- Purchases of Cattle for the Butchery	244,117,360	430,582,774	- Achats bétail de boucherie
- Cattle Operating Expenses	983,047,545		- Frais d'exploitation bétail
- Personnel Expenses	599,305,705		- Frais de personnel
- Works, Supplies and External Services	131,483,652		- Travaux, fournitures et services extérieurs
- Transport and Travel	44,416,502		- Transports et déplacement
- Mission Expenses	34,434,248		- Frais de mission
- Duties and Taxes	40,027,054		- Impôts et taxes
- Management Expenses	30,110,090		- Frais divers de gestion
- Publishing	2,280,900		- Publicité
		1,865,105,696	
- Provision for Depreciation		178,209,089	- Dotation aux amortissements
		2,824,770,732	
INCOME			**CREDIT**
- Stock of Various Products 31/12		316,878,189	- Stocks produits divers au 31/12
- Sales		1,990,141,980	- Chiffre d'affaires
		2,307,020,169	
- Operating Loss		517,750,563	- Mali d'exploitation
		2,824,770,732	

2. ONDE Profit and Loss Account for Year Ending 31/12/75

2. Compte Pertes et Profits au 31/12/75

EXPENSES			DEBIT
- Operating Results		517,750,563	- Résultat d'exploitation
- Various Losses		19,771,338	- Pertes diverses
- Transfer to Reserves		189,000,000	- Dotations aux réserves
- Provisions for Stocks		57,583,090	- Dotations aux provisions
- Loss Brought Forward P.M.M.K. - 1974	333,808,370		- Report perte P.M.M.K. 1974
- Profit Brought Forward ONDE - 1974	3,116,681	330,691,689	- Report boni ONDE 1974
		1,114,796,680	
Profit for the Year		199,121,317	- Résultat de l'exercice
		1,313,917,997	
INCOME			**CREDIT**
- Subventions from the State		212,873,660	- Subventions de fonctionnement de l'Etat
- Various Profits		125,198,137	- Profits divers
- Value of Cattle		975,846,200	- Valorisation cheptel
		1,313,917,997	

February 18, 1977

le 18 février 1977

ZAIRE

ITURI LIVESTOCK DEVELOPMENT

Project Muhila - Mitwaba - Kayembe Mukulu

Balance Sheet and Profit and Loss Account 1974 and 1975

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Projet Muhila - Mitwaba - Kayembe Mukulu

Bilan et Compte de Profits et Pertes 1974 et 1975

(A) BALANCE SHEET AT DECEMBER 31, 1975

USE OF FUNDS	1975 Z	1974 Z
Fixed Assets	356,828	331,231
Guarantees of More than a year	3,745	3,361
Current		
Livestock	3,604,641	2,448,125
Stock & Supplies	134,474	62,599
Debtors	184,959	172,275
Cash Reserves & Bank Deposits	53,700	72,351
	3,977,774	2,755,350
Less:		
Accounts Payable		
Suppliers	93,525	87,119
Creditors and Expenses to meet	265,327	150,173
Provision for losses and charges	160,000	-
	518,852	237,292
Net Current Assets	3,819,495	2,518,058
	3,979,495	2,852,650
Funds Used		
Initial Funds	2,700,000	2,700,000
State Grant	261,116	165,476
	2,961,116	2,865,476
Results	88,249	(333,808)
	3,049,365	2,531,668
Long-Term Loans	770,130	320,982
	3,819,495	2,852,650

(A) BILAN AU 31 DECEMBRE 1975

EMPLOI DU CAPITAL	1975 Z	1974 Z
Immobilisés	356,828	331,231
Garanties à plus d'un an	3,745	3,361
Réalisable		
Cheptel bovin	3,604,641	2,448,125
Stocks et approvisionnements	134,474	62,599
Débiteurs	184,959	172,275
Caisses et banques	53,700	72,351
	3,977,774	2,755,350
Moins:		
Exigible		
Fournisseurs	93,525	87,119
Créditeurs et frais à payer	265,327	150,173
Provision pour pertes et charges	160,000	-
	518,852	237,292
Actif Courant Net	3,819,495	2,518,058
	3,979,495	2,852,650
Capital Employé		
Fonds Initial	2,700,000	2,700,000
Dotation de L'état	261,116	165,476
	2,961,116	2,865,476
Résultats	88,249	(333,808)
Emprunts à Long Terme	3,049,365	2,531,668
Emprunts à Long Terme	770,130	320,982
	3,819,495	2,852,650

(B) PROFIT AND LOSS ACCOUNT FOR YEAR ENDING DECEMBER 31, 1975

	1975 Z	1975 Z	10½ months/10½ mois 1974 Z
Sales		360,308	354,752
Value of Stock			
Livestock at January 1st	2,446,225		2,411,150
Purchases of stock	181,390		221,630
	2,627,615		2,632,780
Livestock at December 31 (note 1(b))	3,603,461		2,446,225
		975,846	(186,555)
		1,336,154	168,197
Less:			
Overheads	672,393		438,386
Amortizations	81,704		63,619
Provision for losses and charges	160,000		-
		914,097	502,005
Financial Profit (Loss)		422,057	(333,808)
Report b/f		(333,808)	-
Balance b/f		88,249	(333,808)

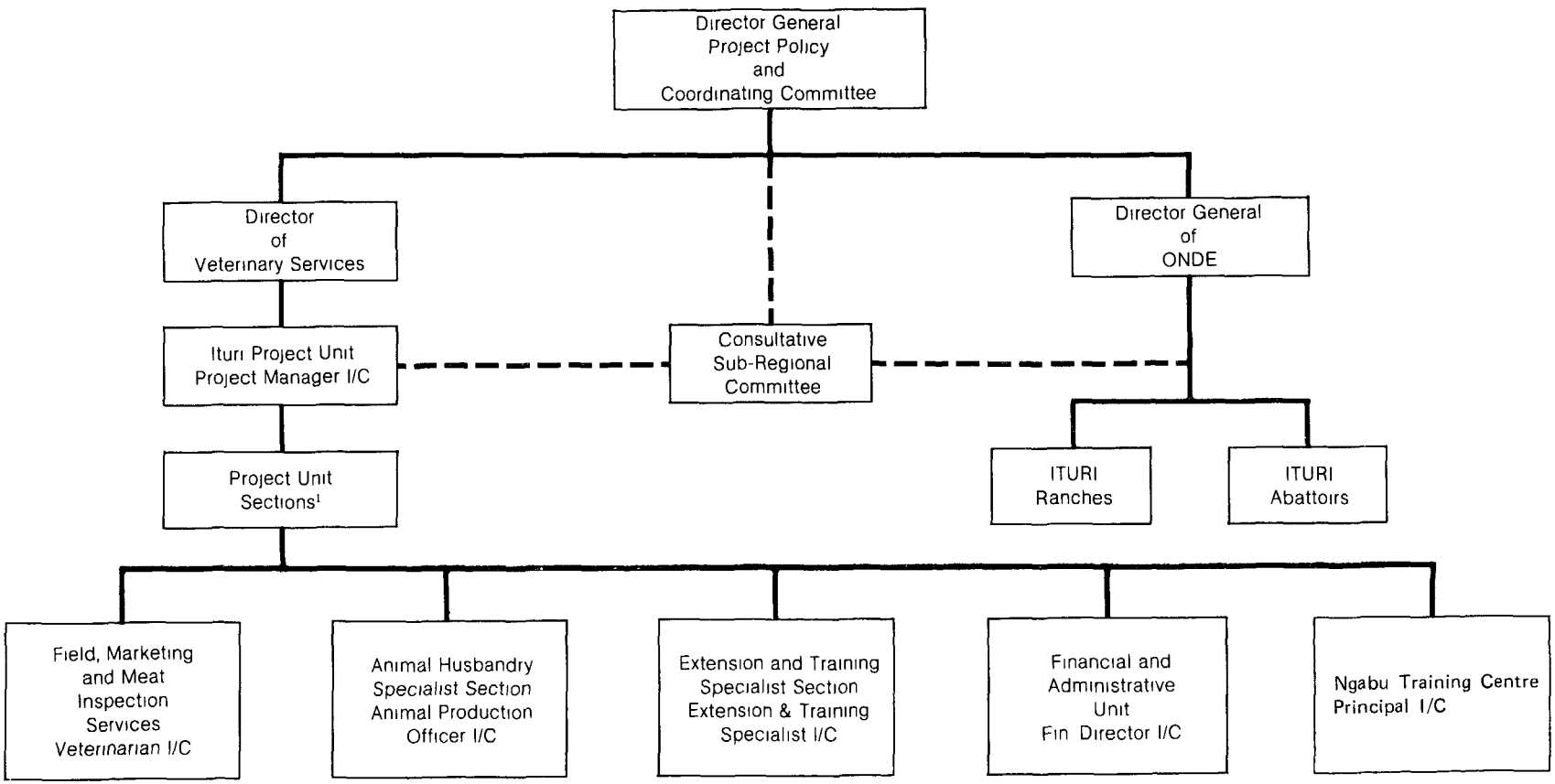
(B) COMPTE DE PROFITS ET PERTES POUR L'ANNEE TERMINEE LE 31 DECEMBRE 1975

	1975 Z	1975 Z	10½ months/10½ mois 1974 Z
Ventes		360,308	354,752
Chiffre d'affaires			
Cheptel au 1 janvier	2,446,225		2,411,150
Achats de bétail	181,390		221,630
	2,627,615		2,632,780
Cheptel au 31 décembre (note 1(b))	3,603,461		2,446,225
		975,846	(186,555)
		1,336,154	168,197
Moins			
Frais généraux	672,393		438,386
Amortissements	81,704		63,619
Dotation à la provision pour pertes et charges	160,000		-
		914,097	502,005
Bénéfice (perte) de l'exercice		422,057	(333,808)
Rapport b/f		(333,808)	-
Solde reporté b/f		88,249	(333,808)

July 21, 1976

le 21 juillet 1976

ZAIRE
ITURI LIVESTOCK DEVELOPMENT PROJECT
PROJECT ORGANIZATION CHART



[1]Responsibilities of senior staff of IPU given in Annex 8, Appendix 2 and suggested work program in Annex 3 for animal health and production program and Annex 2 for marketing services

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Terms of Reference and Qualification of Ituri Project Unit Staff

1. Responsibilities and qualifications of Senior Ituri Project Unit staff and other Technical Assistance personnel are summarized below.

Project Manager

2. The Project Manager will be responsible for managing the livestock development program in the traditional areas. His duties will include formulation of the policy and program of work, administration of the Project, preparation of estimates, control of finances, coordination with other departments and evaluating the program. He will liaise closely with ONDE staff over the marketing and purchasing of traditional area cattle, developing a mutually agreed program of work. Special attention will be paid to establishing a sound organizational and staffing structure for the future veterinary and animal husbandry services in the area and a program for ensuring the continuance of the dipping and veterinary medicine program. He will sign all disbursement statements.

3. Qualifications. Veterinary, Animal Husbandry or Agriculture degree (the last combined with livestock experience) with 10 years experience in livestock extension work and relevant managerial experience. An expatriate manager would be required for two years.

Deputy Project Manager

4. The Deputy Project Manager will assist the Project Manager in his duties. Emphasis would be placed on field work, assisting with the development of the dips, dispensaries, marketing and slaughterhouse programs and particularly the establishment of the proposed dipping and grazing associations. He would be responsible for liaison between the Project and the zone commissioners.

5. Qualifications. Veterinary, Animal Husbandry or Agriculture degree (the last combined with livestock experience) with 7 years experience.

Veterinarian

6. The Veterinarian will be responsible for developing the animal health program, in particular the develeopment of the dips and dispensaries including their operation; establishing charges and supply and sale of materials; organizing dipping associations, and in coordination with the

Animal Husbandry expert, grazing associations; the development of pharmacies, clinics and dispensaries in Ituri; through various training programs improving the professional animal health competence of the veterinary staff and developing work routines; maintaining close liaison with the diagnostic laboratories at Nioka and Kinshasa; overseeing the meat inspection program in the abattoirs and slaughterhouses; collecting data and evaluating the value of the animal health program.

7. Qualifications. Veterinary degree with 5 years tropical experience. An expatriate for 5 years.

Animal Husbandry Specialist

8. The Animal Husbandry Specialist will be responsible for developing the animal production program in particular; establishing better grazing management in areas serviced by dips and associations, including if applicable, the establishment of grazing associations; generally support the animal health program and work in close contact with the veterinarian; investigating, demonstrating and extending improved animal husbandry techniques for the various classes of livestock found in the area; investigating ways of integrating livestock and crop production and considering means of extending livestock keeping to those without stock; developing a suitable credit program.

8. Qualifications. Degree in Animal Husbandry or, combined with relevant experience, Veterinary or Agriculture degree. 5 year experience. Expatriate required for 4 years.

Extension Specialist

10. The duties and responsiblities of the Extension Specialist are outlined in Annex 4 para 2. He would work closely with the Veterinary and Animal Production Specialists.

11. Qualifications. Degree in Agriculture, Veterinary or Animal Husbandry with 5 years relevant experience in general extension and training. Expatriate required for 3 years.

Director of Administration/Finance

12. The Director will be responsible for the management of all financial and general administrative aspects of the Project. He would establish accounts, stores, and administrative procedures; develop a suitable accounting and storekeeping system for the revolving fund and control of dips and drugs distributed to the various dispensaries; control expenditures; order stores; sign disbursement documents; prepare Project accounts and estimates as required for Project management purposes; train staff.

13. Qualifications. Financial Analyst or accountant, 5 years experience, preferably with experience of agricultural projects. Required for 4 years.

Building Specialist

14. The Building Specialist will be responsible for developing the Project's construction program. He would investigate building design and costs and determine the best way to achieve the Project targets. He would be responsible for assessing the competence of local contractors, formulating contracts, supervisory work, ordering materials. Before his departure he would provide a detailed work program on materials required and steps to be taken to complete the Project's building program.

15. Qualifications. Building Diploma with relevant experience to carry out the functions required.

Mechanical/Workshop Specialist

16. This Specialist will be responsible for establishing the project workshop, repairing vehicles, ordering stores; establishing vehicle maintenance and repair routines; stores accounting; training staff.

17. Qualifications. Qualified motor mechanic capable of carrying out the duties required.

Principal, Ngabu Training Center

18. The Ngabu Training Center will be part of and come under the direction of the Ituri Project Unit. The principal will be responsible for developing the center and defining, in collaboration with the Project Manager and Extension Specialist the policy for the center and the contents and length of the various training courses. He will organize the courses and prepare the relevant teaching material. His main tasks will be to administer the center and lecture to students but, in order to evaluate the courses, he will also take an interest in the activities of selected students after they have completed the course. He will also maintain contact with other agricultural and veterinary training establishments and the Nioka Research Station.

19. Qualifications: Relevant qualifictions in the agricultural and animal production with special interest in education and communication techniques.

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Costs of Studies, Project Evaluation and Financial Adviser to ONDE

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Coûts des Etudes, de l'Evaluation et Conseiller Financier de l'ONDE

		Man-months/ homme-mois	$'000/ milliers de $	
1.	Possible Preparation Report Study.			1. Etude Possible de la Préparation du Rapport.
	Team leader	6	60	Chef d'équipe
	Livestock specialist	2	14	Spécialiste de l'élevage
	Agriculturalist	3	21	Agronome
	Marketing specialist	2	14	Spécialiste de la commercialisation
	Economist	5	35	Economiste
	Education training specialist	2	14	Spécialiste de la formation
	Land tenure adviser	2	14	Conseiller de la propriété foncière
	Fisheries expert	2	14	Expert en pisciculture
	Sociologist	2	14	Sociologue
	Roads engineer	2	14	Ingénieur des ponts et chaussées
		28	214	
2.	Other Studies, e.g. Small Stock Production, Tsetse, Totoba/Pimbo, etc.	9	64	2. Autres études (exemple: production de petit élevage, mouche tsétsé, totoba/pimbo, etc.)
3.	Project Evaluation Year 5.			3. Evaluation du projet ex post 5ème année.
	Livestock specialist	3	27	Spécialiste de l'élevage
	Economist	3	27	Economiste
	Consultants all inclusive costs		332	Consultants: tous frais inclus
	Government extra expenditure involved 15%		48	Autres dépenses du gouvernement 15%
	Total for Studies in Project Area		380	Somme totale pour les études dans la zone du projet
4.	Financial adviser for ONDE (5 years)	Say:	350	4. Conseiller Financier de l'ONDE (5 ans)
			730	

July 23, 1976

le 23 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Project Reporting and Monitoring

1. The IPU and ONDE would provide reports to IDA at the end of every 6 month period dealing with Project implementation, finances and effect of the Project on the intended beneficiaries. The principal information submitted would cover, among other areas, the following:

1. The rate of Project implementation including a comparison of actual and forecast programs.

2. Development of the dipping and veterinary medicine programs, number of stock, revenues, etc.

3. Progress with implementing the market and slaughterhouse program, throughput, revenues, etc.

4. Up to date cost estimates.

5. Progress with improved animal production.

6. Assessment of benefits and number of beneficiaries affected by the Project and comparison with forecast.

7. Relevant statistical information on weather, cattle numbers, state of grazing, animal health, diagnostic work, etc.

8. Training program for staff and farmers.

9. On ranches (additional to audited reports):

   (a) Weather, state of grazing development of the herd, performance coefficients, number of fattening stock, animal health, sales, income.

   (b) Costs and financial situation.

   (c) Management and training.

10. Abattoirs (additional to audited reports):

   (a) Throughput, standard of operation.

   (b) Costs and financial situation.

   (c) Management and training.

2. In order to assess progress of the Project and to make future management decisions, it will be necessary to determine data requirements and ensure their proper collection and evaluation. Fortunately in the traditional sector in Ituri there is already a recognized pattern of reporting including: data collection of stock numbers; herd composition and ownership; details of veterinary treatments; market information; and partial recording of Veterinary Department expenditures and revenues. At present, clerks in the zone and subregional headquarters consolidate the information as it comes in from the field. The ranches and abattoirs also prepare some performance data although there is room for considerable improvement.

3. Under the Project the various section heads of IPU would be responsible for reviewing the present data collection system, determining future requirements and collecting the information with existing personnel. Base line data would be established at the outset. The roles of their various staff would be delineated with the object of ensuring proper information collation on time. The section heads would provide regular consolidated reports to the Manager with comments including general impact of the Project and how the results compare with budget targets and base line data. The IPU Manager or his Deputy would be responsible for reviewing the reports and at quarterly or half yearly intervals, summarizing, drawing conclusions and taking action on the main points emerging. Examples of the type of information that will be needed is illustrated in the tables, Annexes 2 and 3. Heads of sections would evaluate the data as much as possible although at times it might be necessary to employ a consultant to investigate certain aspects further. An evaluation team would look at the whole Project at the end of the implementation period.

4. ONDE now has an economist at headquarters whose main task is the collection and analysis of data from ONDE's enterprises. He would assist the Ituri General Ranch Manager and Abattoir staff in establishing the data collection system necessary on these enterprises. The type of data that will be required is illustrated in the tables in Annexes 5 and 6. The present office staff in the ranch and abattoir offices should, with assistance on methodology, be able to consolidate the data.

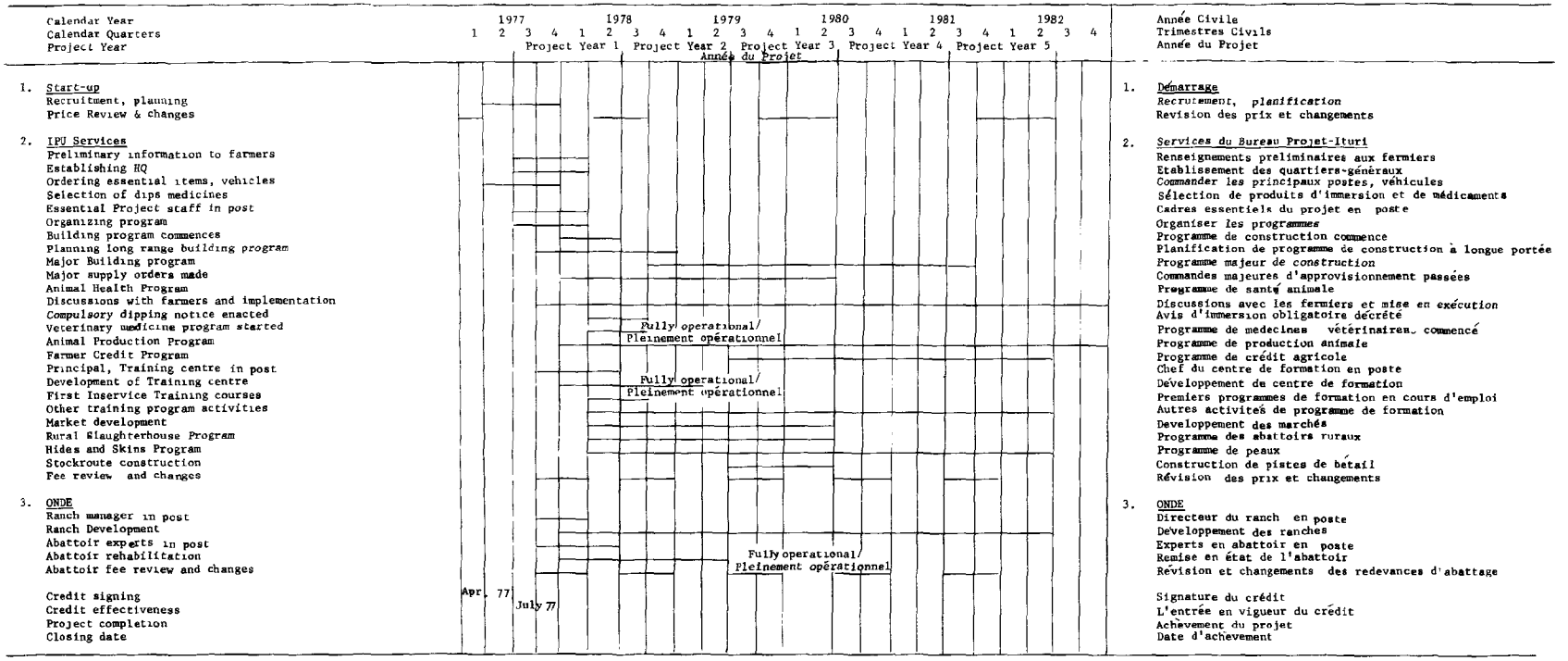
ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Project Implementation Schedule

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Calendrier d'Exécution du Projet



February 18, 1977

le 18 février 1977

ANNEX 11

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT — PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Estimated Schedule of Disbursements 1/
Calendrier estimatif des déboursements 1/

IDA Fiscal Year and Quarter	Disbursement at End of Quarter (US$'000) — Decaissements en Fin de Trimestre (en milliers de dollars)		Exercice et Trimestre IDA
	Quarterly/ en Fin de Trimestre	Cumulative/ Cumulatif	
1977/78			1977/78
September 30	-	-	30 septembre
December 31	50	50	31 décembre
March 31	190	240	31 mars
June 30	240	480	30 juin
1978/79			1978/79
September 30	300	780	30 septembre
December 31	320	1,100	31 décembre
March 31	340	1,440	31 mars
June 30	380	1,820	30 juin
1979/80			1979/80
September 30	380	2,200	30 septembre
December 31	380	2,580	31 décembre
March 31	400	2,980	31 mars
June 30	400	3,380	30 juin
1980/81			1980/81
September 30	430	3,810	30 septembre
December 31	450	4,260	31 décembre
March 31	470	4,230	31 mars
June 30	490	5,220	30 juin
1981/82			1981/82
September 30	490	5,710	30 septembre
December 31 3/	490	6,200	31 décembre 3/
March 31	470	6,670	31 mars
June 30 4/	470	7,140	30 juin 4/
1982/83			1982/83
September 30	430	7,570	30 septembre
December 31	430	8,000	31 décembre

1/ Expected date of signing, April 1977.
2/ Expected date of effectiveness, July 1977.
3/ Expected date of Project completion, June 1982.
4/ Closing date, December 1982.

1/ Date prévue pour la signature de l'Accord de Crédit, Avril 1977.
2/ Date prévue pour entrée en vigueur, Juillet 1977.
3/ Date prévue pour achèvement du projet, Juin 1982.
4/ Date de clôture, Décembre 1982.

February 18, 1977 — le 18 février 1977

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Financial Rate of Return on Ranches
(Z)

PROJET DE DEVELOPPEMENT D'ELEVAGE EN ITURI

Taux de Rentabilité Financière des Ranches
(zaïres)

KEREKERE RANCH

	Without Project Sans Projet 1/	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
INFLOWS																						ENTREE DE FONDS
Sales	32,860	18,820	74,760	114,300	194,500	235,830	256,190	374,160	541,420	772,480	834,450	827,170	827,170	827,170	827,170	827,170	827,170	827,170	827,170	827,170	827,170	Ventes
Inc. Salvage Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,130,947	Valeur Résiduelle
Total Inflows	32,860	18,820	74,760	114,300	194,500	235,830	256,190	374,160	541,420	772,480	834,450	827,170	827,170	827,170	827,170	827,170	827,170	827,170	827,170	827,170	1,958,117	Total
OUTFLOWS																						SORTIE DE FONDS
Fixed Investment Costs	-	58,450	143,020	160,740	100,280	100,280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Coûts d'Investissement Fixes
Cattle Breeding Stock	-	40,000	75,625	42,500	11,250	4,375	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Bétail reproducteur
Capital Replacement Costs	-	-	-	-	-	28,555	56,930	34,400	5,370	31,555	35,840	53,240	22,120	48,975	45,380	27,880	6,600	35,625	32,700	27,880	12,250	Coûts de Remplacement
Operating Costs	-	97,107	124,862	146,778	154,362	165,332	153,986	172,629	183,652	185,023	184,889	184,889	184,889	184,889	184,889	184,889	184,889	184,889	184,889	184,889	184,889	Coûts d'Exploitation
Purchase of Feeder Steers	-	26,460	26,460	37,800	52,920	86,940	136,080	189,000	189,000	189,000	189,000	189,000	189,000	189,000	189,000	189,000	189,000	189,000	189,000	189,000	189,000	Achat de Bétail d'Embouche
Sub-total	33,250	222,017	369,967	387,818	318,812	385,482	326,996	396,029	378,022	405,578	409,729	427,129	396,000	422,864	419,269	401,769	380,489	409,514	406,589	401,769	386,139	Total Partiel
10% Physical Contingencies (excluding purchase of steers & heifers)	-	15,555	26,788	30,751	25,424	29,416	19,088	20,702	18,902	21,657	22,072	23,812	20,700	23,386	23,026	21,276	19,148	22,051	21,758	21,276	19,713	10% pour Frais Imprévus (Achat de Bétail exclus)
Total Outflows	-	237,572	396,755	418,569	344,276	414,898	346,084	416,731	396,924	427,235	431,801	450,941	416,700	446,250	442,295	423,045	399,637	431,565	428,347	423,045	405,852	Total
Net Cash Surplus (Deficit)	(390)	(218,752)	(321,995)	(304,269)	(149,776)	(179,068)	(89,894)	(42,571)	144,496	345,245	402,645	376,229	410,170	380,920	384,875	404,125	427,533	395,605	398,823	404,125	1,552,265	Excédent (ou Déficit) de Trésorerie

Financial Rate of Return: 14.25% 1/ — Taux de Rentabilité: 14,25% 1/

DELE RANCH

	Without Project	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
INFLOWS																						ENTREE DE FONDS
Sales		9,490	96,780	143,350	233,720	296,740	350,680	396,670	484,420	537,520	551,900	551,900	551,900	551,900	551,900	551,900	551,900	551,900	551,900	551,900	551,900	Ventes
Inc. Salvage Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	595,700	Valeur Résiduelle
Total Inflows	8,354	9,490	96,780	143,350	233,720	296,740	350,680	396,670	484,420	537,520	551,900	551,900	551,900	551,900	551,900	551,900	551,900	551,900	551,900	551,900	1,147,600	Total
OUTFLOWS																						SORTIE DE FONDS
Fixed Investment Costs	-	60,830	117,710	59,460	47,060	31,040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Coûts d'Investissement Fixes
Cattle Breeding Stock	-	37,000	36,500	6,625	3,500	-																Bétail reproducteur
Capital Replacement Costs	-	-	-	-	-	30,185	9,110	5,470	5,730	34,430	8,250	15,600	15,120	40,920	5,730	3,360	9,110	34,430	5,730	5,730	8,250	Coûts de Remplacement
Operating Costs	-	42,481	57,175	63,529	66,903	72,412	67,392	70,938	71,851	71,698	71,502	71,502	71,502	71,502	71,502	71,502	71,502	71,502	71,502	71,502	71,502	Coûts d'Exploitation
Purchase of Feeder Steers	-	29,940	59,940	89,910	119,880	149,850	169,830	199,800	199,800	199,800	199,800	199,800	199,800	199,800	199,800	199,800	199,800	199,800	199,800	199,800	199,800	Achat de Bétail d'Embouche
Sub-total	9,056	170,251	271,325	219,514	237,393	283,487	246,332	276,708	277,381	305,928	279,552	286,902	286,422	312,222	277,032	274,662	280,412	305,732	277,032	277,032	279,552	Total Partiel
10% Physical Contingencies (excluding purchase of steers & heifers)	-	10,331	17,488	12,298	11,396	13,363	7,650	7,640	7,758	10,612	7,975	8,710	8,662	11,242	7,723	7,486	8,061	10,593	7,723	7,723	7,975	10% pour Frais Imprévus (Achat de Bétail exclus)
Total Outflows	-	180,582	288,813	231,822	248,759	296,850	253,982	284,348	285,139	316,540	287,527	295,612	295,084	323,464	284,755	282,148	288,473	316,325	284,755	284,755	287,527	Total
Annual Cash Surplus (Deficit)	(696)	(171,092)	(192,033)	(88,472)	(1,509)	(110)	96,698	112,322	199,281	220,980	264,373	256,288	256,816	228,436	267,145	269,752	263,427	235,575	267,145	267,145	860,073	Excédent (ou déficit) annuel de Trésorerie

Financial Rate of Return: 21.75% 1/ — Taux de Rentabilité: 21,75% 1/

ASADA RANCH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
INFLOWS																					ENTREE DE FONDS
Sales	18,960	48,290	115,000	156,860	209,15	277,620	367,140	479,480	549,430	554,430	554,300	554,300	554,300	554,300	554,300	554,300	554,300	554,300	554,300	554,300	Ventes
Inc. Salvage Value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	225,450	Valeur Résiduelle
Total Inflows	18,960	48,290	115,000	156,860	209,15/	277,620	367,140	479,480	549,430	554,430	554,300	554,300	554,300	554,300	554,300	554,300	554,300	534,300	554,300	779,750	Total
OUTFLOWS																					SORTIE DE FONDS
Fixed Investment Costs	57,270	47,460	28,300	18,900	10,930	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Coûts d'Investissement Fixes
Capital Replacement Costs	-	-	-	-	30,315	7,365	390	1,225	30,315	4,605	12,120	7,895	35,370	8,285	390	6,975	30,315	1,615	390	4,215	Coût de Remplacement
Operating Costs	36,830	45,908	49,125	54,031	58,362	53,582	61,518	63,314	63,314	63,314	63,314	63,314	63,314	63,314	63,314	62,314	63,314	63,314	63,314	63,314	Coût d'Exploitation
Purchase of Feeder Steers	31,320	51,300	75,060	102,600	133,920	182,790	225,450	225,450	225,450	225,450	225,450	225,450	225,450	225,450	225,450	225,450	225,450	225,450	225,450	225,450	Achat de Bétail d'Embouche
Sub-total	125,420	144,668	152,485	175,531	233,727	243,737	287,358	289,989	319,079	293,369	300,884	296,659	324,134	297,049	289,154	295,739	319,079	290,379	289,154	292,979	Total Partiel
10% Physical Contingencies (excluding purchase of steers)	9,400	9,300	7,742	7,293	9,980	6,094	6,190	6,453	9,362	6,791	7,543	7,120	9,868	7,159	6,721	7,028	9,362	6,492	6,370	6,752	10% pour Frais Imprévus (Achat de Bétail exclus)
Total Outflows	134,820	153,998	160,227	182,824	243,707	249,831	293,548	296,442	328,441	303,160	308,427	303,779	334,002	304,208	295,875	302,767	328,441	296,871	295,524	299,731	Total
Annual Cash Surplus (Deficit)	(115,860)	(105,708)	(43,227)	(25,964)	(34,557)	27,789	73,592	183,038	220,989	254,270	245,873	250,581	220,298	250,092	258,425	251,533	225,859	257,429	258,776	480,019	Excédent (ou déficit) annuel de Trésorerie

Financial Rate of Return: 25.15% 1/ — Taux de Rentabilité: 25,15% 1/

	Without Project	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
INFLOWS																						ENTREE DE FONDS
Sales	41,214	47,270	219,830	372,650	565,060	741,720	884,490	1,137,370	1,505,320	1,859,430	1,940,780	1,933,370	1,933,370	1,933,370	1,933,370	1,933,370	1,933,370	1,933,370	1,933,370	1,933,370	1,933,370	Ventes
Incremental Salvage Value																					1,952,097	Valeur Résiduelle
Total Inflows	41,214	47,270	219,830	372,650	565,060	741,720	884,490	1,137,370	1,505,320	1,859,430	1,940,780	1,933,370	1,933,370	1,933,370	1,933,370	1,933,370	1,933,370	1,933,370	1,933,370	1,933,370	3,885,467	Total
OUTFLOWS																						SORTIE DE FONDS
Fixed Investment Costs		175,550	308,190	248,500	156,240	142,250																Coûts d'Investissement Fixes
Purchase of Breeding Stock		77,000	112,125	49,125	14,750	4,375																Achat de Bétail reproducteur
Capital Replacement Costs						89,055	65,400	40,260	12,325	96,300	48,695	50,960	45,135	125,255	49,39[illegible]	31,630	22,685	100,370	40,045	34,000	24,715	Coûts de Remplacement
Operating Costs		176,416	227,945	259,432	275,29[illegible]	296,306	274,900	305,085	318,817	320,035	315,705	319,705	319,705	319,705	319,700	319,705	319,705	319,705	319,705	319,705	319,705	Coûts d'Exploitation
Purchase of Feeder Steers		87,720	137,700	202,770	275,400	370,710	488,700	614,250	614,250	614,250	614,250	614,250	614,250	614,250	614,250	614,250	614,250	614,250	614,250	614,250	614,250	Achat de Bétail d'Embouche
10% Physical Contingencies (excluding Purchase of Animals)		35,296	53,[illegible]06	50,791	44,153	50,759	32,872	3[illegible],53[illegible]	33,113	41,631	36,[illegible]30	40,065	35,482	44,495	37,900	35,483	34,25[illegible]	42,006	35,973	35,369	34,440	10% pour Imprévus (Achat de Bétail Exclus)
TOTAL OUTFLOWS	42,306	562,974	839,566	810,61[illegible]	775,239	955,455	649,897	994,127	970,505	1,072,216	1,019,40[illegible]	1,056,980	1,015,572	1,103,715	1,031,250	1,007,0[illegible]	990,877	1,076,331	1,009,973	1,003,524	993,110	Total
Annual Surplus (Deficit)	(1,092)	(505,704)	(619,730)	(437,9[illegible])	(190,759)	(213,735)	234,593	143,843	526,815	787,214	921,292	878,390	917,798	829,654	902,212	932,302	942,493	857,039	923,397	930,046	2,892,357	Excédent (ou déficit) de Trésorerie

Rate of Return 18 55% 1/ — Taux de Rentabilité. 18,55%

Sensitivity Analysis

	Kerekere	Dele	Asada	Combined Kerekere Dele Asada
- 10% increase in investment operating and steer purchase costs	11.35%	17.45%	20.05%	14.75%
- 10% reduction in income	11.05%	17.05%	19.95%	14.45%
- 10% increase in gross costs and 10% reduction in income	8.15%	12.85%	14.55%	10.75%
- 50% less benefits in first three years	13.35%	19.05%	22.05%	16.95%
- Two years delay in benefits	7.15%	10.65%	11.05%	9.85%
FRR based on June 1976 prices	6.75%	9.95%	11.85%	8.55%
- 10% increase in costs	3.85%	5.95%	6.65%	4.85%

Analyse de Sensibilité

	Kerekere	Déle	Asada	Ensemble des ranches Kerekere Dele Asada
- 10% augmentation des coûts	11.35%	17,45%	20,05%	14.75%
- 10% diminution des recettes	11.05%	17,05%	19,95%	14.45%
- 10% augmentation des coûts et 10% diminution des recettes	8.15%	12,85%	14,55%	10.75%
- 50% diminution des bénéfices pendant trois premières années	13.35%	19,05%	22,05%	16.95%
délai de deux ans des bénéfices	7.15%	10,65%	11,05%	9.85%

July 15, 1976

le 15 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Kisangani and Bunia Abattoirs

Financial Rate of Return Calculation
(Z)

PROJET DE DEVELOPPEMENT D'ELEVAGE EN ITURI

Abattoirs de Kisangani et de Bunia

Taux de Rentabilité Financière

ANNEX/ANNEXE 13
Table/Tableau 2

	Year/Année																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
BUNIA																					
INFLOWS																					ENTREE DE FONDS
Revenue from Sales and fees @ 1/45 per kg 1/	295,750	454,460	863,860	1,209,560	1,709,640	2,004,380	2,717,950	3,859,010	4,385,270	4,840,580	5,678,630	5,678,630	5,678,630	5,678,630	5,678,630	5,678,630	5,678,630	5,678,630	5,678,630	5,678,630	Recettes de Ventes et Redevances d'abattage à 1,45 zaïres le kg
OUTFLOWS																					SORTIE DE FONDS
Investment Costs	233,540	177,450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Coûts d'Investissement
Operating Costs	84,820	92,520	102,040	110,070	125,060	132,130	149,000	173,380	188,780	201,540	221,110	221,110	221,110	221,110	221,110	221,110	221,110	221,110	221,110	221,110	Coûts d'Exploitation
Replacement Costs	-	-	-	2,230	16,320	28,930	-	2,230	6,670	9,640	28,930	2,230	6,670	-	9,640	31,160	6,670	-	-	11,870	Coûts de Remplacement
Purchase of Stock & Hides	257,800	410,060	771,750	1,089,780	1,518,340	1,783,180	2,428,040	3,409,700	3,939,116	4,339,410	4,957,090	4,957,090	4,957,040	4,957,040	4,957,040	4,957,040	4,957,040	4,957,040	4,957,040	4,957,040	Achat de Bétail et Peaux
Sub-total	576,160	680,030	873,790	1,202,080	1,659,720	1,944,240	2,577,040	3,585,310	4,134,560	4,550,590	5,207,130	5,180,430	5,184,870	5,178,200	5,187,840	5,209,360	5,184,870	5,178,200	5,178,200	5,190,070	Total Partiel
10% Physical Contingencies (excluding Purchase of Stock)	31,840	27,000	10,204	11,230	14,140	16,110	14,900	17,560	19,550	21,120	25,000	22,330	22,780	22,110	23,080	25,230	22,180	22,110	22,110	23,300	10% pour Frais Imprévus (excluant Achat de Bétail)
Total	608,000	707,030	883,994	1,213,310	1,673,860	1,966,350	2,591,940	3,602,870	4,154,110	4,571,710	5,232,130	5,202,760	5,207,650	5,200,310	5,210,920	5,234,590	5,184,870	5,200,310	5,200,310	5,213,370	Total
Annual Surplus (deficit)	(312,250)	(252,570)	(20,134)	(3,750)	35,780	38,030	126,010	256,140	231,160	268,870	446,500	475,870	470,980	478,320	467,710	444,040	493,760	478,320	478,320	465,260	Excédent (ou déficit) annuel de trésorerie
Financial Rate of Return 1/: 21.95%																					Taux de Rentabilité 1/: 21,95%
KISANGANI																					
INFLOWS																					ENTREE DE FONDS
Revenue from Sales and fees	98,000	102,190	106,510	110,960	116,780	122,100	127,760	133,420	139,510	145,690	152,690	152,690	152,690	152,690	152,690	152,690	152,690	152,690	152,690	152,690	Recettes de Ventes et Taxes d'abattage
OUTFLOWS																					SORTIE DE FONDS
Investment	106,220	58,380	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Investissement
Operating Costs	75,520	79,010	82,190	85,610	87,830	91,300	93,880	96,930	100,060	104,260	107,920	107,920	107,920	107,920	107,920	107,920	107,920	107,920	107,920	107,920	Coûts d'Exploitation
Replacement Costs	-	-	-	-	-	6,430	16,720	-	-	-	6,430	16,720	-	-	-	6,430	16,720	-	-	-	Coûts de Remplacement
Sub-total	181,740	137,390	82,190	85,610	87,830	91,380	93,880	96,930	100,060	104,260	114,350	124,640	107,920	107,920	107,920	114,350	124,640	107,920	107,920	107,920	Total Partiel
10% Physical Contingencies	18,174	13,739	8,219	8,561	8,783	9,781	11,060	9,693	10,006	10,426	11,435	12,464	10,792	10,792	10,792	11,435	12,464	10,792	10,792	10,792	10% pour Frais Imprévus
Total	199,914	151,129	90,409	94,171	96,613	107,591	121,660	106,623	110,066	114,686	125,785	137,104	118,712	118,712	118,712	125,785	137,104	118,712	118,712	118,712	Total
Annual Surplus (deficit)	(101,904)	(48,939)	16,101	16,789	20,167	14,509	6,100	26,797	29,444	31,004	26,905	15,586	33,978	33,978	33,978	26,905	15,586	33,978	33,978	33,978	Excédent (ou déficit) annuel de trésorerie
Financial Rate of Return: 12.15%																					Taux de Rentabilité: 12,15%

Sensitivity Analysis

	Bunia	Kisangani
10% increase in costs 2/	no rate of return	3.25%
10% reduction in income	"	2.25%
10% increase in costs and 10% reduction in income	"	- 9.95%
50% less income in first three years	8.15%	4.55%
50% increase in operating costs excluding (assuming no increase in cost of animals or hides)	16 95%	
100% increase in operating costs (assuming no increase in cost of animals or hides)	8 85%	
100% increase in operating costs and investments (no increase in cost of animals or hides).	4.05%	

Analyse de Sensibilité

	Bunia	Kisangani
10% augmentation des coûts 2/		3,25%
10% diminution des recettes		2,25%
10% augmentation des coûts et 10% diminution des recettes		- 9,95%
50% diminution des recettes pendant les trois premières années	8,15%	4,55%
50% augmentation des coûts de fonctionnement exclus (en supposant que les prix des animaux et des peaux ne seront pas majorés)	16,95%	
100% augmentation de coûts de fonctionnement (en supposant que les prix des animaux et des peaux ne seront pas majorés)	8,85%	
100% augmentation des coûts de fonctionnement et d'investissement (aucune majoration dans le coût des animaux ou des peaux)	4,05%	

1/ The rate of return at a selling price of Z 1.40 kg would be 14 55%
2/ Including purchase price of animals and hides

July 16 1976

1/ Le taux de rentabilite au prix de Z 1 40/kg sera 14,55%.
2/ Y compris, le prix d'achat des animaux et des peaux.

le 16 juillet 1976

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Impact on Government Budget
(Including 10% Physical Contingencies)
(Z'000)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Implications pour le Budget de l'Etat
(Y compris 10% de provisions pour dépassements des quantités)
(en milliers de zaïres)

	Year/Année												Total Years/ Total Années	
	1	2	3	4	5	6	7	8	9	10	11	12 - 20		
INFLOW														ENTREE DE FONDS
IDA Credit	380	800	950	1,010	1,050	598							4,788	Crédit de l'IDA
CIDA	314	433	387	592	520								2,246	CIDA
FMC Technical Assistance	266	336	269	213	66								1,150	Assistance Technique de la FMC
FRG Technical Assistance	188	57	57	41									343	Assistance Technique du FRG
Revenue from sale of dips and medicines	-	70	117	170	423	516	532	541	553	563	567	568	9,164	Recettes provenant des ventes de médicaments et bains d'immersion
Revenue from markets	4	5	6	6	7	9	10	11	13	15	17	17	256	Recettes provenant des marchés
Revenue from rural slaughterhouses	9	59	63	69	74	78	86	95	99	106	115	115	1,886	Recettes provenant des tueries/abattoirs rurales/ruraux
Debt service of ranches	-	-	-	-	-	-	-	118	118	118	118	118	1,534	Remboursement de la dette des ranches
Taxes and duties	104	112	104	101	85	69	73	76	79	76	82	81	1,690	Impôts et droits de douane
Total	1,265	1,872	1,953	2,202	2,225	1,270	701	841	862	878	899	899	23,057	Total
OUTFLOW														SORTIE DE FONDS
Government Services														Services du Gouvernement
Veterinary services	959	1,040	1,235	1,419	917	818	866	902	881	876	909	909	19,003	Services Vétérinaires
Training, Ngabu	219	99	97	25	41	41	43	80	41	41	41	54	1,254	Centre de Formation de Ngabu
Training, Other	30	14	13	32	14	13	35	14	13	13	13	15	339	Autre Centre de Formation
Markets	7	20	9	2	2	2	2	2	2	2	2	2	70	Marchés
Slaughterhouses	7	103	107	37	61	64	69	77	81	88	95	95	1,664	Abattoirs/tueries
Studies	-	33	33	237	59								362	Education
ONDE														ONDE
Capital for ranches														Fonds pour les ranches
Equity	337	520	385	256	219								1,717	Capital
Loans	233	112	107										452	Prêts
Abattoirs	386	247	-	-	-								633	Abattoirs
Financial Adviser	67	67	67	67	67								335	Conseiller financiel
Debt Service IDA Credit	3	9	16	24	31	36	36	36	36	36	84	82	1,085	Service de Remboursement pour le Crédit de l'IDA
Total	2,248	2,264	2,069	2,119	1,411	974	1,051	1,111	1,054	1,056	1,144	1,157	26,914	Total
Surplus (deficit)													-	Excédent (déficit)
Annual	(983)	(392)	(116)	83	814	296	(350)	(270)	(192)	(178)	(245)	(258)	-	Annuel
Cumulative	-	(1,375)	(1,491)	(1,408)	(594)	(298)	(648)	(918)	(1,110)	(1,288)	(1,533)	(1,791)	(3,857)	Cumulatif
ONDE'S ANNUAL SURPLUS														EXCEDENT ANNUEL DE L'ONDE
Ranches	47	(8)	59	87	37	67	178	453	722	840	840	840	10,882	Ranches
Abattoirs														Abattoirs
Bunia	-	-	-	-	33	2	82	214	251	210	472	492	5,692	Bunia
Kisangani	23	24	24	25	29	24	17	37	40	41	38	40	682	Kisangani

February 11, 1977

le 11 février 1977

ANNEX 14

ANNEX 15

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Economic Evaluation

1. The internal economic rate of return of the proposed Project would be 29% (Table 1). The internal economic rate of return for the three major project components would be: Traditional Sector 26%; Combined Ranches 23%; and Abattoirs 37% (Table 2). The basic assumptions used in the analysis were:

(a) The economic life of the Project was assumed to be 20 years.

(b) Price contingencies, import taxes and duties were excluded from the cost estimates.

(c) Foreign exchange costs and benefits were valued upward by 26% to a rate of US$1 = Z 1.10 (as compared with the present rate of US$1 = Z 0.87) to more accurately reflect the value of foreign exchange to Zaire. Project benefits were shadow priced on the grounds that, without the Project, additional beef imports would be necessary to satisfy domestic demand.

(d) All labor costs for veterinary services, ranch and abattoir operations were valued at expected January 1977 wage rates, which are assumed to reflect economic costs of this type of skilled and semi-skilled labor. Farm labor costs were not included, since the economic cost was assumed to be zero as the additional family labor would not be otherwise employed.

(e) All Project investments and operating costs (including physical contingencies) with the exception of technical assistance intended for future Project preparation and general management of ONDE headquarters have been included in the rate of return calculations.

2. The sensitivity of the rate of return of the total project to changes in some of the basic parameters is illustrated below:

Assumptions	Internal Rate of Return
Basic Run	28.7%
(a) 10% increase in costs	25.8%
(b) 10% decrease in production	25.5%
(c) 10% increase in costs and a 10% decrease in production	22.7%
(d) 50% reduction in income in the first three years	26.4%
(e) deferment of Project benefits for 2 years	18.3%

ITURI

ITURI LIVESTOCK DEVELOPMENT PROJECT

Economic Rate of Return Calculation

(Z 000)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Calcul de Rentabilité Economique

(en milliers de zaïres)

	Year/Année																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Project Cost																					Coûts de Projet
Total Base Costs 1/	1,968	2,125	1,970	1,912	1,623	1,315	1,395	1,444	1,498	1,456	1,563	1,548	1,581	1,539	1,493	1,544	1,573	1,498	1,486	1,521	Coûts de base 1/
Shadow Pricing of Foreign Exchange Cost 2/	395	347	318	281	243	188	199	204	213	203	220	218	224	218	207	218	222	208	205	213	Les coûts des devises evaluées au prix virtuel 2/
Total Adjusted Project Cost 3/	2,544	2,720	2,518	2,412	2,053	1,653	1,742	1,813	1,881	1,825	1,961	1,943	1,985	1,932	1,870	1,938	1,975	1,877	1,858	1,907	Coûts totaux ajustés du projet 3/
Total Value of Incremental Production																					Valeur totale de la production supplémentaire
Production	345	557	944	1,388	1,931	2,214	3,217	4,439	4,821	5,384	6,319	6,408	6,519	6,519	6,519	6,519	6,519	6,519	6,519	11,765 4/	Production
Shadow Pricing of Production 2/ (import substitution)	90	145	245	360	502	575	836	1,154	1,253	1,399	1,642	1,666	1,694	1,694	1,694	1,694	1,694	1,694	1,694	3,058	Production evaluée au prix virtuel (substitution d'importation)
Total Adjusted Incremental Production	435	702	1,189	1,748	2,433	2,789	4,053	5,593	6,074	6,783	7,961	8,074	8,213	8,213	8,213	8,213	8,213	8,213	8,213	14,823	Valeur totale ajustée de production du projet
Net Incremental Benefits	(2,109)	(2,018)	(1,329)	(664)	380	1,136	2,311	3,780	4,193	4,958	6,000	6,131	6,228	6,281	6,343	6,275	6,241	6,336	6,355	12,916	Bénéfices supplémentaires nets
Rate of Return 28.65%																					Taux de rentabilité 28.65%

Sensitivity Analysis

- 10% increase in costs 25.75%
- 10% decrease in production 25.45%
- 10% increase in costs and 10% decrease in production 22.65%
- 50% less income in first three years 26.35%
- deferment of project benefits by two years 18.25%

Analyse de Sensibilité

- 10% augmentation de coûts 25.75%
- 10% diminution de production 25.45%
- 10% augmentation de coûts et 10% diminution de production 22.65%
- 50% diminution des recettes pendant les trois premières années 26.35%
- Bénéfices du projet retardés de deux ans 18.25%

1/ Excluding import taxes and duties
2/ Foreign exchange valued at US$1 = Z 1.10 (official rate May 1976 US$1 = Z 0.87).
3/ Including 10% physical contingencies
4/ Including incremental herd value in year 20

July 13, 1976

1/ Taxes d'importation et droits de douane exclus.
2/ Evalué au taux de change virtuel 1 dollar EU = 1.10 zaïres (taux officiel de mai 1976 1 dollar EU = 0.87 zaïre)
3/ 10% pour frais imprevus inclus
4/ Valeur residuelle du troupeau y comprise.

le 13 juillet 1976

ANNEX/ANNEXE 15
Table/Tableau 1

ZAIRE

ITURI LIVESTOCK DEVELOPMENT PROJECT

Economic Rate of Return Calculations for Major Project Components
(Z'000)

PROJET DE DEVELOPPEMENT DE L'ELEVAGE EN ITURI

Calcule de Rentabilité Economique pour les Eléments Principaux du Projet
(en milliers de zaires)

Traditional Sector [1]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Secteur Traditionnel [1/]
Costs [2]																					Coûts
Total Base Costs	1,094	1,133	1,242	1,302	864	769	830	885	843	820	848	883	856	889	850	883	854	864	848	882	Total Coûts de base
Shadow Pricing of Foreign Exchange	210	209	205	213	151	27	141	151	142	137	142	149	144	152	142	149	143	146	142	150	Coûts des devises évalués au prix virtuel
Total Costs	1,304	1,342	1,447	1,515	1,015	896	971	1,036	985	957	990	1,032	1,000	1,041	992	1,032	997	1,010	990	1,032	Total Coûts
Benefits																					Bénéfices
Milk	3	13	17	28	41	54	67	63	73	76	75	71	69	69	69	69	69	69	69	69	Lait
Meat [3]	59	122	403	607	1,041	1,435	2,168	2,970	3,236	3,738	4,636	4,764	4,895	4,895	4,895	4,895	4,895	4,895	4,895	9,044	Viande [3/]
Total Benefits	62	132	420	635	1,082	1,489	2,228	3,033	3,309	3,814	4,711	4,835	4,964	4,964	4,964	4,964	4,964	4,964	4,964	9,113	Total Bénefices
Incremental Economic Rate of Return = 26.35%																					Taux de Rentabilité économique supplémentaire = 26.35%
Ranch Component [4]																					Composante - Ranches [4/]
Costs [2]																					Coûts [2/]
Total Base Costs	418	616	564	433	505	312	327	314	395	350	381	447	423	360	333	325	399	342	336	327	Total Coûts de base
Shadow Pricing of Foreign Exchange	66	87	76	55	71	41	41	37	54	45	51	45	60	47	42	41	55	44	43	41	Coûts des devises évalués au prix virtuel
Total Costs	484	703	640	488	576	353	368	351	449	395	432	392	483	407	375	366	404	386	379	368	Total Coûts
Benefits																					Bénéfices
Net Sales of Cattle [3]	(64)	96	200	239	437	464	612	1,057	1,498	1,584	1,575	1,575	1,575	1,575	1,575	1,575	1,575	1,575	1,575	2,460	Ventes de bétail nettes [3/]
Incremental Economic Rate of Return = 22.65%																					Taux de Rentabilité économique supplémentaire = 22.65%
Abattoir Component [5]																					Composante - Abattoir [5/]
Costs																					Coûts
Total Base Costs [2]	465	396	163	177	253	233	234	244	266	285	337	314	304	297	307	332	319	297	297	309	Total Coûts de Base
Shadow Price of Foreign Exchange	68	51	28	12	19	20	18	17	19	21	28	24	22	21	22	28	25	21	21	23	Coûts des devises évaluées au prix virtuel
Total Costs	533	427	201	189	272	253	262	261	285	306	359	338	326	318	329	360	344	318	318	332	Total Coûts
Benefits																					Bénéfices
Net Sales of Meat [3]	213	226	285	411	419	437	537	686	692	781	996	996	996	996	996	996	996	996	996	1,119	Ventes de viande nettes [3/]
Incremental Economic Rate of Return = 36.75%																					Taux de Rentabilité économique supplémentaire = 36.75%

1 Includes traditional sector markets and rural slaughterhouses components
2/ Include 10% Physical contingencies; exclude taxes.
3/ Shadow priced at US$1 = Z 1.10 to reflect the scarcity value of Foreign Exchange.
4/ Includes Kekekere, Asada, Dele ranches plus the stockroute
5/ Includes Bunia and Kisangani abattoirs.

October 18, 1976

1/ Y compris composantes secteur traditionnel, marches et abattoirs ruraux
2/ Y compris 10% de depassements des quantites, taxes non comprises
3/ Au taux de change virtuel de 1 dollar EU = 1.10 zaires pour refléter la valeur de rareté des devises
4/ Y compris les ranches de Kerekere, Asada, Dele et piste de betail.
5/ Y compris les abattoirs de Bunia et de Kisangani.

Le 18 octobre 1976

ANNEX/ANNEXE 15
Table/Tableau 2

IBRD 11916

December 1975

REPUBLIC OF ZAIRE
ITURI LIVESTOCK DEVELOPMENT PROJECT