

| | |
|---|-------------------------------------|
| AGENCY FOR INTERNATIONAL DEVELOPMENT WASHINGTON, D. C. 20523 BIBLIOGRAPHIC INPUT SHEET | FOR AID USE ONLY <i>Batch 91</i> |
|---|-------------------------------------|

| | | |
|---------------------------|---|----------------|
| 1. SUBJECT CLASSIFICATION | A. PRIMARY Food production and nutrition | AE70-0000-G130 |
| | B. SECONDARY Distribution and marketing--Zaire | |

2. TITLE AND SUBTITLE
 Zaire grain and marketing paper; draft project paper

3. AUTHOR(S)
 (100) Pippitt, Cameron; Mutti, R.J.; Knight, Margaret; Mills, Walter; Kramer, Harold;
 (101) Experience, Inc., Minneapolis, Minn.

| | | |
|--------------------------|-----------------------------|----------------------|
| 4. DOCUMENT DATE 1977 | 5. NUMBER OF PAGES 194p. | 6. ARC NUMBER ARC |
|--------------------------|-----------------------------|----------------------|

7. REFERENCE ORGANIZATION NAME AND ADDRESS
 Experience

8. SUPPLEMENTARY NOTES (Sponsoring Organization, Publishers, Availability)

9. ABSTRACT

| | |
|---|---|
| 10. CONTROL NUMBER PN-AAG-015 | 11. PRICE OF DOCUMENT |
| 12. DESCRIPTORS Grain crops Project planning Projects Zaire | 13. PROJECT NUMBER |
| | 14. CONTRACT NUMBER AID/afr-C-1130 GTS |
| | 15. TYPE OF DOCUMENT |



EXPERIENCE, INCORPORATED

1930 DAIN TOWER • MINNEAPOLIS, MINNESOTA 55402

D R A F T

Handwritten: P.V. AAG-015

Handwritten: P.V. AAG-015

ZAIRE GRAIN MARKETING PAPER

Submitted to:

Office of Development Resources
Africa Bureau
Agency for International Development
Washington, D.C. 20523

by

Experience, Incorporated

13 April 1977



EXPERIENCE, INCORPORATED

Counsel to Decision Makers

EXPERIENCE® - Agriculture/Agribusiness

1725 K STREET N.W., SUITE 312

WASHINGTON, D.C. 20006 U.S.A.

(202) 659-3864

April 8, 1977

Mr. Raymond Solem
Office of Development Resources
Africa Bureau
Agency for International Development
Washington, D.C. 20523

SUBJECT: Zaire Grain Marketing

Dear Mr. Solem:

At the request of the Agency for International Development, Experience Incorporated provided a five member team which spent 7 weeks in Zaire for the purpose of defining and designing a project in grain marketing which is feasible and within the capability of appropriate GOZ agencies to implement.

After a thorough study of the maize marketing system in Zaire it was determined by the team that a large scale marketing program is not feasible at this time. There are two primary reasons for this conclusion.

1) It is improbable at this time that a large scale infusion of capital inputs (e.g. warehouses, trucks, etc.) will result in an increase in production.

2) ONACER does not have enough qualified personnel at this date to administer an increased program of any major magnitude.

The Team concluded, however, that there is a positive role which ONACER can play in the marketing system. In order to help ONACER fulfill this role, the study team proposes that AID initially assist in the development of a relatively modest program to be located in the Bandundu Region immediately to the east of Kinshasa. The purpose of this program is two fold: 1) to determine whether ONACER can encourage an effective marketing system which will lead to increased commercialized maize production in the area; and 2) to demonstrate whether ONACER can overcome its financial and administrative difficulties so as to manage the limited resources placed at its disposal. If ONACER can achieve both objectives, it will have demonstrated the probability that it can handle effectively a considerably larger quantity of resources. Consideration can then be given to a much larger

Mr. Raymond Solem
April 8, 1977
Page 2

program which the study team feels is premature at this time.

In the designated area, agreed to by ONACER, it is proposed that four small warehouses be constructed each with the necessary equipment. In addition a small garage will be constructed with its necessary basic equipment. A shortwave radio network is included to facilitate necessary communication. Four technical assistance personnel will be provided for the full two year period to provide all of the necessary training for ONACER personnel assigned to the area.

A major outside evaluation will be conducted after an initial period of approximately two years which, if favorable, could result in a larger project. A second Project Paper should be prepared at that time to design the second phase of an expanded maize marketing effort.

Sincerely,

Robert A Delemarre

Robert A. Delemarre
Vice President. Washington

/kk

This draft Project Paper was prepared under
Contract AID/afr-C-1130, Work Order No. 45
by a five consultant Experience, Incorporated
team composed of:

| | |
|--------------------|------------------------------|
| Cameron Pippitt, | Team Leader & Design Officer |
| R. J. Mutti, | Agricultural Economist |
| Margaret Knight, | Anthropologist |
| Walter Mills, Jr., | Grain Management Specialist |
| Harold Kramer, | Agricultural Engineer |

TABLE OF CONTENTS

| | |
|----------|--|
| Part I | Summary and Recommendations (to be prepared) |
| Part II | Project Description |
| | A. Project Background |
| | B. Detailed Description |
| Part III | Project Analyses |
| | A. Technical Analysis |
| | B. Economic Analysis |
| | C. Social Soundness Analysis |
| | D. Management Analysis |
| | E. Financial Analysis (to be prepared) |
| Part IV | Implementation Arrangements (to be prepared) |
| Annex | (partially completed) |

Part I Project Summary and Recommendations

including

1. Project Paper Face Sheet
2. Recommendations
3. Brief Project Description
4. Summary Findings
5. Project Issues

will be prepared following the project committee meeting and a second trip to Zaire by one or more members of the Experience, Incorporated Maize Marketing Team.

PART II

A. Project Background

A land of enormous promise, Zaire has never quite lived up to the expectations of many who felt that once political stability had been achieved, the country would develop its economic potential to the maximum. Instead, Zaire has been rocked by chronic inflation, a deteriorating physical infrastructure, general mismanagement of the economy and a remarkable lack of integrity in the provision of government services, all of which have contributed to a severe and steady decline in agricultural and industrial production. Often attributed to external factors such as lower copper prices and the resultant constriction in available foreign exchange, Zaire's problems are in reality much more basic and internal.

Geographically, Zaire is approximately the size of the United States east of the Mississippi River but with a population only 12% as great, i.e. about 26 million. Thus population densities are quite low particularly in the rural areas where a number of zones are nearly devoid of any population whatsoever. The rural population has tended to cluster along the extensive road system while cultivating fields at some distance from their villages. The per capita income of the rural population is approximately \$ per year. That of the urban population is \$ in spite of wide-spread unemployment and underemployment in the cities.

The wealth of the nation is currently based upon the exploitation of copper, industrial and gem diamonds, cobalt, cadmium, manganese, lead, zinc, and other ores. There are potential oil and iron ore deposits as well, which remain untapped. There is also an enormous hydro-electric capacity which is just beginning to be developed.

It is in the long-ignored agricultural economy however, where the real wealth of the country lies and where increases in production have barely kept up with the increase in population. This situation, a result of several factors, may be reaching crisis proportions but unfortunately it has only recently been recognized as such and little in the way of effective action has been taken. Much hope, it would seem, is still being placed in the expectation that the price of copper will once again rise and relieve everyone of the necessity of facing the harsh realities of the present situation. These realities include:

1. Seventy percent of the population is directly dependent upon agriculture, much of it subsistence;
2. Following a rapid drop after independence in 1960, total food production has only recently returned to earlier levels.
3. Cash crop production, particularly in plantation agriculture, has declined drastically since 1960;
4. Agricultural exports now account for less than 17% of total export earnings. At independence, agricultural exports accounted for 39% of Zaire's total exports. Moreover total exports have dropped from in 1960 to in .
5. The contribution of agriculture to monetized Gross Domestic Product is now around 18%. In 1960 it was approximately .
6. There is a steady and constant movement of the population out of the countryside into the cities. Children born in the cities become permanent residents with little likelihood of them ever returning to a rural life;

7. Major quantities of food are now imported into Zaire including 134,600 metric tons of corn last year. Zaire was a net exporter of food, including corn, in 1960; and
8. The total population of Zaire is increasing (2.9% per year) with the urban population increasing at a much faster rate than the rural (8.2% vs. 0.76%).

If the above trends are not reversed or at least diminished in the coming years, it is obvious that disaster will ensue. It should also be fairly clear that the price of copper is largely irrelevant to the forces described above.

This situation is, of course, not unique in Africa. It is to be found to a greater or lesser extent in most countries on this continent. However, given the extreme weaknesses in the administrative and physical infrastructure in Zaire, as well as the current economic condition of the country, the result may be an accelerating economic deterioration.

To list just a few of the problems that affect life in the rural areas:

1. A shortage of qualified, trained and experienced manpower in both the public and private sector;
2. The road network, including bridges and ferries, has deteriorated to the point that many areas are completely cut off from vehicular traffic thereby restricting agricultural commodities moving off the farm or village and preventing supplies from entering;
3. Supplies of spare parts, tires and gasoline or diesel fuel are so limited that traffic barely moves even where roads may be passable;

4. Zairianization decrees eliminated nearly all non-Zairian small traders who bought and sold most agricultural commodities and consumer goods in the rural areas;
5. A corrosive atmosphere of corruption in both the private and public sectors that stifles much commercial activity;
6. National pricing policies for agricultural commodities which have disrupted markets and hampered processing industries; and
7. Limited operational and investment budgets for the Department of Agriculture and the commodity offices (currently 4% of the national budget, the highest it has ever been).

Two recent developments serve to brighten the situation somewhat. First of all, it is apparent that the government has recognized the necessity to provide an incentive price to the cultivator and is acting upon this understanding. The government has raised the official price, for example, of corn in order to encourage greater production efforts, although it must be pointed out that these increases often follow the market rather than lead it. Nevertheless the intention is clearly there.

The second encouraging development is the recent reversal of the Zairianization decrees which will allow expatriate management to return to a number of industries and activities of concern to the rural sector. This includes a number of maize mill owners and operators as well as some plantation owners who are now in the process of reestablishing their businesses.

MAIZE PRODUCTION AND CONSUMPTION

Maize is produced throughout Zaire largely on small farms by traditional hand-cultivation methods. Average yields are low, ranging from 325 to 1000 kilograms per hectare. Total production in 1976 was estimated at 410,000 metric tons. Imports of maize were 135,000 metric tons or 25% of total consumption of 545,000 metric tons. Amplification of these statistics through time and broken down by region will be found in Section III D (Economic Analysis).

Maize is used in Zaire primarily for human food in the form of maize flour, for seed, for beer production (brewing grits), and for livestock feed. Consumption varies tremendously between regions with Kinshasa and the surrounding areas (Bas-Zaire, Bandundu) being basically cassava consuming. In these areas the inhabitants often blend approximately 20 percent maize flour with 80 percent cassava flour to create "fufu" or "bidia". Much higher levels of consumption are found further east in the Kasai's and the highest per capita consumption is found in Shaba where the blend of maize flour with cassava is roughly 80-20, just the opposite of that in the west. Current per capita consumption is estimated at 7.6 kilograms in Kinshasa, 20 in Kasai Occidental, 44.5 in Kasai Oriental, and 92 in Shaba.

COMMERCIALIZATION OF MAIZE

The commercialization or marketing of maize is handled in the first instance by small commercants or traders who travel by truck to the villages, purchase sacked corn and deliver it to a purchasing point which might be an urban market, a flour mill or a shipping point along the river or

railroad. The National Cereals Office (ONACER) may also participate in this process through the purchasing of corn at the village level although their activities in this realm have been quite limited over the past few years due to limitations upon the availability of funds for grain purchases. In addition ONACER issues licenses to the commerçants to participate in marketing of agricultural produce.

Before maize is sold it must be carried from the field to the village, shelled, and then carried or transported to the nearest passable road. The maize ears are head-carried in sacks (about 50 Kgs) to the village, either by members of the farmer's family or by hired labor. As with most of the tasks involved in agricultural production, it is carried out by women. No bicycles or animal transport are employed for this task, as is the case in other countries. Village shelling consists of beating a sackful of maize cobs with a stick until the kernals have dropped off. The sacks are obtained from the traders ostensibly to be filled with already shelled maize. Usually one man can produce 2 sacks (200 kilograms) of shelled maize per day. A register of the names of farmers to whom sacks have been distributed is kept by the commerçant.

The second step in marketing is the weighing of the maize. This usually occurs about 2 weeks after the distribution of sacks. The weigher may make his rounds of the villages on a bicycle although frequently he accompanies the truck to the village. The scale is usually a swinging arm balance ('bascule romaine') which is hooked into the bough of a tree or onto a pole suspended between two uprights. The sack is suspended on a rope sling and the weight is calculated less 1 kilogram for the sack itself. Platform scales are generally not used. Payment is usually made by the commerçant or a member of his family several days after the grain has been removed by truck. When ONACER engages in buying, they usually make payment at the time of weighing and removal.

In the early part of the buying season, traders generally purchase close to their depot, going further out as supplies dry up. A wide variety of trucks are used with capacities varying from 5 to 7 tons. They are usually not loaded to their full capacity due to the fear of breakdowns. Private traders generally carry goods both ways on a trip into the countryside thereby maximizing the returns from the use of their trucks.

Until 1973, these marketing activities were carried out by hundreds of small traders, most often Portuguese, Greek, Pakistani or Arab, located usually in market towns in the rural areas. Non-Zairois traders were eliminated by decree in 1973 and their business and assets were turned over to Zaire citizens. In most cases the new proprietors were not familiar with the grain trade, and they often lacked any business experience whatsoever. The effect of this policy was to severely reduce the number of grain dealers in the countryside. To cite some examples, in the Demba area of Kasai Occidental, 54 dealers were operating in 1970; only four dealers were licensed last year for the same area. 128 dealers were licensed in the entire Kasai Occidental region in 1970. There are not more than active licensed commercants in this region today. Although a number of the Zairianization decrees have recently been reversed, it is not expected that this policy will change in the foreseeable future.

ONACER

In 1974 the Government of Zaire created the Office National des Cereals (ONACER) which was given monopoly control of the marketing of cereals in Zaire. In addition, ONACER had important production and research functions since it included the Programme National de Mais (PNM), a CIMMYT-

sponsored organization engaged in maize research and production. The PNM is now a completely separate organization no longer tied to ONACER. As a result of the Zairianization decrees, ONACER owned a number of milling installations in Shaba, Bas-Zaire, Bandundu and the Kasai's. All except one profitable rice mill in Mbanza Ngunqu, Bas-Zaire, have been returned to their former owners.

Experience has demonstrated the practical impossibility of ONACER's assuming a monopoly control over the marketing of grain and so the statute governing the organization is being changed. The new statute would give ONACER responsibility for organizing marketing to the advantage of producers, millers and traders. A special committee would be created to advise the government of Zaire on matters pertaining to cereal pricing and processing. The responsibility for convening the committee and reporting to the government would be vested in ONACER. These changes will move ONACER towards the concept of a marketing board where all cereal interests are represented but without the monopoly function. The statute has been approved by the Commissioner of State for Agriculture and is awaiting the signature of the President. As this may take some time, ONACER is at present operating as if the statute were actually in effect.

In attempting to create, virtually overnight, a national marketing organization with little capital, no warehouses, no trucks, no sacks, no scales, no experience, and an unattainable mandate, the government was asking the impossible. The present leadership of ONACER has brought a certain measure of order out of chaos and confusion. A system of stock control is being introduced, certain non-profitable operations are being eliminated, and a definite policy of retrenchment is being instituted. ONACER is also eliminating the heavy debt burden to the Bank of Kinshasa and the Banque Commerciale Zairoise. These are all positive

developments. Nevertheless, the future remains somewhat uncertain for ONACER and it has yet to prove itself in the eyes of the public. One sign of support has been the recent allocation by the Office of the Presidency of Z 100,000 for the emergency purchase of manioc (cassava) for Kinshasa. ONACER has also benefitted from the distribution of PL 480 rice. Both of these measures are expected to help reduce ONACER's bank debt to zero.

Nevertheless, much remains to be done. Although ONACER no longer aspires to monopolize control of the grain market, the exact relationship of the public sector to the private remains somewhat undefined. ONACER is still an ineffective force in the market place in which it desires to play a positive role. This question of the appropriate role for ONACER and the public sector is still to be decided.

One role for ONACER which has been proposed is that of a market stabilizer in which they would attempt to balance the supply and demand for maize or rice through buying and selling operations. In general, ONACER would operate so as to support producer prices and to lower prices to the consumer. ONACER would also operate in such a way as to discourage "speculation" by intermediaries such as commerçants and grain millers. A second activity of ONACER which could serve what it feels is its social mandate, is the distribution of food into areas of temporary major food shortage. ONACER is currently attempting to use its allocation of PL 480 rice in this manner. ONACER can also act as a highly useful statistics and information gathering agency for the GOZ. ONACER also licenses private traders as required by local and regional governments. Possibilities for the abuse of the latter function are reduced by the fact that these licenses can also be issued by the Regional Commissioner and the local office of the Department of Agriculture.

Aware of the increasing grain deficit and the vast maize-producing potential of the country, the Government of Zaire has requested the following assistance from the United States and other interested parties:

1. The National Maize Program (PNM) has been established in collaboration with the International Center for the Improvement of Maize and Wheat (CIMMYT) in Mexico. An American, Dr. Thomas Hart, is the Director of the project. A solid cadre of competent and highly motivated young Zairois has been trained, and a start has been made toward extending a package of cultural practices suitable to the high-yielding composites which are being introduced in several regions.
2. The North Shaba Maize Production and Rural Development Project. A USAID grant/loan contribution has been made totaling nearly \$10 million of a \$19 million project "to identify an effective rural development process for improving small farmer production and income which is replicable in other parts of Zaire."
3. The GOZ requested AID to provide a qualified grain marketing and storage advisor to ONACER. Mr. Ian Pattinson, a technician with fifteen years experience in African grain programs, took up this assignment in September, 1975 under provisions of the Planning and Management Services Project. Mr. Pattinson has been responsible for many of the improved management practices recently initiated by ONACER.
4. The GOZ requested AID to arrange for a comprehensive study of the problems of grain marketing in Zaire

with particular emphasis on maize. This study was carried out by a Kansas State University team in late Spring 1975. The Kansas State group was asked to make specific recommendations for the development of an effective maize marketing organization, based upon the findings of their study. A copy of the final report has been provided to the GOZ. A project review paper was prepared by the USAID in December 1975 but was rejected by Washington shortly thereafter. At the request of the USAID mission, however, a new five-man team was sent out in February 1977 to prepare a project paper which could lead to an approved project.

B. Project Description

1) Goal - The program goal to which this project will contribute is to assist Zaire in achieving self-sufficiency in maize production within the shortest possible time. The North Shaba Rural Development project is also intended to help Zaire achieve this production goal and there are a number of other maize production projects supported by a variety of donors including the European Community, the Belgian Government and CIMMYT (International Center for the Improvement of Maize and Wheat). The Government of Zaire has taken several actions on its own which are intended to promote the production of maize. In particular, the government has increased the official producer price of maize from one makuta per kilo in 1973 to 4 makuta per kilo in 1974 to 7.5 makuta per kilo in 1975 to 12 makuta per kilo in 1976. Although some of these increases merely reflected existing private sector prices and the latest price increase is not effective in Shaba, nevertheless the motivation behind this official action was indeed to provide an increased incentive to farmers. In addition, the government requires a number of organizations, including GECAMINES, to engage in grain producing activities so as to contribute to the goal of self-sufficiency in food.

However, one of the major limitations on any increase in maize production is the inadequate grain marketing infrastructure. As a result, an undeterminable quantity of maize is never produced in the first place. When a cultivator becomes discouraged at the lack of buyers in one year, he is unlikely to produce much beyond his family's immediate subsistence needs in the following year. Thus the potential for greater maize production is undoubtedly present in Zaire. It will remain unrealized unless greater efforts are made to facilitate the marketing of the cultivator's output.

2. Purpose - The purpose of this project is to help develop a maize marketing infrastructure, public and private, which will ensure a fair return to producers and an adequate supply of reasonably priced grain and flour to consumers.

a) The Private Sector is currently carrying the main burden of marketing of maize and other grains in Zaire. The study team concluded that his system of distribution was necessary, appropriate and beneficial to both producers and consumers. In spite of the exceptionally large risks and high costs involved, margins would appear to be sufficient to permit this system to work effectively. Certain actions in the public sector could be taken which would tend to reduce considerably private sector margins, especially in the field of transportation.

AID assistance to the private sector can only be carried out through some intermediary such as the private or publicly owned banks or a public entity such as ONACER or SOFIDAG. Past attempts by these institutions at direct assistance to the private sector, particularly in the form of loans to commerçants, have proved disastrous with a very low repayment rate. This situation certainly reflects a low level of integrity in the system rather than any inability to repay the loans. Any attempt at this time by AID to support the private sector through a similar lending program will have identical results. Moreover, current AID commodity import and PL 480 programs cannot be modified to provide direct assistance to the private commercial sector which is relatively small scale, widely disbursed and basically accountable only to themselves as individuals. Nevertheless, AID:

may be prepared to extend direct assistance to the private sector at some future date if circumstances warrant.

b) The Public Sector - It would appear that the most feasible approach to assisting the commercialization of maize in Zaire would be through an organization in the public sector which could play a supporting role to the private sector. The most likely organization at this time is ONACER.

As both a policy making and an operational organization, ONACER has the potential to develop a marketing system which will enable small farmers to increase their production and incomes. ONACER is currently severely handicapped by several external and internal constraints which limit their ability to act effectively.

1. External constraints. The first constraint is that of transportation, which affects every organization in Zaire to some extent or other. The poor condition of the roads, the lack of spare parts, the limited availability of fuel, the unreliability of river transport, and the virtual non-existence of foreign exchange are sufficient to paralyze any organization, particularly a commercial enterprise. The fact that ONACER can function at all under these circumstances is commendable. The second constraint is Zaire's legacy of a lack of trained and educated manpower. The number of competent executives are few, generally inexperienced, and often attracted to major organizations in the private sector that have the capital to attract and hold talented people. The third handicap is the stiff competition from the relatively efficient and tightly organized

group of private commerçants and mill owners. Outside political and social restraints limit ONACER's ability to eliminate its own waste and inefficiency. The fourth, and perhaps the most severe constraint external to ONACER, is the corruption which is found at every level of society. The cynicism and indifference which this kind of atmosphere engenders is not conducive to a sense of social responsibility on the part of individuals and organizations in Zaire. The leadership of ONACER seems to be making a sincere effort to cope with this difficult problem.

2. Internal constraints. Finding working capital for grain purchases has been a continuous problem for ONACER. Buying has been restricted due to the fact that the banks (the Bank of Kinshasa and the Banque Commerciale Zairoise) will lend no more funds until ONACER has eliminated its overdue debt. The debt is now down to Z 200,000, and it is expected to be wiped out as soon as the PL 480 rice allocated to ONACER has been sold. This situation of indebtedness resulted from the use of borrowed funds for purposes other than intended maize purchases. As a result of this limitation on buying funds, ONACER purchased only 4077 tons of maize in 1975 and 1163 tons in 1976. The second constraint concerns communications. National telecommunications and postal facilities are generally inadequate. A radio network does exist at the Department of Agriculture but it is inadequate to that service, much less to the daily needs of ONACER. ONACER has virtually no means of remaining in regular contact with its offices in the interior other than by hand-carried messages and letters. A means of communication

which will permit the quick daily delivery of prices, stock levels and market conditions, as well as for administrative purposes is urgently needed. The third constraint is the internal administrative and managerial weaknesses of the organization. In spite of a major effort to bring some order out of the chaos with which it was presented, the present leadership of ONACER still has a long way to go. An effective system of stock control has been developed but has yet to be implemented. The size of the staff remains at over 400, the same number as one year ago. Financial and budgetary controls are inadequate and ineffective. A tighter control over trucks and vehicles is necessary. The problem of low employee morale and lack of motivation needs to be addressed in a realistic fashion.

ONACER is quite aware of its managerial and administrative deficiencies and has developed a strategy to cope with them. Essentially the strategy involves retrenchment and the elimination of unprofitable operations. The study team endorses this approach as the most realistic and promising under the circumstances. Essentially this policy means withdrawal from those areas that are already adequately served by the private sector in order to concentrate on certain food deficit areas where there is a greater need for the services that ONACER can provide. These areas, Bandundu, the Kasai's and Bas-Zaire also happen to be physically closer to the ONACER headquarters in Kinshasa than Kivu, Haut Zaire, Equateur or Shaba. Thus their operations can be closely supervised and, when problems arise, resolved in a timely manner.

3. Outputs - In order to help ONACER achieve its objectives, the study team proposes that AID initially assist in the development of a relatively modest program to be located in the Bandundu Region immediately to the east of Kinshasa. The purpose of this program is two-fold: 1) to determine whether ONACER can encourage an effective marketing system which will lead to increased commercialized maize production in the area; and 2) to demonstrate whether or not ONACER can overcome its financial and administrative difficulties so as to manage the limited resources placed at its disposal. A major outside evaluation will take place after an initial period of approximately two years. If ONACER can achieve both objectives, it will have demonstrated the probability that it can handle effectively a considerably larger quantity of resources. Consideration can then be given to a much larger program which the study team feels is premature at this time.

The project area will consist of a central distribution and administrative facility at Kikwit supported by three collection points in the interior along the Kasai River. The collection points will not necessarily be permanent year-round operations. Maize will be stored and sold at Kikwit for local consumption or shipped to Kinshasa or to the Kasai's depending upon the relative price relationship. Maize will also be shipped along the Kasai River.

The project area was chosen because it encompasses Kikwit, a commercial center for the Kwilu District in Eastern Bandundu, as well as the Kasai River, a major east-west transporter of food and other goods. Kikwit is also expected to benefit from the imminent completion of the Kinshasa-Kikwit paved road. Thus these are relatively adequate transportation

and communications facilities available. In addition ONACER has, as a deliberate policy, placed some of its most competent people in Bandundu and the GOZ Department of Agriculture is developing a crop production and price reporting system in this region.

The project expects to demonstrate that, if increased opportunities and incentives for marketing maize are provided in the project area, then cultivators will respond positively and increased production will be forthcoming. Criteria for evaluating this thesis, and the assumptions behind it, are discussed in the social soundness analysis (Part III, C). At present approximately 2/3's of maize produced in the Bandundu area is consumed in the village and thus only limited quantities are commercially marketed. The USDA PASA team working with the Government of Zaire's Department of Agriculture is developing base line data which will be utilized by the evaluation team to determine whether this project has met its objectives. The absence of such basic data at this time makes it impossible to establish in advance quantitatively specific determinants of success.

ONACER must also demonstrate that it can utilize effectively the resources placed at its disposal. Further input by AID will thus be conditional upon meeting this objective. Most of the variables which will determine success in this effort will be in the hands of ONACER and the Government of Zaire rather than in AID's. For example, for reasons described below, AID will not involve itself in the financing of a buying fund for ONACER. If the facilities in the Bundundu Region are underutilized as a result of insufficient availability of buying funds (an ONACER responsibility), the pilot project cannot be deemed a success and further resources will not be provided. Nor could the project be considered a success if, for example, the garage tools are stolen, not replaced by ONACER, thus incapacitating the garage and repair facility and leading to underutilization of the vehicle fleet and warehouse.

We cannot emphasize too strongly that the responsibility for the success or failure of the pilot activity rests entirely upon the shoulders of ONACER and the Government of Zaire. Given the potential consequences, one way or the other, it is absolutely essential that ONACER and the Government of Zaire understand this position.

4. INPUTS

Phase I. AID will furnish to this project only those inputs which ONACER cannot provide on its own due to foreign exchange and human resource limitations. Thus the United States will furnish neither purchasing nor commercial investment funds which require only local currency generally available through local financial institutions or the Zaire Government.

The project will consist of the following elements:

- 1) Technical Assistance Total cost \$656,000
Eight person-years over a two year period in Kinshasa and Kikwit:
 - a) A Marketing/Management Advisor to help develop major marketing policies, to advise on marketing operations and to supervise project development. This technician is already on duty, funded under the Planning and Management Services Project 050 until August 1977. He will be the Chief of Party stationed in Kinshasa.
 - b) A Financial Management Advisor to advise as well as train a cadre of financial analysts in the operations necessary to an organization involved in the simultaneous buying and selling of several commodities. This individual may also involve himself in the planning of an AID program to assist directly the private sector, with ONACER or another institution acting as an intermediary. He will be the Deputy Chief of Party and will also be resident in Kinshasa.
 - c) A Warehouse Management and Fumigation Specialist in Kikwit. He will introduce modern methods of warehouse and stock control in the project area and be responsible for training Zairois staff and counterparts. He will also be responsible for the insect

and rodent control program and will introduce proper fumigation techniques in the warehouses in Bandundu Region, Kinshasa, and later, in other ONACER storage facilities throughout Zaire. Zairois will receive instruction in these techniques as well, with emphasis placed on safety and efficiency.

- d) A Garage Manager/Mechanic will have responsibility for the repair facility in Kikwit. He will provide training in the areas of automotive mechanics, tool and spare parts control, procurement, safety practices, etc. This individual could be a Peace Corps or I.V.S.-type volunteer. Such a possibility will be explored with the appropriate organizations.

These four advisors will be required to speak French. It will be ONACER's responsibility to provide suitable counter-parts. Sufficient funds for the full logistical support, including housing, of these four technicians and their families are provided by this project.

| | |
|-----------------------------------|-----------|
| 4 persons for 2 years each @ | |
| \$70,000 per annum | \$560,000 |
| Housing for 4 persons for | |
| 2 years each @ \$12,000 per annum | 96,000 |

2) Construction Total cost \$700,600

Kansas State University recommended the initial construction of 20,000 MT of storage facilities at 10 selected sites. ONACER subsequently made an informal request for some 28,000 MT of warehouse space at 20 locations. In this phase of the project, only 2500 MT of storage facilities will be constructed: a 1000 ton warehouse at Kikwit and 500 MT collection centers at Panu, Mangai and Dibaya-Lubue along the Kasai River. ONACER has also requested an expansion of their Kinshasa facilities from 1000 to 2000 metric tons on the grounds that expansion of activities in the Bandundu area will lead to immediate requirements for increased storage space in Kinshasa. The study team felt that additional space, if necessary, could be rented (See Issues).

KSU's original cost estimate for warehouse facilities was based upon a figure of \$13.50 per ton of capacity. This was revised upward by USAID in December 1975 to \$80 per ton. The current cost estimate is approximately \$180 to \$200 per ton based on local construction using standard techniques. Some economies may be gained by utilizing totally imported and locally assembled storage building and this alternative is being investigated. The cost estimate is for the warehouse alone and does not include ancillary facilities such as the provision of utilities, fencing, access roads, garage construction, and warehouse and office equipment (See Technical Analysis).

A separate garage building will be constructed on the same site at a cost estimated at \$20,000. Chain link fencing will be constructed around all sites for security purposes at a cost estimated at \$30,600.

Summary

| | |
|--------------------------|------------------|
| 1. Warehouse → Kikwit | \$200,000 |
| 2. Garage - Kikwit | 20,000 |
| 3. Collection points (3) | 450,000 |
| 4. Fencing | 30,600 |
| | <u>\$700,600</u> |

3) Equipment Total cost \$174,700

| | |
|--|----------|
| Warehouse equipment - Kikwit | \$19,100 |
| Warehouse equipment - collection points | 36,225 |
| Warehouse equipment - Kinshasa | 15,200 |
| Garage equipment - Kikwit | 3,000 |
| Moisture tester - Kikwit | 375 |
| Short wave radio network | 100,800 |

(See Technical Analysis for details)

4) Training Total cost \$ 25,000

Training will be entirely on-the-job and, in general, on-the-site. The training will be provided by the four technical assistance specialists. \$25,000 is provided for three one-week seminars per year plus training materials.

5) Transportation Equipment Total cost \$ 50,000

ONACER has requested five trucks for the Bandundu area. The study team feels that transportation could and should be met from the present fleet of 24 to 32 trucks and 16 to 19 Landrovers (See Issues for full discussion). In any case, the USAID technicians will require their own independent source of transportation. Four four-wheel drive vehicles will be required with a full supply of spare parts. POL requirements for the technicians' vehicles will be paid for from local currency project funds.

6) Improved Village Technology Sub-Project

Total cost \$ 15,000

| | |
|------------------------------|----------|
| 50 Corn shellers @ \$60 | \$ 3,000 |
| 50 two-wheel carts @ \$130 | 6,500 |
| Estimated distribution costs | 5,500 |

(if undertaken by Peace Corps)

(See Annex for detailed Sub-Project description)

7) Evaluation Total Cost \$ 50,000

A two-man evaluation team will evaluate this project following a two-year period including no less than two full buying seasons.

The Government of Zaire and ONACER will furnish the following elements to this project during Phase I:

1. Salaries and support for all Zairois staff;
2. All other non-project related expenditures of ONACER;
3. With the exception of the AID technicians' vehicles, all trucks, vehicles and POL necessary for effective operations;
4. Sacks;
5. Office equipment and furniture;
6. Sites at Kikwit, Panu, Mangai and Dibaya-Lubua for the warehouse, collection points and garage;
7. Buying funds as available from commercial banks or public institutions.

SUMMARY PHASE I COSTS

| | |
|--------------------------------|-----------|
| 1. Technical assistance | 656,000 |
| 2. Construction | 700,600 |
| 3. Equipment | 174,700 |
| 4. Training | 25,000 |
| 5. Transportation equipment | 50,000 |
| 6. Improved Village Technology | |
| Sub-Project | 15,000 |
| 7. Evaluation | 50,000 |
| | 1,671,300 |
| Total | 1,671,300 |

Phase II. If an outside evaluation determines that the purposes of Phase I have been achieved, i.e., ONACER's operations have led to an increase in commercialized maize production and ONACER demonstrates that it can utilize effectively the resources placed at its disposal, a much larger program can then be contemplated. Only the broad outline of what such a program might entail can be given now. It is based on a combination of the KSU proposals and on ONACER's own expressed desires. The actual program will have to be determined at least two years hence, and a second project paper should be prepared at that time. This paper could be prepared before the planned evaluation is complete, but authorization of funds will be contingent upon a positive finding of the evaluation team.

| | |
|---|------------------------|
| 1) Construction | Total cost \$5,408,600 |
| - Warehouse construction at 18 locations (25,500 MT @ average of present day cost of \$200 per ton of capacity) | 5,100,000 |
| - Garage construction at 4 locations* (at \$20,000 each) | 80,000 |
| - Fencing at 18 locations (at \$12,700 each) | 228,600 |

* Kinshasa, Kananga, Lubumbashi, Kisangani

| | |
|--------------------------------------|-----------------------|
| 2) Equipment | Total cost \$ 342,075 |
| 52 tarpaulins @ \$3000 each | \$156,000 |
| 38 platform scales @ \$3750 each | 142,500 |
| 18 warehouse equipment @ \$1525 each | 27,450 |
| 11 moisture testers @ 375 each | 4,125 |
| 4 garage equipment @ \$3000 each | 12,000 |

- 3) Training (based on KSU estimate) Total cost \$150,000
- a. On-the-job training materials
(3 years @ \$5,000 each) \$ 15,000
 - b. In-country seminars
(Three one-week seminars per
year @ \$4,000 each) 36,000
 - c. Attendance at KSU or other
university in marketing and
storage courses (2 persons
per year for 3 years @ \$4,500) 27,000
 - d. Degree programs in marketing,
economics, engineering, etc.
(minimum 4 persons to M.S.
level @ \$18,000 each) 72,000

- 4) Technical Assistance Total cost \$798,000
- a. 3 persons for 3 years each,
skills and proficiencies to
be determined - 9 person-
years @ \$70,000 per annum
 - b. Short-term consultants:
2 person-months per year
for 3 years @ \$10,000 per month
 - c. Housing for 3 persons for 3
years each @ \$12,000 per annum

5) Vehicles

At the beginning of Phase II, all trucks and vehicles will have been amortized with few, if any, in running condition. An entirely new fleet will have to be purchased. ONACER will require a minimum of 80 diesel powered 4-wheel drive six-ton trucks @ estimated cost of \$25,000 per truck and two 4-wheel drive, all terrain vehicles at each warehouse (20) @ \$9,000 per vehicle.

6) Investment Fund Total cost \$3,500,000

Under the assumption that an appropriate institution can be found and that adequate safeguards can be developed, a very rough calculation can be made of the capital that might be required: 100 six-ton trucks @ \$25,000 each plus one million sacks at \$1 each would cost \$3,500,000. As the funds required for this loan program would be entirely local currency, it is recommended that counterpart funds generated by PL 480 or the commodity import program be used. After it has acquired a certain experience, the agricultural credit facility (SOFIDAG) of the national development bank (SOFIDE) might be an appropriate vehicle for this task. It has been proposed that ONACER, through its knowledge of the market place and individual commerçants, might be able to provide a liason and referral service to SOFIDAG or some other lending institution.

7) Sacks Total cost \$ 700,000

ONACER now purchases some 10,000 jute bags a month from TISSAKIN, a Kinshasa textile mill. This is the maximum quantity that the factory is willing to release to ONACER during the current jute shortage. If ONACER were to market 25% of the commercialized maize (60,000MT) and if each bag is used twice, some 350,000 bags per year would be required. At about a dollar a bag, a two years' supply would cost about \$700,000. As the complete financing of the purchase of these bags would imply a subsidy of \$1 on each bag of maize bought or sold for two years, careful consideration should be given before any such program is undertaken. As this is also strictly a local cost item, only counterpart funds should be utilized.

8) Final evaluation Total cost \$ 50,000

9) Rotating Purchase or Buying Fund

The study team does not recommend that AID involve itself in this aspect of marketing which is already adequately handled by existing private and public financial institutions.

SUMMARY OF PROPOSED PHASE II PROJECT

| | |
|--|---------------------|
| 1. Warehouse, collection point and garage construction | \$ 5,408,600 |
| 2. Equipment for warehouses and garages | 342,075 |
| 3. Training | 150,000 |
| 4. Technical Assistance personnel | 798,000 |
| 5. Vehicles | 2,360,000 |
| 6. Investment Fund | 3,500,000 |
| 7. Sacks | 700,000 |
| 8. Final evaluation | 50,000 |
| Total | <u>\$13,308,675</u> |

TABLE ILOCATION, CAPACITY AND EQUIPMENT AT PROPOSED PHASE II WAREHOUSES

| <u>REGION</u> | <u>TOWN OR ZONE</u> | <u>CAPACITY</u> | <u>TARPAULINS</u> | <u>SCALES</u> | <u>MOISTURE TESTERS</u> |
|---------------------|---------------------|-------------------|-------------------|---------------|-------------------------|
| Kinshasa | Kinshasa | 6,000 | 12 | 4 | 1 |
| Bandundu | Kikwit | 1,000 (expansion) | 3 | 2 | - |
| | Bulungu | 500 | 1 | 1 | - |
| Kasai Occidental | Kananga | 3,000 | 6 | 4 | 1 |
| | Ilebo | 1,000 | 2 | 2 | 1 |
| | Mueka | 1,000 | 2 | 2 | 1 |
| | Luebo | 500 | 1 | 1 | - |
| Kasai Oriental | Muene Ditu | 1,000 | 2 | 2 | 1 |
| | Mbuji-Mayi | 1,500 | 3 | 3 | 1 |
| | Luputa | 1,000 | 2 | 2 | 1 |
| Shaba | Lubumbashi | 2,000 | 4 | 3 | 1 |
| | Kamina | 1,000 | 2 | 2 | 1 |
| | Kasaji | 500 | 1 | 1 | - |
| | Mutsuatsha | 500 | 1 | 1 | - |
| Bas-Zaire | Mbanza Ngungu | 2,000 | 4 | 3 | 1 |
| Haut-Zaire | Kisangani | 2,000 | 4 | 3 | 1 |
| | Kowe | 500 | 1 | 1 | - |
| | Lubutu | 500 | 1 | 1 | - |
| | Total | 25,500 | 52 | 38 | 11 |

Improved Village Technology Sub-Project

Studies of present farming practices estimate that 60 percent of all labor requirements for production of maize on small (1/2 to 1 hectare) farms is expended in harvesting and post harvest operations. Changes or assistance that can be introduced to decrease the time or physical labor involved in harvesting, drying, head-load transporting or market preparation can serve to encourage increased production and commercialization.

The purpose of this subproject is to determine whether and how small technical inputs at the village level can be used to reduce labor constraints and increase production. After a reasonable period, at least one year, the ultimate disposition and utilization of the inputs distributed to each village will be evaluated. The results of the evaluation will be provided to ONACER and modifications made in any subsequent programs recommended for implementation in Phase II. This project could be expanded geographically or a different set of inputs could be employed. Some consideration should be given to using locally produced, rather than imported inputs.

During the first year of the overall project, ONACER will select, with the approval of the AID project officer, 50 villages in Bandundu Province. There will be two criteria which will be used to select the villages: 1) they must be physically located well away from any passable motor roads and 2) they must already have some maize production.

After the villages have been selected and agreed upon, one simple hand-cranked maize sheller and one two-wheeled cart will be distributed to each of the villages. If ONACER voluntarily chooses to take on this task, they may be entrusted with their distribution. The AID project officer may elect an alternative means of distribution as he may determine at the time. A possible alternative might be to use one or more Peace Corps Volunteers to do the distribution as a summer project. Under certain circumstances, missionary

groups might also be considered appropriate for this task. If organizations other than ONACER are used, then AID must furnish the necessary transportation and gasoline. Details of the distribution system (schedules and routes) should be approved by the AID project officer in advance.

The maize sheller and the cart will be entrusted to a responsible member of the village community, such as the chief, or to the community as a whole. The disposition of these articles will be decided upon on the spot preferably in the presence of someone, such as an extension worker, who is familiar with the community. A record should be kept as to the initial disposition of the materials, however no attempt will be made to force accountability or responsibility on the village community.

Maize may be shelled either in the field or at the village. In either case, a significant reduction in labor currently employed in transporting unshelled maize can be effected through the use of relatively simple shelling machines. Since it is intended that there will be little, if any, training involved in the maintenance and operation of the village shellers, only the simplest and most durable of hand operated shellers should be used. Given the total absence of gasoline or other fuels in the villages, no motor-operated shellers can be considered.

A two wheeled cart capable of carrying heavy loads over very rough terrain would also prove invaluable in facilitating the transportation of shelled maize (or other loads) to points along a passable road or even all the way into a market town. At present maize, often still on the cob, is head loaded by women to a road or to town for sale in the market. Bicycles or animal transport are not used. A cart would increase the carrying capacity of an individual thereby reducing the number of required trips. It should also effectively increase the size of the marketing area by several degrees. A well balanced and solid cart similar to that manufactured by Garden Way Research of Charlotte, Vermont would be ideal.

Summary Phase I

| | | | |
|--|-------------------------|------------------------|---------------|
| 1. Technical Assistance | | | \$ 656,000 |
| 4 persons for 2 years each @ \$70,000 | \$560,000 | | |
| Housing for 4 persons for 2 years | | | |
| @ \$12,000 | 96,000 | | |
| 2. Construction | | | 700,600 |
| | <u>Zaire Contractor</u> | <u>Imported Prefab</u> | |
| 1. Warehouse - Kikwit | 200,000 | 80,000 | |
| 2. Garage - Kikwit | 20,000 | 18,400 | |
| 3. Collection points (3) | 450,000 | 246,000 | |
| 4. Fencing | <u>30,600</u> | <u>30,600</u> | |
| Total | 700,600 | 375,000 | |
| 3. Equipment | | | 174,700 |
| 1. Warehouse equipment - | | | |
| Kikwit | 19,100 | | |
| 2. Warehouse equipment - | | | |
| Collection points | 36,225 | | |
| 3. Warehouse equipment - | | | |
| Kinshasa | 15,200 | | |
| 4. Garage equipment - Kikwit | 3,000 | | |
| 5. Moisture Tester | 375 | | |
| 6. Short wave radio network | 100,800 | | |
| 4. Training | | | 25,000 |
| 5. Transportation | | | 50,000 |
| 6. Improved Village Technology Sub-project | | | 15,000 |
| 7. Evaluation | | | <u>50,000</u> |
| Total | | | \$1,671,300 |
| | | | (1,345,700) |

Summary Phase II

| | |
|---|---------------------|
| 1. Warehouse, collection points and garage construction | \$5,408,600 |
| 2. Equipment for warehouse and garages | 342,075 |
| 3. Training | 150,000 |
| 4. Technical Assistance personnel | 798,000 |
| 5. Vehicles | 2,360,000 |
| 6. Investment Fund | 3,500,000 |
| 7. Sacks | 700,000 |
| 8. Final evaluation | 50,000 |
| Total | <u>\$13,308,675</u> |

A. TECHNICAL ANALYSIS

The establishment of an efficient and effective marketing system for food distribution is of primary importance in any country, but particularly so in a developing country. Without an established system of marketing, all of the programs designed to increase production will fail. Thus it is essential that an efficient marketing system for maize and other basic foods be established in Zaire.

Current maize production in Zaire is no longer sufficient to satisfy the country's needs. The deficit in maize runs to approximately 150,000 MT per year, most of it imported from Zambia and Rhodesia. Before independence, Zaire actually exported maize to neighboring countries.

Moreover, the establishment of a viable marketing system for grains, maize in particular, is of primary importance if the pressures of urban consumption demands are to be met. As in virtually all countries there is a steady migration to the cities in spite of well-intentioned measures to slow it down. Listed below are the five major cities with their respective population figures from the Census of 1958 and 1970 as well as estimated figures for 1977 and 1980.

| <u>City</u> | <u>Rate of Increase</u> | (000's) | | | |
|-------------|-------------------------|-------------|-------------|-------------|-------------|
| | | <u>1958</u> | <u>1970</u> | <u>1977</u> | <u>1980</u> |
| Kinshasa | 8.5% | 368 | 1323 | 2337 | 2983 |
| Lubumbashi | 6.8% | 169 | 318 | 502 | 611 |
| Kisangani | 6.7% | 110 | 230 | 353 | 422 |
| Kananga | 8.6% | 107 | 429 | 760 | 980 |
| Mbuji-Mayi | 6.3% | 40 | 256 | 391 | 496 |

The urban-rural balance is shifting to the cities as well.

| <u>(In Millions)</u> | <u>1970</u> | <u>1975</u> | <u>1980</u> |
|----------------------|-----------------|-----------------|-----------------|
| Urban | 4.6 (22%) | 7 (27%) | 15 (46%) |
| Rural | <u>17</u> (78%) | <u>18</u> (73%) | <u>18</u> (54%) |
| Total | 21.6 (100%) | 25 (100%) | 33 (100%) |

From the above it is fairly obvious that while there is urban pressure now, a much greater problem will exist in the years ahead. Production is not keeping pace with the rapidly growing urban demand and some estimate a short fall in maize production of 250,000 MT by 1985.

The marketing of maize in Zaire has been, and remains, a function of the private sector. In the most recent three year period from 1974 to 1976, the public sector moved insignificant quantities of maize. Listed below by year are the maize purchases by ONACER and the estimated total marketing in Zaire:

| | <u>Tons Purchased by ONACER</u> | <u>Total Tons Marketed</u> |
|------|---------------------------------|----------------------------|
| 1974 | 8100 (3.5%) | 234,000 |
| 1975 | 4077 (1.6%) | 249,000 |
| 1976 | 1243 (0.5%) | 265,000 |

The above quantities were marketed by the private sector in spite of a drastic drop in the number of experienced merchants after the 1973 Zarianization decree. For example, in the Shaba Region, it was reported that prior to 1973, some fifty or more merchants were active, whereas in 1976 there were only 12 handling significant quantities of grain. Some expatriate traders are returning to Zaire but it is reported that most of these are electing to operate in the soft and hard goods market rather than in the grain trade.

A number of different factors influence producers when they make decisions on how much to produce and how much to sell. These factors are discussed in the social soundness analysis. One of the key factors is the marketing situation. A basic premise of this study has been the idea that improved marketing practices will elicit greater production.

Calculations from data of estimated production and sales of maize on the zone level in the Kasai Occidental Region in 1976 disclosed the following: TABLE 1

| | Sales as a Percent of Production | Production in Zone as Percent of Production in Region | Sales in Zone as Percent of Sales in Region | Hectares in Production | Tons Produced | Tons Purchased |
|---------|----------------------------------|---|---|------------------------|---------------|----------------|
| o | 80.0 | 8.0 | 19.8 | 9,617 | 9,617 | 7,689 |
| o | 61.2 | 21.2 | 40.2 | 21,216 | 25,459 | 15,577 |
| o | 52.0 | 20.3 | 32.7 | 20,337 | 24,404 | 12,696 |
| o | 28.3 | 4.3 | 3.8 | 5,227 | 5,227 | 1,480 |
| mba | 3.7 | 5.0 | .6 | 7,549 | 6,059 | 221 |
| ikapa | 3.1 | 15.1 | 1.5 | 18,131 | 18,131 | 570 |
| o | 2.5 | 7.3 | .6 | 8,771 | 8,771 | 221 |
| aya | 2.4 | 2.2 | .2 | 3,757 | 2,630 | 62 |
| oelange | 1.5 | 13.2 | .6 | 15,889 | 15,889 | 239 |
| ase | .3 | 2.6 | .03 | 3,986 | 3,189 | 11 |

It seems reasonable to use the percent of production that is sold as an indicator of improved marketing - i.e., zones with a relatively high percent of production sold indicate superior marketing facilities, practices, and activity in comparison with other zones in the region. In that regard, three zones stand out in comparison with the others: Ilebo, Demba and Mweka. Each is traversed by the SNCZ railroad.

Ilebo is located at the point where water and rail transport meet and produce can readily move without further transfer to whichever large urban market (Kinshasa or Kananga) is currently most favorable. It was not by accident that Ilebo accounted for 20 percent of total sales of the region, with sales of 800 kg per hectare of maize grown.

The Demba zone is adjacent to the large urban market of Kananga. Many producers can headload produce to Kananga and competition among traders is keen. Though exceeded in size of geographic area by seven of the zones, Demba produced more maize than any zone in the region, and had sales of 734 kg per hectare of maize grown.

Mweka zone ranked third in percent of production sold and second among zones in amount of maize produced. The city of Mweka is an important railroad shipping point.

The city of Luebo provides a medium size market for the zone of Luebo. Its small share of total production is in part a reflection of its geographic size -- the smallest in the region.

Dekese sold minute quantities of corn, and produced a small share of total production in the region, especially when its relatively large geographic area is considered. Its lack of transport facilities and low marketing activity clearly act as retarding influences on maize production.

Estimated yields of maize per hectare of 1200 kg in Demba and Mweka were the highest in the region, while yields/kg were lowest in Dibaya (700), Dekese (800) and Kazumba (802.6).

This rough analysis supports the proposition that superior marketing facilities and practices lead to greater sales and increased production.

ANALYSIS OF DATA ON PRODUCTION

Data on maize production in Zaire secured from different sources vary considerably. The Department of Agriculture's Bureau of Studies is currently beginning to develop a data gathering system for agricultural production and prices. Up to the present time the data usually represent subjective judgments of agronomes who often have not visited and inspected a representative sample of production areas.

Statisticians have stated that they have more confidence in the relative change from year to year than in the absolute level of the estimated production. Data from different sources still show substantial differences in amount of relative change, as Table 2 suggests. We favor using the revised data prepared by the Bureau of Studies (Column 1).

Trend in Production

Between 1950 and 1959 production reported by Mwamufiya and Fitch ranged between 305 and 336 thousand tons, with no trend evident. From 1961 through 1968, estimated production fluctuated between 232 and 297 thousand tons, with some increase evident even though the same figure of 250,000 tons was reported for both 1961 and 1968. (See Table 3.) Sharp increases occurred in production in 1969 and a lesser increase in 1970. All sources (see Table 2) show almost steady increases in production from 1970 through 1975.

Variability Among Regions In
Production From Year-to-Year

The percentage changes in maize production for the different regions were calculated from data in Table 4 and are presented in Table 5.

Even though the national total shows percentage increases each year from 1970 through 1974, in both 1971 and 1973 two regions experienced decreases in production, and in 1973 and 1974 one region had a decrease.

Variability was easily greatest in Equateur Region; in 3 of the 4 years changes exceeded five percent in both Equateur and Kasai-Occidental regions, but four year total changes (ignoring negative signs) were about as high in Bandundu and Bas-Zaire regions as in Kasai Occidental. Variability was least in the Haut-Zaire region, followed by Shaba, Kasai-Oriental and Kivu regions.

Percent of Land Area in Maize

Data in Table 6 show variations among regions in the percent of land area in maize. Three regions (Bas-Zaire, Kasai Occidental, and Kasai-Oriental) have distinctly higher percentages of their area in maize than the other regions -- but it is a relatively low percent for all of them.

The higher densities of population partially explain the higher percentages in Bas-Zaire and Kasai-Occidental regions.

The percent in Bandundu and Kivu regions is also above the national average. There are wide variations within a region, and some with low percentages still have areas within the region which have a much higher percentage, like Shaba which has the highest land area.

Variation in Maize Production and Marketing Within Regions

Data in Table 7 show production and marketing differences with the four major corn marketing regions of Zaire.

Corn production in Zaire's four southern regions (Bandundu, Kasai-Occidental, Kasai-Oriental and Shaba) amounted to 94% of the estimated total national production in 1974. These four regions produced 393 thousand metric tons compared to an estimated total of 418 thousand tons nationally.

Five major producing and marketing sub-regions can be identified within the four regions. They are:

(1000 Metric Tons)

| <u>Sub-region</u> | <u>Produced</u> | <u>Marketed</u> |
|---------------------|-----------------|-----------------|
| Kwilu | 112 | 39 |
| Kasai | 39 | 17 |
| Lulua | 41 | 7 |
| Kabinda | 85 | 9 |
| Tanganika | <u>37</u> | <u>23</u> |
| Sub-total | 314 | 95 |
| <u>Four regions</u> | <u>393</u> | <u>106</u> |

Source: see attached table

These five sub-regions form a belt reaching west to east and account for 75% of national production (80% of production in the four major regions). They also account for 90% of corn marketed in the four regions. (See attached map.)

The single most important region for both production and marketing is Bandundu which produces about 1/3 of the total and markets 40% of the total. The region is dominated by the sub-region

of Kwilu which alone accounts for 28% of production and 37% of marketings. (Data concerning each region and sub-region are shown in the attached table.)

The second largest corn producing region is Kasai-Oriental (this is an estimate, see footnote on attached table). However in terms of corn marketed this region is least important of the four regions.

From the viewpoint of both production and marketing Shaba is the second most important region.

The region of Shaba produces 21% of the corn (four regions) and markets 29% of the total. It is dominated by the sub-region of Tanganika, which, while producing only 9,5% of the corn, markets 22% of the corn. This sub-region would seem to be one of the most highly developed commercially, in that it markets 62% of the corn it produces.

In general, two sub-regions, Kwilu on the east and Tanganika on the west, are most prominent with respect to corn marketing. Together they account for 58% of corn marketed by the four major regions.

It should be noted that the total production for each of the four (4) regions is considerably higher than that reported in Table 4 (a total of 393,223 versus 238,600) whereas the stated national total of 418,000 tons is well below the 476,800 tons shown in Table 4. The four regions accounted for only 50% of total output in those data compared to the 94% reported herein.

Further analysis of the above data is shown in Table 8. These data show that five (5) tons of maize were marketed from 1000 hectares of land area in the Kwilu sub-region, with no other sub-region having as much as two (2) tons per 1000 hectares of land area.

TABLE 2

Production of Maize Reported by Different Sources1970 - 1975

| YEAR | Revised, Dept. Agr. Bureau of Studies 1/ | Unrevised, Dept. Agr. 2/ | Dept. Agr. and Others 3/ | FAO Estimates, Unrevised 4/ | Agr. Attache Estimates 5/ |
|-------------------------|--|-----------------------------|-----------------------------|-----------------------------------|---------------------------------|
| Metric Tons (Thousands) | | | | | |
| 970 | 428.1 | 330 | 330 | 375 | |
| .971 | 435.8 | 409 | 374 | 306 | |
| .972 | 451.5 | 404 | 396 | 433 | |
| .973 | 459.1 | 404 | 392 | 477 | |
| .974 | 476.8 | 418 | 402 | 524 | 380 |
| .975 | | 433 | 410 | | 420 |
| .976 | | | | | 410 |

1/ From John Flinginger, U. S. Dept. Agr. Collaborator,
February 1977

2/ From Economic Data Book, Zaire; prepared by U. S. Aid
Mission, Zaire, 1977

3/ From Table 4, Kansas State University Grain Marketing Study,
1977

4/ From report by Mwamufiya and Fitch, Maize Marketing and
Distribution in Southern Zaire, November 1976

5/ U. S. Embassy, Zaire

TABLE 3
Production, Import, Export, and the Urban Demand
Of Maize in Zaire
(1950-1974)

| Year | Tons | | | | Urban Demand |
|------|-----------------------|---------|--------|--------|--------------|
| | Produced | Traded | Export | Import | |
| 1950 | 336,635 | 68,000 | 17,748 | -- | 50,252 |
| 1951 | 313,289 | 69,000 | 23,938 | -- | 45,062 |
| 1952 | 305,640 | 55,000 | 207 | -- | 54,793 |
| 1953 | 327,100 | 76,000 | 4,577 | -- | 71,423 |
| 1954 | 321,670 | 80,000 | 20,443 | -- | 59,557 |
| 1955 | 325,419 | 81,000 | 8,443 | -- | 72,557 |
| 1956 | 315,245 | 103,000 | 2,984 | -- | 100,015 |
| 1957 | 330,350 | 119,357 | 14,204 | -- | 105,153 |
| 1958 | 320,222 | 115,751 | 15,119 | 718 | 101,350 |
| 1959 | 332,690 | 97,961 | 8,863 | 8,002 | 97,100 |
| 1960 | * | * | * | * | * |
| 1961 | 250,000 ^{1/} | * | * | * | * |
| 1962 | 226,000 ^{1/} | * | -- | 38,837 | * |
| 1963 | 252,000 ^{1/} | * | -- | 81,888 | * |
| 1964 | 237,000 ^{1/} | * | -- | 73,356 | * |
| 1965 | 232,000 ^{1/} | * | -- | 45,144 | * |
| 1966 | 270,000 ^{1/} | * | -- | 74,357 | * |
| 1967 | 297,000 ^{1/} | * | -- | 68,632 | * |
| 1968 | 250,000 ^{1/} | 103,000 | -- | 57,677 | 160,677 |
| 1969 | 350,000 ^{1/} | 100,000 | -- | 69,600 | 169,600 |
| 1970 | 375,000 ^{1/} | 90,000 | -- | 87,500 | 177,500 |

TABLE 3
(Continued)

| <u>Year</u> | <u>Produced</u> | <u>Traded</u> | <u>Export</u> | <u>Import</u> | <u>Urban Demand</u> |
|-------------|-----------------------|-----------------------|---------------|-----------------------|-------------------------|
| 1971 | 306,000 ^{1/} | 130,000 | -- | 106,962 | 236,962 |
| 1972 | 433,000 ^{1/} | 135,000 | -- | 108,450 | 243,450 |
| 1973 | 477,000 ^{1/} | 114,480 ^{2/} | -- | 146,378 ^{2/} | 260,858 |
| 1974 | 524,000 ^{1/} | 125,760 ^{2/} | -- | 170,000 ^{2/} | 295,760 |

TABLE 4
Area, Yield, and Total Production of Maize,
By Regions, Zaire, 1970 through 1974

| | Average 1970-1974 | 1970 | 1971 | 1972 | 1973 | 1974 |
|------------------------|----------------------|-------|-------|-------|-------|-------|
| Area (1000 hectares) | | | | | | |
| Republic of Zaire | 622.1 | 595.6 | 607.9 | 617.2 | 634.0 | 655.7 |
| <u>Regions</u> | | | | | | |
| Bas-Zaire | 28.6 | 27.3 | 27.9 | 29.4 | 29.0 | 30.4 |
| Bandundu | 87.4 | 84.0 | 85.4 | 86.8 | 88.9 | 92.1 |
| Equateur | 90.2 | 85.8 | 87.9 | 89.8 | 92.0 | 95.4 |
| Haut-Zaire | 103.2 | 98.8 | 100.0 | 103.3 | 105.6 | 108.4 |
| Kivu | 71.2 | 68.6 | 71.3 | 69.3 | 71.7 | 74.8 |
| Shaba | 90.0 | 86.6 | 86.4 | 88.5 | 91.8 | 96.8 |
| Kasai-Occidental | 79.0 | 76.4 | 77.6 | 78.2 | 80.6 | 82.3 |
| Kasai-Oriental | 72.5 | 68.1 | 71.4 | 72.9 | 74.4 | 75.5 |
| Production (1000 tons) | | | | | | |
| Republic of Zaire | 450.3 | 428.1 | 435.8 | 451.5 | 459.1 | 476.8 |
| <u>Regions</u> | | | | | | |
| Bas-Zaire | 21.4 | 20.5 | 20.6 | 19.9 | 22.6 | 23.4 |
| Bandundu | 65.1 | 62.8 | 59.8 | 64.7 | 68.7 | 69.6 |
| Equateur | 65.9 | 60.1 | 65.0 | 68.2 | 63.6 | 72.5 |
| Haut-Zaire | 74.9 | 72.1 | 72.0 | 76.4 | 75.9 | 78.0 |
| Kivu | 60.6 | 57.6 | 57.8 | 61.7 | 61.4 | 64.3 |
| Shaba | 58.9 | 55.4 | 57.0 | 60.2 | 60.0 | 61.9 |
| Kasai-Occidental | 53.4 | 52.0 | 55.1 | 51.6 | 54.8 | 53.5 |
| Kasai-Oriental | 50.0 | 47.6 | 48.5 | 48.8 | 52.1 | 53.6 |
| Yield (tons/hectares) | | | | | | |
| Republic of Zaire | 0.72 | 0.72 | 0.72 | 0.73 | 0.72 | 0.73 |
| <u>Regions</u> | | | | | | |
| Bas-Zaire | 0.75 | 0.75 | 0.74 | 0.70 | 0.78 | 0.77 |
| Bandundu | 0.74 | 0.75 | 0.70 | 0.74 | 0.77 | 0.75 |
| Equateur | 0.73 | 0.70 | 0.74 | 0.76 | 0.69 | 0.76 |
| Haut-Zaire | 0.73 | 0.73 | 0.72 | 0.74 | 0.72 | 0.72 |
| Kivu | 0.85 | 0.84 | 0.81 | 0.89 | 0.85 | 0.86 |
| Shaba | 0.65 | 0.64 | 0.66 | 0.68 | 0.61 | 0.64 |
| Kasai-Occidental | 0.68 | 0.68 | 0.71 | 0.66 | 0.68 | 0.65 |
| Kasai-Oriental | 0.69 | 0.70 | 0.68 | 0.67 | 0.70 | 0.71 |

Source: Department of Agriculture, Bureau of Studies, February 1977

TABLE 5

Variability Among Regions in Percent Change
In Production from the Previous Year

| | 1971 | 1972 | 1973 | 1974 |
|-----------------------------|--------|--------|-------|--------|
| Zaire - Total | 1.80 | 3.60 | 1.68 | 3.86 |
| Major Marketing Area | | | | |
| Bandundu | - 4.78 | 8.19 | 6.18 | 1.31 |
| Shaba | 2.89 | 5.61 | .33 | 3.17 |
| Kasai-Occidental | 5.96 | - 6.35 | 6.20 | - 2.37 |
| Kasai-Oriental | 1.89 | .62 | 6.76 | 2.88 |
| Minor Marketing Area | | | | |
| Bas-Zaire | .49 | - 3.40 | 13.57 | 3.54 |
| Equateur | 8.15 | 4.92 | 6.74 | 13.99 |
| Haut-Zaire | - .14 | 6.11 | - .65 | 2.77 |
| Kivu | .35 | 6.75 | .49 | 4.72 |

TABLE 6Percent of Land Area in Maize, and
Density of Population, by Regions in Zaire

| <u>Region</u> | <u>L A N D A R E A 1000 Hectares</u> | <u>Percent in Maize 1974^{1/}</u> | <u>Population Density, Inhabitants per KM² in 1970</u> |
|------------------|--|---|---|
| Bas-Zaire | 6,186.9 | .49 | 24.6 |
| Bandundu | 29,565.8 | .31 | 8.8 |
| Equateur | 40,329.3 | .24 | 6.0 |
| Haut-Zaire | 50,323.9 | .21 | 6.7 |
| Kivu | 25,666.2 | .29 | 13.1 |
| Shaba | 49,696.5 | .19 | 5.5 |
| Kasai-Occidental | 15,696.7 | .52 | 15.5 |
| Kasai-Oriental | 16,821.6 | .44 | 11.1 |
| ZAIRE - TOTAL | 234,488.5 | .28 | 9.2 |

^{1/} Calculated from revised Department of Agriculture Bureau of Studies estimates of area in maize shown in Table 4.

TABLE 7

Maize Production and Marketing in
Four Regions of Zaire, 1974^{1/}

| | ! 1000 metric tons | : | Percent of total | : | Percent of | : | Percent of | ! |
|------------------|--------------------|---|------------------|---|------------|---|------------|--------|
| | ! Produced | : | Produced | : | Produced | : | Produced | ! |
| | ! | : | Marketed | : | Marketed | : | Marketed | ! |
| | ! | : | | : | | : | | ! |
| BANDUNDU | ! | : | | : | | : | | ! |
| Kwilu | ! 111.996 | : | 38.905 | : | 28.5 | : | 36.8 | ! 34.7 |
| Kwango | ! 8.805 | : | .206 | : | - | : | - | ! - |
| Mai-Ndombe | ! 7.613 | : | 3.117 | : | | : | | ! |
| Bandundu * | ! 1.170 | : | .598 | : | | : | | ! |
| Kikwit | ! | : | | : | | : | | ! |
| Total region | ! 128.413 | : | 42.282 | : | 32.7 | : | 40.0 | ! 32.9 |
| KASAI-OCCIDENTAL | ! | : | | : | | : | | ! |
| Lulua | ! 40.754 | : | 6.611 | : | 10.4 | : | 6.3 | ! 16.2 |
| Kasai | ! 38.863 | : | 17.135 | : | 9.9 | : | 16.2 | ! 44.1 |
| Kananga * | ! 1.091 | : | - | : | | : | | ! |
| Total region | ! 80.708 | : | 23.746 | : | 20.5 | : | 22.5 | ! 29.4 |
| KASAI-ORIENTAL | ! | : | | : | | : | | ! |
| Kabinda | ! 84.957 | : | 8.529 | : | 21.6 | : | 8.1 | ! 10.0 |
| Mankuru | ! 17.088 | : | .083 | : | | : | | ! |
| Mbuji-Mayi * | ! | : | | : | | : | | ! |
| Total region | ! 102.045 | : | 8.612 | : | 26.0 | : | 8.1 | ! 8.4 |
| SHABA | ! | : | | : | | : | | ! |
| Maut-Shaba | ! 14.853 | : | 1.070 | : | | : | | ! |
| Lualaba | ! 14.419 | : | 3.074 | : | | : | | ! |
| Maut-Lomami | ! 12.120 | : | 3.830 | : | | : | | ! |
| Manganika | ! 37.414 | : | 23.136 | : | 9.5 | : | 21.9 | ! 61.8 |
| Lubumbashi * | ! 3.251 | : | | : | | : | | ! |
| Likasi | ! | : | | : | | : | | ! |
| Total region | ! 82.057 | : | 31.110 | : | 20.7 | : | 29.4 | ! 31.9 |
| Total 4 regions | ! 393.223 | : | 105.750 | : | 99.9 | : | 100.0 | ! 26.9 |

* Cities having status of sub-regions.

SOURCES: 1974 annual reports for regions --- of Shaba, Bandundu and Kasai-Occidental. The 1973 and 1974 reports for Kasai-Oriental were not available.

Data were estimated using the 1972 percentage distributions of production and marketings by sub-region and assuming that production and marketing increased from 1972 to 1974 in the same percentage as for Kasai-Occidental. The increase for production was 60.6%, and for marketing 104%.

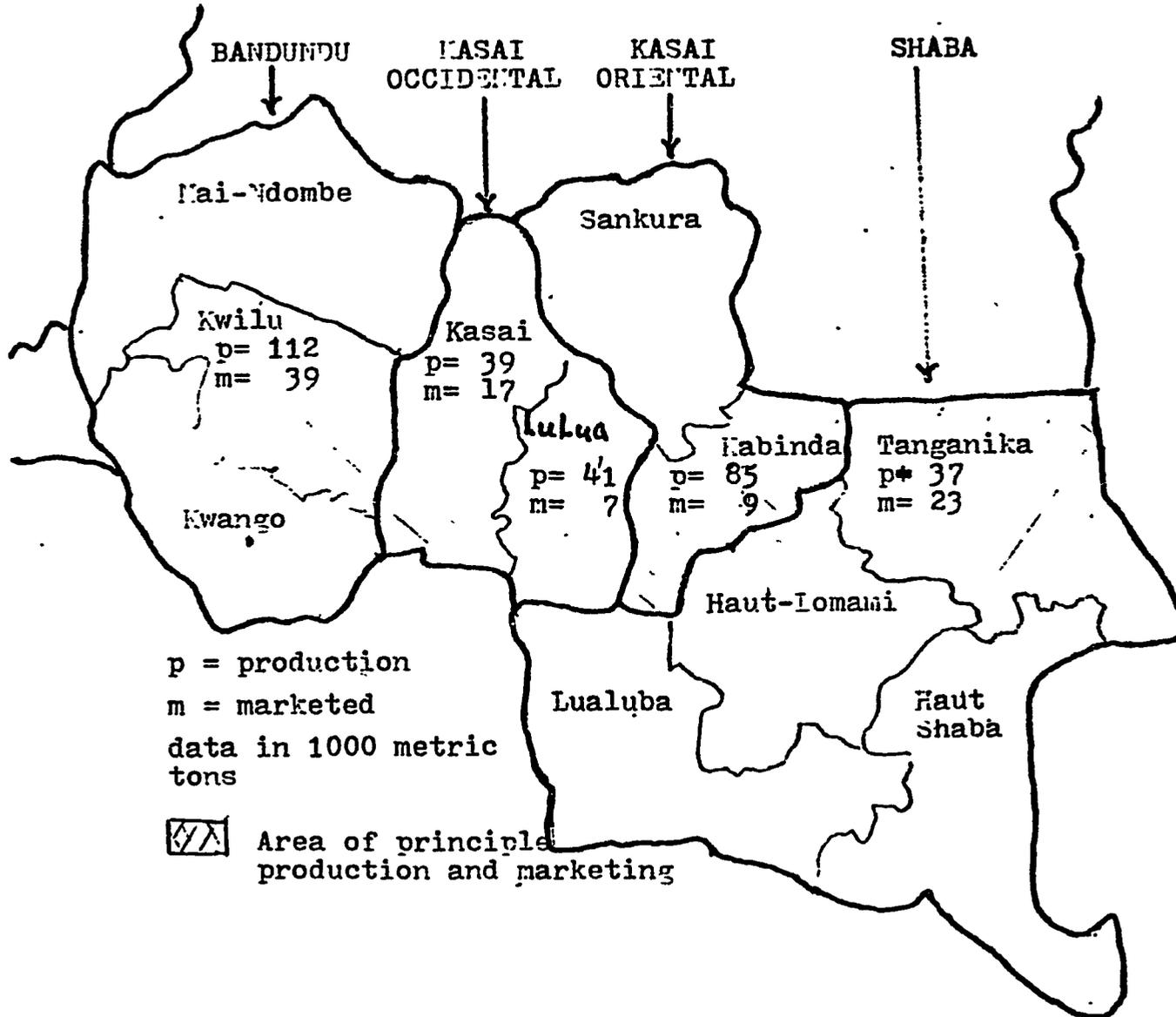
^{1/} Prepared for Grain Marketing Team by Department of Agriculture's Bureau of Studies.

TABLE 8
Maize Production and Marketings Per Unit of
Land Area in Major Maize Producing Regions
Sub-Regions, 1974

| Region and Sub-Region | Area in KM ² | Production per 1000 hectares of land (10 square kilometers) <u>1/</u> TONS | Marketings per 1000 hectares (10 square kilometers) <u>1/</u> |
|--------------------------|----------------------------|--|---|
| Bandundu | 295,658 | 4.34 | 1.43 |
| Kwilu | 78,019 | 14.35 | 4.99 |
| Kwango | 89,974 | .98 | .02 |
| Mai-Ndombe | 127,243 | .60 | .24 |
| Kasai-Occidental | 156,967 | 5.14 | 1.51 |
| Lulua | 60,958 | 6.69 | 1.08 |
| Kasai | 95,631 | 4.06 | 1.79 |
| Kasai-Oriental | 168,216 | 6.07 | .51 |
| Kabinda | 63,821 | 13.31 | 1.34 |
| Sankaru | 104,331 | 1.64 | .01 |
| Shaba | 496,965 | 1.65 | .61 |
| Haut-Shaba | 131,443 | 1.11 | .08 |
| Lualaba | 121,308 | 1.19 | .26 |
| Haut-Lomani | 108,204 | 1.10 | .35 |
| Tanganika | 135,028 | 2.77 | 1.71 |

1/ Based on unrevised Department of Agriculture Estimates.

Corn production and corn marketed in four Regions of Zaire- 1974



THE PROJECT AREA - THE KWILU SUB-REGION OF BANDUNDU

Bandundu was selected as the area for an extensive marketing effort by ONACER for five reasons:

- A. It is a region of potential production increase, and an area which today markets 34% of its maize. Team members have been told that in the late 1950's Bandundu's production was triple what it is today.
- B. It serves two large urban markets, Kinshasa and the Kasai's (Kananga and Mbuji-Mayi).
- C. It offers a diversity of transport facilities: road to Kinshasa, river to Kinshasa, and a river/rail combination to Ilebo and the Kasais' markets.
- D. The city of Kikwit is already the ONACER regional headquarters for the area and is ideally located on the Kwilu River and in the near future will be linked to Kinshasa with a blacktop highway.
- E. Last but not least, the Team was greatly impressed with the quality and competence of the Regional Director. Given the proper assistance from ONACER headquarters he will assemble a small and efficient organization.

Some potentially interesting situations will develop from which marketing decisions can be made. The question of whether to move maize by truck to Kinshasa or move by the slower but cheaper waterway will be one. The close monitoring of price information via the radio network will determine whether the grain flows up-river to the Kasais or down-stream to Kinshasa. Should some of

the maize move directly from river ports other than Kikwit is still another. Daily monitoring and analysis of all price information will be essential.

ONACER will have two warehouses available, the projected one in Kikwit and the existing structure in Kinshasa. How should they be best utilized?

Can maize purchased during the last part of the buying season be stored and held in good condition for release into the urban markets during the last quarter of the year when prices tend to soar? ONACER has a social responsibility to make every effort to slow down this escalation.

Other marketing opportunities and questions will arise, but all in all the area offers good potential and will test ONACER's capabilities to the fullest.

In addition, there are both locational and human resource management advantages associated with the area chosen. These advantages are listed below. Locational advantages of the proposed facilities include:

- 1) Located in the largest and most dense maize production and marketing sub-region of the Nation;
- 2) A major integrated rural development program is being carried on in the region, which should be helpful in getting improved crop production practices adopted;
- 3) Freight costs and time required for delivery on any fertilizer imported should be less than to other major maize producing areas;

- 4) An improved all-weather highway between Kinshasa and Kikwit is nearing completion, and water transport is already used;
- 5) Highway, water, and rail transport can be used to move maize to Kananga;
- 6) The population of Kikwit is increasing at a rapid rate, and will constitute an increasingly important market for maize; and
- 7) The Zairian Department of Agriculture and the U. S. Department of Agriculture are collaborating in developing a crop production and price reporting system for the Bandundu Region as its initial effort in Zaire.

PROJECTED OPERATING EXPENSES IN PROJECT AREA

The accompanying table presents estimated operating costs for three levels of operation. ONACER purchased 1,298 tons of maize and 1,784 tons of all produce in 1975, and 590 tons of maize and 981 tons of all produce in 1976 in the Bandundu Region.

ONACER determines its selling price by applying a 10% profit above its computed costs for purchasing, transportation, and handling grain. In September 1976 this profit permitted a selling price of Z 216.47 a ton and a margin of Z 96.47 a ton, assuming a purchase price of Z 120 a ton for grain moving from Kikwit to Kinshasa.

The projected operating costs presented herein suggest that a volume of approximately 4,500 tons is needed to reach a break even point with the trading margin indicated.

Even though costs of acquiring maize (expenses for buying and vehicle operating costs) would be higher per unit as the procurement area became wider, the projected total cost per ton for 6,000 tons is about ten Zaires a ton lower than for 4,000 tons.

If only 2,000 tons of product are purchased, projected costs soar to over Z 130 a ton. This determination clearly points out the importance of an aggressive, well-planned program to increase the volume of grain purchased.

At a level of 4,000 tons of maize purchased, the estimated variable costs total Z 60.21 a ton and fixed costs Z 38.49 a ton.

Among the variable costs, the three largest items are freight charges, sacks, and vehicle operating costs.

Among fixed costs the two largest items are depreciation on vehicles and trucks, and administrative salaries.

It should be recognized that none of the expenses at headquarters in Kinshasa have been allocated to the proposed project area. Therefore, operations must be attained at a volume above the breakeven point in order to make a contribution to those overhead costs.

The line depicting trading income on the accompanying chart represents the sales price less the purchase price multiplied times the tons purchased. In reality, this calculation overstates the realized trading income, for most grain firms experience a shrinkage in quantity while holding and transporting product.

If a shrinkage of three percent occurs, there would be a loss of Z 3.60 at a purchase price of Z 120 a ton. This cost

would need to be recovered from either a higher selling price, or a lower purchase, or some of each.

Loss on grain enroute to market has been a fairly large item on some shipments in Zaire, so it is a cost that has to be considered in setting a selling price.

PROJECTED OPERATING COSTS FOR THREE LEVELS OF
OPERATION IN PROPOSED PROJECT AREA

| | ANNUAL VOLUME PURCHASED, TONS | | |
|---------------------------------|-------------------------------|-------------|-------------|
| | <u>2000</u> | <u>4000</u> | <u>6000</u> |
| <u>Variable Costs</u> | <u>Z</u> | <u>Z</u> | <u>Z</u> |
| Buying Team Salaries | 1,200 | 3,273 | 6,218 |
| Vehicle Operatins Costs | 18,920 | 51,600 | 98,040 |
| Labor Handling Produce | 10,000 | 20,000 | 30,000 |
| Sacks, No Rotation | 28,000 | 56,000 | 84,000 |
| Interest, Buying Fund | 10,000 | 20,000 | 30,000 |
| Freight Charges, ONATRA | 42,000 | 84,000 | 126,000 |
| Office Supplies and Expenses | 3,000 | 6,000 | 9,000 |
| <u>TOTAL VARIABLE COSTS</u> | 110,120 | 240,873 | 380,258 |
| (cost per ton) | (55.06) | (60.21) | (63.38) |
| | | | |
| <u>Fixed Costs</u> | | | |
| Depreciation, Vehicles | 78,664 | 78,664 | 78,664 |
| Depreciation, Buildings | 6,607 | 6,607 | 6,607 |
| Depreciation, Other Equipment | 6,020 | 6,020 | 6,020 |
| Insurance on Vehicles | 9,920 | 9,920 | 9,920 |
| Building Maintenace & Utilities | 4,730 | 4,730 | 4,730 |
| Administrative Salaries | 48,000 | 48,000 | 48,000 |
| <u>TOTAL FIXED COSTS</u> | 153,941 | 153,941 | 153,941 |
| (cost per ton) | (76.97) | (38.49) | (25.66) |
| <u>TOTAL COSTS</u> | 264,061 | 394,814 | 534,199 |
| (cost per ton) | (132.03) | (98.70) | (89.04) |

Assumptions Made in Determining Operating Costs

1. Variable Costs

| | <u>2000 Tons</u> | <u>4000 Tons</u> | <u>6000 Tons</u> |
|--|------------------|------------------|------------------|
| Area required, km ² | 4,000 | 8,000 | 12,000 |
| Radius of circle, km | 35.68 | 50.46 | 61.80 |
| Average distance out and back, per trip, km | 50.46 | 71.36 | 87.40 |
| Total distance for one trip with sacks and a second trip for produce, plus 10 km in town, km | 110 | 150 | 190 |
| Total travel, km | 44,000 | 120,000 | 228,000 |

Buying team expenses estimated at 1,200 Z for 2,000 tons, and increased at same rate as total kilometers of travel.

Fuel, lubrication, repairs, spares for vehicles -- 43 k/km.

Labor hired by the day to load, unload, recondition, and handle produce -- Z 5 a ton.

Sacks, 14.3 per ton at Z 14 a ton.

Interest on buying fund -- 8% for six months on Z 120 a ton = Z 5 a ton.

Freight charges and beaching ONATRA, Kikwit to Kinshasa, at Z 21 a ton.

Office supplies and expenses -- Z 1.5 a ton.

2. Fixed Costs

Depreciation:

Trucks: 8 at Z 25,000; 3 year life

Land Rover type: 4 at Z 12,000; 4 year life

Warehouse, garage and office equipment: total cost of Z 30,100 with average life of 5 years.

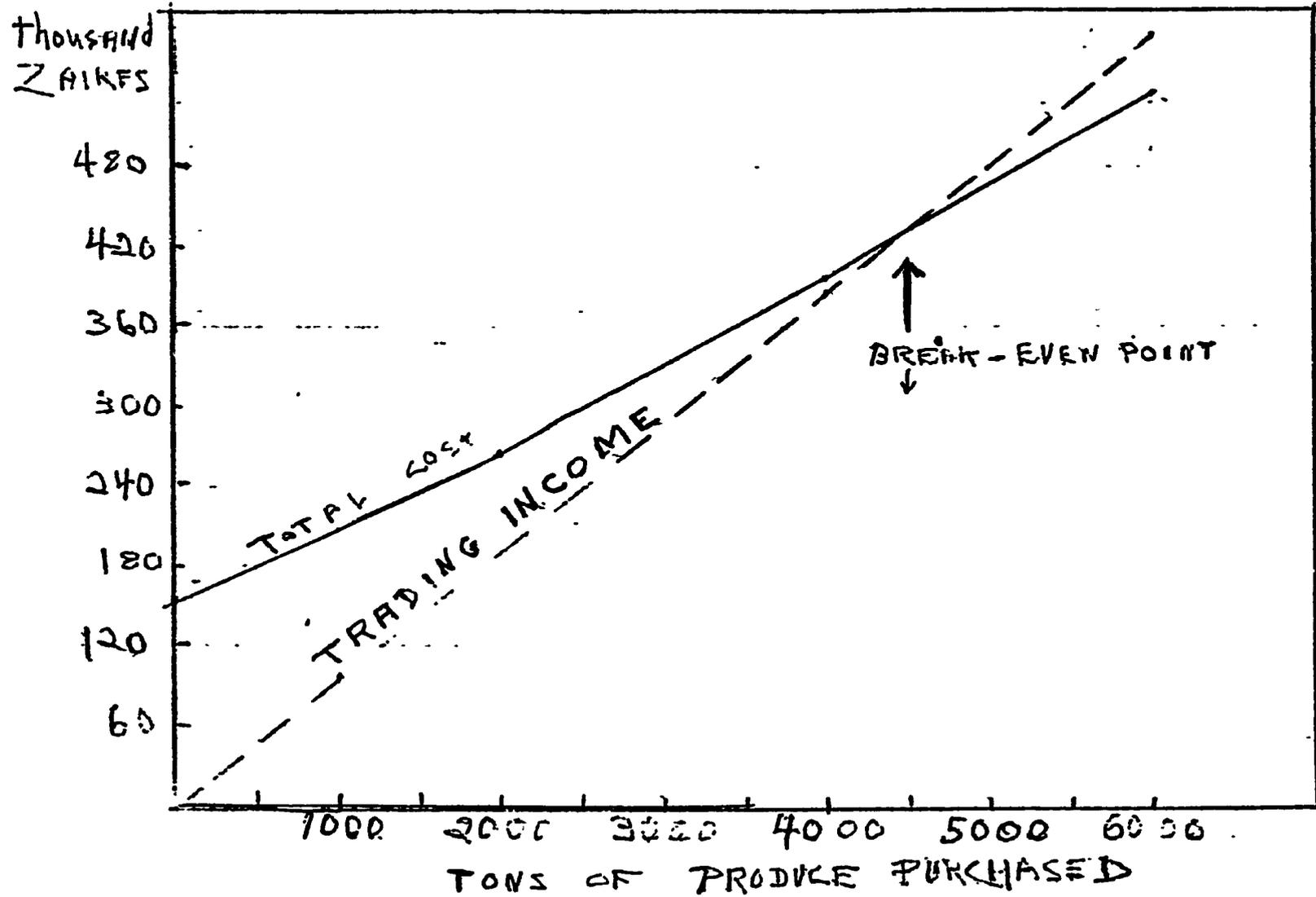
Buildings: Z 189,200 cost; 30 year life

Insurance: Z 1,000 on each truck; Z 480 on other vehicles

Building Maintenance and Utilities: 2.5% of building costs
Administrative salaries: Z 4,000 a month

Some of the above cost items were based on data from ONACER officials; the rest were developed by members of the grain marketing team.

PROJECTED TOTAL OPERATING COSTS WITH DIFFERENT LEVELS OF PURCHASES



Physical Facilities

An excellent site in Kikwit has been offered to ONACER for the construction of a warehouse, office, and garage facility. While not on the Kikwit river, the location is on a main street and a snort distance from the barge loading warehouse belonging to ONATRA. This ONATRA facility is readily available for ONACER's use.

The total area is from 2-1/2 to 3 acres in size with 2 buildings on it, an old house and an outbuilding. Neither is suitable for inclusion in the project.

Included in the total ground area is a very flat, rectangular section of at least 1/2 acre (2115^2 meters). It is an ideal location for the warehouse and separate garage facility. Very little road work will be required as the driveway to the property runs the entire length of the rectangle.

The only drawback is that the site is situated at the base of a hill and drainage will have to be provided. This can easily be remedied by digging two diversion ditches, one on each side of the site, to allow surface water to flow around the area and drain into the ditch on the frontage street.

1) Warehouse Facility - A warehouse of 1000 M/T is proposed for this location. The actual structure will be a 650^2 meter building of which 600^2 meters will be utilized for warehousing. The balance will contain the offices and sack storage areas.

The building floor plan will allow the center 600^2 meters to serve as the warehouse with the office on one end and the sack storage area on the opposite end, each separated from the warehouse proper by a wall.

Proposed Construction

KIKWIT - 1000 M/T Warehouse

A clear span, prefabricated, all steel building, 70' x 125' x 16' with one overhead door, 14' x 14'. American import

Erected on site \$ 80,000

- Garage Facility

A clear span, all steel building, as above 30' x 40' x 12' with 2 overhead doors 12' x 10'

Erected on site \$ 18,400

- Fencing

\$ 12,715

Kikwit Total \$111,115

PANU - MANGAI - DIBAYA-LUBUE

Identical facilities at each of the three locations.

A 500 M/T warehouse with docking facilities for barge loading.

A clear span, prefabricated, all steel building, 75' x 50' x 16' with two overhead doors 14' x 14'.

American Import

| | |
|-----------------|-----------|
| Erected on site | \$ 42,000 |
|-----------------|-----------|

| | |
|--------------------|--------|
| Docking facilities | 40,000 |
|--------------------|--------|

| | |
|--|-------|
| Fencing as described for Kikwit 240 Lin. ft | 5,962 |
|--|-------|

\$ 87,962

| | |
|------------------------|-----------|
| Total for 3 facilities | \$263,886 |
|------------------------|-----------|

Security - Kikwit Site Location

It is recommended that all warehouse locations, such as the proposed structures in Kikwit, be surrounded by a chain link fence with angled extension arms on top of each post carrying 3 strands of barbed wire.

This will require 710 Lin. feet of fencing which will allow ample space in front of the warehouse and garage for vehicle maneuvering.

The proposed fencing will be 2" mesh chain link, 10 feet high, with extension arms on top of each post. One gate will suffice for entry and exit.

Requirements:

| | |
|---|-------------------------------------|
| 710 Lin. feet of 10' fencing - | |
| \$11.19 per Lin. ft. | \$ 7,950.00 |
| 71 Posts (cost included in fencing price above) | |
| 71 Extension Arms - each \$3.20 | 227.20 |
| 1 Split Type Gate | 1,000.00 |
| 2 Spools of 4 point barbs - | |
| each \$57.69 | <u>115.38</u> |
| | Total U.S. Cost \$ 9,292.58 |
| | Freight - Insurance <u>2,323.00</u> |
| | CIF Kinshasa \$ 11,615.58 |
| 4 Corner Posts and 2 gate posts to be of concrete, fabricated locally est. | 100.00 |
| Installation - setting each post in concrete, stretching of link fencing, setting of gate | 1,000.00 |

Source McMaster Carr - Fence #5998Y23
 - Arms #6008T1
 - Barbed Wire #5989T2

Proposed Warehouse Equipment

KIKWIT

| | |
|---|----------|
| 3 Fumigation Sheets | \$ 9000 |
| 20 x 25 meters - nylon with meopreme coated on both sides - \$3000 each | |
| Sand snakes and clips for fumigation | 216 |
| Gas masks - 4, rubber gloves - 4 pair | 200 |
| Phostoxin tablets - 2000 | 1200 |
| Decon - rodent control bait stations | 100 |
| 2 Platform scales - cap. 200 kg | 7500 |
| 4 Hand trucks - 700 lb cap. | 650 |
| 2 Sack trucks - 900 lb cap. | 175 |
| 10 Brooms - McMaster Carr 7172T11 | 59 |
| CIF Kinshasa | \$19,100 |
| 1 Burroughs Universal Moisture Tester | 375 |

KINSHASA

| | |
|--|----------|
| 2 Fumigation sheets | \$ 6000 |
| 2 Platform scales | 7500 |
| 2 Sack trucks | 90 |
| 2 Two wheel hand trucks | 300 |
| Fumigation snakes-clips | 150 |
| Fumigation masks - 4, rubber gloves - 4 pair | 200 |
| Decon rodent bait | 100 |
| Phostoxin tablets - 1500 | 860 |
| Kinshasa Total | \$15,200 |

Kinshasa Warehouse - ONACER currently owns and operates a 1000 M/T warehouse in Kinshasa. It is recommended that they continue to operate this facility as a distribution and sales point in Kinshasa. A percentage of maize originated in the Kikwit Region will move to this warehouse. Therefore, it will be necessary to equip this facility with certain items of warehouse equipment.

PANU, MANGAI, DIBAYA LUBUE

Identical equipment for each warehouse

| | |
|---------------------------|------------|
| 1 Fumigation sheet | \$ 3000 |
| 1 Platform scale | 7500 |
| Fumigation snakes - clips | 100 |
| Fumigation gloves - masks | 100 |
| Decon - rodent bait | 50 |
| 2 Two wheel hand trucks | 300 |
| 1 Sack truck | 45 |
| Phostoxin tablets - 1630 | <u>980</u> |
| Collection Point Total | \$12,075 |
| Total 3 Collection Points | \$36,225 |

Proposed Garage Equipment

| | |
|--|---------|
| 1 Portable wheel mounted air Compressor with a 12 gal. tank delivering 2.3 CFM at 100 PSI - gasoline model - McMaster Carr #4309K12 | \$ 395 |
| 1 Battery Charger - McMaster 7231K5 | \$ 91 |
| 1 AC ARC Welder - McMaster 8009D13 | \$ 398 |
| 1 Master mechanic Wrench set - 247 pieces - McMaster #5741A14 | \$ 790 |
| Plus possible assorted accessories such as: | |
| General purpose Jack | |
| Compression Tester | |
| Fire Extinguishers | |
| Electrical Tape | |
| Spark Plug Taps | |
| Hand Drill | |
| Bench Grinder | |
| Vise | |
| Welding Rod | |
| Grease Gun | |
| Not to exceed | \$ 1326 |
| Total | \$ 3000 |

Recommend Radio Network

From information gathered a radio network linking certain ONACER offices is absolutely necessary and is entirely feasible at a reasonable dollar investment.

The system as designed would accomplish the following operational functions:

1) Permit direct communication between the headquarters office in Kinshasa and the regional offices in Kikwit, Kananga, Mbuji Mayi, Kisangani, Lubumbashi, and Mbanza-Ngungu. In addition it will allow direct contact between Kikwit and the three buying stations in the project area of Bandundu.

2) It will also permit each of the above regional offices to communicate with most or all of the other regional offices.

3) All stations will have "selective calling" capabilities. This means that the only time a given set will produce noise during normal operation is when that particular radio is being called by another. The system also has an additional advantage of allowing the calling station to know if his signal has been received.

The following are the cost estimates of the necessary installations:

KINSHASA

| | |
|--------------------------------|-------------|
| Desktop HF SSB Transceiver | \$ 5000 |
| 1000 W Linear Amplifier | 6500 |
| 1000 W Antenna Tuner | 3000 |
| Dual Diapole Antenna | 200 |
| Installation | <u>1000</u> |
| Total price including shipping | \$15,700 |

MBANZA-NGUNGU

| | |
|----------------------------|-------------|
| Desktop HF SSB Transceiver | \$ 5000 |
| Dual Diapole Antenna | 200 |
| Antenna Tuner | 1200 |
| Installation | <u>1000</u> |
| Total | \$ 7400 |

KIKWIT

| | |
|----------------------------|-------------|
| Desktop HF SSB Transceiver | \$ 5000 |
| Dual Diapole Antenna | 200 |
| Antenna Tuner | 1200 |
| Installation | <u>1000</u> |
| Total | \$ 7400 |

KISANGANI

| | |
|----------------------------|-------------|
| Desktop HF SSB Transceiver | \$ 5000 |
| Modified V Antenna | 200 |
| 1000 Watt Linear Amplifier | 6500 |
| 1000 Watt Antenna Tuner | 3000 |
| Installation | <u>1000</u> |
| Total | \$15,700 |

KANANGA

| | |
|----------------------------|-------------|
| Desktop HF SSB Transceiver | \$ 5000 |
| 1000 Watt 35 ft Antenna | 1200 |
| 1000 Watt Linear Amplifier | 6500 |
| 1000 Watt Antenna Tuner | 3000 |
| Installation | <u>1000</u> |
| Total | \$16,700 |

LUBUMBASHI

| | |
|----------------------------|-------------|
| Desktop HF SSB Transceiver | \$ 5000 |
| Modify V Antenna | 200 |
| 1000 Watt Linear Amplifier | 6500 |
| 1000 Watt Antenna Tuner | 3000 |
| Installation | <u>1000</u> |
| Total | \$15,700 |

MANGAI - PANU - DIBAYE LUBUE

Each location

| | |
|----------------------------|-------------|
| Desktop HF SSB Transceiver | \$ 5000 |
| Dual Diabole Antenna | 200 |
| Antenna Tuner | 1200 |
| Installation | <u>1000</u> |

| | |
|--------------------|----------|
| Total per location | \$ 7,400 |
|--------------------|----------|

| | |
|-------|------------|
| | <u>x 3</u> |
| Total | \$22,200 |

The total cost of this radio network will be \$100,800, delivered Zaire and installed. The guaranty should be for a minimum period of one year.

It is the opinion of the team that his network is essential to the day-to-day operation of ONACER.

Motor vehicles - Currently the ONACER Truck and Land Rover fleet is as follows:

44 Trucks 6-7 Ton Capacity

26 Land Rovers

Of these, 24 trucks are in running order, 17 have been written off and can be further cannibalized and sold for junk, and 8 can be put into working order. Of the 26 Land Rovers, 16 are operable, 7 are to be junked, and 3 can be placed in working order.

It is anticipated that the Kikwit test area will require 8 trucks and 4 Land Rovers to function effectively. The requirement can be met from the vehicle pool outlined above.

Additionally, one Land Rover will be required at each of the Regional radio-connected points for the use of the ONACER representative at those locations. Including the headquarters office this further requirement will number 5. This requirement can also be filled from the motor pool.

The shortage of spare parts is a major constraint in Zaire. It is proposed that the balance of the vehicles which are not to be utilized be cannibalized for their spare part value. Once this is done, the chassis and body can be easily sold with proceeds to be set aside in a vehicle account.

Transportation

The entire truck transport industry in Zaire has suffered greatly in recent years due to a rapidly deteriorating road network, the inability to find or buy spare parts, and more recently to interruptions due to gasoline shortages.

A substantial percentage of Zaire's merchandise moves by truck between the rural areas and urban centers, as in the case of foodstuffs, with soft and hard goods returning to the rural areas from the urban centers. This flow of goods has

been sharply curtailed as the road conditions have worsened. The following examples of distance and travel time will serve to illustrate the problem. These trips were made in a 4-wheel drive Land Rover type vehicle. A fully loaded 6-7 ton truck would move even slower.

| | <u>Distance</u> | <u>Time</u> | <u>KPH</u> | <u>MPH</u> |
|-----------------------|-----------------|-------------|------------|------------|
| Kikwit to Idiofa | 160 Km | 6 hours | 27 | 17 |
| Idiofa to Mangai | 125 Km | 5 hours | 25 | 16 |
| Kananga to Mbuji-Mayi | 200 Km | 7 hours | 29 | 18 |

The deplorable condition of the road network, particularly the village farm-to-market roads, limits the distance any merchant is willing to travel. There is a natural reluctance on the part of any truck owner to risk his substantial investment on such roads. A breakdown of any sort becomes extremely expensive and risks idling the truck for weeks. Those who are willing to take such risks naturally inflate their charges with very high consumer prices as a natural outcome.

In the areas visited by the team, it would seem that 60 kilometers is about the maximum distance any merchant is willing to travel. As a result, grain in some areas is often never collected. In other cases, an "assembler" may move the grain to some other point accessible to a truck. In the latter case, the producer usually receives the bare minimum for his effort.

It was the conclusion of the maize marketing team that if a road improvement program is not initiated, the marketing system will continue to deteriorate. This will usually mean a reversion to subsistence agriculture for most cultivators.

There appear to be five makes of trucks which are commonly used. They are all in the 6-7 ton capacity range and are listed below with their current selling prices.

| | | | | | |
|----------|---|----------|---------|---|----------|
| Bedford | - | \$25,000 | Toyota | - | \$35,000 |
| Fiat | - | \$32,000 | Magirus | - | \$28,000 |
| Mercedes | - | \$40,000 | | | |

The ever popular Land Rover is now selling for \$12,000.

The Bedford and the Land Rover are assembled locally at the General Motors and British Leland plants respectively. Some Ford trucks are in evidence in the ONACER fleet, but these were obtained from another American funded project.

Caution must be exercised in the choice of tires when ordering new trucks. Many Bedfords are equipped with Firestone tires which last for only 10-15,000 Km. Goodyear is the preferred brand.

It is an established fact that Toyota makes an excellent truck, but another note of caution was voiced by several merchants. Toyota has cut off all supply of spare parts until the Zairois distributor satisfactorily satisfies a sizeable indebtedness.

The life expectancy of most trucks and Land Rovers in Zaire is from 2 to 2-1/2 with the Mercedes rated at 3 years. There is a reluctance on the part of multi-unit operators to settle on one make, such as the Bedford. Their decision is based on a fear that for political or other reasons the General Motors plant in Kinshasa might be closed thus severing the flow of spare parts. For this reason they prefer a mix.

The Bedford appears to have one weakness, namely the clutch assembly. When operating in sandy conditions, such as exist in Bandundu, trucks will oftentimes become mired in the sand, particularly so in the dry season. Any serious attempt to rock the vehicle out will result in clutch failure.

Additionally, those who operate their trucks on the country roads substitute wooden box sides and tail gate for the standard steel equipment. The latter snaps with the stress of over-the-road movement.

The spare parts situation constitutes a major constraint in the transport picture. Hard currency is required for practically all replacement parts and the generally accepted method of obtaining the hard currency is via the black market. Depending on availability of the part in need and one's ability to obtain hard currency, delays measured in weeks or months are not unusual. This situation has seriously crippled the nation's transport capability and is not likely to change in the short to medium term.

The entire spare parts problem is one which the GOZ must address, and it must do so as soon as possible. Failure to do so will eventually bring the transport system to a complete halt. It is the team's recommendation that for every two vehicles of the same make ordered, spare parts equal to 25% of the value of one vehicle be included in the order.

The petroleum situation does not appear to be as serious as is the spare part problem. Gasoline is periodically in short supply and it appears that for the foreseeable future shortages will continue. There is an official price on gasoline of 36 M per liter, but it is common knowledge that it has sold for as high as 75 M per liter.

Oil procurement does not pose a serious problem. While occasionally there are shortages most drivers have accumulated enough of a supply to carry them over.

Diesel fuel everywhere is more readily available than gasoline and costs less. During the periods of gasoline shortage, diesel fuel was still available.

The constraints of poor roads, parts shortages, and intermittent gasoline shortages affects ONACER as well as the private merchant. Poor road conditions limit their radius of activity, and the lack of spare parts has effectively idled many of their trucks and Land Rovers.

ONACER can improve their vehicle performance with some technical guidance. Basically some of their mechanics are

excellent, very ingenious in fact, but bad habits and a lack of regular preventive maintenance account for many of the problems. A driver should be assigned to a specific vehicle and should be responsible for reporting any minor deficiency before it becomes a major one. Consideration should also be given to putting most of the vehicles on blocks during the off seasons, thereby removing any opportunity to use them for other purposes. A technical assistance mechanic can assist in the development of a balanced vehicle program.

River Transport

Zaire has only 18 miles of seacoast fronting on the Atlantic ocean. The estuary of the Zaire river is the water route to the sea, a distance of approximately 100 miles from the port of Matadi. Studies have been made regarding the feasibility of constructing a new port facility at Banana on the coast, but present costs would have to be considered a major deterrent.

Navigable waterways offer about 8400 miles of potentially cheap transport. The Zaire and Kasai are the two main rivers, but each has miles of tributaries, many of which are navigable. Prior to the political upheavals in the 1960's, there were 150 ports which were considered active. In 1973 that number had been reduced to 70 and now it is reported that the number is between 30-40. The most important of these are Kinshasa on the Zaire and Ilebo on the Kasai, both being the key rail-river transfer points. Additional large ports are Kisangani, Mbandaka, and Bumba on the Zaire and Bandundu on the Kasai.

All river transport and equipment are the responsibility of ONATRA (Office National des Transports). This is a government agency with complete autonomy. In 1973, the Agency operated a fleet of 718 barges, 113 tugs, and 27 other powered river boats.

By 1975 the barge fleet had deteriorated to a total of 412 with a capacity of 200-300 tons each. The team was unable to determine an estimate of the number of barges now operating.

The major shipyard and port is in Kinshasa and from all appearances is equipped to perform its function. However, the operating function of the facility is geared to a forklift truck fleet. Very few of these forklifts are presently operable. In the loading-unloading area only three forklifts appeared to be working on the day of the team's visit to the port. A minimum of 20 to 30 forklifts were sitting in an adjacent "graveyard". Many of these machines are reparable but due to the lack of foreign currency, spare parts cannot be ordered. There was a considerable quantity of sacked PL 480 rice stocked within 150 feet of the railcars to be loaded but, in spite of being considerably behind schedule, the portmaster refused to consider "head-carry" methods as an alternative.

The ONATRA organization is vastly overstaffed and rife with corruption from top to bottom. In 1973 the insurance companies refused further coverage of any kind. Losses in transit are so large that one must believe the stories that the barge captains put ashore when and where they please to sell part of their cargo. No claims for loss or damage are ever paid. A shipper may file a claim, but it goes into the courts and remains there for years.

It is currently reported that 150 Belgian technicians are being sent to overhaul the Agency. If so, it may well be exactly what is needed to revive what should be a very inexpensive form of transportation. Certainly, the waterways should be used to a far greater extent than they are at present, and it can be hoped that with the technical and operational capabilities of the returning Belgians the waterways will once again be of real importance.

Bulk Storage and Handling

Zaire's grain marketing system is sack oriented from village to mill to consumer. There are, however, two exceptions.

In Shaba, there is a small bulk movement from a mechanized farm to the Minoka mill.

In Kinshasa, OZAC, a public warehouse and inspection facility, handles and stores sacked maize arriving by truck and barge. One of their clients, a feed merchant, takes out-bound delivery of his maize in bulk form. The silos are available for any merchant who may wish to use them.

As a general rule, however, the system is sack oriented and is not capable of adjusting to a bulk basis.

Preservation of Grain Quality

Preservation of quality relates directly to the preservation of quantity. Grain lost to insects, rodents, transport failures, etc., actually reduces the amount of foodstuffs available for consumption. In developing countries these losses are often estimated to be 15-25% of production. Through education and guidance these figures can be materially reduced which automatically increases the amount of food available. By concentrating in this area net results will be obtainable far faster than will occur by improved farming techniques.

One of the most common causes of loss is insect infestation. The combination of temperature and humidity in much of Zaire offers a perfect climate for nearly all types of insects. This is particularly true at Kikwit, the selected warehouse location. Preventive fumigation and a regular fumigation schedule must be followed.

Strangely enough no trace of rodent activity was observed in any of the many warehouses visited by the team. Warehouse

operators reported that rodents were not a problem. Nevertheless, the prudent operator will use bait stations, and they are provided for at all warehouses in the project.

On the Farm Storage

At the village level corn is usually stored on the ear layed on a shelf above the cooking area. Actually, this is an ideal method of preserving the quality of the maize. The heat from the fire dries out the ear and effectively controls any insect damage. Maize stored in this manner is usually retained for home consumption.

The grain intended for market is stored on the ear, still in the husk, and usually kept in sheltered structures of various types.

The normal harvesting practice is to leave the maize in the field for at least one month after it is ripe to allow the grain to dry. It is then head-carried to the village where, if necessary, it is spread out on the ground for further curing in the sun.

It would be helpful if more crib type storage such as advocated by the FAO African Rural Storage Centre. This type of storage would facilitate the drying process and would keep the grain off the ground. This type of storage can easily be constructed at the village level utilizing native materials.

It is interesting to note that new maize was arriving in Kikwit during the team visit with a moisture level of less than 14%.

Jute Bags

The only factory in Zaire making jute bags is known as Tissakin and is located in Kinshasa. The bags are generally used for the packing of agricultural products such as coffee,

sugar, rice, manioc, maize, etc.

The plant's normal and maximum production is 500,000 sacks per month. The demand is often greater than capacity, so the operation is at its maximum in theory, but runs between 300,000 and 400,000 sacks per month due to the shortage of imported jute.

Tissakin uses three fibers in sack production; imported jute, a local fiber of jute-like quality called urena, and an inferior local fiber known as punga. The latter is irregular in quality and requires that the machines operate at their lowest rate. Due to the shortage of jute increased amounts of punga were used forcing the plant to a three shift operation.

Sack prices in March of 1977 were 0.7 Z but were due to go to 1 Z in April. Some merchants expect bag prices to be 1.2 Z's by the fall of 1977.

Inspection and Storage of Maize

1. The Role of OZAC in Marketing Maize

OZAC (Office Zairois de Controle) performs two major functions that facilitate the marketing of commodities in Zaire:

- 1) determines the physical and chemical characteristics of a sample of a commodity so that the quality and grade can be ascertained.
- 2) provides storage facilities in Kinshasa available to the public for short-term holding of commodities prior to export or domestic consumption.

OZAC has a laboratory in Kinshasa where maize, wheat, rice, coffee, cocoa and palm kernels are inspected and physical analyses made. Offices are maintained at up-country points to gather the samples which are sent to the laboratory for analysis. Those offices where samples of maize have been gathered include Likasi, Lubumbashi and Kalami (in the Shaba

region) and Kikwit (Bandundu), Kananga (Kasai Occidental) and Mbuji-Mayi (Kasai Oriental).

Commodities are inspected only on request, and often the determination of only a single quality factor (usually moisture content) is requested by the client. A fee is paid for this service.

2. Analysis of Maize Made in 1976

The laboratory made its records of inspections of maize for 1976 available to the Maize Marketing Team. These are summarized below:

| <u>Date</u> | <u>Quantity (sacks)</u> | <u>Humidity %</u> |
|-------------|-------------------------|-------------------|
| January 9 | 5510 | 10.53 |
| March 27 | 6800 | 11.06 |
| March 27 | 1380 | 11.17 |
| April 9 | 4085 | 11.12 |
| August 26 | 4597 | 12.75 |
| October 25 | 1375 | 19.79 |

The laboratory has the capacity to do many more inspections if the demand for such services increases. Many shipments of maize come into Kinshasa for which no inspection services are requested. As the marketing system for maize becomes more highly developed and as grading factors become more critical in price negotiation and determination, an increase in demand for inspection services can be anticipated.

3. Storage Capacity of OZAC Facilities

OZAC has facilities to store 2000 tons of product in bags and 14,200 tons in bulk. In March 1977 OZAC stated that its bulk storage capacity was allocated as follows:

- for cereals, principally maize
- 34 bins of 200 tons each = 6,800 tons
- 32 bins of 50 tons each = 1,600 tons

for palm kernels (mostly) and peanuts

23 bins of 200 tons each = 4,200 tons

24 bins of 50 tons each = 1,200 tons

Water, rail and road transport serve the facility. The concrete warehouse was constructed in 1958. It has pneumatic equipment which can unload bulk commodities from barges at the rate of 50 tons per hour. It has aeration and drying equipment, scales that can handle a truck load of product, and cranes that can move bags on pallets from the holds of ships to trucks or rail cars.

The storage facilities are used least in the first quarter of the year, and most in the second quarter. The facilities have not been utilized to their full capacity. More complete use of this excellent facility should be included in future maize marketing developments in Zaire.

A schedule of current charges for available services will be found in the Annex.

B. ECONOMIC ANALYSIS

1. INFLATION AND DEVALUATION

An examination of the index of retail prices of consumer goods in Kinshasa discloses the increasing rate of inflation that has hit Zaire.

Using October 1970 as a base, the price has increased the following percentage over the previous year:

| | |
|--------------|--------------|
| 1971 -- 3.5 | 1974 -- 34.0 |
| 1972 -- 5.6 | 1975 -- 47.4 |
| 1973 -- 24.9 | 1976 -- 74.4 |

The rates of increase since 1972 point out why lenders have become reluctant to make long term loans, and why people would rather hold goods than money: for every member of society the buying power of the currency has fallen sharply.

Prior to March 12, 1976, 50 Zaires exchanged for 100 U.S. dollars. It had remained at that constant level from December 1971 through March 1976. On March 12, 1976 the Zaire was devalued. Its exchange value declined 43 percent; that is, the Zaire would only buy 57 percent as much in foreign currencies as before.

The real market value of the Zaire has continued to decline. In March 1977, two (2) Zaires commonly exchanged for one (1) U.S. dollar, (and even more were offered in some situations), even though the official rate of exchange was .86 Zaires for one U.S. dollar.

In such an environment merchants and ONACER have found it difficult to borrow funds, and ONACER's lending of funds to merchants has put ONACER in financial difficulties. As a result, credit has been used less, and individuals holding cash have often been the only ones who were in a position to buy grain.

2. MAIZE PRICE BEHAVIOR AND RELATIONSHIPS

Published data on prices of maize and maize flour were unavailable, so only limited price analyses are possible. Most of the data used came from files; none had been published on a continuing basis.

Trend in Prices in Kinshasa

The Institute for Economic and Social Research, National University of Kinshasa, gave ONACER monthly retail price data for maize flour in Kinshasa for the period 1967-1974. Averages of these monthly prices and the percentage change from the previous year are shown below:

| <u>year</u> | <u>makuta per kilogram</u> | <u>percent increase</u> |
|-------------|----------------------------|-------------------------|
| 1967 | 6.85 | - |
| 1968 | 8.24 | 20.3 |
| 1969 | 12.03 | 46.0 |
| 1970 | 15.09 | 25.4 |
| 1971 | 16.19 | 7.3 |
| 1972 | 17.19 | 6.2 |
| 1973 | 27.81 | 61.8 |
| 1974 | 44.77 | 61.0 |

In each year the price averaged higher than in the previous year, thus following a definite inflationary trend for the period. The increases were greatest in 1973, 1974 and 1969. They were least in 1971 and 1972.

In just seven years the average price has increased 653 percent, and prices continued their inflationary trend in 1975 and 1976 (as will be seen in other analyses that follow).

Trends in Prices in Kasai Oriental Region

Prices reported by Professor Kadima W. Muamba in a report prepared for USAID in Zaire in 1976 showed the following prices paid for maize to producers, and by consumers in retail markets, in the Sankura subregion of Kasai Oriental Region:

| <u>year</u> | <u>Producer makuta per kilogram</u> | <u>Retail Market</u> |
|-------------|---|----------------------|
| 1967 | 2.0 | 5.5 |
| 1968 | 2.0 | 8.9 |
| 1969 | 2.0 | 12.3 |
| 1970 | 2.0 | 7.0 |
| 1971 | 2.0 | 7.0 |
| 1972 | 4.0 | 8.0 |
| 1973 | 4.0 | 9.0 |
| 1974 | 4.0 | 19.0 |
| 1975 | 7.5 ^{1/} | 14.0 |
| 1976 | 12.0 ^{1/} | 40.0 |

The producer prices reported by Prof. Kadima show a remarkable (and perhaps questionable) stability from 1967 through 1971, and again from 1972 through 1974 after a 100 percent increase from 1971 to 1972.

The prices paid in retail markets fluctuated much more from year to year, with increases being most pronounced in 1974 and 1976.

While perhaps lacking preciseness, the price observations by Prof. Kadima confirm the pronounced upward trend in maize prices since 1971 that was shown in the data above for Kinshasa.

Trend in Consumer Prices in East Kasai Region

Professor Kadima Muamba reported the following maize flour prices paid by consumers in Kasai Oriental:

^{1/} In his text Kadima stated that commerçants paid producers 2 to 3 makutas per kilogram before June 1976 and 5 to 7 makutas after that date. The prices shown as paid to producers in 1975 and 1976 are the same as the government announced "official" prices to be paid. Whether they were in fact actually paid throughout the buying season seems doubtful.

| <u>year</u> | <u>makuta per kilogram</u> | <u>% change from previous year</u> |
|-------------|----------------------------|------------------------------------|
| 1967 | 8.24 | - |
| 1968 | 12.50 | 51.7 |
| 1969 | 15.10 | 20.8 |
| 1970 | 16.19 | 7.2 |
| 1971 | 17.18 | 6.1 |
| 1972 | 27.81 | 61.9 |
| 1973 | 30.80 | 10.8 |
| 1974 | 44.77 | 45.4 |
| 1975 | 71.43 | 59.5 |
| 1976* | 92.71 | 29.8 |

* for 10 months

The high consumer prices in the Kasai Oriental region have resulted in a shift in grain movement from the Kwilu river production area in Bandundu Region. Prior to 1973 a greater share of ONATRA's water shipments moved west to Kinshasa than eastward, but in recent years an increasing share (and a greater absolute amount) has been moving east to Kananga and Mbuji-Mayi. (See Table 1)

Price Variations Within a Year

Maize Flour Prices in Kinshasa, 1967-1974

An examination of monthly price data over an eight year period disclosed the months when prices were highest and lowest. (See Table 2). These months are shown below:

| <u>year</u> | <u>Lowest</u> | <u>Highest</u> |
|-------------|--------------------|---------------------|
| 1967 | April, May | December, November |
| 1968 | February, March | October, December |
| 1969 | January, February | November, December |
| 1970 | February, January | September, December |
| 1971 | September, October | December, January |
| 1972 | June, April | December, November |
| 1973 | March, April | December, November |
| 1974 | March, February | December, October |

| <u>Summary</u> | | <u>Summary</u> | |
|----------------|----------|----------------|----------|
| February | 4 | December | 8 |
| March | 3 | November | 4 |
| April | 3 | October | <u>2</u> |
| January | <u>2</u> | | 14 |
| | 12 | | |

Prices were lowest most often in February, March and April, and highest in December and November. Inasmuch as December prices each year were higher than in the previous year, the trend factor served to favor higher prices late in the year. There is a natural factor favoring higher prices at the end of the year, however, for the harvest of new crop maize usually does not begin before January, and the lower prices in February, March and April reflect the peak of the harvest period and the period when road conditions tend to be poorest because of heavy rainfall.

The prices of maize flour in Kinshasa during July through December, 1967-1974 averaged the following percentages above the prices prevailing from January through June, 1967-1974

| | | | |
|------|------|------|------|
| 1967 | 7.0 | 1971 | -0.5 |
| 1968 | 16.5 | 1972 | 4.5 |
| 1969 | 7.2 | 1973 | 40.1 |
| 1970 | 16.2 | 1974 | 29.0 |

TABLE 1
 MAIZE SHIPMENTS VIA WATER - ONATRA

| Toward Kinshasa | 1972 TONS | 1973 TONS | 1974 TONS | 1975 TONS |
|--|--------------|--------------|--------------|--------------|
| off Mongola River | 552 | 736 | 1,344 | 693 |
| From Kasai and Bandundu river ports | | | | |
| Ilebo | 3,892 | 4,777 | 4,735 | 1,451 |
| Mabenga | 206 | 172 | 234 | 26 |
| Bolo | 483 | 454 | 707 | 707 |
| Panu | 1,555 | 699 | 2,336 | 1,086 |
| Mangai | 3,060 | 512 | 1,484 | 895 |
| Dibaya-Lubue | 1,450 | 62 | 695 | 271 |
| Manpangu | 215 | 216 | 2 | 31 |
| Other | 9 | 7 | 23 | 27 |
| Djuma | 130 | 156 | 37 | 127 |
| Bulungu | 5,354 | 2,028 | 4,186 | 2,082 |
| Lusanga | 117 | | 381 | 15 |
| Kikwit | 2,189 | 1,570 | 2,944 | 2,424 |
| Other Points | 22 | 80 | 22 | 195 |
| Other Tributaries | 179 | 48 | 125 | 63 |
| Total Toward Kinshasa | 19,413 | 11,519 | 19,255 | 10,093 |
| Toward Ilebo | 14,513 | 19,057 | | |
| Total River | 33,926 | 30,576 | | |

Source: ONATRA

TABLE 2
MONTHLY AVERAGE OF MAIZE FLOUR PRICES IN KINSHASA: 1967-1974
 (Current Prices-Makuta per Kilo)

| Year | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Average | Yearly Change |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|---------------|
| 1967 | 6.92 | 6.77 | 6.56 | 6.47 | 6.47 | 6.51 | 6.53 | 6.81 | 6.82 | 6.81 | 7.28 | 8.23 | 6.85 | |
| 1968 | 8.92 | 8.19 | 8.27 | 8.34 | 8.41 | 9.07 | 9.97 | 9.68 | 9.76 | 10.10 | 10.06 | 10.10 | 8.24 | + 20.3 |
| 1969 | 10.34 | 10.58 | 11.67 | 12.38 | 12.32 | 12.39 | 12.21 | 12.23 | 12.35 | 12.40 | 12.87 | 12.65 | 12.03 | + 46.0 |
| 1970 | 13.64 | 13.59 | 13.69 | 14.09 | 14.33 | 14.43 | 14.41 | 16.30 | 17.10 | 16.47 | 16.38 | 16.65 | 15.09 | + 25.4 |
| 1971 | 16.64 | 16.12 | 16.06 | 16.15 | 16.40 | 16.03 | 16.15 | 16.12 | 15.67 | 16.00 | 16.10 | 16.88 | 16.19 | + 7.3 |
| 1972 | 16.69 | 17.02 | 16.92 | 16.68 | 17.03 | 16.53 | 16.80 | 17.16 | 17.24 | 17.32 | 17.85 | 19.00 | 17.19 | + 6.2 |
| 1973 | 24.19 | 23.30 | 20.71 | 20.75 | 21.03 | 29.01 | 31.83 | 32.18 | 31.46 | 31.39 | 32.62 | 35.24 | 27.81 | + 61.8 |
| 1974 | 35.00 | 34.64 | 34.27 | 38.58 | 45.79 | 46.26 | 46.43 | 48.43 | 51.80 | 52.77 | 49.97 | 53.24 | 44.77 | + 61.0 |

Source: Institute for Economic and Social Research, National University of Kinshasa

Only since 1973 could the price changes be considered large enough to make it profitable to store grain purchased in the first half of the year to sell in the last half. Scattered price reports indicate the differences have been much greater in 1975 and 1976.

Retail prices in 1975 for six markets in Kasai Oriental were determined by Mwamufiya and are reproduced in Table 3. The highest maize price was the following percentage of the lowest monthly price for each of these markets:

| | | | |
|-------------|-----|---------|------|
| Mbuji-Mayi | 401 | Kaseki | 828 |
| Bakwadianga | 439 | Kamanda | 1093 |
| Gandajika | 634 | Nsona | 1037 |

In Kasai Oriental Region there are often two crops of maize within a year, with the harvest of the first crop in January and February and the second crop harvest heaviest in May and June. Some harvesting takes place after those months, for it is a common practice to let the grain mature and dry on the stalks and in effect to store it in the field.

In their report^{1/} on "Maize Marketing and Distribution in Southern Zaire", Mbuki Mwamufiya and James B. Fitch state the following:

"The proportion of the seasonal price variations which is captured by producers is a function of how producers spread their sales over the maize season. Survey data indicate that 44.9 percent of the farmers in the district of Gandajika, 60.5 percent in Kanama, 67.9 percent in Mwene-Ditu, and 76.9 percent of the producers in Tshilenge sell most of their maize within six months after harvest and, thus, do not benefit from price rises during the September to December period. Observation of marketing practices in the Gandajika, Tshilenge and Mwene-Ditu districts also indicates that it is not the producer but the rural and urban assemblers and the licensed traders who collect and store maize for sale during the period of shortages."

^{1/} November 1976

TABLE 3

Retail Price of Maize in Six Markets of Southern Kasai Oriental

(Makuta per kilogram)

| Month | Urban | | | Rural | | | |
|---------------|-------------|-------------|-------|-----------|--------|---------|-------|
| | Mbuji-Mayi | | | Gandajika | Kaseki | Kamanda | Nsona |
| | Zaire | Bakwadianga | | | | | |
| | Maize flour | Maize | Maize | Maize | Maize | Maize | Maize |
| December 1974 | - | - | - | 6.7 | 7.5 | 6.5 | 5.9 |
| January 1975 | 13.3 | 13.8 | 12.2 | 5.3 | 4.4 | 4.8 | 3.9 |
| February | 12.6 | 8.5 | 8.1 | 4.7 | 3.6 | 2.9 | 3.0 |
| March | 14.8 | 8.7 | 7.8 | 5.5 | 5.3 | 4.8 | 5.1 |
| April | 14.7 | 11.0 | 11.8 | 8.8 | 7.3 | 8.1 | 6.7 |
| May | 11.7 | 7.3 | 7.2 | 7.5 | 7.2 | 4.9 | 7.9 |
| June | 14.8 | 8.9 | 8.6 | 7.2 | 6.7 | 5.9 | 6.7 |
| July | 14.4 | 10.7 | 9.9 | 9.4 | 9.2 | 8.5 | 7.7 |
| August | 24.6 | 24.5 | 19.3 | 18.5 | 14.6 | 13.3 | 9.4 |
| September | - | - | - | 20.1 | 16.1 | 16.7 | 11.1 |
| October | 38.4 | 26.1 | 28.4 | 29.8 | 27.6 | 31.7 | 26.2 |
| November | 34.6 | 29.3 | 31.6 | 28.4 | 29.8 | 29.9 | 31.1 |
| December | 30.0 | 28.6 | 27.0 | 20.1 | 20.3 | 26.1 | - |

Source: Mwamufiya Mbuki. Doctoral Dissertation, Oregon State University, 1976

TABLE 4

Number of Months After Harvest Within Which Producers
in Designated Districts Sell Most of Their Maize (%)

| Number of months after harvest | District | | | |
|-----------------------------------|----------|------------|-----------|-----------|
| | Kaniama | Mwene-Ditu | Gandajika | Tshilenge |
| less than one | 26.3 | 19.2 | 28.6 | 42.3 |
| 1 - 3 | 23.7 | 29.5 | 41.1 | 26.9 |
| 3 - 6 | 10.5 | 19.2 | 12.2 | 7.7 |
| 6 - 9 | 10.5 | 13.6 | 24.5 | 15.4 |
| Spread over the year | 27.6 | 15.9 | 24.5 | 3.8 |
| Other answers | 0.0 | 4.5 | 6.1 | 3.9 |

Source: Mwamufiya, Mbuki. Dissertation, Oregon State University, 1976.

Geographic Price Differences

Rural and Urban Markets in Kasai Oriental

Data in Table 3 show that prices in rural markets in one part of Kasai Oriental Region were much lower than in two urban markets most of 1975, but in October, November and December they were as high or higher in the rural markets. These data suggest that supplies for the urban markets had moved to the urban markets earlier in the year and were stored there for distribution later in the year. The data also suggest there was no surplus of maize in the rural areas by the last quarter of 1975.

The rural markets shown in Table 3 surround Gandajika: Kasei is about 18 kilometers east, Kamanda about 21 km. south, and Nsona about 10 km. northwest. Gandajika has a population

of about 60,000 compared to 342,000 for Mbuji-Mayi and is about 85 kilometers from the latter. During the heaviest movement of grain after harvest, prices in the urban markets tend to be above those in the rural markets by the costs of transportation and marketing.

Regional Price Differences

In September 1976 regional offices of ONACER began collecting data on prices paid in some markets from each of its regions. Prices reported are shown in Table 5. Prices paid were highest in Kasai Occidental region, in parts of Kivu and in Haut Zaire. Prices were lowest in Bandundu, Kasai Occidental and Shaba regions; each of these regions has surplus maize which moves to Kasai Oriental region and to the large city of Kananga in Kasai Occidental region.

TABLE 5

Prices of Maize Grain Reported by Regional Directors of ONACER

| <u>Market</u> | <u>Region</u> | 1976 | | | |
|---------------|------------------|----------------------|-------------|-------------|-------------|
| | | <u>Sept.</u> | <u>Oct.</u> | <u>Nov.</u> | <u>Dec.</u> |
| | | Makutas per kilogram | | | |
| Lodja | Kasai Oriental | 70 | 100 | 120 | 100 |
| Kindu | Kivu | 40 | 40 | - | - |
| Mbuji-Mayi | Kasai Oriental | 25 | - | 27 | - |
| Kisangani | Haut Zaire | - | - | 25 | 25 |
| Mwene Ditu | Kasai Oriental | 19 | - | - | - |
| Kananga | Kasai Occidental | 15 | 20 | - | - |
| Gemena | Equateur | - | - | 14 | - |
| Goma | Kivu | 12 | 12 | 13 | - |
| Lubumbasha | Shaba | - | 12 | 12 | - |
| Mangai | Bandundu | 12 | - | - | - |
| Tshikapa | Kasai Occidental | 12 | - | - | - |
| Mweka | Kasai Occidental | - | 12 | - | - |
| Kikwit | Bandundu | 11 | - | 12 | - |

Prices Paid in Kananga

Good Shepherd Hospital at Tshikaji (near Kananga), which purchases maize flour and grain for its employees, paid the following prices at a Kananga mill for flour in 50 kilogram sacks in 1976:

| Date | Number of sacks purchased | Zaires per sack | Price per kilogram, makutas |
|-------------------|---------------------------|-----------------|-----------------------------|
| January 20 | 2 | 6.50 | 13 |
| April 1 | 10 | 6.10 | 12.2 |
| May 25 | 2 | 10.50 | 21 |
| June 7 | 8 | 11.00 | 22 |
| July 19 | 5 | 10.00 | 20 |
| September 27 | 10 | 13.40 | 26.8 |
| February 7, 1977* | 10 | 15.00 | 30 |

* not at mill

These data show that prices had moved up sharply in May before the Government announced on June 7, 1976 the official minimum price of Z 120 per ton to be paid to producers of maize (an increase over the Z 75 per ton announced in July 1975).

The devaluation taking place on March 12, 1976, resulting in a decline in the value of the Zaire of 43 percent, was a factor contributing to the higher price, but note that prices continued to rise sharply after July, denoting the scarce supply situation. Merchants from Mbuji-Mayi and Kananga purchased maize at distant points (in the north Shaba and Bandundu regions) in an effort to meet local needs; they incurred heavy transport costs to obtain this maize.

Prices of Transported Maize

Prior to 1958 Zaire was an exporter of maize, but after the civil war in the 1960's production declined and it became

necessary to rely on imports commencing in 1968. The following table indicate the number of thousands of tons imported by year from 1968 - 1977.

| 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|------|------|------|------|------|------|------|------|------|
| 57.7 | 64.6 | 64.0 | 100 | 85.0 | 125 | 140 | 150 | 134 |

Virtually all importation is done through Lubumbashi by Gecamines (the State-owned copper Company). This is by design, as it is essential that the labor force in the copper belt, be fed, and their preference is for maize.

The imported maize comes from Rhodesia and South Africa and is of very fine quality. When milled into flour, the millers report an extraction rate of 98.99% versus a bare 80% for local grain.

The necessity for imports, however, places a heavy drain on already scarce foreign exchange, in 1975, 150,000 tons of grain were purchased at a price of US \$150 per ton; in 1976 - 134,000 tons at \$160 per ton, and in 1977 it was anticipated that 144,000 tons would be required. It was reported that in March a contract had been signed with Rhodesia for 130,000 tons at \$129 per ton. The sharply lower price reflects an urgency on the part of Rhodesia to generate hard currency.

These imported prices can be compared to prices for local Shaba maize delivered Lubumbashi ranging from \$120-130.

3. MARKETING COSTS AND MARGINS

Distribution of Prices Paid by Consumers

The share of the consumer's expenditure for maize which went to the producer and each marketing agent in March-April 1975 was determined by Mwamufiyā¹/ to be as follows in the Gandajika urban market:

| <u>Agent</u> | <u>Percent</u> |
|-------------------|----------------|
| Producer | 47.5 |
| Village assembler | 4.9 |
| Rural assembler | 3.3 |
| Transporter | 27.3 |
| Urban assembler | 2.2 |
| Retailer | 14.8 |

The producer's price was that received for a 60 kilogram sack of maize in the Kamanda production area; it would be considered a farm bulk price. The different merchants (assemblers and retailer) combined received 25.2 percent of the money paid by the consumer in this study, about the same as received by the trucker.

Wholesale Costs in Marketing

In determining the selling price per ton in Kinshasa for maize purchased in and around Kikwit (Bandundu region) ONACER's budgets show the following:

| | January 1976 | June 1976 | September 1976 |
|--|-----------------|--------------|-------------------|
| | Zaires/ton | | |
| Purchase price ^{2/} | 40.00 | 75.00 | 120.00 |
| Selling price | 91.60 | 141.58 | 216.47 |
| Gross returns to ONACER ^{3/} | 51.60 | 66.58 | 96.47 |
| Distribution of Marketing Costs for: | | | |
| Transport-assembling | 19.80 | 24.20 | 35.20 |
| Transport-ONATRA ^{4/} | 7.73 | 8.23 | 17.90 |
| Sacks, no rotation | 7.14 | 9.28 | 9.99 |
| Handling, reconditioning | 2.00 | 4.00 | 4.00 |
| Interest to banks | 1.60 | 3.00 | 4.80 |
| Buying, selling and administration | 13.33 | 17.87 | 24.68 |
| percentage distribution of selling price | | | |
| To producer | 43.7 | 53.0 | 55.4 |
| To ONACER | 56.3 | 47.0 | 44.6 |
| percentage distribution of marketing costs for | | | |
| Transportation | 53.4 | 48.7 | 54.9 |
| Sacks | 13.8 | 13.9 | 10.4 |
| Handling | 3.9 | 6.0 | 4.1 |
| Interest | 3.1 | 4.5 | 5.0 |
| Buying, selling and administration | 25.8 | 26.8 | 25.6 |

1/ Doctoral dissertation, Oregon State University

2/ Team members heard that producers often received lower prices than these announced official minimum prices

3/ for all marketing costs paid by or incurred by ONACER

4/ from Kikwit to Kinshasa and to warehouse

Transportation costs made up more than half of all marketing costs. Thus efforts to improve roads, truck and other vehicle repairs and maintenance, and routing probably represent the most promising prospect to benefit producers and buyers of maize, as well as owners of the trucks.

As the value of grain rises, the interest cost rises directly in proportion. Of even greater importance than the cost increase was the inability to secure borrowed funds to buy grain. With a six percent limit on the interest rate that banks can charge on agricultural loans, the difficulty in obtaining funds is likely to persist as long as there are alternative places for banks to loan money at substantially higher rates.

The data above point out that bags made up a greater share of marketing costs than may be commonly recognized. Such costs in the future should give a strong impetus to handle more grain in bulk, especially at the wholesale level. Efforts to get greater use of a sack (that is, obtain some rotation) could also yield benefits in reducing this cost.

Gross Returns to Millers of Maize

The Department of Agriculture and the Commissaires in Kasai Occidental and in Shaba released directives stating what price the millers are to pay for maize delivered to their mills, and the price at which they can sell maize flour at the mill. These were as follows in 1976:

| Product | <u>Kasai Occidental</u> | | <u>Shaba</u> | <u>National</u> |
|-----------------|-------------------------------|----------------------------|-------------------------|-------------------------|
| | Prior to 29 August 1976 | After 29 August 1976 | After 7 June 1976 | After 7 June 1976 |
| | Zaires/ton | | | |
| Maize flour | 146 | 208.33 | 115 | 146 |
| Maize | 109 | 159. | 75 | 120 |
| Miller's margin | 37 | 49.33 | 40 | 26 |

Millers have complained that they cannot cover their costs at these margins, and most of them curtailed their operations or shut down completely during part or most of 1976. A mill in Lumbumbashi (in Shaba) was granted approval by the Commissaire in Shaba to export flour to Kananga (in Kasai Occidental) for the higher price prevailing there.

Gross Return to Small Custom Mill in Kananga

An operator of four John Deere hammermills in Kananga on 19 February 1977 charged Z 1.5 to mill a basin of maize estimated to hold about 20 kilograms. This rate translates to a price of Z 75 per ton, but handled in approximately 50 transactions. His price to mill manioc roots was one Zaire for a basin, or Z 50 per ton.

The maize and manioc were brought in by headload by women, and most of the flour was then headloaded to the nearby urban market of Kananga.

4. PROJECTED DEMAND FOR MAIZE IN SELECTED URBAN CENTERS

Data gathered by ONACER and presented in the accompanying tables indicate nearly a doubling in consumption between 1976 and 1986. These estimates assume that the rate of population

increase occurring in recent years will be continued and that per capita consumption will remain constant at the estimated current rates. These projections will undoubtedly be modified by political, economic and transportation developments.

The greatest absolute increase in metric tons for the 10 year period were projected as follows:

| | |
|--------------|---------|
| Shaba cities | 125,174 |
| Kananga | 18,585 |
| Kinshasa | 17,209 |
| Mbuji-Mayi | 16,172 |
| Kisangani | 4,774 |
| Kikwit | 3,249 |
| Matadi | 1,879 |
| Mbandaka | 1,528 |
| Bukavu | 1,237 |
| | <hr/> |
| Total | 189,807 |

The dominance of the south Shaba copper mining area as a center for demand is clearly indicated. Its needs will have to be met from continued imports and production increases within the Shaba region. The higher priced markets in recent years in Mbuji-Mayi and Kananga suggest that they can absorb production increases within their respective regions, and will in addition continue to draw grain from Bandundu region (and perhaps from Shaba too).

TABLE 6
Consumption of Maize 1976-1986

| YEAR | SHABA | KINSHASA | KANANGA | MBUJI-MAYI | TOTAL Metric tons |
|------|---------|----------|---------|------------|----------------------|
| 1976 | 142,378 | 13,647 | 14,496 | 17,027 | 187,550 |
| 1977 | 151,617 | 14,807 | 15,745 | 18,205 | 200,374 |
| 1978 | 161,437 | 16,006 | 17,099 | 19,464 | 214,006 |
| 1979 | 171,964 | 17,431 | 18,569 | 20,811 | 228,775 |
| 1980 | 183,150 | 18,913 | 20,166 | 22,246 | 244,475 |
| 1981 | 195,075 | 20,521 | 21,901 | 23,781 | 261,278 |
| 1982 | 207,782 | 22,265 | 23,784 | 25,422 | 279,490 |
| 1983 | 221,327 | 24,157 | 25,830 | 27,176 | 298,490 |
| 1984 | 235,765 | 26,211 | 28,051 | 29,051 | 319,076 |
| 1985 | 251,149 | 28,439 | 30,463 | 31,056 | 341,107 |
| 1986 | 267,552 | 30,856 | 33,083 | 33,199 | 364,690 |

Source: ONACER

TABLE 7
Consumption of Maize 1976-1986

| | Population Rate of Increase | Consump- tion (Kg per capita) | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|--------------|-----------------------------------|-------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| SHABA | 6.8% | 144 | 142,378 | 151,617 | 161,437 | 171,964 | 183,150 | 195,075 | 207,782 | 221,327 | 235,765 | 251,149 | 267,552 |
| KINSHASA | 8.5% | 7.8 | 13,647 | 14,807 | 16,006 | 17,431 | 18,913 | 20,521 | 22,265 | 24,157 | 26,211 | 28,439 | 30,856 |
| KANANGA | 8.6% | 44.5 | 14,498 | 15,745 | 17,099 | 18,569 | 20,166 | 21,901 | 23,784 | 25,830 | 28,051 | 30,463 | 33,083 |
| MBUJI-MAYI | 6.3% | 44.5 | 17,027 | 18,205 | 19,464 | 20,811 | 22,246 | 23,781 | 25,422 | 27,176 | 29,051 | 31,056 | 33,199 |
| KISANGANI | 6.7% | 15.4 | 5,224 | 5,575 | 5,950 | 6,350 | 6,775 | 7,229 | 7,713 | 8,230 | 8,781 | 9,370 | 9,998 |
| BUKAVU | 8.5% | 3.9 | 622 | 896 | 968 | 1,050 | 1,140 | 1,236 | 1,342 | 1,456 | 1,579 | 1,714 | 1,859 |
| KIKWIT | 8.5% | 14.8 | 2,577 | 2,796 | 3,034 | 3,291 | 3,571 | 3,875 | 4,204 | 4,561 | 4,949 | 5,570 | 5,876 |
| MATADI | 5.8% | 15.4 | 2,481 | 2,625 | 2,777 | 2,938 | 3,109 | 3,289 | 3,480 | 3,682 | 3,895 | 4,121 | 4,360 |
| MBANDAKA | 6.5% | 15.4 | 2,817 | 2,468 | 2,628 | 2,799 | 2,978 | 3,172 | 3,378 | 3,597 | 3,831 | 4,080 | 4,345 |
| TOTAL | | | 201,271 | 214,730 | 229,363 | 245,202 | 262,046 | 280,079 | 299,370 | 320,016 | 342,113 | 365,762 | 391,078 |

Source: ONACER

5. ANALYSIS OF TRANSPORTATION RATES

Freight tariffs compiled by ONACER for shipments on ONATRA (water) and SNCZ (rail) and combinations thereof for September 1976 are shown in the accompanying circular.

An analysis of these rates to Kananga, Kinshasa and Likasi discloses the shipping points from which each of these three important markets has an advantage in freight rates. (See Table 1).

Advantage for Kinshasa

Kinshasa can have maize transported by water from Kikwit for Z 7.28 less per ton and from Mangai for Z 0.72 less per ton than can Kananga. Presumably there is some river shipping point (not indicated on the circular) between Mangai and Ilebo where the freight rate to either Kinshasa or Kananga is about equal.

Advantage for Kananga

The rate from Ilebo (a rail-water transfer point northwest from Kananga) is Z 4.31 per ton less to Kananga than to Kinshasa.

The rates from Demba and Mweka (north and northwest of Kananga) are Z 12.82 and Z 11.33 per ton less to Kananga than to Likasi.

The rate from Mwene-Ditu (south of Kananga) is Z 6.67 per ton less to Kananga than to Likasi, and the rate from Kaniama (also south of Kananga) is Z 1.48 per ton less to Uananga than to Likasi.

Kananga has the same freight rate as Likasi from Kongolo, a shipping point in north Shaba region, but it has a Z 3.71

per ton disadvantage from Nyunzu, another shipping point in north Shaba.

Advantage for Likasi

Likasi has an advantage of Z 3.71 per ton less than Kananga from Nyunzu, 11.01 less from Mutshatsha, and 1.0 per ton less from Kamina (between Kananga and Likasi).

Presumably there is some point between Kamina and Kaniama where the rate to either Kananga or Likasi is essentially the same.

Possible Use of a Through Rate

The tariff schedule shows that from three points northwest of Kananga (Ilebo, Mweka and Demba) the rate from each of those points to Likasi is less than a combination of the rate to Kananga plus the rate from Kananga to Likasi as follows:

Ilebo - through rate is Z 6.08 less than combination rate

Mweka - through rate is Z 4.43 less than combination rate

Demba - through rate is Z 2.94 less than combination rate

Thus, if the market at Likasi is in a position to pay a sufficiently higher price than Kananga (the opposite occurred in 1976), it could reach for supplies northwest of Kananga.

There is no through rate advantage to Likasi from either Kikwit or Mangai, so Kananga has a distinct advantage in procuring supplies from these points compared to Likasi (but not compared to Kinshasa).

Effect of Truck Freight Rates

Freight rates by truck are usually higher than by either water or rail. Current problems with fuel, road conditions and difficulty of obtaining spares have combined to increase the disadvantage of truck transport. Improvements in those factors could of course reduce this disadvantage, but short-term prospects for such a change are not favorable. One exception may be the expected completion of an improved paved road from Kinshasa to Kikwit.

M . P . R .
 REPUBLIQUE DU ZAIRE
 OFFICE NATIONAL DES CEREALES
 DIRECTION GENERALE
 B . P . 7651
 KINSHASA I

CIRCULAIRE DIRECTION COMMERCIALE N° DC/11/76

TARIFS ONATRA/SNCZ POUR LE TRANSPORT DU MAIS
 LOCAL SEPTEMBRE 1976 - (EN ZAIRES LA TONNE).

| D E S T I N A T I O N | | | | | |
|-----------------------|---------|----------|---------|--------|------------|
| DEPART | KANANGA | KINSHASA | KOLWEZI | LIKASI | LUBUMBASHI |
| AKOLA | | 15.92 | | | |
| DEMBA | 3.94 | | 16.43 | 16.76 | 18.10 |
| DILOLO | | | 8.38 | 10.71 | 11.01 |
| ILSBO | 9.38 | 13.69 | 19.06 | 19.06 | 20.06 |
| KALAMIE | | | 18.00 | 18.00 | 19.23 |
| KAMINA | 11.09 | | 9.75 | 10.09 | 11.42 |
| KANIAMA | 9.11 | | 10.59 | 10.59 | 13.40 |
| KANANGA | | | 15.76 | 15.76 | 17.09 |
| KASAJI | | | 6.71 | 9.05 | 10.71 |
| KIKWIT | 23.20 | 15.92 | 38.96 | 38.96 | 40.29 |
| KONGOLO | 15.76 | | 15.76 | 15.76 | 17.09 |
| LUPUTA | | | 11.72 | 11.72 | 13.05 |
| MANGAI | 14.85 | 14.13 | 30.61 | 30.61 | 22.00 |
| MOBA | | | 20.67 | 20.67 | 22.00 |
| MUTSHATSHA | 18.72 | | 4.37 | 7.71 | 9.05 |
| MWEKA | 6. | | 17.06 | 17.33 | 18.72 |
| MWENE-DITU | 6.75 | | 13.09 | 13.42 | 14.76 |
| NYUNZU | 20.74 | | 17.03 | 17.03 | 18.70 |

Ces tarifs sont basés sur les échelles mobiles de 245%(ONATRA) et 122,5% (SNCZ) et les coefficients 10(ONATRA) 15(SNCZ) pour septembre 1976

Water Shipments of Maize to Kinshasa

In the period 1968-1970 the supply areas of maize for Kinshasa were reported^{1/} to be as follows:

| | <u>Tons</u> | <u>%</u> |
|----------------------------------|-------------|----------|
| Kwilu river area around Kikwit | 3482 | 44.9 |
| Mongala river in northwest Zaire | 2041 | 26.3 |
| Kasai river and Kasai Occidental | 1863 | 24.0 |
| Other areas | 375 | 4.8 |
| | <hr/> | <hr/> |
| Total | 7760 | 100.0 |

Shipments by river of maize into Kinshasa had increased to 10,088 tons in 1975. The monthly distribution of river receipts at Kinshasa in 1975 were as follows:^{2/}

| | <u>Tons</u> | <u>% of total</u> |
|-----------|-------------|-------------------|
| January | 895 | 8.9 |
| February | 404 | 4.0 |
| March | 398 | 3.9 |
| April | 272 | 2.7 |
| May | 354 | 3.5 |
| June | 1222 | 12.1 |
| July | 1403 | 13.9 |
| August | 809 | 8.0 |
| September | 1608 | 15.9 |
| October | 1339 | 13.3 |
| November | 403 | 4.0 |
| December | 981 | 9.7 |
| | <hr/> | <hr/> |
| Total | 10,088 | 99.9 |

Nearly 65 percent of the in-shipments were received during the last half of the year, and the four months of June, July, September and October accounted for 55 percent of the 1975 receipts.

Shipments through July 1976 compared with those for 1975 were as follows:

| | <u>1975</u> | <u>1976</u> |
|------------------|-------------|-------------|
| | metric tons | |
| July | 1408 | 1679 |
| Jan through July | 4948 | 3446 |

Proposed projects to increase the port capacity in Kinshasa have been held in abeyance until a clearer idea of future needs can be established.

1/ Kansas State University report, page 183

2/ Bank of Zaire, monthly Bulletin of Statistics, April and August 1976

Origin of Rail Receipts of Maize in Kananga, 1976

The SNCZ railroad office in Kananga prepared data from its records which show by months for 1976 the origin of maize unloaded in Kananga (see accompanying table). A total of 11,523 tons was received.

Nearly twenty nine percent of the receipts came from areas beyond Ilebo, where water shipments were transferred to the railroad; most of this grain came from Bandundu region.

Mweka (northwest of Kananga) and Kaniama (south of Kananga) shipped almost identical amounts of maize, and each accounted for over 19 percent of total shipments. These three points

combined provided 68 percent of the total shipments!

Kakenge accounted for eight percent of the total, and other shipping points between Ilebo and Kananga (in addition to Ilebo, Mweka and Kakenge) accounted for a combined total of 1327 tons or 11.5 percent. Thus 7830 of the total of 11,523 tons (or 68 percent) came from points north and west of Kananga.

Points south and east of Kananga accounted for 32 percent of total shipments.

Seasonal Variation in Shipments

The percentage of 1976 shipments received each month was as follows:

| | | | |
|--------|------|-----------|------|
| May | 15.1 | September | 10.8 |
| June | 19.9 | October | 12.4 |
| July | 19.0 | November | 11.1 |
| August | 6.4 | December | 5.4 |

It is somewhat surprising to note no receipts in the first four months of the year, and over 16 percent of the total in November and December when supplies were scarce in many rural and urban markets of Zaire. Fifty four percent of total in-shipments was received in May, June and July, and 34 percent in September, October and November.

It is also interesting to note how buyers shifted their sources of supply of maize for Kananga during the year. In May Kaniama was the most important source followed by Mweka. In June Mweka provided nearly half the total, whereas in July points beyond Kaniama (south and east) accounted for nearly

S.N.C.Z.

Kananga, le 23 février 1977

CIAL/CENTRE

108

TONNAGES DE MAIS TRANSPORTES AU COURS

DE LA CAMPAGNE AGRICOLE 1976

N.B. Le maïs transporté à ILEBO vient de BANDUNDU, en grande partie.

| GARES MOIS | ILEBO ex-Ban- dundu. | DOHION- GO. | BONGO | MYEKA | KINDA | KAKEN- GE | BAKUR- KENGE | BAKWA- BALAIE | BEYA- BWANGA | BENA- LEKA | KASHANA | TSHIBAN BULA | DEMBA | KANIA- MA | AUTRES GARES | TOTAL |
|---------------|----------------------------|----------------|-------|-------|-------|--------------|-----------------|------------------|-----------------|---------------|---------|-----------------|-------|--------------|-----------------|----------------|
| MAI | 37 | 60 | - | 392 | 238 | - | 108 | - | 208 | 18 | - | - | 32 | 647 | - | 1740 |
| JUIN | 62 | 32 | - | 1004 | 182 | 336 | 61 | - | - | 164 | - | 19 | - | 410 | - | 2290 (2990) |
| JUILLET | 434 | - | - | 393 | - | 82 | 59 | 28 | - | 14 | - | - | 11 | 135 | 1028 | 2184 |
| AOUT | 413 | - | 21 | 207 | - | 60 | - | - | - | - | - | - | - | 40 | - | 741 |
| SEPTEMBER | 595 | - | - | 190 | - | 217 | - | - | - | 22 | - | - | - | 154 | 63 | 1241 |
| OCTOBRE | 808 | - | - | 68 | - | 169 | - | - | - | - | - | - | - | 89 | 292 | 1426 |
| NOVEMBER | 654 | - | - | - | - | 74 | - | - | - | - | 30 | - | - | 519 | - | 1277 |
| DECEMBER | 308 | - | - | - | - | - | - | - | - | - | - | - | - | 273 | 43 | 624 |
| TOTAL : | 3311 | 92 | 21 | 2254 | 420 | 938 | 286 228 | 28 | 208 | 238 | 30 | 19 | 43 | 2269 2267 | 1426 | 11523 14229 |

half the total.

From August through December points beyond Ilebo provided 52 percent of the total supply. All of the December receipts and nearly all of the November receipts came from the most distant shipping points, which indicated buyers ranged far to supply Kananga's needs.

Five of the indicated shipping points had shipments in only one month of the year, and three others in only two months of the year. In contrast, Ilebo and Kaniama had shipments in all eight of the months listed, and Mweka and Kakenge in six of the eight months. Bena-Leka had shipments in four months and Baka-Kenge in three.

6. GOVERNMENT OF ZAIRE SUPPORT FOR AGRICULTURE AND TRANSPORTATION

Actual expenditures of the Government of Zaire as reported by the Bank of Zaire were as follows for the five year period 1970 through 1974:

| | <u>1970</u> | <u>1971</u> | <u>1972</u> | <u>1973</u> | <u>1974</u> |
|------------------------------|-------------|-------------|-------------|-------------|-------------|
| | | Thousand | Zaires | | |
| Agriculture | 1,516 | 2,469 | 3,620 | 5,604 | 9,755 |
| Transport and communications | 2,740 | 3,265 | 3,204 | 4,054 | 6,133 |
| Capital expenditures | 62,379 | 68,265 | 72,170 | 104,489 | 199,768 |
| Total expenditures | 326,951 | 347,643 | 356,292 | 450,056 | 745,173 |

| | <u>1970</u> | <u>1971</u> | <u>1972</u> | <u>1973</u> | <u>1974</u> |
|------------------------------|-------------------------------|-------------|-------------|-------------|-------------|
| | Percent of total expenditures | | | | |
| Agriculture | .46 | .71 | 1.02 | 1.25 | 1.31 |
| Transport and communications | .84 | .94 | .90 | .90 | .82 |
| Capital expenditures | 19.08 | 19.64 | 20.26 | 23.22 | 26.81 |

Governmental support for agriculture represents a small share of total expenditures. It has been increasing sharply in recent years and has been given a high priority in current proposed budgets.

The overall share for transport and communications has increased only slightly. An increase for them will be needed if commercial development (including marketing of maize) is to experience any significant growth. It too represents an extremely low percentage of total governmental expenditures.

Capital expenditures have increased both in Zaire and as a percent of total expenditures. They should contribute to economic growth, but returns from some of them will not be realized in the short run. The construction of a 1500 mile power transmission line is one of the largest of the capital projects.

7. FINANCIAL ANALYSIS OF ONACER THROUGH THE END OF 1975

Section 33 of Executive Order No. 74.011 of January 10, 1974, which created the National Cereals Board, states that at the end of each financial year (which ends on December 31)

a balance sheet and an income and expense statement are to be prepared. These documents are submitted to the Commissaire d'Etat for Agriculture by March 31 of the following year. The statements for the period ending December 31, 1975, are included on succeeding pages.

The Statement of Financial Condition (Balance Sheet)

On December 31, 1975, ONACER held assets valued at Z 1,302,376 and owed creditors Z 1,060,591.

Current liabilities exceeded current assets by Z 58,517, with the ratio of current assets to liabilities being 0.92 to 1.00.

Fixed assets of Z 553,130 and long term debt of Z 369,001 were disclosed.

Advances to mills and commercants were the largest current asset outstanding other than cash. No reserves for possible uncollectable receivables was provided; on March 10, 1977, some of these receivables and advances still had not been repaid. Therefore, the value of current assets are probably overstated.

Vehicles and trucks constituted the biggest asset held by ONACER. These assets depreciate rapidly because of road conditions, inadequate driver care and maintenance, and difficulty of obtaining spare parts and making repairs. However, their replacement value may well have exceeded the book value because of price increases in new vehicles and trucks.

The principal current liabilities were the notes owed to the two commercial banks. The long term debt is an obligation

arising from payment by the National Maize Program (PNM) salaries to ONACER employees.

The Government of Zaire has provided grants of funds to purchase equipment, for payments of salaries and other expenses. Without this assistance ONACER could not have survived.

Income and Expense Statement

Income for the period ending December 31, 1975, came from two major sources. The largest item was the grant from the Government of Zaire, which was used largely to pay salaries and to buy some of the vehicles and trucks.

The second largest source of income was from sales of cereals.

Two major groups of expenses were incurred. Of those directly involved in acquiring, handling, and transporting cereals and other products, the expenses associated with owning and operating vehicles and trucks totaled about one third of a million Zaires. A second group of expenditures include building and office rent, maintenance and operations which accounted for about 86,000Z and travel for buyers, about 97,000 Z.

Nearly 600,000 Zaires were used to transport and handle products sold for about 480,000 Zaires; it was over a third larger than the amount paid for products sold (433,669 Z).

General operating expenses totaled 655,575 Z. Salaries accounted for about three-fourths of these overhead expenses,

and medical expenses for employees were just over five percent of salaries. General office expenses totaled 134,770 Z.

Total operating expenses of 1.25 million Zaires were incurred to purchase 4,289 tons of product (212 in 1974 and 4,077 in 1975). However, ONACER was involved in financing mill and commercant purchases of nearly 15,000 additional tons of produce. Bank borrowing was necessary to carry out the financing activities, and bank charges of 126,434 Z were incurred with only 17,052 Z recovered through interest income.

A net extraordinary expense of 163,686 Z was derived from expenses for travel and missions (much of it overseas) of 969,238 Z less an estimated 96,924 Z for buyers' domestic travel and a credit from regions of 708,628 Z.

The net non-operating income failed to cover the net operating loss, so a net loss from all activities of 43,813 Z was reported.

It is not surprising that no net income was generated during its first 19 months of operation through December 1975. Many businesses have experienced losses in their "start-up" periods.

Other Comments

A classification of accounts and a workable system of accounting has been installed after a period of no records being kept at all. Data can now be generated to analyze operations and to make meaningful comparisons among regions.

A big remaining need is to begin summarizing quantities of each cereal purchased and sold, so that meaningful trading statements can be prepared and the shrinkage in quantity of grain determined. Steps have been taken to begin generating such data.

Study of the different expenses discloses where efforts might be begun to effectuate economies. It is apparent to most observers that ONACER is greatly over-staffed for the amount of work accomplished, and that more stringent control of use and care of vehicles and trucks is imperative.

OFFICE NATIONAL DES CEREALES (ONACER)

Statement of Financial Condition - December 31, 1975

Current Assets:

| | | |
|-----------------------------------|---------------|---------------|
| Cash on hand and in banks | Z 296 224.306 | |
| Accounts receivable, clients | 34 629.950 | |
| Advances to mills and commercants | 208 350.269 | |
| Other receivables | 67 373.142 | |
| Inventory, produce | 22 097.570 | |
| Inventory, bags | 4 398.200 | |
| <u>TOTAL CURRENT ASSETS</u> | | Z 633 073.437 |

Fixed Assets:

| | | |
|---------------------------------|---------------|-------------|
| Vehicles and trucks, cost | Z 440 364.420 | |
| less Z 130 256.860 depreciation | | |
| Office equipment, cost less | 30 765.276 | |
| Z 3 418.364 depreciation | | |
| Property under construction | 82 000.000 | |
| <u>TOTAL FIXED ASSETS</u> | | 553 129.696 |

Development Cost Capitalized (less

Z 29 043.290 depreciation) Z 116 173.160

TOTAL ASSETS Z 1 302 376.293

Current Liabilities:

| | | | |
|---|---|-------------|---------------|
| Accounts payable, trade | Z | 10 595.190 | |
| Note payable, Bank of Kinshasa | | 232 202.000 | |
| Note payable, Banque Commercial Zairoise | | 446 000.000 | |
| Loans less than a year | | 2 793.210 | |
| <u>Total Current Liabilities</u> | Z | | 691 590.400 |
| <u>Long Term Debt, owed to PNM</u> | Z | | 369 001.089 |
| <u>Total Liabilities</u> | Z | | 1 060 591.489 |
| <u>Capital:</u> | | | |
| Grants for equipment, GOZ | Z | 285 598.000 | |
| Less loss incurred, 1975 | | 43 813.196 | |
| <u>Net Worth</u> | Z | | 241 784.804 |
| <u>TOTAL LIABILITIES AND NET WORTH</u> | Z | | 1 302 376.293 |

(OFFICE NATIONAL DES CEREALES (ONACER))
Income and Expense Statement, 1974-75
For 19 Month Period Ending December 31, 1975

| | | | <u>% of Sales</u> |
|--|---|---------------|-------------------|
| Sales of cereals | Z | 451 334.475 | 93.6 |
| Sales of other products and service income | | 30 647.000 | 6.4 |
| <u>TOTAL SALES</u> | | 481 981.475 | 100.0 |
| Purchases of products sold | | 433 669.292 | 90.0 |
| <u>Gross trading income</u> | | 48 312.183 | 10.0 |
| Transport and handling expenses | | 591 109.561 | 122.6 |
| General operating expenses | | 655 574.355 | 136.0 |
| <u>Total operating expenses</u> | 1 | 246 683.916 | 258.6 |
| <u>Net operating loss</u> | 1 | 198 371.733 | 248.6 |
| Non-operating income | | | |
| Grants from GOZ | 1 | 426 169.305 | |
| Interest received | | 17 052.450 | |
| Adjustments | | 30 500.000 | |
| | Z | 1 473 721.755 | |
| Non-operating expenses | | | |
| Extra-ordinary expense, net | Z | 163 686.205 | |
| Bank charges | | 126 433.722 | |
| Development cost charges | | 29 043.290 | |
| | Z | 319 163.217 | |
| <u>Net non-operating income</u> | Z | 1 154 558.538 | |
| <u>Net loss, all activities</u> | Z | 43 813.196 | |

TRANSPORT AND HANDLING EXPENSES, 1974-75

| | <u>Account Number</u> | <u>Amount</u> |
|------------------------|-----------------------|---------------|
| Travel for buyers | 64.08 | Z 96 923.758 |
| Labor | 63.06, 63.01 | 19 200.539 |
| Freight Charges | 62.10 | 55 536.300 |
| | <u>SUB-TOTAL</u> | (171 660.597) |
| Spare Parts | 61.01 | 40 575.729 |
| Tires and Tubes | 61.04 | 7 677.390 |
| Fuel | 61.05 | 97 932.330 |
| Lubricants | 61.06 | 11 071.660 |
| Maintenance, vehicles | 63.10 | 36 639.785 |
| Depreciation, vehicles | 68.00 | 130 256.860 |
| Small Tools | 61.02 | 4 661.250 |
| Rent, vehicles | 63.03 | 3 582.780 |
| Rent, other equipment | 61.03 | 1 473.090 |
| | <u>SUB-TOTAL</u> | (333 870.874) |
| Rent, buildings | 63.02 | 37 153.680 |
| Maintenance, buildings | 63.09 | 29 535.840 |
| Maintenance, supplies | 63.12.13 | 5 804.590 |
| Water and electricity | 63.08 | 13 083.908 |
| | <u>SUB-TOTAL</u> | (85 578.090) |
| | <u>TOTAL</u> | Z 591 109.561 |

GENERAL EXPENSES, 1974-75

| | <u>Account Number</u> | <u>Amount</u> |
|--------------------------------|-------------------------------|----------------|
| Salaries | 65.00 | Z 484 656.378 |
| Professional fees | 63.05 | 10 619.780 |
| Medical expenses | 63.07 | 25 528.478 |
| | <u>SUB-TOTAL</u> | (520 804.636) |
| Postage, telephones, telegrams | 63.04 | 3 381.290 |
| Subscriptions and advertising | 64.10 | 31 688.506 |
| Office supplies | 61.07 | 54 503.780 |
| Depreciation, office equipment | | 3 418.364 |
| Social expenses | 64.13 | 5 150.220 |
| Miscellaneous other expenses | 64.11 | 13 695.683 |
| | <u>SUB-TOTAL</u> | (134 769.719) |
| | <u>TOTAL GENERAL EXPENSES</u> | Z 655 574.355 |

8. PROVISIONAL FINANCIAL STATEMENTS, 1976

Certain data for 1976 from the Equateur Region had not been received by March 17, so only provisional financial statements could be submitted by ONACER. The effect of the Equateur omission on total operations is negligible. Other data for all accounts were not yet available in the same detail as for 1975, so direct comparisons of changes in all accounts were not possible.

As a general observation, progress has been made in making the accounting system more accurate, more complete, and more usable for analytical purposes.

Statement of Financial Condition

The infusion of additional capital by the Government of Zaire during 1976 resulted in an improved financial position for ONACER compared to the end of 1975. The net worth is higher, and the current ratio improved (now 1.18:1.0, compared to .89:1.0).

The continued high level of receivables arising from advances to mills and commercants is disturbing. Prepaid expenses include a payment of Z 350.000 to ONATRA for prepaid freight charges. The amount prepaid will exceed the amount of freight charges, for ONACER's allotment of P.L. 480 rice was reduced from 5,500 tons to 1,800 tons. There is likely to be a delay in securing a refund from ONATRA.

"Other receivables" include Z 54,000 owed to ONACER by PNM for PNM salaries in 1976 paid by ONACER, and charges made to regional offices for bags, supplies and buying funds.

The inventory of produce consisted entirely of P.L. 480 rice in transit at the end of 1976. Shipments to interior consuming markets (Kananga, Kisangani, and Lumbumbashi) were made in 1977.

Bags were purchased every month to build up a supply for the 1977 buying season. Approximately 10,000 bags a month were being received at a contract price of Z .70 a bag; this amount is nearly 30 makutas a bag below the current market value.

Depreciation schedules supplied to the Maize Marketing Team gave the remaining book value for the items listed on the statement included with this analysis. There were no schedules provided for "other fixed assets," but they would include a rice hulling plant given to ONACER by the Government of Zaire in 1976 and office equipment.

The depreciation schedule provided us was set up on a straight-line basis. It does not show that some vehicles, trucks and landrovers are inoperable. The Director of Marketing informed our team on March 1, 1977 that only 24 trucks of 47 owned were working, and only 17 of 27 landrovers. ONACER plans to obtain spares for 11 trucks and to sell 12 trucks and the 10 landrovers for what they will bring on the market; it does not plan to purchase insurance on these vehicles.

The present replacement value of the vehicles may still be nearly as great as the book value due to the rise in value of used and new vehicles and trucks.

Buildings in Kinshasa include a warehouse, office building and residences. Residences were also owned in Lubumbashi and Nyunzu.

Capitalized development costs were considerably lower than a year earlier. It was discovered in 1976 that such development costs shown on December 31, 1975 erroneously included an item that should have been included in advances to mills.

A loan from the Bank of Zaire was used to repay an earlier loan from the Bank of Kinshasa; it is being repaid now at the rate of Z 10,000 a month. Since January 1, payments of Z 270,000 have been made on the amount owed to the Banque Commercial Zairoise, and on March 17, the entire amount outstanding was reported to our team as paid by the Ministry of Finance.

The long term debt owed to PNM is still outstanding, but it is partially offset by an account receivable from PNM in the amount of Z 54,000 (included in other receivables) for PNM salaries in 1976 paid by ONACER.

The trade account payable consists mostly of amounts owed on P.L. 480 rice. The large amount of "other debts" includes a loan of Z 100,000 from ANEZA, an association of merchants handling maize.

Grants from the Government of Zaire are paid monthly (currently Z 134,000) and are used primarily to pay salaries. Some of the amount in the past year has been used to repay debts, and the depreciation schedule showed that five Bedford trucks were acquired in 1976.

OFFICE NATIONAL DES CEREALES (ONACER)PROVISIONAL STATEMENT OF FINANCIAL CONDITION - DECEMBER 31, 1976Current Assets:

| | | |
|--|---|---------------------------|
| Cash on hand and in banks | Z | 398 808.928 |
| 2/ Accounts receivable, clients | | 90 304.280 |
| Loans to personnel | | 33 982.973 |
| Advances to mills and commerçants | | 334 000.000 ^{1/} |
| Other receivables | | 266 995.935 |
| Prepaid expenses | | 354 646.570 |
| Inventory, produce | 1 | 833 165.000 |
| Inventory, bags ^{2/} | | |
| <u>TOTAL CURRENT ASSETS</u> | 3 | 311 903.686 |

Fixed Assets

| | | |
|--|---|-------------|
| Trucks and land rovers, net | | 190 162.570 |
| Other vehicles, net | | 59 303.600 |
| Buildings, Kinshasa, net | | 87 000.000 |
| Buildings, Lumbumbashs and Nyunzu, net | | 62 492.000 |
| Other fixed assets | | 345 182.946 |
| <u>TOTAL FIXED ASSETS</u> | | 744 141.116 |
| Development Cost Capitalized | | 55 563.500 |
| <u>TOTAL ASSETS</u> | 4 | 111 608.302 |

1/ Some of these are not current; some are not collectable.

2/ It is known that there are bags on hand, but none were reported on the statement. Headquarters records bags as sold when they are distributed to the different regions.

Current Liabilities:

| | |
|---|-----------------|
| Accounts payable, trade | Z 1 848 163.710 |
| Note payable, Bank of Zaire | 127 844.684 |
| Note payable, Banque Commercial Zairoise | 494 469.829 |
| Other debts | 331 588.860 |
| Loans less than a year | 1 925.610 |
| <u>TOTAL CURRENT LIABILITIES</u> | 2 803 992.693 |
| <u>Long Term Debt, Owed to PNM</u> | 369 001.089 |
| <u>TOTAL LIABILITIES</u> | 3 172 993.782 |

Capital:

| | |
|--|---------------|
| Grants for equipment, GOZ | 822 845.000 |
| Surplus, 1976, less 1975 loss | 115 769.520 |
| <u>NET WORTH</u> | 938 614.520 |
| <u>TOTAL LIABILITIES AND NET WORTH</u> | 4 111 608.302 |

Income and Expense Statement, 1976

The value of total sales in 1976 was only three-fourths of the value for the previous 19 month period, yet the gross realized trading income was greater -- both valuewise and as a percent of sales.

Operating expenses of Z 1,333,950 far exceeded the gross trading income, so a net operating loss of Z 1,278,824 occurred.

Expenditures for transporting products (all vehicle and truck operating expenses, excluding repairs and maintenance but including depreciation and freight charges) exceeded total purchases (and the value of products sold).

Salaries paid were nearly 50 percent greater than total sales, and total operating expenses were 3.7 times total sales. With a 15 percent gross trading margin, sales would have needed to be 24 times greater, or Z 8,893,000 in order for the gross trading income to be equal to total operating expenses.

Thus great increases in volume of product handled without increases in operating expenses are necessary to achieve a net operating income.

Non-operating income, which consisted almost entirely of grants from the Government of Zaire, exceeded net operating losses, so an overall net income was recorded in 1976 compared to the loss recorded in the previous period.

The grants from the Government of Zaire were almost identical for the two fiscal periods. Two key questions are:

(1) for how long a period may these or similar grants be obtainable? and (2) how can ONACER allocate a greater share of such grants toward the purchase of cereals rather than for operating expenses?

Overall Comments

The improvement in gross trading income was a step in the right direction. Control of expenses and wiser decision-making in allocating the use of available funds remain key problems which ONACER must solve.

OFFICE NATIONAL DES CEREALES (ONACER)
Provisional Income and Expense Statement
For Year Ending December 31, 1976

| | | <u>% of Sales</u> |
|---|----------------------|-------------------|
| Sales of cereals | Z 342 200.728 | 95.1 |
| Sales of other products and service income | 17 645.782 | 4.9 |
| <u>TOTAL SALES</u> | 359 846.510 | 100.0 |
| Purchases of products sold | 304 720.670 | 84.7 |
| <u>GROSS TRADING INCOME</u> | 55 125.840 | 15.3 |
| <u>Operating Expenses</u> | | |
| Fuel, lubricants, tires, spares | 190.075.510 | 52.8 |
| Depreciation | 156 666.620 | 43.5 |
| Trucks and landrovers | 130 574.52 | |
| Vehicles | 26 092.10 | |
| Freight charges | 35 776.070 | 9.9 |
| Rent; day labor; professional services; expenses; utilities; building and vehicle repairs and maintenance | 152 568.516 | 42.4 |
| Depreciation - buildings | 5 155.000 | 1.4 |
| Travel, advertising, subscriptions, social expenses | 228 187.362 | 63.4 |
| Salaries | 535 022.947 | 148.7 |
| Taxes | 30 498.232 | 8.5 |
| <u>TOTAL OPERATING EXPENSES</u> | 1 333 950.257 | 370.7 |
| <u>NET OPERATING LOSS</u> | 1 278 824.417 | 355.4 |
| <u>Non-operating Income</u> | | |
| Grants from GOZ | 1 432 082.000 | |
| Interest received | 280.000 | |
| Adjustments | 29 986.160 | |
| | <u>1 462 348.160</u> | |

Non-operating Expenses

| | |
|-----------------------------------|---------------|
| Bank charges | 23 940.967 |
| <u>NET NON-OPERATING INCOME</u> | 1 438 407.193 |
| <u>NET INCOME, ALL ACTIVITIES</u> | 159 582.776 |

MANAGEMENT ANALYSIS

In general, in Africa, parastatal marketing institutions have been a failure due to inefficiency attributable to poor academic and practical marketing training.

The question still remains, given adequate training, is there a positive function for this type of organization, especially regulating supply and demand at crucial times during the marketing year?

Thus, this social soundness analysis will show that ONACER has been able to absorb technical assistance and improve its operating procedures in the recent past; and has the potential to do so to an increasing degree in the future; enough to be able to stimulate Bandundu farmers to produce enough maize and sell it as an effective price control in Kananga and Mbuji Mayi.

ONACER has one central and five regional offices, each with a staff of 40 to 80. The central and regional offices have a general director and marketing, finance, personnel, public relations, and technical (truck maintenance) division directors. Below these directors are large staffs of grain buyers, laborers, secretaries, clerks, grain sellers, and chauffeurs. The organizational chart is based on a bureaucratic model.

The director and division heads are college educated in agricultural production, largely young and enthusiastic but inexperienced. There are a few professionals with commerce and

accounting training. At the top levels the regional directors are rotated. A director does not work within his own tribal area.

Lower level staffs are locally employed and numerous; less trained, and less experienced than those of private commercants.

The regional offices buy and sell maize in Kasai, Shaba, and Bandundu; and rice and manioc in Haut and Bas Zaire.

ONACER's trucks, warehouses, scales, and offices are in need of maintenance and repair.

In the past ONACER was constrained by lack of marketing management expertise, lack of fiscal controls, over-hiring of personnel, and lack of government resources. ONACER was severely over-extended; being required to administrate a maize production program (PMN), credit, and milling operations. All of these functions have subsequently been dropped.

Over the last year and one half, a new director with the help of an AID technical assistant have begun cutting back staff, reorganizing procedures, centralizing operations, introducing fiscal controls, and most important, developing successful management methods that cope with the above constraints.

ONACER's problems are typical of a general lack in public administration skills in Zaire. Zairois bureaucrats, social science professors, and TA personnel all agree that an effective Zairois management style has not evolved.

Historically, pre-independence Belgians had top level positions, devised complex bureaucratic linkages, and were

extremely authoritarian in giving directives. Belgians assumed the risk of decisions and gave directives to Zairois staff. Zairois has no input, authority, or real responsibility, thus learned no public management skills except following orders.

Due to frequent political shifts, a cadre of experienced Zairois civil servants has not developed to fill the gap left by the Belgians.

Also, the educational institutions do not teach practical problem solving, risk taking, and behavioral management in a Zairois context. Their teaching is highly theoretical, using American and European texts.

Tribal customs enter in. Less highly educated staffs come from village and family back grounds that do not encourage individual risk taking. In villages, decisions are arrived at by consensus. One person does not have to bear the risk in case of failure. The risk of behavioral innovation is not encouraged. Life is seen more so as the repeating of set patterns.

In a typical bureaucracy, the above factors combine to produce a top manager who spends most of his time making all the organizational decisions. He cannot delegate authority to an untrained staff. His staff does not want to take the risk of failure that goes with delegated authority. As a result, the top manager does not have the time to do long-term planning and analysis of the efficiency of the organization. He spends his time solving daily crises with little time for general leadership and morale building.

Public jobs are often looked at as a way to further one's own and extended family interests. In the face of a declining economy and rapid political shifts one is tempted to exploit one's position to compensate for organizational risks.

Older Belgian-influenced managers feel the authoritarian approach is correct. Younger managers realize this only leads to a staff that obeys orders if the boss is around to enforce them.

ONACER's director, technical advisor, several regional directors, and staff are able to express elements of the above analysis; and have been taking steps to reconcile Belgian induced habits, tribal practices, and modern behavioral management methods. They are educating themselves at all levels through staff discussions and individual conferences.

Below are some of the problems and solutions different directors have identified. Overstaffing due to early overhiring is being combatted by cutting back personnel based on performance criteria. Some motivational problems are due to paying low government salaries. They are devising non-monetary "prime" or rewards for performance. Educated staff are not happy being based in rural areas, and also are lacking in practical experience. ONACER is developing a rural, urban rotational system and an appreciation of the need for rural experience and understanding of farmers. Accusations of tribal favoritism and nepotism have caused ONACER to hire directors from other tribes, and hire locals by merit examination if possible. Great variance in education and skill levels has caused thinking about structuring training to meet staff

members' specific needs. And most important, ONACER is moving from authoritarian management by memo to management by the shared decision process.

Some staff perceive the ultimate long-run gains in efficiency coming from good morale and a personal investment in ONACER's goals over the short-run efficiency of simply rote compliance to orders. Mata-bishi and corruption are investigated and punished. As a control, records are being introduced that follow the grain from purchase to sale. Regional communication to Kinshasa is difficult. The central office is now requiring monthly reports of regional marketing data for analysis regarding regional and national patterns. Regional directors also want more marketing information to help them make their decisions. In order to get workers to take more responsibility and be independent, some managers review the workers' progress and explain tasks thoroughly, keep an open door, and answer all questions.

The director of ONACER assesses his men based on their ability to perform the above tasks. He knows their strength and weaknesses and discusses them with each director.

The specific offices of importance to the Grain Marketing Project are at Bandundu and Kananga. The central office in Kinshasa will be relied upon for support. Both of the regional directors impressed the Grain Marketing team as being competent if given sufficient resources to operate. Each one has his own particular skills; one in effectively motivating on over-staffed office to effectively use their scarce resources and the other in displaying a great deal of marketing shrewdness

and negotiating skill.

ONACER knows it needs more decision making information and skills to apply to the marketing network, it also knows they have to tackle the problem of the need for businesslike efficiency within a government bureaucracy. It is note worthy that ONACER represents the only evidence of a GOZ organization attempting to improve itself by improving human behavior, and not just by shifting directors and issuing memos.

If ONACER succeeds in doing the above, they would be an excellent example for the Zairois educational system of what practical education and on-the-job training can do. This suggests that Grain Marketing Project linkages should be formed with the agronomy and commerce schools. Perhaps at some point in the future, the GOZ through the University Nationale de Zaire can take over technical assistance inputs to ONACER.

Thus, ONACER's current strengths are a small cadre of process-oriented managers, a young and highly educated staff, and the "seat of the pants" marketing knowledge that most Zairois already possess.

SOCIAL SOUNDNESS IMPLICATIONS FOR
TECHNICAL ASSISTANCES AND TRAINING

It is recommended that due to ONACER's innovations in Zairois management practices, USAID assist grain marketing in Zaire by encouraging and accelerating the development of these behavioral management skills. These management and decision skills will hopefully make ONACER an effective grain marketing organization within their own cultural context.

Culturally Oriented Training Objectives

The overall goal of AID Technical Assistance will be to improve ONACER's ability to create and implement effective maize marketing strategies. However, the technical assistance team will take the following culturally oriented training objectives into consideration.

A. Marketing Skills

1. Use of informal market intelligence systems.
2. Improve ONACER knowledge of and appreciation for farmer maize production constraints and incentives relative to marketing strategies.
3. Improve ONACER knowledge and appreciation of consumption patterns of poor maize consumers relative to maize selling strategies.
4. Developing selling strategies that will service the poor consumer directly if possible.
5. Better strategies to improve on-farm maize

pick up systems relative to selection of rural grain assembly points, and introduction of push carts in villages.

6. Strategies to cope with marketing network stealing, and delivery time slippage.
7. Planning specific strategies and tactics using the above information to reach yearly marketing goals.
 - a) Buying strategies in Bandundu.
 - b) Selling strategies in the Kasais.
8. General planning and problem solving methods that fit Zairois cultural and conceptual needs.

B. Management Skills

1. Reinforce current ONACER gains in developing human management methods to motivate the staff to utilize the above.
2. Plan methods to continue a training component within ONACER after USAID support is terminated.
3. Support the talents and training wishes of women staff members.

Methods

The USAID technical assistance team will inform itself of the elements of the maize marketing system in Zaire and the cultural constraints under which ONACER must operate. The

team will develop an appreciation for tribal and village practices, commercant methods and motives and an understanding of urban family consumption patterns. The team will also familiarize itself with Zairian agricultural training practices.

The AID team and ONACER managers will develop a training strategy and a method of evaluation. It must not be assumed that transfer of technology will happen strictly by AID personnel helping with daily problem solving. It is recommeded that the TA team teach not only concrete, factual information; but also use teaching methods that encourage concept formation and manipulation; such as debate, role play, compare and contrast different techniques and methods, case analysis, etc. This will compensate for the major weaknesses in Zairois education and guarantee that abstract problem solving skills will be learned.

Personnel

Technical assistants hired should be able to appreciate the social dynamics of culture change. The technical assistants must be able to communicate in a non-directive way; on a one to one basis, in groups, and before assembled ONACER staff. Informed experts should be consulted to broaden knowledge in the areas of behavioral management, nutrition and consumer behavior, and rural development.

Expansion of Training

It is recommended that the technical assistance people consider how ONACER will continue to train its staff after the AID assistance is terminated. ONACER itself can develop a training component within its organization and hire technical

assistants. Also, the University Nationale de Zaire might be persuaded to make some changes in its curriculum for Agricultural Engineers that would include practical price theory, marketing strategies, accounting, and practical internships before graduation.

SOCIAL SOUNDNESS ANALYSIS

This social soundness analysis makes a judgment as to whether the goals and methods of the Grain Marketing Proposal are feasible in light of the behavioral patterns of the N. E. Bandundu farmer, the marketing network, and the consumers of Kananga and Mbuji Mayi in the Kasai regions. This section justifies how the proposed project addresses the present state of the above human linkages.

Data was gathered over a six-week period from previous AID studies, the Kansas State University report, the Department of Agriculture Bureau d'Etude, the Institute National de la Statistique, and many in-depth interviews with personnel at all levels of the marketing system. Excellent material was obtained from countless discussions with professional sociologists and anthropologists in many different parts of the country. Valuable assistance was also furnished by the USDA Agricultural Statistics Team.

In general, the Grain Marketing Proposal is judged to be socially sound. Through better ONACER management, farmers will be motivated to produce the needed amounts of maize that ONACER will move, store and sell in urban markets. Urban consumers will buy. Any amount of grain will be helpful. Few behavior patterns are to be directly changed except in the ONACER organization itself, where USAID technical assistance will be concentrated.

The Target Marketing Network

The specific maize supply and demand network chosen links the small farmer in the futile north east section of the Kwilu region of Bandundu Province to the undersupplied, rapidly growing urban market centers in Kinshasa, Kanaga, and Mbuji Mayi. The small farmer produces maize partly for consumption but largely for sale or barter. She sells to local petit commercants, a few large local commercants, many late season buyers from the Kananga and Mbuji Mayi area, and to ONACER.

Maize is gathered at the village level, transported by headloading and bicycle to the rural network; then collected by buyers for movement to the urban centers by truck, barge, or rail. The grain is either sold as flour after being commercially processed by large millers, or moves directly as whole grain to the consumer in open-air urban markets. She then has it ground at a local mill on a custom basis.

The primary urban markets of Kinshasa (pop. 2,000,000) and Kananga (pop. 500,000) sell maize as a 20 percent supplementary ingredient for a manioc pudding. In Mbuji Mayi (pop. 425,000) maize represents 80 percent of the diet.

Historically, the maize marketing system was able to function smoothly and the farmer responded with adequate crops of maize. With the event of Zairianization in 1973, the long established foreign merchants were forced to turn over their businesses to inexperienced Zairois, and the system virtually collapsed. There are currently six large merchants operating

in the Bandundu Province, down from sixty several years ago.

The six remaining commercants must operate under current constraints that severely restrict the geographic scope of their activities.

In an effort to curb runaway inflation the Bank of Zaire must operate under an imposed interest rate ceiling of 6 percent. As a result the Bank encourages those merchants who can turn their inventories quickly versus the grain merchant who requires a sixty-ninety day loan. Agricultural credit has dried up. Foreign exchange (hard currency) is very difficult to obtain but is essential for vehicle parts, trucks, etc. The severe deterioration of the road network is the major long run constraint - limiting the marketing area and raising the cost of transport.

However, larger well-informed grain merchants are able to take advantage of current severe inflation (estimated 40 percent) and the shortage of trade goods and can thus engage in wild speculation.

Urban maize consumers are also hard hit by inflation and growing unemployment. Zairois cities grow more rapidly as the rural cash economy continues to determinate. Increasing urban population through birth and migration and decreasing maize supply create severe shortages and high prices especially from Novemeber to January.

The Maize Marketing Team has elected to impact on the above marketing network through the ONACER organization by bolstering the marketing management capabilities and facilities

in this fixed geographic area. With GOZ and AID inputs, they have the potential to directly expand their maize buying in the selected Bandundu area and can move maize directly to Kinshasa and Kananga for sale. Their sales will attempt to control severe urban maize price rises.

ONACER personnel have shown the potential to respond to technical assistance training.

By sharply improving their effectiveness in the system, it is believed that ONACER will act as a catalyst to the private sector, and that the net result will be an increase in maize production.

One must look to the private sector of the marketing system as the ultimate solution to the problem. A national credit policy must be implemented to be utilized by the grain merchant, and a concentrated long-term effort to restore the road conditions must be initiated.

Beneficiary Analysis

The direct beneficiary of AID Technical assistance and resources will be the ONACER organization. The staff will gain in needed marketing and management knowledge.

This improved buying knowledge will secondarily benefit local farmers. ONACER will efficiently manage their buying fund and buy farmers' crops at the state fixed price. This will bring a minimum of 12Z (\$14.50) to each farmer. This money will be used to pay taxes and send a child to school. Twelve Zaires (12Z) represents a 600 percent increase over what private buyers are paying.

In the short run, this new money in the rural areas will stimulate local trade in material goods and petit commercant marketing. In the long run, it is hoped increased production and cash will draw local large commercants back to the region and improve current buying prices.

The size of the production area benefitted and the total number of farmers reached depends on the size of the buying fund which is determined by the GOZ.

The ultimate beneficiaries of AID technical assistance and resources will be the urban consumers of maize. Any increased amount of maize in the markets will be of benefit. However, ONACER will attempt to sell an amount of maize to reduce prices at key shortage points in the year. AID technical assistance and warehouses will assist. The exact amount necessary to control prices is unknown and will be determined by project selling activity.

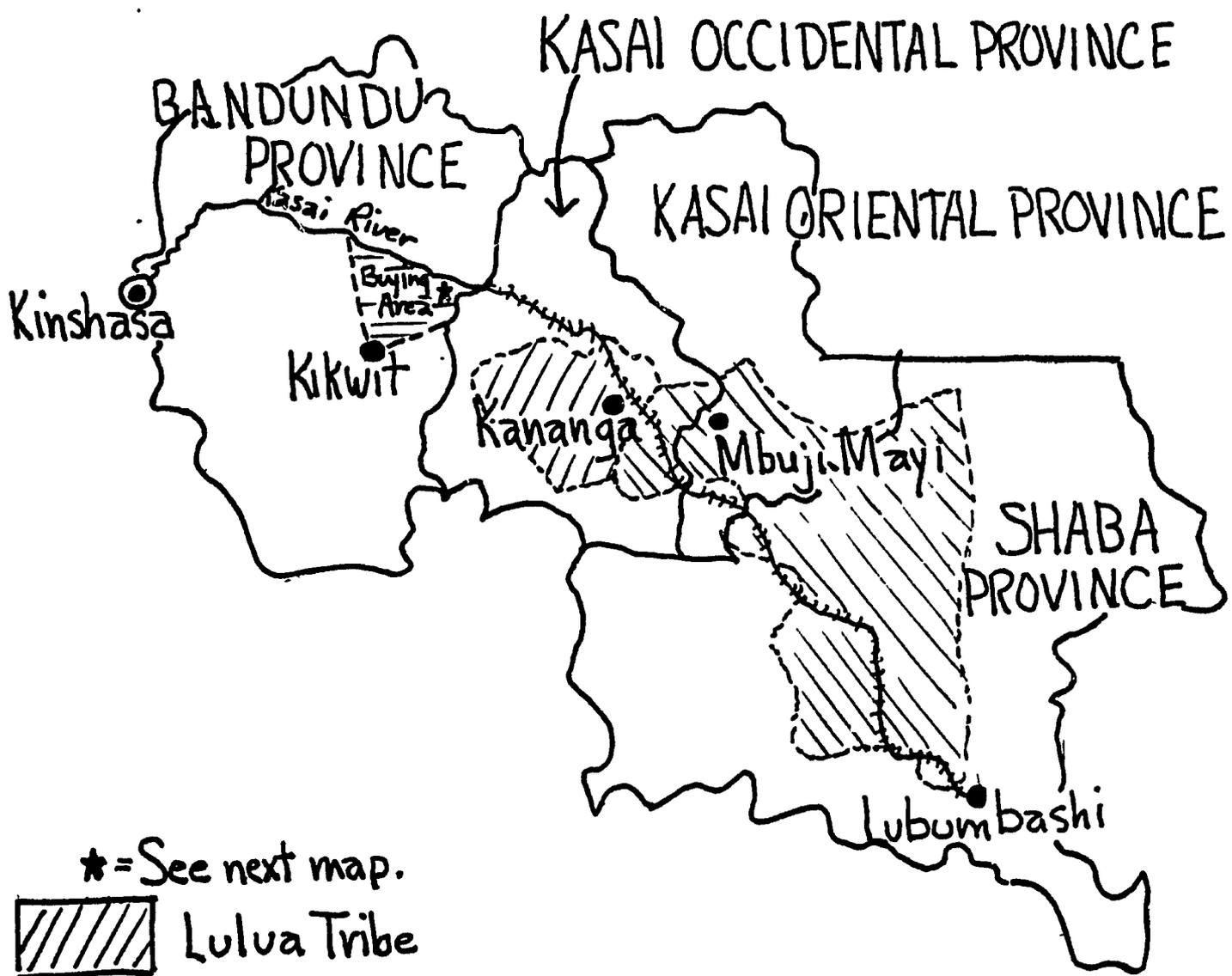
Possible negative consequences will be ONACER reducing commercant activity in the buying area; and ONACER not being able to improve its management skills enough to stimulate farmer production and deliver the crop bought in a timely fashion.

All of the above assumed benefits will be assumed in the project evaluation.

Map of Target Area

The following maps diagram the general maize buying and selling target area. The first map shows the overall marketing area and the flow of commercialized maize to the major

TARGET MARKETING NETWORK



* = See next map.



Lulua Tribe

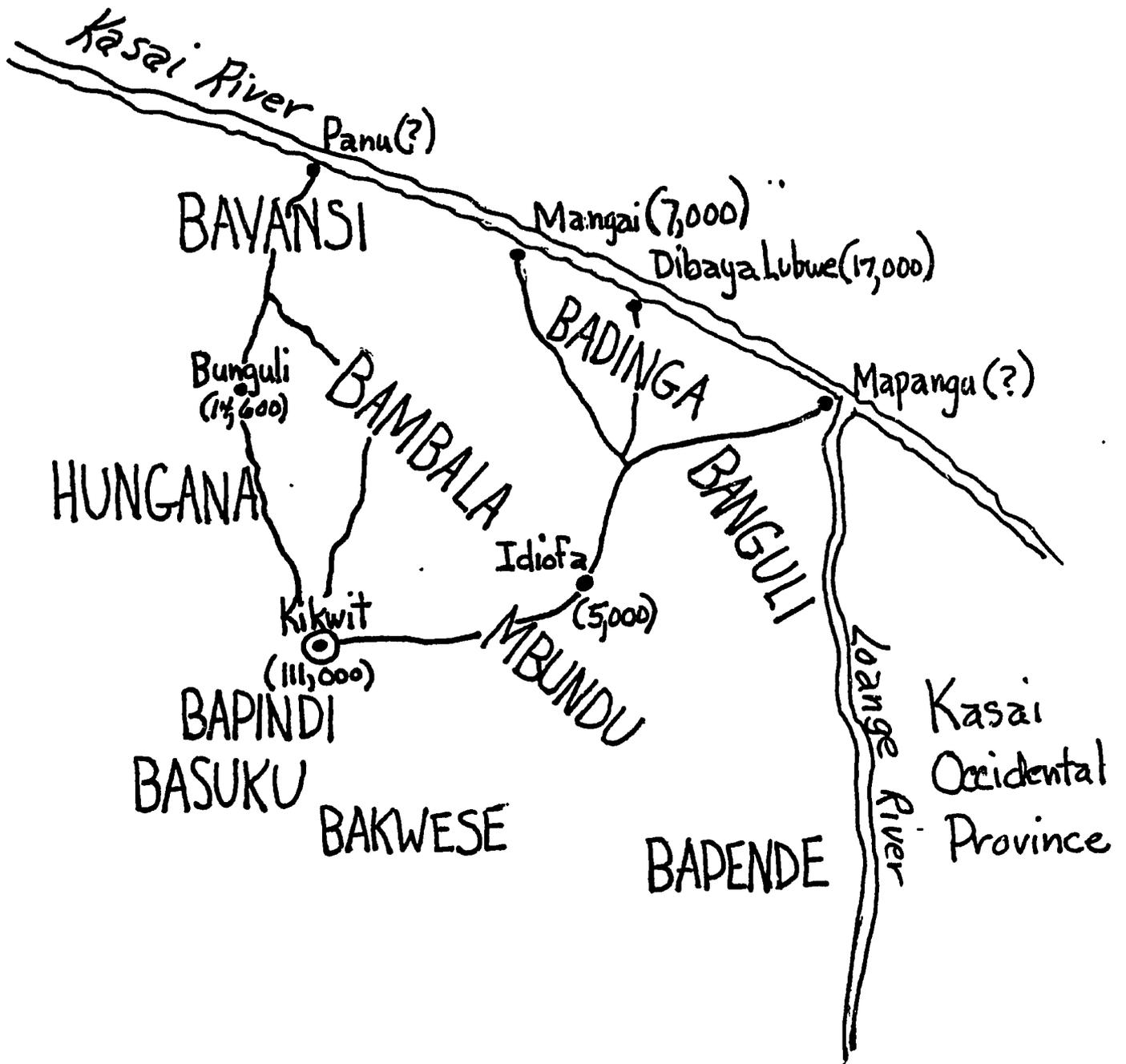


Luba Tribe

deficit cities. The second map shows the target production area in detail.

Both maps indicate important tribal and ethnic boundaries.

BANDUNDU BUYING AREA AND TRIBES



SOCIAL SOUNDNESS ANALYSIS:
SPECIFIC SOCIOLOGICAL ASSETS AND CONSTRAINTS

The following is a listing of major sociological discoveries in the target grain marketing network that either represent behavioral assets or constraints. Methods for utilizing these assets and ONACER's role in eliminating constraints in the Grain Marketing Project are included, plus some general description as background. Further description can be found in the Social Soundness Appendix. In a nutshell, Bandundu farmers must be induced to produce at past levels, and the ONACER regional staffs must perform efficiently.

Bandundu Target Production Area:

1. The cash economy of N. E. Bandundu is deteriorating, with commercial activity and social services being concentrated in areas served by the better roads. Farmers in these areas are receiving acceptable prices. (.06¢ per package of maize) Outlying farmers are retreating to farming for subsistence and barter only. Late season traders are buying some grain there at very low prices. (.02¢ per kilogram of maize) Women farmers are selling grain only to pay taxes and possibly school fees for one male child. There are no trade goods to buy.
2. The farmer nearer the roads has a family cash budget of approximately 70=100¢s (\$84-\$120) per year. The outlying farmer must earn 10¢ (\$12) per year for taxes and at

least 10-20% to send one child to school.

3. In general, less cash to the farmer means she has to barter to obtain scarce medicines and meat protein not available through hunting; and deny schooling to her female children.
4. Women will make the decision to farm a cash crop since it is their responsibility to provide school fees, supplementary food, and medicines to her children and family.
5. The outlying farmer can tend up to one hectare of land at one time. Since the staple crop is low maintenance manioc she has spare time to cultivate one half to three fourths hectare of maize. Due to poor maize market conditions, she now cultivates one fourth hectare which yields 200kg. maize. 100 kg. is eaten and the rest sold for approximately \$3.60 or bartered. Her production level could be raised to 400 to 600 kg. per hectare, leaving 300 to 500 kg.'s maize for sale.
6. She will only plant more maize if she is guaranteed a good price and pick up of crops. A verbal buying promise is not sufficient.
7. The maize production potential of the area far exceeds ONACER's capacity to buy, thus there is potential for increased petit and large commercant activity.
8. The outlying farmer is constrained by her ability to headload her sack of maize grain to the buyer assembly points. She can only travel one half day's walk there and back.

Implication for ONACER Marketing Strategies:

The outlying areas, not served by commercants have the greater potential for increased maize production. Due to distances from markets, there are less crop and occupational options for the farmer to increase her cash. Thus ONACER will have a guaranteed maize supply.

The outlying farmer will begin to increase her maize production after ONACER has proven itself reliable during one buying season. She will increase production in response to the yearly increase in ONACER buying funds and any new private commercant activity.

The total number of farmers ONACER reaches depends directly on the size of their maize buying fund.

The Grain Marketing Project will introduce push carts in villages to extend the distance farmers can travel to grain assembly points. This will enable more outlying women to obtain cash and shorten the time and distance of ONACER grain pick up.

See Social Soundness Analysis Appendix for detailed discussion of farmer incentives.

Marketing Network (Bandundu):

1. It is fairly easy for a farmer to become a petit commercant and thus move maize from a village to buyer collection points by foot, cart or bicycle. This varies with the degree of commercialization of an area.
2. Several returned expatriate merchants in Kikwit are bringing more material goods to the Bandundu area, but are not returning to grain buying. These goods are appearing in more rural markets.

3. Kasai traders are buying at severely depressed prices but are supplying cash needs for taxes.
4. Large local commercants are handicapped by lack of grain buying funds and spare parts. These businesses are successful because of a high degree of efficiency and cost savings. The commercants and local banks make it very difficult to enter this profession.
5. It is possible to exert pressure on the Office de Routes to fix key roads, and some farmers have been organized to fix secondary roads and bridges.

Implication for ONACER marketing strategies:

ONACER buying activity in an area nearer large roads may stimulate women to become petit commercants, particularly if they can obtain material goods to bring to the villages to sell. Their activity may also cause other commercants to raise their prices or buy their maize from even more outlying areas, thus further halting rural deterioration. With increased buying and marketing efficiency, ONACER may be able to ally with commercants to exert pressure on Office de Routes to help open areas for further commercialization. Farmers may then be induced to repair their roads.

ONACER as a Parastatal Marketing Organization (Summary of ONACER Management Analysis)

1. Zairois governmental organizations are weak because they have no coherent effective Zairois style of management. They have tried to borrow the structured, overly complex, and authoritarian pre-independence system of public administration.

2. It is difficult to develop morale and professionalism in a newly emerging country in the face of political instability. Often corruption, bribetaking, and speculation represent an entrepreneurial response to an overly personalized, uncontrolled, inefficient, and deteriorating national infrastructure.
3. The public sector cannot draw the most able professionals.
4. Professional training is overly theoretical.
5. ONACER is unique in experimenting with new modern behavioral management techniques and is doing so with the help of USAID technical assistance.
6. Several high impartial sources have stated "ONACER is doing good things in Bandundu."
7. ONACER management practices in Bandundu have produced high morale and efficiency in the face of overstaffing and poor operating resources.

Implications for ONACER marketing strategies:

If ONACER begins to become an effective organization, it will become a noteworthy innovation in public administration, but will take great effort to sustain its position in the face of the general environment. Their current efforts are worth supporting as an encouraging example of the fact Zairois are capable of public management.

Marketing Network (Kananga, Mbuji Mayi)

1. Maize marketing in Mbuji Mayi is intense and competitive due to the large number of local commercants and high consumer demand due to extreme population density

and dietary preferences. These commercants are new, well-financed and will travel great distances to purchase maize. A high concentration of professionals in this area is due to the forced in migration of the Lubas from the Kananga area.

2. Maize production in the Kasai Oriental province is efficient and intense; but due to population pressure from Luba in migrants on the land, fertilizer is needed to increase outputs.
3. Maize marketing in Kananga is deteriorating due to lack of agricultural credit for local commercants. To obtain a guaranteed supply, local large millers purchase foreign maize. Kanangan maize often finds its way to markets in Mbuji Mayi.
4. Maize production in the Kanangan area has deteriorated due to the forced outmigration of the farmers of the Luba tribe to Kasai Oriental in 1965. The remaining Lubas are not as effective as farmers.
5. Speculation is practiced on a daily, seasonal, and yearly basis, government controls are ineffective.

Implications for ONACER Marketing Strategy:

Competition with commercants in the Kasais will be intense. ONACER will have to develop shrewd strategies to store and release grain to control prices in two highly speculative and profitable markets. Marketing information and strategies will have to be both rapid and well thought out. The confidentiality of ONACER's own information and maize supplies will have to be protected, as well as possession of their stored

maize secured. In reality, ONACER is the only form of state marketing control that exists.

Urban Consumers (Kinshasa, Kananga, Mbuji Mayi)

1. The key maize shortage period is from November until early January. The last of the maize is harvested in September. New maize appears in mid-January. Often urban families will have to sell things and use spring school tuition money to eat in December.
2. Mbuji Mayi is experiencing population growth due to employment potential in the diamond mines and service industries. The entire province is already severely overcrowded due to the in migration in 1965 of the Luba tribe from Kasai Occidental. People are coming to the cities due to rural overcrowding.
3. Kananga and Kinshasa are experiencing population growth due to deterioration of the rural areas. Since they are both largely governmental centers, potential for employment is quite low. Kinshasa is also experiencing a high number of robberies.
4. The average urban family has from five to seven members and earns 240% (\$288.00) per year. In Mbuji Mayi, 100% will be spent on maize bought in small amounts at higher prices. The rest of the income will be spent on taxes, school fees, clothing, transportation, household utensils, and for extended family needs. Money is not saved but is borrowed for emergencies. Less is spent on food during months when other pressing cash expenses must be met.

5. Urban consumers represent members of rural based extended families. Urban migration in hard times represents a desperate effort to get cash despite increasingly poor odds, and will increase in the future as the rural areas decline. The cash is used to meet extended family expenses in cities and in the villages.
6. Poorer urban families are having more children due to the ceasing of tribal birth control methods and better city health practices.
7. Twenty percent of urban populations are malnourished, and the situation is worsening among children and the ill.
8. Urban women still wish to retain their role in food preparation and buy unmilled wholesome maize so they can provide tastier food to their families and partake in the milling themselves. This is more costly than commercially milled flour. Also, women will continue to buy maize even at higher prices, rather than switch to a cheaper staple such as rice or manioc.
9. Urban women are becoming petit commercants in even greater numbers to earn cash to feed their children. Sometimes the children don't eat for several days until the profit margin is made on the sale goods. Thus ONACER maize may be resold in smaller quantities in neighborhood markets.

10. Birth and immigration increases will be faster than marketing efforts can bring in small farmer production, especially when the children, 50 percent of current urban populations, mature to full consumption capacity.
11. In Kananga, ONACER is described as "like the shops of the missionaries. They have much to sell, and it is always cheaper."

Implications of ONACER marketing strategies:

Any increase in maize by ONACER will help the above situation. If ONACER is successful in moving maize from Bandundu, it must rapidly concentrate AID technical assistance in another maize production area to keep up with increasing consumer demand. ONACER must accept consumer behavior and dietary preferences. They must not only concentrate on controlling prices in general but selling their lower priced maize directly to the malnourished 20 percent if possible.

Women in the Entire Marketing Chain (Summary of Women in Development--Grain Marketing--Zaire)

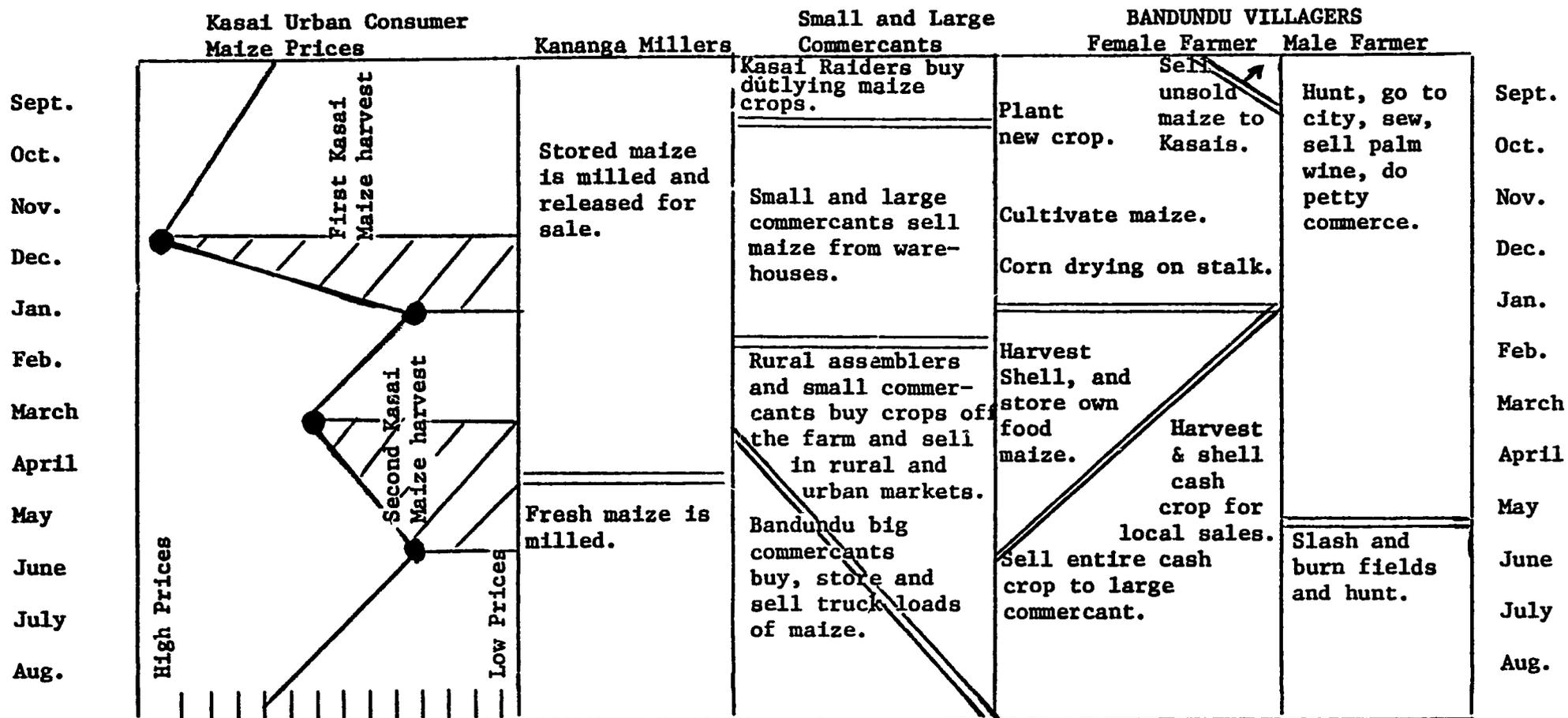
1. As producers, petit and large commercants, ONACER employees, and consumers, women represent an essential element of the marketing chain.
2. In general, women avoid the more modernized aspects of marketing, such as credit financing, truck owning, and chauffeuring.
3. They are regarded as more honest, stable, and better able to handle money than males.

Implications for ONACER marketing strategies:

Any ONACER buying and selling activity will directly benefit the women of Zaire as it is their responsibility to sell and buy food for the family welfare. Increased crop buying will allow more rural female children to attend school. Increased supply will prevent malnutrition among children. ONACER's current usage of women as cashiers, clerks, and secretaries should be expanded to accountancy and management due to the general severity of problems with fiscal controls.

The following table entitled "Maize Marketing Seasonal Behavior" represents the activities of farmer, commerçants, and millers plotted against the level of urban maize prices. The chart demonstrates the change in activity of each group through the twelve months of the year. Fields are cleared by men from June through August. Women plant and cultivate from September until January. Then they harvest, shell, and store their food grain and begin to sell on the local markets and to rural assemblers and small commerçants. This local grain finds its way into urban areas to depress prices in January. Also, large commercants are then dumping any stored supplies. Large commerçants begin buying in April. This fresh maize appears in the mills in May. At the very end of the buying season in September, Kasai Commerçants buy crops in outlying areas. Kasai urban maize prices reflect the effect of the 2 season Kasai magic harvest, with the highest prices coming in December.

MAIZE MARKETING SEASONAL BEHAVIOR



== = major change in activity

Part IV Implementation Arrangements

Including

1. Administrative arrangements
2. Implementation Plan
3. Conditions, Covenants and Negotiating Status and an enlarged evaluation plan

will be prepared following a return trip to Zaire by one or more members of the Experience, Incorporated Maize Marketing Team.

Please note that an analysis of ONACER normally found in Part IV has been expanded upon and included in Part III - Management Analysis.

EVALUATION

The Grain Marketing Project will be evaluated after two successive buying seasons. The evaluation will measure planned targets stated as testable hypotheses; account for failure or success in meeting these target; and determine whether continued project progress and AID funding will contribute to significantly controlling maize prices in selected critical markets.

Specific numerical indicators will not be derived but general trends along specific dimensions will be evaluated. Quantitative output data will be augmented by qualitative interviewing. The first two ONACER buying seasons will be subjectively evaluated and serve as baseline data for future more quantitative evaluation.

If ONACER is unable to demonstrate ability to use GOZ and AID resources efficiently in Bandundu, the project will be terminated. ONACER's selling activity in Kananga and Mbuji Mayi will be evaluated to determine if they need more sales technical assistance affecting maize prices; but more important, whether an efficient ONACER will even be able to make an impact on increasing consumer demand in selected cities in Zaire. If the task appears theoretically impossible, the team will give serious consideration to impacting on the private sector, and reevaluate the decision to support a parastatal grain marketing organization.

The first general hypothesis will be; given GOZ and AID technical assistance inputs, ONACER will buy increasing amounts of maize from the Bandundu area.

The second general hypothesis will be, given increasing amounts of stored maize inputs from Bandundu, ONACER's selling activity will be able to make an increasing impact on consumer prices in Kananga and Mbuji Mayi.

The third and most general hypothesis is, given "X" amount of maize bought, stored, and sold, consumer prices can be controlled to "Y" degree.

Hypothesis One:

"Changes in ONACER's buying capacity over the two buying seasons evaluated will be the primary output measurement testing their ability to utilize GOZ buying funds and AID technical assistance."

These two output figures will be evaluated in two ways. First, real changes in total product purchased from project inception will be compared with projected changes in total product purchased. The projected figures will be derived from buying seasons previous to full GOZ-AID inputs. Any significant differences between real and projected figures will be attributed to ONACER's management of a combination of GOZ and AID inputs.

Purchase data will then be evaluated to separate GOZ and AID inputs and evaluate their impact separately. Total maize purchased in Bandundu will be divided by the total buying fund for each season of ONACER activity in that area. This ratio will show changes in the efficiency of buying fund utilization. Pre-AID input and post-AID input ratios will be examined to show

if AID technical assistance has made an impact on efficient management of GOZ buying resources.

Several secondary hypothesis must be tested to determine the local beneficiaries of ONACER Bandundu activity.

If ONACER increases purchase activity in Bandundu at the government fixed price, will farmers respond by producing more maize per year? It is assumed to be more efficient to confine buying territory and increase production than buy the same amounts over larger areas per year. ONACER purchase records and GOZ production and statistics purchase will be examined, plus interviews conducted with farmers to determine if increased ONACER purchases per year represents increased production, and to what degree. Increased production and sales beyond ONACER's purchases will be assumed to represent an increase in private maize buying in the target area. Interviews will be conducted to determine if increased purchase enhances the farmer's ability to meet her cash expenses.

If ONACER increases farmer production, commercant activity will increase either with more buying or better prices in the private sector. It is hoped that ONACER will not negatively affect the private sector.

ONACER buying figures for each season will be subtracted from overall GOZ buying figures for the buying area if possible. The two season trends will be compared with equivalent projected data derived from GOZ and ONACER statistics from seasons previous to AID-GOZ inputs.

Interviews with commercants, farmers, and ONACER staff and local officials will account for and validate the above

data. The evaluation team will attempt to determine if com-
mercant activity has declined greater than projected trends.
The team will then discover if ONACER is buying their crops.
This will be subjectively evaluated in terms of whether business
eliminated was local or from Kasai and as to whether this is
detrimental to the target population.

Evidence of increased commercialization is not expected
to occur after only two seasons of ONACER buying.

Specific causes and effects for the above quantitative
trends, especially in purchasing and production increases and
buying fund efficiency will be constructed by the evaluation
team. This information will pinpoint gains and losses in
ONACER managment abilities and evaluate the role of technical
assistance as a cause. This information will also be used to
evaluate and improve project strategy and technical assistance
inputs if expanded funding is considered.

The evaluation team will create the history of ONACER
management in Bandundu from project inception until project
evaluation. The evaluators will document changes in marketing
management planning, strategies and decision, changes in staff
management practices, and changes in the quality of ONACER
material assets and record keeping.

Hypothesis Two:

"Given increased stored maize, it is assumed ONACER
sales will be more effective in controlling consumer maize
prices." This hypothesis will be tested primarily as basic
data to subjectively evaluate hypothesis three; and to determine
what type of increased AID technical assistance can assist

ONACER in increasing its control of selected maize markets. At the end of the two selling seasons, the evaluation team and ONACER will be able to deduce how much maize is necessary to control this market and to what degree. The evaluation team will also determine how these price changes impact on the poor consumer.

Data collection and methodology will be left to the evaluation team.

Hypothesis Three:

Information gathered from sales data in Kananga and Mbuji Mayi will answer, "If ONACER has 'X' amount of grain, it will affect consumer prices to 'Y' degree."

The evaluation team will set a significant figure for "Y" and deduce if ONACER, with increased technical assistance can accomplish this goal and at what time in the future.

The Annex

will include

1. AID/W PRP message (May 1976) unless superseded
2. Logical Framework Matrix
3. Project Performance Tracking Network Chart
4. Vehicle and Equipment List
5. Statutory Checklist
6. Borrower's (ONACER) Letter of Request for Assistance
7. Waivers or other Requested Approvals
8. Warehouse Plan and Preliminary Specifications
9. Map of Project Area

These items will be prepared following the second trip. The Logical Framework Matrix can be found at the end. Warehouse Plan and Preliminary Specifications have already been prepared by Experience, Incorporated.

SOCIAL SOUNDNESS ANALYSIS APPENDIX

The following is a detailed description of Bandundu farming practices and farmer incentives as related to cash. Also included is a description of the marketing network and the urban consumers of the Kasais. This material is supplementary to the Social Soundness Analysis and the Specific Sociological Assets and Constraints list.

The Bandundu Small Farmer

The geographic area selected for ONACER's concentrated marketing effort is in Bandundu Province, specifically the area north and northeast of Kikwit. This target is bordered on the north and east by the important Kasai River, and Kikwit is on another important waterway, the Kwilu.

There are two administrative zones involved, the Bunguli and Idiofa, with respective populations of 396,000 and 326,000.

The North East Bandundu farmer is tribal, female, subsistence-oriented, and historically used to participating in intensive trading in the local markets. She is at the western end of the ancient Bakuba Kingdom, and by nature and tradition a conservative regarding modernization. The specific tribes in the target area are the Bakwese, Basuku, Bapindi, Bambala, Badinga, Banguli, and Mbundu peoples. These people are either drawn to Kikwit (pop. 111,000) or to Kinshasa (pop. 2,000,000) but never migrate to the Kasai regions to the east.

She relies on the traditional village life but is linked to the nation by such forces as local government regulations, the road network, urban labor migration, trade goods, missionary activity, education, and health services. Since nationalization and the civil war in the middle 1960's, many of these services have deteriorated badly. This has resulted in a sharp increase in the numbers moving to the cities.

The tribes in this area are matrilineal; descent and marriage are traced through the women. Males and females both move away from their home villages when they marry. As a result, these villages are neither of the male or the female's extended family, and remain small. The smaller the village size, the less difficulty there is in settling any disputes. In addition, as with most matrilineal societies, the smaller the village, the closer the individual farm plots; and with less time spent walking, the larger the farm plot per woman.

A typical village will have 200 adults and 500 children, making up 100 families. There are usually 20 percent more women, as some males spend up to 75 percent of the year in the cities looking for work. The marriage rules dictate that all must marry outside their extended family and outside the village. The males must go with their bride and live with her mother's brother who has acted as their father of authority all of their lives. Hence, the social structure becomes complex but does create strong kin linkages throughout the entire tribal territory. These linkages form a bond of social or financial needs. As a result, each tribe represents a broadly integrated geographic

unit, which coincides with a broad, local trading system. Information, goods, brides, and help flow along the same lines.

Villagers spend most of their time engaged in agriculture and building social solidarity. When not working, their hours are spent discussing issues relating to the village, clan, or family, since consensus is necessary by custom, or participating in religious facts.

Village life is regulated by a hereditary headman and an advisory council of elders. He exercises his authority and pronounces his decisions only after a thorough discussion with his villagers or aggrieved parties. Hence, there is some degree of consensus democracy. The chief will be severely judged according to the wisdom of his decisions. Other people of influence are the religious leaders, the Chef du Collectivité, and the teachers.

Agricultural decisions are rendered by the women acting as a group. It is this group which decides how much land will be cultivated, assuming male participation in the land clearing operation. The chief's wife informs him of the decision, and he officially parcels out the land. This is undoubtedly the single most important decision of any year, as fields are rotated annually and used only once every 25 years. This creates a situation where in any given year some fields are going to be at some distance from the village. The government decrees that each family produce a minimum of 20 Zaire's worth of crops per year (1 Zaire = \$1.15), but the decision as to crop types is left up to the family.

The land is owned by the clan, and the individual farmer owns only the product of the cultivated parcel. These parcels are distributed on the basis of the slash and burn rotation requirements, family need, and the distance from the village.

Crops are grown for family food needs and for sale, either for cash or barter. The people of Bandundu eat a basic pudding consisting of 80 percent manioc flour and 20 percent maize flour. Thus, a higher percentage of the maize is sold for cash with manioc being the basic staple food. Other crops grown are peanuts, millet, peppers, rice, and tomatoes.

Manioc and maize are planted in fields on the savannah and in heavily forested areas. Manioc requires little maintenance and can be harvested at any time of the year. It is stored in the field.

There is only one maize growing season. In June the males burn the assigned parcel after which they fell larger trees. In September the women clear the burned area and plant the seeds using a dibble stick. The maize is seeded in mounds 5 to 6 feet apart with one or two manioc plants between mounds. While the maize matures during the rainy season, the woman busies herself weeding and hoeing around the growing stalks. When the ears are ripe, she leaves them on the stalk for a month or more to dry before harvesting and head-carrying the ears to the village in January. The ears are then stored in small granaries to be used as family food or for sale.

While the women have been busy in the fields, the men are off on three to four day hunting forays, or are gathering palm nuts from which they extract the juices to produce palm wine which in turn is sold or bartered.

Usable farm labor in the village is only 30 percent of the population. The balance are too old, sick, or too young to be productive.

These farmers have been part of a "cash" trading network for several centuries, and will shift crop production based on their assessment of local market conditions. As trade goods and cash flow freely, they will increase crop production and vice versa. As trade goods become less available, they will resort to traditional methods to produce purchased items themselves, such as salt. However, distance generally constrains sale crops grown, with vegetables nearer, and saleable grains farther from market centers.

Women as Farmers

It is worthwhile to review village practices and customs as they pertain to the role of women in agriculture in Bandundu. The tending of crops is considered gardening and, therefore, a woman's work and a natural part of her household duties as a provider. It is deeply interwoven with religious and cultural traditions and is very clearly her sphere of power and authority within the village.

Decisions relative as to how she allots her time in the fields and how she distributes the proceeds must be initially decided with her husband for the welfare of the family.

African males tend to exaggerate their dominance over women, but in actual fact the woman has leeway to make decisions and set some of her own goals. She herself will head load her produce and sell it in the markets or sell to "on farm" buyers.

Women expend tremendous amounts of energy on a daily basis. They are up early to prepare the morning meal, walk up to 10 Km to the fields for their daily farm work, back to the village to do the washing, collect firewood, prepare the evening meal, and then after dinner prepare the seeds and sprouts for the next day's field work.

It requires six hours per day for a woman to cultivate 1 hectare of maize. Therefore, if her food and cash needs call for less produce from the field, she will elect to reduce the size of her ground parcel to better utilize her available hours.

The role of the woman cannot be emphasized strongly enough. She is responsible for the welfare of the children, the food for the family, and the keeping of moral traditional values.

Farmer Incentives to Sell Maize for Family Cash Needs

The village family uses cash to purchase tools and utensils, pay taxes and school fees; buy cloth and clothing, supplement protein and spices, medicines; and help pay extended family expenses such as bride price, dowry, funerals, and loans to those in need.

Cash needs and wants increase closer to market centers and during economic prosperity. Prices of goods increase in outlying areas and with current inflation. Village family

cash budgets vary with the above circumstances.

Money is not saved but circulates and is spent within the extended family including urban relatives. Sharing is the positive social value and spending a form of insurance. Credit buying is avoided.

If one saves for a radio, sewing machine, or a bicycle, the item must be shared with the family and village. If one saves enough money from work in Kinshasa to return to his village as a small merchant, the business he conducts must be to the benefit of the village. Unshared excess accumulation of goods in a village will incite jealousy and accusations of witchcraft.

Educated children are expected to share their incomes with their family of birth; however, if one's cash earnings go above a certain level, the money family requests for support will dissipate the earnings and also other basic resources resulting in a net loss.

Cash is obtained and manipulated in diverse ways; women selling their farm produce; males performing part-time local or city labor, selling palm wine, sewing clothes; males and females selling meat products and material goods; borrowing cash; and sharing or doing without items to conserve cash.

Based on interview data, three village budgets have been constructed; basic survival, average, and maximum. These budgets coincide with distance from marketing centers and cash sources, lower budgets expressing less availability of cash. Budgets are clearly divided into items to be supplied

by males and items to be supplied by females. Due to current economic conditions few luxuries are available to be purchased. Items that are obtained by bartering are bought with cash as income increases.

A low-expense basic survival budget is approximately 20-36% (\$24-\$43). Taxes and school fees account for most of the expenses. Taxes are efficiently collected at the local level, with jail as the alternative. School fees are regarded as an investment in a future family breadwinner, usually a male in time of economic difficulty.

The average budget is approximately 74% (\$90.00), with an increase in food, clothing, and extended family expenses.

The maximum budget of 135.4% (\$160.00) means more cash items and less barter, some luxuries and more children in school. The woman is responsible for more cash items than the male. She must pay school fees, food expenses, medicine, clothing for herself and children, and for her farm utensils.

Regarding farmer incentives and methods to earn the resources for these budgets, the closer the family is to the market the more ways there are to obtain available cash, and the better the prices for farm products. The farther one is from a market or rural town, the harder it is to obtain money.

In outlying areas, the villagers must rely on commercants coming with cash or barterable goods to exchange for grain. They must accept the prices offered or allow their cash crops to rot in the fields.

Now, with commercants abandoning these areas, the on farm prices are going even lower, and remaining commercants are

are waiting to buy when school fees and taxes are due. These commercants will even demand a goat for their time. Some continue to sell maize crops at extremely low rates (.01-.02\$ per kg) to meet taxes. They are not sending their children to school. One mission reports an 80 percent drop in attendance.

In a more positive light, the outlying female farmer will produce enough grain to help pay taxes and send one child to school if the price for her maize is considered fair and there is a guarantee of purchase. She will produce more for sale if the cash will buy available goods at a reasonable price. The entire village of Punkulu in the project area stated they would double their production if their current price of .03\$ were doubled to .06\$ per kg. Otherwise she will produce maize for family consumption, seeds, and local barter only.

However, due to current deteriorating conditions, the farmer will initially be skeptical of any good offers, such as ONACER's .12\$ per kg; and will probably only slowly increase production over several seasons until she is sure of the commercant's reliability. She may feel a better price is only a sign of inflation and not a fixed subsidized support price. In the past, commercants have told the farmers that government prices are maximum prices. She may also feel the commercant will return the next year only to buy her increased produce at low prices.

Before discussing how ONACER must approach and convince the small farmer to produce, it is first worth looking at market developments in the entire target area.

In prosperous times, there are three concentric rings that surround market centers: the first delineating an area of high prices for varied types of head-loaded vegetable and grain produce; the second, an area of lower prices for regularly purchased grain; and the third, an area of lowest prices for intermittently purchased grain.

Several forces are acting to reduce the three rings to two. General economic decline is causing the outlying area of low prices of .02% per kg. to grow inward toward the market centers. This area is being taken over by late season Kasai buyers, or abandoned altogether. Unfortunately, this inward moving .02% price ring also represents an increasing decline in production in the major maize supplying area.

Knowledge of government support prices is causing maize prices in the inner area to rise, move outward, and stabilize at about .06-.07% per kg. However, these farmers also produce vegetables and other crops for sales and use their time in activities more profitable than maize production. The inner area is also benefiting from an influx of trade goods brought by five or six returning expatriate merchants.

Thus, these two emerging price rings represent government policy acting against general economic decline. The implications for ONACER buying strategies in Bandundu are obvious.

If ONACER decides to apply its buying resources to a concentrated area at the inner edge of the outer .02% price rings, they will halt the inward movement of this ring and draw traders and trade goods from the inner area. They will also be revitalizing production in the historically high production

area without incurring the danger of having farmers switch to more profitable but perishable crops. They hopefully will cause the Kasai buyers to either raise prices or move to more outlying areas of the .02\$ ring. Thus ONACER can become a major force for rural development in the Bandundu area.

Regarding the small farmer, ONACER must mount a public relations campaign at the village level and faithfully fulfill every promise over a period of two to three years if they are to have any impact. ONACER's buying fund must be of sufficient size and must be utilized intelligently if they are to establish a reputation for reliability.

ONACER is committed to buy at the official "farm-gate" price of .12\$ per kg. maize compared to current levels of .02-.07\$. Therefore, if ONACER can extend its influence into the fringe .02\$ area, the producer can realize an overall gain of .10\$ per kg. or a 600 percent increase in price. This can and will result in a production gain.

It is worthwhile to consider a typical farmer's response over several seasons to a repeated ONACER buying campaign. Assume the farmer is producing 200 kg. of maize on one 1/4 hectare of land. She saves 100 kg. for seed and home consumption and sells 100 kg. or one sack for .02\$, realizing 2\$. This money will go toward taxes.

If ONACER buys her 100 kg. at .12\$, she will realize 12\$, all her tax expenses or one year's tuition for one child. She may even sell her food supplies. ONACER must then inform her how much more it can buy from her the next year. This amount

will relate to their projected increase in buying funds. Assume it will be 10 percent. She will undoubtedly take the risk of producing 10 percent more for the next year; since in her mind, if ONACER renigs she can barter it or sell it to the late season buyers at the lower price.

Thus, ONACER alone should be able to raise farmer production each year by 10 percent or by the increase in its buying fund. If ONACER succeeds in stimulating more private buying in the area, the farmer can increase her production to meet this market also.

However, if the private sector does not bring in goods to buy, ONACER, over the years, will have a difficult time stimulating her to produce over 200 kg. maize for sale. The 24% earned will cover taxes and school fees. There is no need for more cash if there is nothing to buy.

If the private sector becomes very active, she may, over several years produce up to 500 kg. of maize and sell 400. Any more labor in the fields will take away from time needed to tend manioc, the staple food crop.

In either case, in several years, the Bandundu farmer can go from feeding two Kasais at 50 kg. corn per year to feeding four or eight Kasais, depending on private sector increases.

Marketing Network

After an analysis of the Bandundu's farming practices, production potential, and sales incentives relative to a sharp increase in the buying activity of ONACER, it becomes necessary to outline the marketing chain.

The distance from the main market determines the extent of the marketing chain and the types of buyers. If the farmer is close to the major market (10 Km), she will head-carry her product to the center, sell it, and walk back the same day. If she is further out and her village is on a road, she will sell her maize to a larger merchant whose truck services that particular road, buying and transporting the grain to the main market place. Should her village be off the road, she will probably sell her crop to a petit commercant, male or female, who will then move it to a collection point on the road.

The success or failure of the marketing network depends on the road condition and the ability of the large buyer to canvas an area with his trucks.

This large buyer wants to accumulate large stocks of maize for movement to the large urban centers where his product can command a higher price.

From the project area he has several options. He can sell to a medium sized flour mill in Kikwit. He can move the product to the large Kinshasa market either by barge or by truck. The barge rate downstream is considerably cheaper than the cost of trucking, but he may elect the latter method should he plan to backhaul soft or hard goods for resale.

He also may elect to move his maize upstream by barge in 2000 ton lots to the railhead at Hebo. There it

is loaded and moved by rail to the large, hungry market of Kananga. It can easily be sold there or can be moved by truck to another deficit area Mbuji-Mayi.

The project area is currently served by 6 large buyers, all who are left from the original 60. In 1973 the National Decree of Zairianation stated that all non-Zairois businesses be turned over to Zairois owners. The Arabs, Lebanese, Greeks, and Portuguese promptly departed the country. For lack of any business training or knowledge, few of these new entrepreneurs survived. The six survivors, some of whom have been in business for years, are efficient operators. They assign one driver to a truck and hold him accountable. Their buyers are trusted employees who operate on a commission basis. The work force is held to a minimum with mechanics and accountants receiving the top salaries. They are a tightly knit business force who exercise a total monopoly in their trade area. They have their own lines of communications, well established over the years, and as a result are quite current with information as to prices, road conditions, etc.

Any young man or woman who desires to become a merchant must get their experience from these established professionals. This is not easy to do for obviously the large buyer does not want any competition. Sometimes he will employ the applicant as an apprentice and later keep him on the payroll as a buyer. In short the new man either goes to work for the large buyer, or he does not work at all.

The lack of large commercants in the project area has provided an opportunity for well-financed merchants from the Kasais to invade the eastern section. Known as "the jews of Zaire", they will move a truck the 1000 Km to the Iwiofa area at the tail-end of the buying season, cleaning up remaining stocks for 1-2 M per Kg. This grain is moved to nearby river

ports for transport to Kananga or Mbuji Mayi. The margin of profit can be tremendous. This Type of Buyer may elect to sell his well-worn truck in Bandundu or drive it back home.

The Role of the Woman in the Marketing Chain

All farm women become small merchants in the sense that they decide how much they will harvest, when and for what price it will be sold. Those who live close to the markets will head-load their crop to the marche where she will sell her maize and perhaps use some of her cash to buy other items for her family. She arrives at the market by 7:00 AM where she and the other women decide on a common selling price for that day. Often times she will remain in the market until late afternoon before selling her produce.

If the woman has an important or rich husband, or if she is blessed with exceptional "mayele" (trading instinct) she may become a medium sized or a large commercant. She will rent a truck and will hire men or male relatives to perform the buying and selling functions. She avoids the hazards of truck ownership by renting, but she keeps the vehicle busy taking goods to the country and bringing grain back.

Few women will borrow from a bank to finance their operations. However, those who do apply for credit present a more reasonable plan than do the males and are always prompt in their repayment schedule. Generally, women are considered more trustworthy and honest than males and are most often seen in cashiers positions at the banks, stores, etc.

At the present time only 5% of the university enrollment is female but it is growing, perhaps due to the

fact that an educated female is preferred in the commercial world.

It was suggested that ONACER consider employing women as their grain buyers, but it was stated that their husbands, children etc. would not allow them to participate in extended buying trips over a 3-4 month season.

The Role of the Banker

The banks and credit lenders play an extremely important role in the operation of the private sector in the grain marketing system. They supply the cash that makes the system go. Ideally, this flow should provide the impetus for rural growth, but under present conditions agricultural credit has virtually dried up along with a severe shortage of hard currency.

New merchant loan applications are virtually ignored due to past poor credit experiences. The banks have no interest in performing any extensive background check essential to an intelligent credit program.

Old and established traders who occasionally need to finance their buying operations are required to put up homes and trucks as collateral to secure a loan.

Until the economy improves materially ONACER provides the best opportunity for stimulating agricultural production through its own activities and increased levels of participation by the private sector.

The Kasais - The Consumer Supply Chain

Two major urban areas which will feel the impact of any increased purchasing activity in Bandundu are the cities of Kananga and Mbuji Mayi. Kananga is the capital of Kasai Occidental (West) and Mbuji Mayi, the capital of Kasai

Oriental (East), the center of Zaire's diamond mining industry. Both cities have and are experiencing tremendous population growths.

| | <u>1958</u> | <u>1970</u> | <u>1976</u> | <u>1980 est.</u> |
|------------|-------------|-------------|-------------|------------------|
| Kananga | 107,000 | 429,000 | 704,000 | 980,000 |
| Mbuji Mayi | 40,000 | 256,000* | 382,000 | 500,000 |

* Forced migration of Lubas in 1965.

Kasai Occidental contains two major ethnic groups which also represent large and very powerful tribal empires. The conservative Bakuba empire is centered in the Meveka area, and the Lulua group is in Kananga.

Kasai Oriental is Luba oriented, also a large and ancient empire.

During the tribal rebellion of 1959-65 the rural areas became unsafe due to the inter-tribal slaughter and a sizable movement occurred from the country to these two urban centers. Additionally, in 1965 the farmer-oriented Lubas working in Kasai Occidental were expelled by the Lulus and they moved to Mbuji Mayi. This created production shortages as the Lulus are not considered enthusiastic farmers.

Thus, Kananga's food shortages are the result of a tremendous population growth and a sharp drop in agricultural productivity.

Mbuji Mayi has an even worse problem. A very great influx of people into a much smaller land area has caused serious production problems because the fields cannot be rotated as they should be. The land use will not allow a proper rotation. Coupled with the two above stated problems the Lubas prefer a food mix of 80% maize and 20% manioc. To supply these requirements the local merchants must range over great distances and are quite active in North Shaba, for example.

The smarter merchants in both cities are capable of creating artificial shortages. Maize accumulated in Kananga, for example, will move to Mbuji Mayi at night creating an immediate shortage in Kananga. A day later some of the original movement will be hauled back to Kananga thus taking advantage of the high prices in both markets.

The result is naturally a very erratic flow of grain. There are not sufficient quantities in the first place, and with speculation possible at all levels of the marketing chain, food shortages are inevitable.

The Consumers of Kananga: Mbuji Mayi

The average urban family has seven members; husband, wife, three children, and two relatives. Oftentimes neighbors band together to share their resources. The men are busy searching for work of any kind, and their women are to get started as small merchants. Due to the limited land area she cannot plant a garden, so must resort to commercial endeavours to generate cash. Often she will prepare food which in turn she will sell at night to single men at "bachelor" markets.

The city woman prefers to buy unmilled maize and then have it ground for a fee at a local hammer mill. She wants to retain a role in the processing stage, but also prefers the finished product to that from the commercial mill. The traditional mortar and pestle are seldom seen in an urban area.

The further the economy deteriorates, the more participants there are in the marketing chain, each trying to extract a margin along the line. An unemployed male will go from market to market noticing price differences or bargains and then will sell this information for 1-2 Z'a per person.

In neither city are there adequate food supplies. Nutritional studies indicate that 20% of the urban population is suffering from malnutrition, and the hospitals are reporting a rise in the infant mortality rate.

Statistical population growth studies record an 8% increase in the urban areas per year. 75% of this is attributed to immigration with the balance due to birth increases. Once the family moves to the city, the traditional village birth control method of abstinence from intercourse for one year after birth, is abandoned.

This difference will prove to be devastating in future years. 50% of the urban population is now under 15 years of age. They are going to mature, eat more, and reproduce in the face of a decreasing food supply.

It is unlikely that those now in the urban centers will return to the village. Some are second and third generation city dwellers and are no longer accustomed to the village ways. In addition there is doubt that the villages can absorb them.

A food crisis is now on hand and will become critical within a very few years.

WOMEN IN DEVELOPMENT--GRAIN MARKETING--ZAIRE

The Grain Marketing Program will benefit Zairois women directly by providing a source of cash income to the Bandundu female farmers and indirectly with the possibility of becoming a petit commercant. Women maize consumers of Kinshasa, Kananga, and Mbuji Mayi will have low cost maize to purchase during peak shortage times due to ONACER's selling of stored Bandundu maize.

Within ONACER, staff training will focus on the continued use and upgrading of Zairois women as staff people within the organization, focusing on their recognized talent for honesty, responsibility, and ability to handle money.

In Zaire, the major constraints acting on women in development both on the farm and in the commercial sector is that women represent the strength of the traditional sector, the center of the home and keeper of values. The male is seen as the risk taker and explorer of modernization. There is some strong resistance on the part of Zairois males to give women permission to enter the modern sphere. Also, Zairois women deliberately avoid the methods of the modern world, or approach them fearfully. Now, with the current economic difficulties, woman's traditional food growing role and monetary frugality have become a national advantage.

Thus, ONACER and USAID, in addressing "women in development" must respect the reluctance of women to take modern risks,

and incorporate their traditional strengths into the organization.

However, ONACER will not discourage staff women who wish to upgrade themselves and accept the challenge of non-traditional roles through training in such areas as accountancy and marketing administration.

**PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK**

187

Life of Project:
From FY 1978 to FY 1980
Total U.S. Funding \$1,671,300
Date Prepared: March 30, 1977

Project Title & Number: ZAIRE MAIZE MARKETING 660-069

| NARRATIVE SUMMARY | OBJECTIVELY VERIFIABLE INDICATORS | MEANS OF VERIFICATION | IMPORTANT ASSUMPTIONS |
|---|---|---|---|
| <p>Program or Sector Goal: The broader objective to which this project contributes:</p> <p>To assist Zaire in achieving self-sufficiency in maize production by 1985.</p> | <p>Measure of Goal Achievement:</p> <ol style="list-style-type: none"> 1. Increased per capita maize production 2. Reduced levels of maize imports 3. Constant or increased per capita maize consumption | <ol style="list-style-type: none"> 1. USDA team assisting the GOZ Department of Agriculture Statistics Division 2. Other GOZ statistics where available and valid | <p>Assumptions for achieving goal targets.</p> <ol style="list-style-type: none"> 1. Internal political stability 2. Improvement in transportation systems especially roads 3. Increased availability of vehicles, spare parts, fuel and credit above present levels. |
| <p>Project Purpose:</p> <p>To help develop a maize marketing infrastructure, public or private, which will ensure a fair return to producers and an adequate supply of reasonably priced grain and flour to consumers</p> | <p>Conditions that will indicate purpose has been achieved: End of project status.</p> <ol style="list-style-type: none"> 1. ONACER will have demonstrated to the satisfaction of an impartial outside evaluation team that it can effectively manage the resources placed at its disposal. 2. ONACER can encourage a marketing system which will lead to increased commercialized | <p>maize production</p> <ol style="list-style-type: none"> (1) An outside evaluation team will undertake study after two buying seasons have passed. (2) AID PASA team from the US Department of Agriculture is developing base line data in Bandundu Region. | <p>Assumptions for achieving purpose:</p> <ol style="list-style-type: none"> 1. GOZ and Department of Agriculture continues to support ONACER politically and financially. 2. ONACER continues to improve its managerial ability over time. |
| <p>Output:</p> <p>The establishment and effective operation of an ONACER pilot program in the Bandundu Region around Kikwit</p> | <p>Magnitude of Outputs:</p> <p>One central distribution and administrative facility for maize at Kikwit. Three collection points in the interior. One operating vehicle repair facility at Kikwit.</p> | <ol style="list-style-type: none"> 1. AID records and documents 2. ONACER reports 3. GOZ and Department of Agriculture reports and publications | <p>Assumptions for achieving outputs:</p> <ol style="list-style-type: none"> 1. Availability of construction materials. 2. ONACER fully understands that success or failure rests on their shoulders not AID's. 3. ONACER provides suitable counterparts. |
| <p>Inputs:</p> <p>AID: 1. 8 man-years advisory services 2. Construction 3. Equipment 4. Training 5. Evaluation 6. Transportation 7. Village inputs</p> <p>GOZ: 1. Personnel 2. ONACER operations 3. Warehouse site 4. Trucks and other vehicles 5. Buying funds</p> | <p>Implementation Target (Type and Quantity)</p> <ol style="list-style-type: none"> 1. Marketing/Mgt. Adv.; Warehouse Mgr./Fumigator; Garage Mgr./Mechanic & Financial Manager \$656,000 2. One warehouse, garage complex 700,600 3. Warehouse and garage equipment 174,700 4. On-the-job 25,000 5. 2 man team 50,000 6. 4 vehicles for T.A. personnel 50,000 7. 50 maize shellers and carts 15,000 <p>GOZ: 1. To be determined by ONACER 2. To be determined by ONACER 3. 2 million 4. ONACER owns 24-32 trucks & 16-19 LandRovers 5. Unknown</p> | <ol style="list-style-type: none"> 1. Project agreement and subobligating documents. 2. Contractor's progress reports. 3. On site inspection of the placement of the inputs. | <p>Assumptions for providing inputs:</p> <ol style="list-style-type: none"> 1. Advisors must speak/understand French 2. ONACER can obtain buying funds from public or private sources 3. ONACER's vehicle fleet can survive physically for two more years before exhaustion. |