

JAN 13 1981

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

FROM: AAA/AFR/DR, ^{JWKoehring} John W. Koehring

SUBJECT: FY 1981 Zambia Commodity Import Program
(CIP) Loan

Problem: Your approval is required for the agricultural sector support measures negotiated between AID/Zambia and the Government of the Republic of Zambia (GRZ) in connection with the Zambia FY 1981 Commodity Import Program (CIP) Loan.

Discussion: On January 10, 1981, the Administrator authorized up to \$15 million for a loan to the Government of the Republic of Zambia (GRZ) for a Commodity Import Program. The foreign exchange provided under this loan will be used to finance the procurement of fertilizer raw materials or fertilizer which will help increase the yields and total output of Zambia's staple food crop, maize.

At the time when this activity was authorized, tentative agreement had been reached between the GRZ and AID/Zambia on the agricultural sector support measures, subject to final GRZ cabinet approval. AID/Zambia, in Lusaka 00010, has indicated that the GRZ approved the support measures quoted therein, and as amended by Lusaka 00042.

We have reviewed the support measures as finally approved by the GRZ cabinet and we are satisfied that these meet the goals which the Bureau established for desired changes in Zambian agricultural sector policies. We have concluded that there were no significant changes made in the final support measures as compared to those measures that were set forth in the PAAD authorization package.

The principal change occurred in the addition of a new paragraph B. This provision acknowledges the GRZ's responsibilities of right of actions as well as progressive steps that it has taken towards the realization of Zambia's agricultural potential. This is a recognition of Zambia's sovereignty. At the same time, paragraph B recognizes the USG's interests and intentions to assist the GRZ in the realization of its goals in the agricultural sector.

Other minor changes concern certain dates which are acceptable.

The PAAD provides that AA/AFR must approve the finally negotiated agricultural sector support measures prior to the execution of the loan agreement.

Recommendation: That you approve the final agricultural sector support measures negotiated between the GRZ and AID/Zambia, and authorize the signing of the Loan Agreement.

Approved: GRZ

Disapproved: _____

Date: 1/14/81

Attachment:

A. Support Measures

Clearances:

| | | |
|----------------------|------------------|----------------------|
| GC/AFR: EDragon | <u>EAD</u> | Date: <u>1/12/81</u> |
| AFR/DR: NCohen | <u>(PWE) 102</u> | Date: <u>1/13/81</u> |
| AFR/SA: MDagata | <u>(draft)</u> | Date: <u>1/8/81</u> |
| AFR/SA: LPompa | <u>(draft)</u> | Date: <u>1/8/81</u> |
| AFR/DP/PPEA: FDuncan | <u>(draft)</u> | Date: <u>1/8/81</u> |
| AFR/DR/SA: WWolff | <u>WW</u> | Date: <u>1/13/81</u> |
| DAA/AFR: WHNorth | <u>WH</u> | Date: <u>1/13/81</u> |

ad
AFR/DR/SA: AHarding:agb:1/12/81

SUPPORT MEASURES

- A. In implementing these support measures which complement the overall objectives of the Third National Development Plan (TNDP), specific emphasis will be placed on contribution directly to development in poor rural areas and in increasing agricultural production through small farm agriculture.
- B. The United States Government intends to lend its full support to the Government of the Republic of Zambia which has taken determined and progressive steps in recent months towards realizing Zambia's agricultural potential. In this regard, The United States Government is willing to assist the Government of the Republic of Zambia in increasing maize producer prices in real terms in order to encourage small far production and lead to maize self-sufficiency. The United States Government recognizes that a price increase can only be effected if it does not enlarge Zambian Budgetary Subsidies for consumer and producer price. In support of Government of the Republic of Zambia decisions, the United States Government is prepared to utilize local currency attributable to this loan to help subsidize a real increase in maize producer prices. In accordance with this principle, the United States Government is ready to commit the local currency generated under this loan, and, to the extent of funds available under this loan, to cover a commensurate real price increase which the Government of the Republic of Zambia decides is appropriate and will offer a substantial incentive to farmers.
- C. The Government of the Republic of Zambia will:
1. (A) Reinforce the Planning Unit within the Ministry of Agriculture and Water Development charged with undertaking comprehensive annual and ad hoc reviews of agricultural producer prices and fertilizer subsidies.
 - (B) (1) Continue to conduct a comprehensive review of maize producer prices and fertilizer subsidies to determine if there is sufficient incentive to reduce the prevailing maize production shortfalls;

- (2) Consider during the course of the review the following factors: (A) Current production prices in the Region, (B) Self-sufficiency, (C) The cost of production plus a reasonable profit margin, and (D) Comparative costs of importation; and
 - (3) Keep AID advised of the findings of the review during the preparation and complete these discussion with AID prior to May 1, 1981. (It is understood that discussions with AID will not include consideration of Ministry recommendations to Cabinet.)
 - (C) Adopt a selective approach to the subsidization of fertilizer and other input costs in order to provide farmers, especially traditional and emergent farmers, with the necessary incentives to increase the production of maize and to reduce subsidies to manageable levels.
2.
 - (A) Reduce consumer subsidies on maize and fertilizer to align retail prices more closely to producer prices.
 - (B) Reduce progressively the per unit maize subsidy within a period to be agreed with AID by June 1981.
 3. To permit commensurate increases in maize producer prices in real terms which will stimulate production, without simultaneously enlarging Zambian Budgetary Subsidies caused by differences between maize consumer and producer prices, utilize local currency attributable to this loan to partially subsidize maize producer/consumer prices. This subsidization is to be done on a declining graduated basis (allowing maize consumer prices to be adjusted suitably) in accordance with a schedule to be adopted in consultation with AID prior to May 1, 1981. The results of the review cited in C.1 (B) above will be instructive in this regard.
 4. Adopt procedures to improve the Ministry of Agriculture and Water Development's crop forecasting by improving the accuracy of the data base and the timeliness of the publication of the forecast.

5. Through the Ministry of Agriculture and Water Development revive a regular market news service.
6. In October of 1981, furnish AID with a statement of the progress the Government of the Republic of Zambia has made in carrying out the above measures.

JAN 7 10 15 AM '81

EXECUTIVE SECRETARIAT

6 JAN 1981

ACTION MEMORANDUM FOR THE ADMINISTRATOR

THRU: ES

THRU: AA/PPC, Mr. Alexander Shakow *CS*

FROM: AA/AFR, Goler T. Butcher *GB*

SUBJECT: P.A.A.D. Authorization - Zambia FY 1981
Commodity Import Program Loan

Problem: Your approval is required for a Commodity Import Program (CIP) Loan of \$15,000,000 from the Section 531, Economic Support Fund, appropriation to the Government of the Republic of Zambia (GRZ). It is planned that the entire authorized total of \$15,000,000 will be obligated in FY 1981.

Discussion: The proposed loan will (1) help mitigate Zambia's current balance of payments problems; (2) contribute to the GRZ's objectives to accelerate agricultural development and diversify the economy; and (3) support GRZ/AID-Zambia's goals to increase food production and raise small farmers' incomes. Foreign exchange provided under the loan will be allocated for fertilizer raw materials or fertilizers to be processed by a new plant expansion, scheduled to start operation in July 1981. Utilization of these commodities will help increase the yields and total output of Zambia's staple food crop, maize.

An important feature of the FY 1981 CIP Loan is the negotiation of several agricultural sector measures supportive of the objectives outlined above (Attachment A). These measures have been developed as an integral part of the AID/Zambia program. While not essential to the successful implementation of the CIP, they are essential to the overall program of USAID/Zambia. Consequently they are not stated as covenants or conditions precedent to the loan; instead they are inserted as an annex to the Loan Agreement and, in the Agreement itself, the GRZ promises to use the counterpart funds generated by the loan to support those measures.

These measures will reinforce the Ministry of Agriculture and Water Development's planning unit responsible for analyzing prices and subsidies, especially those for maize and fertilizer. AID/Zambia is prepared to support the strengthening of the staff

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through the Zambia Agricultural Training, Planning and Institutional Development project. The GRZ will use annual and ad hoc reviews prepared by the unit as a basis in its annual establishment of producer prices. Additional measures address the maize and fertilizer subsidies and provide a means for assisting the GRZ in reducing such subsidies. Local currencies generated under the loan will partially subsidize maize consumer prices on a declining graduated basis in accordance with a schedule to be adopted in consultation with AID prior to May 1, 1981. This use of counterpart funds will soften the impact of consumer maize price increases in the short run while leading to reductions in overall subsidy levels over the long run.

Tentative agreement between the GRZ and AID/Zambia has been reached on the measures and is awaiting cabinet approval. Signature of the Loan Agreement is contingent upon approval by the Assistant Administrator for Africa of the final negotiated measures.

It has been concluded from the analysis included in the Program Assistance Approval Document (PAAD) that:

- (1) the program approach is technically and economically sound;
- (2) the timing and funding of program activities are appropriately scheduled;
- (3) sufficient planning has been done for the implementation, monitoring and evaluation of progress under this activity; and
- (4) all statutory criteria have been satisfied.

The Initial Environmental Examination, which can be found in Annex I of the PAAD, has been thoroughly reviewed, and I have approved the negative determination recommended by my staff, in concurrence with the Bureau's Environmental Officer.

It is requested you sign the attached PAAD and, thereby, authorize the Loan on the basis of the following condition: That prior to execution of the Loan Agreement, the Assistant Administrator for Africa will determine that the support measures negotiated with the GRZ are satisfactory to AID. This condition allows the maximum time and flexibility for AID/Zambia and the GRZ to successfully conclude negotiations.

A procurement source and origin waiver of up to \$4 million from AID Geographic Code 000 (U.S. Only) to Code 941 and 899 (Free World) is also required for ocean transport services to ocean ports in East and Southern Africa. It is expected that heavy demands will be made upon the limited supply of suitable U.S. and Code 941 flag vessels during the time of shipping (July - September 1981), and it is probable that insufficient U.S. and Code 941 flag vessels will be available. It is essential that the fertilizer and fertilizer raw materials be shipped during this time in order that they arrive in Zambia for processing and distribution prior to the beginning of the crop growing season in October. This waiver will only be used if AID/W determines that insufficient, suitable U.S. or Code 941 flag vessels are available at the time of shipping. It should also be noted that drawdowns of previous AID Commodity Import Program loans to Zambia have been timely and a similar record is expected for this loan.

Two Project Review Meetings were held on October 14 and 31, 1980 and the ECPR met on November 24, 1980. All issues were resolved. A Congressional Notification was not necessary as this activity appeared on page 522 of the FY 1981 Congressional Presentation. The responsible AID officer in the field will be the AID Representative, or his designee, and the AID/W backstop officer will be Alfred Harding, AFR/DR/SA.

There are presently no significant human rights issues in Zambia.

Recommendation: That you sign the attached PAAD, thereby, authorizing the proposed activity in the amount of up to \$15 million, and the requested waiver.

Attachments:

PAAD

Clearances:

GC: NHolmes CECF Date 12/29/80
AA/PPC/PDPR: JEríksson JJE Date 1/6/81
GC/AFR: EDragon EAD Date 1/13/81
for DAA/AFR: WHNorth WNS Date _____

AFR/DR/SA: AH AHarding:agb:12/18/80

~~PROHIBITED~~

UNCLASSIFIED

ZAMBIA

FY 1981 CIP LOAN

UNCLASSIFIED

| | | |
|---|--|--|
| FIG 1123-1 (2-86) PAAD DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT PROGRAM ASSISTANCE APPROVAL DOCUMENT | 1. PAAD NO. | AFR Loan No. |
| | 2. COUNTRY | Republic of Zambia |
| | 3. CATEGORY | Commodity Financing - Standard Procedure |
| | 4. DATE | |
| 5. TO: | 6. OYB CHANGE NO. | N/A |
| Douglas Bennet Administrator, A.I.D. | 7. FROM: | 8. OYB INCREASE |
| Goler T. Butcher, Assistant Administrator, Bureau for Africa | TO BE TAKEN FROM: | N/A |
| 9. APPROVAL REQUESTED FOR COMMITMENT OF: | 10. APPROPRIATION - ALLOTMENT | ESF Funds F. 1981 |
| \$15,000,000 | 11. TYPE FUNDING | 12. LOCAL CURRENCY ARRANGEMENT |
| | <input type="checkbox"/> BILAN <input type="checkbox"/> STANT <input checked="" type="checkbox"/> IMPERIAL <input type="checkbox"/> FORMAL <input type="checkbox"/> NONE | 13. ESTIMATED DELIVERY PERIOD |
| | | Jan. 1981 - June 1982 |
| 15. COMMODITIES FINANCED | 14. TRANSACTION ELIGIBILITY DATE | |
| | Loan Authorization Date | |

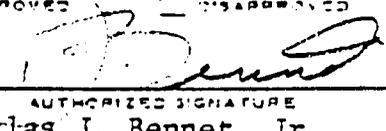
Commodities for the agricultural sector such as fertilizer and fertilizer raw materials, and other commodities directly supportive of agricultural development.

| | |
|--|-------------------------------------|
| 16. PERMITTED SOURCE | 17. ESTIMATED SOURCE |
| U.S. Cash: Loan: \$11,000,000 (Code 000) | U.S. \$11,000,000 |
| Limited F.W.: 4,000,000 (Code 941 & 899) | Industrialized Countries: 4,000,000 |
| Free World: | Local: |
| Cash: | Other: |

18. SUMMARY DESCRIPTION

The loan will provide U.S. Assistance to the Government of the Republic of Zambia (GRZ) to (1) provide short-term balance of payments relief; (2) contribute to the GRZ's longer run objectives to accelerate agricultural development and diversify the structure of the economy; and (3) support GRZ-AID Zambia's goals to increase food production and raise small farmers' incomes. The loan will make available foreign exchange for critically needed public and private sector agricultural imports and related services to be agreed upon by the GRZ and AID.

- The GRZ shall repay the loan to AID in United States Dollars within forty (40) years from the date of the first disbursement under the loan including a grace period of not to exceed ten (10) years from such date. The GRZ shall pay to AID in United States Dollars interest at the rate of two percent (2%) per annum during the grace period and three percent (3%) per annum thereafter on the outstanding disbursed balance of the loan.
- Local currencies will be used in conjunction with economic measures now being negotiated to achieve maize self-sufficiency and reduce maize subsidies through producer and consumer price adjustments. Continued on next page....

| | | |
|------------------------------------|----------|---|
| 19. CLEARANCES | DATE | 20. ACTION |
| AAA/AFR/DR, JW Koehring <i>JWC</i> | 11/31/80 | <input checked="" type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED |
| AAA/AFR/DP, PSTacy <i>PS</i> | 12/31/80 |  AUTHORIZED SIGNATURE Douglas J. Bennet, Jr. Administrator, AID DATE: Jan 10/81 |
| AFR/SA, TMorse (draft) | 12/22/80 | |
| GC/AFR, EADragon <i>EAD</i> | 12/23/80 | |
| EPC/PDPR: JERiksson <i>JE</i> | 1-6-81 | |
| AA/EPC: ASHakow <i>AS</i> | 1/6/81 | |
| COM/ALL: PBlagan (draft) | 12/25/80 | TITLE |

3. The PAAD includes one condition precedent. Prior to loan execution, negotiations must be concluded between the GRZ and AID/Zambia on the measures outlined on pages 49-51 of the PAAD. Upon finalizing these negotiations, the Assistant Administrator of the Africa Bureau will determine whether the agreements are satisfactory to AID. This provision will allow maximum time and flexibility for AID/Zambia and the GRZ to successfully negotiate the measures.

4. Commodities and related services financed under the loan shall have their source and origin in the U.S. (A.I.D. Geographic Code 000), except for charges related to ocean transportation for which a source waiver to Code 941 and Code 899 is included as Annex J.

By your signature you will authorize this waiver and will certify that the interests of the U.S. are best served by permitting financing of transportation services on ocean vessels under flag registry of free world countries other than the cooperating country and countries included in 941.

5. Such other terms and conditions as AID may deem advisable.

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PAAD Design Team

Dirk Dijkerman: REDSO/EA, Agricultural Economist

Forest Duncan: AFR/DR, Economist/Team Coordinator

John Lewis: REDSO/EA, Commodity Management Specialist

Michael McAllister: SER/COM, Fertilizer Procurement
Specialist

Louis Williams: IFDC, Agricultural Economist/Fertilizer
Marketing Specialist.

CURRENCY EQUIVALENTS*

(PERIOD AVERAGES)

| | <u>US\$1=</u> | <u>K1=</u> | <u>SDR1=</u> | <u>K1=</u> | <u>SDR1=</u> | <u>US\$1=</u> |
|---------------|---------------|------------|--------------|------------|--------------|---------------|
| Prior to 1973 | K0.71428 | US\$1.4000 | K0.77622 | SDR1.2883 | US\$1.08571 | SDR.92105 |
| 1973 | 0.64889 | 1.5411 | 0.77622 | 1.2883 | 1.19213 | .83883 |
| 1974 | 0.64346 | 1.5541 | 0.77375 | 1.2924 | 1.20264 | .83150 |
| 1975 | 0.64346 | 1.5541 | 0.78247 | 1.2780 | 1.21415 | .82362 |
| 1976* | 0.71332 | 1.4019 | 0.82354 | 1.2143 | 1.15452 | .86616 |
| 1977 | 0.78895 | 1.2675 | 0.92184 | 1.0848 | 1.16752 | .85652 |
| 1978* | 0.81255 | 1.2307 | 1.02428 | 0.9763 | 1.25200 | .79872 |
| 1979 | 0.79233 | 1.2621 | 1.02428 | 0.9763 | 1.29200 | .77400 |
| 1980 | 0.77598 | 1.2887 | 1.02428 | 0.9763 | 1.3000 | .76923 |

(6mos)

Source: IMF "International Financial Statistics"

* The Kwacha was depreciated by 20 per cent on July 9, 1976 when it was pegged to the SDR at K 1 = 1.08479 as against the existing implied rate of K 1 = SDR 1.35767 resulting from the kwacha being pegged to the U.S. dollar at K 1 = US\$ 1.55556. On March 17, 1978, the kwacha was again depreciated (by 10 per cent) and the new rate was fixed at K 1 = SDR 0.976311.

GRZ FISCAL YEAR

January 1 to December 31

USG FISCAL YEAR

October 1 to September 30

NITROGEN CHEMICALS OF ZAMBIA, LIMITED FISCAL YEAR

April 1 to March 31

ZAMBIAN CROP YEAR

July 1 to June 30

ABBREVIATIONS

| | | |
|----------|---------|--|
| ACOSCA | .. .. . | Africa Co-operative Savings and Credit Association |
| AID | .. .. . | Agency For International Development |
| AID/W | .. .. . | Balance of Payments |
| BOP | .. .. . | Country Development Strategy Statement, AID |
| CIF | .. .. . | Cost, Insurance and Freight |
| CIP | .. .. . | Commodity Import Program |
| CP | .. .. . | Condition Precedent |
| CSO | .. .. . | Central Statistical Office |
| EFF | .. .. . | Extended Finance Facility |
| Eximbank | .. .. . | Export-Import Bank |
| FAO | .. .. . | Food and Agriculture Organization of the United Nations |
| FOB | .. .. . | Free on Board |
| GDP | .. .. . | Gross Domestic Product |
| GRZ | .. .. . | Government of the Republic of Zambia |
| IBRD | .. .. . | International Bank For Reconstruction and Development (World Bank) |
| ICA | .. .. . | International Cooperative Alliance |
| IFB | .. .. . | Invitation For Bid |
| IFDC | .. .. . | International Fertilizer Development Center |
| IMF | .. .. . | International Monetary Fund |
| INDECO | .. .. . | Industrial Development Corporation |
| K | .. .. . | Kwacha |
| L/Com | .. .. . | Letter of Commitment |
| LIMA | .. .. . | Small- Scale Farmer Recommendations, MAWD |
| MAWD | .. .. . | Ministry of Agriculture and Water Development |
| NAMBoard | .. .. . | National Agricultural Marketing Board |
| NCDP | .. .. . | National Commission for Development Planning |
| NCZ | .. .. . | Nitrogen Chemicals of Zambia Limited |
| PAAD | .. .. . | Program Assistance Approval Document |
| PL480 | .. .. . | Public Law 480 |
| REDSO/EA | .. .. . | Regional Economic Development Service Organization East Africa |
| SDR | .. .. . | Special Drawing Right |
| TAZARA | .. .. . | Tanzania Zambia Railway |
| TDY | .. .. . | Temporary Duty |
| TNDP | .. .. . | Third National Development Plan |
| UNIP | .. .. . | United National Independence Party |
| ZATPID | .. .. . | Zambia Agricultural Training, Planning and Institutional Development Project. |

WEIGHTS AND MEASURES

| | | |
|------------------|---|-------------------------------------|
| 1 metric ton | = | 2,207.5 pounds |
| 1 kilogram | = | 2.2075 pounds |
| 1 bag maize | = | 90 kilograms |
| 1 bag fertilizer | = | 50 kilograms |
| 1 hectare | = | 2.47 acres |
| 1 square mile | = | 640 acres = 2.590 square kilometers |

FERTILIZER GLOSSARY

COMPOSITION :

| <u>TYPE</u> | | <u>NITROGEN</u> | <u>PHOSPHATE</u> | <u>POTASSIUM</u> | <u>SULFUR</u> | <u>BORON</u> |
|-------------|------------------------|-----------------|------------------|------------------|---------------|--------------|
| | | | | (%) | | |
| U | UR | 46 | 0 | 0 | | |
| AS | AMMONIUM SULFATE | 20.5 | 0 | 0 | 24 | |
| AN | AMMONIUM NITRATE | 33.5 | 0 | 0 | | |
| SSP | SINGLE SUPER PHOSPHATE | 0 | 19 | 0 | 12 | |
| TSP | TRIPLE SUPER PHOSPHATE | 0 | 46 | 0 | | |
| MOP | MURIATE OF POTASH | 0 | 0 | 60 | | |
| SOP | SULFATE OF POTASH | 0 | 0 | 50 | 16 | |
| DAP | DIAMMONIUM PHOSPHATE | 18 | 46 | 0 | | |

COMPOUNDS

| | | | | | | |
|---|--|----|----|----|----|-----|
| A | | 2 | 18 | 15 | 10 | 0.1 |
| V | | 4 | 18 | 15 | 10 | 0.1 |
| C | | 6 | 8 | 12 | 10 | 0.1 |
| D | | 10 | 20 | 10 | 10 | |
| X | | 20 | 10 | 5 | 10 | |
| R | | 20 | 20 | 0 | 10 | |

ZAMBIA COMMODITY IMPORT PROGRAM LOAN

FY 1981

Summary

A. Problem

Political Considerations

The United States foreign policy in southern Africa is to support self-determination, majority rule, and equal rights and human dignity for all people of the region. The focal point of this policy was Zimbabwe (then Rhodesia) until its transition to majority rule in April 1980. Prior to this transition, the U.S. assisted countries bordering Zimbabwe which were sustaining economic losses by enforcing sanctions against Zimbabwe. Zambia was one of these countries.

Although Zambia had to bear an extremely heavy financial burden to maintain sanctions, President Kaunda consistently supported a political solution in Zimbabwe and provided moderate leadership for African efforts to bring about a negotiated settlement. Now that majority rule has been established in Zimbabwe, Zambia is using its influence to encourage change to majority rule in Namibia and South Africa.

Macroeconomic Justification

President Kaunda's continued ability to play a constructive and moderating role in those countries still under minority rule has in part been undermined by Zambia's worst economic crisis since independence. The crisis originated in the dualistic structure of the economy which has traditionally relied heavily on copper earnings for government revenues and foreign exchange. In 1975, world copper prices plummeted and remained low through 1978. The resulting losses in revenues and foreign exchange earnings, coupled with the higher costs of maintaining economic sanctions against Zimbabwe -- particularly those related to transportation -- are basically the factors explaining the current financial crisis.

These adverse economic developments have had an acute impact on Zambia's balance of payments in particular. From 1975 to 1978, the current account averaged a deficit of U.S. \$320 million a year. After borrowing heavily in 1975, net capital inflows fell from 1976 to 1978, resulting in large overall deficits. These deficits led to an accumulation of external payments arrears which stood at about U.S. \$620 million at the end of December, 1978.

The Government has undertaken a series of corrective measures to stabilize the economy since the onset of the crisis in 1975. These have included an initial stabilization program in 1976 and a two-year stand-by arrangement with the IMF (April 1978-April 1980). In addition, the Third National Development Plan (TNDP: 1979-83) has laid the basic groundwork for diversifying the economy; nationwide food production programs are being launched; and Zambia is continuing its efforts to promote political stability in southern Africa.

In 1979, there was considerable improvement in the balance of payments position due largely to higher copper prices, the opening of the railway link through Zimbabwe to South Africa, and more disciplined foreign exchange management. These improvements helped move the balance of payments position from a 1978 deficit of U.S. \$259 million to a 1979 surplus of U.S.\$233 million and permitted a reduction in arrearages by U.S.\$150 million to U.S. \$ 470 million.

Zambia's implementation of the stand-by agreement ending in April 1980 was generally satisfactory with the major exception of agricultural pricing policy and subsidies. It was the GRZ's intent to eliminate the subsidies by 1980, but instead they are now forecast to reach K150 million (U.S.\$187.5 million) in 1980. The continuing burden of these subsidies are due for the most part to uneconomic government pricing of maize and fertilizers; a long term decline in Zambian food production accentuated by bad weather over the past two years; and the high costs of imported maize. It is estimated that 1980 maize imports will cost the GRZ U.S. \$75 million in scarce foreign exchange.

In addition to the subsidy problem, balance of payments performance for this year has not kept pace with that experienced in 1979. This is mainly due to the pent up demand for imports and a relaxation of foreign exchange management. Payments on arrearages stopped after the first quarter, and it is now possible that arrearages may not be significantly reduced and could rise. Nevertheless, prospects for a GRZ-IMF three-year Extended Finance Facility (EFF) seem good and the implementation of an EFF should again help tighten fiscal and monetary control.

Despite the overall improvement in the balance of payments position since 1979, Zambia's longer term and more difficult tasks of economic recovery -- structural adjustment and the resumption of sustained growth-- still lie ahead. The GRZ Third National Development Plan establishes a framework within which these goals can be sought. Government diversification programs and policy reforms, adequately supported by external assistance, will be required for several years if these goals are to be met.

B. U.S. Response

Proposed Loan and Objectives

In consideration of the GRZ's balance of payments difficulties and long term development objectives as described above, AID proposes to loan the Government of Zambia U.S. \$15 million from the Economic Support Fund. The loan will be utilized through a Commodity Import Program (CIP) to (1) provide short-term balance of payments relief; (2) contribute to the GRZ's longer run objectives to accelerate agricultural development and diversify the structure of the economy; and (3) support GRZ-AID/Zambia's goals to increase food production and raise small farmers' incomes.

A major national problem adversely impacting upon the accomplishment of all of these objectives is Zambia's declining domestic food production. The severity of the problem is discussed in Annex B. Therein it is noted that the volume of Zambia's domestically produced and marketed maize progressively fell from 578,000 MT in 1978 to 334,000 MT in 1979 and is estimated at 390,000 MT in 1980. This compares with 750,000 MT produced in 1976 and 690,000 MT in 1977. In 1979, only about 50% of the nation's maize consumption requirements were met with domestic production, and prospects for 1980 are nearly as bad. Over the same

years, budgetary subsidies attributed largely to the uneconomic pricing of maize and fertilizers, increased from K42 million to K94 million to an estimated K150 million in 1978, 1979 and 1980 respectively.

To assist the GRZ in meeting its food production challenge, the foreign exchange proceeds, local currency generations, and economic measures negotiated under this loan will all be directed towards achieving maize self-sufficiency and reducing budgetary subsidies. In so doing, the broader objectives of the loan will be supported as well.

Commodities to be Financed

As officially requested (see Annex C), it is proposed that the foreign exchange provided under this loan be used to procure the following materials required for the domestic production of fertilizers:

| <u>Description of Raw Material</u> | <u>Quantity (MT)</u> | <u>Approx. Value U.S.\$ C.I.F. Kafue</u> |
|------------------------------------|----------------------|--|
| Borax | 40 | 24,000 |
| Potassium Chloride | 200 | 84,000 |
| Potassium Sulphate | 7,100 | 3,500,000 |
| Single Super Phosphates | 1,100 | 473,000 |
| Triple Super Phosphates | 11,500 | 5,290,000 |
| Di-Ammonium Phosphates | 11,200 | 5,600,000 |
| Coating Agent (NUFLO 10) | 350 | 105,000 |
| TOTAL | <u>31,390</u> | <u>15,076,000</u> |

Domestic Production Capability

The selection of these raw materials as opposed to finished product is proposed in light of Zambia's increased domestic capacity to produce and blend fertilizers. This additional capacity, an expansion of state-owned Nitrogen Chemicals of Zambia Limited, will come on stream in April 1981. When the plant reaches full production capacity in 1985, the plant is expected to meet 80% of Zambia's total fertilizer requirements.

An analysis of the plant's capability to start production on schedule is included herein as Annex E. The analysis found that NCZ has the necessary equipment for manufacturing the required compound fertilizers. Adequate plans also appear to have been made to insure that sufficient manpower is available for the plant commissioning (start-up). The financial analysis found that the expanded plant's output will not be financially competitive with imported fertilizers. However, heavy debt resulting from cost overruns during construction have been assumed by the GRZ. This will permit the plant to operate on a positive cash flow basis within five years. Foreign exchange savings, the reduced demand for transport services, the additional jobs created and an enhanced economic self-sufficiency are factors which AID/Zambia believes adequately compensates for the plant's initial financial shortcomings. Citibank and Barclay Bank have negotiated syndicated loans of \$20 million and \$25 million respectively to finance raw material and other start-up costs. Germany, France, Japan and Iraq have also assisted in financing plant construction and operation.

1981 Fertilizer Requirements Analysis

Annex D presents a detailed analysis of Zambia's past and projected fertilizer sales. The GRZ aims to stock a minimum in-country supply of 50,000 MT of fertilizer but prefers to maintain a one-year supply composed of in-country stocks and shipments in the pipeline. This is believed justified in view of Zambia's long history of transportation and foreign exchange difficulties.

It is estimated that current (August, 1980) in-country stocks are 129,000 MT with another 97,800 MT in the pipeline. Projected sales in 1981 are 173,000 MT. Given the traditionally heavy fertilizer sales during October-December and the arrival of most of the pipeline, NAMBoard projects beginning stocks in 1981 to be almost 185,000 MT. This leaves a surplus of roughly 12,000 MT above projected sales for 1981. Thus it is concluded that the current stock position is not excessive, and that 1981 requirements will be adequately met.

The finished fertilizer materials financed under the past three CIP loans to Zambia have accounted for 30 to 35 percent of the country's total sales. These CIP imports consisted primarily of NPK compounds and urea. The estimated 31,390 MT to be procured under this loan represents 45 percent of 1980/81 and 1981/82 projected imported raw material requirements and can potentially contribute to the production of about 55,000 MT or roughly 30 percent of expected sales in 1981.

Fertilizer Marketing System Analysis

This proposed loan program for FY 1981 goes beyond the basic market analysis to examine the entire fertilizer marketing system and especially its accessibility to small farmers. The FY 1980 CIP PAAD included a brief overview of the fertilizer sub-sector and recommended that a more in-depth examination be made. AID/Zambia therefore contracted a fertilizer marketing specialist as a member of the FY 1981 CIP team to further analyze the system. The objectives of the analysis are to enhance AID/Zambia's knowledge of the system, as well as serve as a basis for proposing a major GRZ-AID/Zambia study of the system. The analysis is included herein as Annex G. Conclusions and recommendations are presented in Section V C. Funding for the proposed major study is available through the Zambia Agricultural Training Planning and Institutional Development project (ZATPID 611-0075).

The major finding of the marketing system analysis was that the marketing functions of product selection, pricing, distribution and promotion in Zambia are carried out by different organizations and collectively they form the marketing system. The analysis concluded that "As a general rule, the probability of a successful fertilizer marketing program is rather low, when marketing functions are allocated to different organizations for execution". It therefore recommends that an in depth study be made of the fertilizer marketing system to determine constraints on fertilizer consumption, distribution, product suitability, promotion and pricing, and to determine an effective fertilizer marketing organization within the Zambian economic, cultural and political environments. The study will give special consideration to a marketing system that will aid the small farmer.

The CIP team undertook one "case study" (see Section V B 4) to determine the extent of small and emergent farmer access to the fertilizer marketing system. It was concluded that traditional and emergent farmers are getting fertilizers but it is still not known how much they receive nationwide or if it is an adequate amount. The CIP team therefore recommended that the proposed in depth study "determine the areas not being served by the present distribution system, how far farmers are willing to travel for inputs and a means of making fertilizers available to the small farmers."

Use of Local Currency Generations

It is proposed that the local currency generated under this loan be used in support of a GRZ-AID program now being negotiated (see discussion below of measures) to achieve maize self-sufficiency and to reduce maize subsidies through producer and consumer price adjustments. Specifically, it is planned that local currencies will be used to partially subsidize maize consumer prices. The subsidization will be done on a declining graduated basis (allowing maize consumer prices to be adjusted suitably) in accordance with a schedule to be adjusted in consultation with AID prior to May 1, 1981. The results of a comprehensive pricing study as cited in Section IVB1b will be instructive in this regard. Annex B estimates the possible magnitudes of direct AID subsidy assistance. It is anticipated that local currencies generated through the FY 1981 PL 480 agreement will contribute to this program as well.

Agricultural Sector Support Measures ,

Another major feature of the FY 1981 loan program is the negotiation of several economic measures (see Section IV D) supportive of the loan objectives just described above. Basically, the aims of these proposed measures are to reinforce the MAWD's planning unit responsible for analyzing agricultural prices and subsidies, especially those for maize and fertilizer. AID/Zambia is prepared to support the strengthening of the staff through the ZATPID project. It is planned that annual and ad hoc reviews prepared by the unit will be the basis for establishing producer prices that will bring about maize self-sufficiency while setting fertilizer prices and maize consumer prices that will reduce the current heavy drain of subsidies on budgetary resources. By June 1981, the GRZ and AID will agree upon target dates for achieving these goals.

As of this writing, negotiations of these measures are underway. On November 10, 1980, AID/Zambia, the NCDP and MAWD reached tentative agreement on the measures as stated in Section IVD. As approval from higher GRZ officers is required, it is not certain whether all of the measures will appear in the loan agreement, nor whether they will appear in the precise language as presently shown.

Loan Program Rationale

Basic to the rationale of this proposed loan is the changing emphasis of the AID economic assistance program to Zambia. As economic recovery continues, U.S. aid is gradually undergoing a transition from non-project economic stabilization assistance to a more project-based program directed toward agricultural and rural development. At present, the program includes both categories as described in Section II D.

A combination of non-project and project assistance is especially appropriate at this time for the AID/Zambia program must function on both the policy and action fronts as stated in the Zambia Country Development Strategy Statement (CDSS). Program intervention on the policy front is essential because difficult policy changes, adequately supported by external technical assistance, are still needed to support the shift in GRZ development priorities. In this regard, the CIP and PL 480 programs offer substantial foreign exchange and local currency assistance to support GRZ/AID agricultural activities.

Looking beyond this year's loan, it is envisaged that a major fertilizer sector study will be undertaken in 1981 along the lines recommended in the attached scope of work (Annex H). Funding for such a study is available through the ZATPID project (611-0075). It is possible that this study would be the basis for a major sector or sub-sector support loan. Such a loan would have a significant commodity component and would represent a logical developmental evolution of the CIP program in Zambia.

Implementation

The authorized source and origin of commodities and related services to be financed under the loan will be A.I.D. Geographic Code 000 (U.S. only), with the exception of a waiver to code 899 for ocean transportation services. The waiver request and justification are included as Annex J.

The implementation schedule projects that the loan will be authorized in late November. This is a critical date as it is necessary to purchase and ship the raw materials before the "window period" of February through May. AID normally does not allow the purchase or shipment of AID-financed fertilizer during this period because these would be competing with U.S. domestic demand.

It is expected that the commodities will be expeditiously cleared from the ocean port of discharge by a commercial freight clearing and forwarding firm and transported to Zambia as quickly as possible. Inland transportation is not expected to be as difficult as in previous years. An agreement has been signed between the GRZ, Tanzania and the People's Republic of China to return Chinese technicians to assist in the operation of TAZARA. Additionally, in early September, the GRZ received 60 units of a total order of 100 Mack trucks being financed through an arrangement with Eximbank. The balance is expected to arrive within two months.

The loan will be administered in accordance with AID Regulation I and will use standard Commodity Financing Procedures. In view of the GRZ's good record in drawing down past loans, the terminal disbursement date will be set within 18 months after the loan agreement is signed. All disbursements will be through direct AID Letters of Commitment to suppliers.

Other Considerations

The short-run impact of the loan on the U.S. balance of payments position will be minimal. In the long-run, U.S. exporters may be able to establish market positions in Zambia, but the transportation cost disadvantage of buying from the U.S. (as opposed to traditional European suppliers) could mitigate against any lasting inroads.

Given the nature of Eximbank's activities in Zambia, it can be concluded that this proposed loan does not present any conflict in interest to current or planned Eximbank exposure (see discussion, Section VII C.)

In accordance with AID Regulation 16, paragraph 216-2(f), it has been determined that a negative determination is appropriate regarding the environmental impact of this activity.

Recommendations

It is recommended that AID authorize a U.S.\$15 million loan to the Government of the Republic of Zambia subject to the following terms:

(a) Repayment to A.I.D. in U.S. dollars within forty (40) years after the first disbursement, including a grace period not to exceed ten (10) years.

(b) Interest payable to A.I.D. in U.S. dollars at two percent (2%) during the grace period and three percent (3%) thereafter.

(c) Commodities and related services financed under the loan shall have their source and origin in the U.S. (A.I.D. Geographic Code 000), except for charges related to ocean transportation for which a waiver to code 899 is included as Annex J.

(d) Such other terms and conditions as A.I.D. may deem advisable.

II. Political Considerations

A. Political Background

Zambia's modern political history dates back to 1888 when the area now constituting Zambia and Zimbabwe was proclaimed a British sphere of influence. In the same year, the British entrepreneur and explorer Cecil Rhodes obtained a mineral rights concession from indigenous chiefs to exploit the region's mineral wealth. A year later the British South Africa Company was commissioned to administer the area. Present-day Zambia and Zimbabwe were named after Rhodes and were known as Northern Rhodesia and Southern Rhodesia, respectively, in the colonial era that followed.

Northern Rhodesia became a British Protectorate in 1924 and was joined with Southern Rhodesia and Nyasaland (now Malawi) in 1953 to form the Federation of Rhodesia and Nyasaland. The years of the Federation, 1953-1963, were marked by controversy. Africans made insistent demands for greater participation in government, while Europeans feared for their future if they yielded government control to the Africans. In 1963, the Federation was dissolved after years of turmoil and crisis.

Upon attaining independence in 1964, the Republic of Zambia was established with a single legislative house composed of 75 members. A new constitution was promulgated in 1973 creating what is now called a "one party participatory democracy". The 1973 constitution provides for a strong president and unicameral parliament (National Assembly) composed of up to 136 members. Under the new system, a 25-member Central Committee formulates national policy and the Cabinet executes the policy. The sole legal party is the United National Independence Party (UNIP).

The major figure in Zambian politics is President Kenneth Kaunda. Kaunda was selected as the first president in 1964 and has been reelected president in every election since then. He has wide popular support and has proven himself capable of bridging rivalries that have existed among the country's various

regions and ethnic groups. He advocates government according to his philosophy of "humanism", a loosely structured African socialist doctrine which stresses the tradition of cooperation among the people, but not at the expense of the individual.

Reflecting this philosophy, the Government's constitution provides extensive guarantees for the protection of basic human rights. These guarantees have not been seriously impaired despite the guerrilla movements that have operated in recent years along the country's borders with Namibia, Zaire, and Zimbabwe. Freedom of speech and press are somewhat restricted. Political activities are subject to control by the single party, but the country does not suffer from an atmosphere of repression. Freedom House rates Zambia in category 5 out of 7 (seven is least free) for both political rights and civil liberties, comparable to the ratings for Kenya, Egypt and Singapore.

In foreign affairs, Zambia follows a policy of non-alignment and its major foreign policy concern is to promote a transition to majority rule in Namibia (South West Africa) and South Africa. The Portuguese coup of April 1974 opened the way to independence for the neighboring Portuguese possessions of Angola and Mozambique. Since then, Zambia has been active in efforts to effect a peaceful change in these countries and in those still under white minority rule. Most recently, Zambia played a leading role in working for a merger of black nationalist movements in Zimbabwe (then Rhodesia) and in concluding the breakthrough agreement providing for supervised elections involving all major parties. These efforts contributed to the establishment of majority rule in Zimbabwe on April 18, 1980.

B. U.S.-Zambia Relations

Although the United States and Zambia have differing viewpoints on some international issues, relations between the two countries are good. The United States shares Zambia's concern for the promotion of self-determination and majority rule in the white controlled areas of southern Africa. In support of these goals, the U.S. Government bans the sale of

arms for use in South Africa and discourages new American investment in Namibia. Zambia, however, would prefer that the United States take even more vigorous action.

C. U.S. Interests and Objectives

1. Majority Rule in Southern Africa

The United States foreign policy in Southern Africa is to support self-determination, majority rule, and equal rights and human dignity for all people of the region. The focal point of this policy was Zimbabwe until its transition to majority rule in April 1980. Prior to this transition, the U.S. assisted countries bordering Zimbabwe which were sustaining economic losses by enforcing sanctions against Zimbabwe. Zambia was one of these countries.

Although Zambia had to bear an extremely heavy financial burden to maintain sanctions, President Kaunda consistently supported a political solution in Zimbabwe and provided moderate leadership for African efforts to bring about a negotiated settlement. Now that majority rule has been established in Zimbabwe, Zambia is using its influence to encourage change to majority rule in Namibia and South Africa.

President Kaunda's continued ability to play a constructive and moderating role in those countries still under minority rule has in part been undermined by Zambia's worst economic crisis since independence. The crisis is primarily attributed to the rapid and prolonged decline in copper prices since mid-1975, and to the heavy cost of sanctions applied against Zimbabwe prior to its transition to majority rule.

2. Economic Stability and Development

The Zambian economy, particularly its agricultural sector, has fair to good development potential. However, due to external factors and recognized weaknesses in past management of the economy, this potential has not been exploited. In order to resume long-term growth and

development, recovery from the current financial crisis is essential. Economic stabilization is, therefore, a major objective of U.S. assistance to Zambia and is considered necessary towards establishing a climate within which the longer term development objectives of U.S. economic assistance can be realized.

D. U.S. Economic Assistance Program

1. AID Strategy

The proposed AID strategy for Zambia is an evolutionary one. At present, as in recent years, the principal aim of U.S. aid to Zambia is to assist the GRZ in its efforts to recover from the financial crisis triggered by the sharp plunge in copper prices in 1975. This is being done by providing balance of payments support through the Commodity Import Program (CIP) and the PL 480 food aid program. However, as Zambian policy measures to promote the diversification of the economy continue, and as the prospects for economic recovery improve, U.S. stabilization assistance is gradually being replaced by a longer term development program.

This program will support the objectives of the Government's Third National Development Plan (1979-1983) which aim to diversify the economy by giving priority development emphasis to agriculture and rural development. AID strongly endorses this approach, and the AID program is now being restructured to place special emphasis on the agricultural sector and rural development. This re-direction of AID's assistance will help Zambia move away from complete reliance on copper resources thereby cushioning future development efforts against the volatile financial fluctuations characteristic of the past.

2. AID Program Elements*

a. Commodity Import Program

AID initiated a program of commodity assistance to Zambia in FY 1973. Since then resource transfers under this program have totaled U.S.\$92 million.

*Also see Annex A, Table 1 "U.S. Economic Assistance to Zambia: FY 1946 - FY 1978."

In more recent years, loans of U.S.\$30 million (FY 1978) U.S.\$20 million loan, (FY 1979), and U.S.\$20 million (FY 1980) have been provided. This U.S.\$15 million loan is being proposed for FY 1981. By providing foreign exchange to purchase essential imports, this assistance has aided the GRZ in its efforts to recover from its severe balance of payments difficulties of recent years. Most of the commodities imported under this program have been for use in the agricultural sector; e.g. fertilizer, stockfeeds, spare parts and equipment for vehicles used in agricultural production and in transporting goods and services. The sale of these commodities also generates local currency to support the GRZ's national budget.

b. PL 480

From a U.S. \$200,000 program in FY 1975, PL 480 assistance increased sharply to U.S.\$5.6 million in FY 1977, and to U.S. \$12.5 million in FY 1980. Total PL 480 aid over the 1975-1980 period was U.S.\$38.5 million. A U.S.\$10.0 million program is proposed for FY 1981. This program helps Zambia reduce its requirement for hard currency and provides essential food supplies. Self-help criteria designed to encourage domestic food production is a major feature of the program. Local currency to support development programs is also generated through the sale of Title I commodities comprising the bulk of this program.

c. Technical Assistance

AID's gradual transition to a longer term development assistance program was initiated in FY 1980. This program is directed towards two basic GRZ objectives: (1) to increase small farmers' incomes; and (2) to increase food production. The program operates on the policy and information fronts as well as the action front. Activities consist primarily of technical assistance and training in the U.S., Zambia and third countries. On the policy front, AID assistance will help strengthen the GRZ's capacity to analyze, define, and implement development policy, particularly as it relates to rural development.

The action program, now just beginning, ultimately seeks to establish a crop or crops-specific decentralized program in one or two areas aimed at increasing small farmer income and at increasing the GRZ's capacity for managing and replicating such programs. The technical assistance program was begun in FY 1980 with projects in research and extension (U.S.\$12.5 million) and agricultural training, planning, and institutional development (U.S.\$4.8 million).

3. Other U.S. Economic Assistance

In addition to the U.S. bilateral aid program, the U.S. indirectly supports Zambia's development efforts through the multilateral institutions. The U.S. is the single largest donor to the World Bank group, provides the United Nations with about 25% of its total budget, and is the largest subscriber to the International Monetary Fund. Zambia has benefited substantially from the economic and financial assistance programs of these institutions for many years. The U.S. has also provided U.S. Export-Import Bank loans and guarantees (U.S.\$96 million exposure as of May 30, 1980) and Overseas Private Investment Corporation (OPIC) guarantees.

III. Macroeconomic Justification

A. Structure and Development of the Zambian Economy

1. Structure of the Economy

a. General

Zambia, located in south central Africa, is slightly larger than the American state of Texas. The country supports a population of 5.8 million (1980 estimate) growing at an average of about 3.0% per annum. About 40% of the population live in urban areas making Zambia one of the most rapidly urbanizing societies among African developing countries today.*

Mining is the most important sector and accounted for 32% of gross domestic product (GDP) in 1974. However, in recent years, mining's relative share of GDP has fallen to as low as 11% (1977) as a result of the depressed world market demand for copper, sharply declining copper prices, and production difficulties. Despite its reduced relative contribution to GDP in recent years, the copper industry remains the primary determinant of Zambia's economic and financial performance. In 1979, the mining sector's share of GDP was 18%. Other major contributors to GDP in 1979 included manufacturing 16%; agriculture 15%; services 16%; and commerce 11% (see Annex A, Table 2).

Total GDP is estimated at K3.3 billion^{2/} for 1980. On a per capita basis, this would be about U.S. \$570 per annum. While this figure suggests a moderately high income compared to many African countries, it does not reflect the extreme dualism that exists between the urban-oriented modern sector, dominated by mining, and the rural agricultural sector. Indicative of urban-rural income disparities is a 1972-73 survey which shows that average annual household income in urban areas was over four times that in rural areas. Economic developments since 1973 would suggest that this ratio has not changed appreciably. Other socio-economic indicators show the per capita calorie supply as a percent of total

^{1/} During the period 1963-74, the population in urban areas grew at the rate of 7.9% p.a. while the rural population expanded at a 0.8% rate; by 1974, 35% of Zambia's population was urban compared to 20% in 1963. Estimates now place the urban population at about 40% but evidence now suggests the rate of rural-urban migration is slowing.

^{2/} K1 = U.S. \$1.25

requirements at 85% (1973); literacy at 43% (1974); and life expectancy at 48 years (1977).

b. Potentials and Constraints

Zambia's mineral resources and large land area offer fair to good potential for economic development. At currently projected rates of extraction, the country's quantity of copper ore will be sufficient to last about 20 years. Even barring the possibility of the discovery and development of new ore reserves, financial resources generated by the mining sector over the next two decades can support diversification efforts already begun to lessen the country's dependence on copper.

Zambia's land area and low population density of 20.0 persons per square mile (1980 estimate) also offer good potential for agricultural development. But though the population to land ratio is quite favorable, the generally weak soil structure and current cultivation practices are such that any significant increases in production and acreage will require more complex management techniques and increased inputs to maintain soil productivity.

Of the total land area of 290,410 square miles, about 90% is potentially suited to continuous cultivation, pasture and forestry. At present only 3 to 5% of this potentially arable land is under crops at any one time. Moreover, subsistence farmers using traditional practices account for 85% of total cereal production and 90% of all cattle slaughtered. Therefore, significant production increases are possible through both the expansion of area suitable for cultivation and through higher levels of productivity as traditional farmers adopt more modern technological practices. Further enhancing this potential is Zambia's favorable climatic and geographic conditions which permit the production of a wide variety of crops and livestock in varied ecological zones. Thus, with still significant known reserves of mineral deposits, large areas of uncultivated arable land, the absence of

population pressures in rural areas, and favorable growing conditions, Zambia has fair to good prospects for economic development.

While possessing this potential, Zambia also faces formidable development constraints. The overdependence of the economy on copper is, perhaps, the most serious. This dependence, together with the chronic volatility of copper prices, has perpetrated instability in foreign exchange earnings and tax revenues and has made long-term planning difficult.

Transportation also is a major problem for landlocked Zambia. Because of regional political developments in recent years, border closings have often cut off traditional less costly routes to the sea and operational inefficiencies have plagued the alternative routes. Except for the Benguela line, traditional outlets are now open but remain costly and difficult to maintain.

Still another major constraint is the lack of adequately trained human resources. This is evident in the continued dependence upon expatriate technical and managerial personnel, the limited institutional capacity of many government agencies, and the inefficient management of several parastatal organizations. Emanating from and adding to the major constraints just noted is the current financial crisis described in section III B below. A closer look into the structural and historical factors relating to Zambia's development to date is helpful towards better understanding the present crisis.

c. Major Productive Sectors

1. Mining

Zambia's economy is dominated by the mining sector. Until recently, it generated about 30% of total wage employment, contributed about 50% to government revenues, and, in 1976, it accounted for 98% of export earnings. It also contributed in the same year about 23% to GDP.* Mining activities consist

*This relative share compares with a peak of 33% in 1973/74 to a low of 11% in 1977.

mainly of copper mining and smelting. Cobalt, zinc and lead are also mined but are of much less significance. Copper production reached 595,000 MT in 1979, down from the peak level of 748,000 MT mined in 1969. In terms of world output, Zambia ranks fifth as a producer of copper and second as a producer of cobalt.

2. Agriculture*

Zambia's agricultural sector is highly dualistic. At one extreme are about 600,000 small-holder subsistence farmers, widely dispersed through the countryside on land of varying quality. Traditional farming methods are practiced using hand tools and generally unassisted by either animal or mechanical power. About half of the subsistence farmers produce primarily for their own requirements; the other half earn cash incomes of about K50-60 per year from farming. The major crops they produce are maize, cassava, millet, groundnuts, sorghum and free-grazed beef. Despite their small share of marketed production, small-holders account for a large share of total production, estimated for example, at 85% of all cereals (80% of maize) and 90% of all domestic cattle slaughtered.

At the other extreme are large state farms and some 400 commercial farmers including about 100 Zambians. These are generally located on the best soil and are mainly near the principal line of rail or other major arteries with access to markets. Commercial farmers use modern, increasingly capital-intensive methods to produce cereals, dairy products, beef, poultry and eggs for the urban market and tobacco for export. They presently supply 30% to 40% of total marketed maize production. State farms are engaged mainly in maize, beef and dairying.

Between the subsistence and commercial farmers is a small but growing group of Zambian "emergent farmers" who are using improved seeds and oxen or tractors to produce the same range of crops as commercial farmers, plus cotton. Commercial,

*See "FY 1982 Zambia Country Development Strategy Statement" for a comprehensive description and analysis of the agricultural sector.

emergent, and state farms supply over 55 percent of beef and over 50 percent of the country's milk, pork and tobacco. Gross annual sales from commercial farms average about K25,000-35,000, while those of emergent farmers vary widely but lie typically in the range of K1,000-3,000.

3. Manufacturing

Compared to other African countries, Zambia has developed a relatively large and diversified manufacturing sector. However, few Zambian enterprises have been designed to utilize domestic raw materials and to develop linkages with other sectors such as agriculture. Industries are biased toward the processing of imported raw materials and are generally highly capital-intensive. Manufacturing is, thus, particularly sensitive to fluctuations in the availability of foreign exchange. Major industries include the following:

- Food, Beverages and Tobacco
- Textile and Wearing Apparel
- Paper, Paper Products, Publishing and Printing
- Chemicals, Petroleum, Plastic and Rubber Products
- Non-Metallic and Mineral Products
- Basic Metal Products
- Fabricated Metal Products, Machinery and Equipment

4. Role of the Public Sector

The public sector plays an important role in the productive structure of the economy. Apart from providing the usual economic infrastructure such as power and water supplies, it manages large state farms, runs the railway network, and owns over 51% interest in the country's major industries including the two largest copper mining companies.

d. Foreign Trade*

Zambia's principal exports in terms of value are copper (85%-90%), zinc, lead, cobalt, and tobacco. Major imports in 1978 included machinery and transport equipment (36%), manufactured goods (24%)

*See Annex A, Tables 7, 8 and 9

electricity and mineral fuels (18%), chemicals (13%), and foodstuffs (6%). The country's main trading partners are the United Kingdom, Japan, South Africa, U.S. and West Germany.

2. Economic Development to 1976

a. 1888-1964: Basic Economic Structure Established Under British Administration

Zambia's modern economic development began with the establishment of the British South Africa Company in 1889. During this early colonial period, white settlement was encouraged, small mines were opened, and roads and railroads were built. The first major developments in copper mining did not begin until the creation of large companies during the boom of the 1920's. With this prosperity came a major influx of mine workers, traders, artisans and farmers. Except for a brief period during the Great Depression, mining continued to provide the major impetus for development until independence in 1964.

Manufacturing was slow to develop during this period due to: 1) the lack of a skilled labor force stemming from colonial neglect of education for Africans; 2) a limited market; and 3) extended transport routes leading to high costs for imported raw materials and capital equipment. Between 1930 and 1954, a customs agreement between South Africa and the two Rhodesias also precluded the use of tariffs to promote industrial development in Northern Rhodesia. From 1954 to 1963, the years of the Federation of the Rhodesias and Nyasaland, expansion in industrial output occurred mainly in Southern Rhodesia because of its superior financial, commercial and economic infrastructure.

The colonial system also discouraged the development of African agriculture. Expatriates were encouraged to settle on "state land". This land consisted of good soils, was free of tsetse fly, and had good access to markets and services along the main lines of rail. In contrast, traditional

farmers were widely dispersed on small holdings of varying soil quality. African farmers used mainly human motive power and suffered from the lack of access to services and markets.

Traditional agriculture was not encouraged and did not develop from subsistence levels. In fact, policies and incentives were designed to cause Africans to leave their farms and migrate to the urban areas. Two such major policies were: 1) the imposition of a quota on marketing board purchases of maize from Africans to protect the expatriate farmers, and 2) taxation policies designed to force African laborers to work in the mines. These policies had the desired result, leaving the aged, women and children behind to do farming.

Thus, at the time of independence in 1964, Zambia inherited an economy created by the colonial system and characterized by:

- a) Heavy dependence on copper, an export subject to wide price swings on the international market;
- b) Extreme dualism between a rich export-oriented mining sector and a poor subsistence agricultural sector largely outside the money economy;
- c) Dependence upon imported manufactures from Southern Rhodesia, South Africa and Britain because of the under-development of its industrial sector;
- d) Dualism within the agricultural sector between a small number of largely expatriate commercial farmers using modern, more capital-intensive techniques and the vast number of Africans using traditional, subsistence techniques;
- e) Large income differentials between expatriates and Zambians, African miners and non-miners, urban and rural workers; and
- f) Dependence upon expatriates because of

shortages of skilled African labor.

In short, the development that took place during the colonial period was oriented to the needs of white settlers and the mining industry. Much of the government revenues generated by Northern Rhodesia's mines were used to develop Southern Rhodesia; and, except for their use as mineworkers and farm laborers, Africans were left out of the mainstream of development.

b. 1965-1976: Independence and Slow Economic Growth

1. Development Program Strategy and Objectives

The major aim of government economic policy at independence was to reorient the economy to serve Zambian development needs and to provide the basis for sustained and balanced growth. This was to be achieved by using the country's mineral wealth to advance the economic and social welfare of the entire country. More specifically, both the GRZ's First National Development Plan (1966-70) and the Second National Development Plan (1972-76) established the following objectives:

- a) Raise the general level of economic welfare;
- b) Diversify the economy to lessen dependence on copper;
- c) Narrow the gap between the rural and urban living standards; and
- d) Improve educational levels and develop technical and managerial skills to reduce dependence on expatriates (Zambianization).

2. Development Program Results

From 1965 to 1976, the period covering implementation of the First and Second National Development Plans, GRZ efforts to achieve the above objectives were slow. In fact, most of the conditions to be corrected became worse. On the positive side, major physical infrastructure had been laid to promote future growth, and social services, particularly

education, were significantly expanded. Progress towards Zambianization was made but heavy reliance upon expatriates continued.

Efforts to diversify the economy and lessen its dependence on copper were disappointing. Investment priorities continued to be placed on mining and developing the modern urban sector, particularly the industrial parastatal corporations. In the agricultural sector, dualism was promoted through the use of capital intensive agricultural technology and subsidized fertilizers. Simultaneously, the traditional farm sector declined due to low producer prices, limited access to credit and subsidized inputs, and general neglect by the government.

Because of this relative neglect of the agricultural sector, the rural-urban terms of trade deteriorated by about 20% over the 1965-76 period; in other words, the average unit of agricultural produce in 1976 would buy only 80% of what it purchased in terms of urban goods in 1965. Taking into account both rising real output (2.8% p.a.) and the falling terms of trade, rural real income barely kept pace with rural population growth over the period. Further illustrating the dichotomy in urban-rural incomes, was the difference in urban-rural wages. In 1976, the IBRD estimated that average wages for miners were 160% the average wages, while farmers earned only 40% of the national average.

To summarize, as a result of this pattern of development, the economy continued to be dominated by the mining sector which contributed 23% to GDP in 1976 compared to 41% in 1965;* real per capita income in 1976 was only U.S.\$250 per annum compared to U.S.\$243 per annum in 1965; and the gap between urban and rural incomes was wider in 1976 than it had been at independence.

*Primarily offsetting this decline in mining's relative share of real GDP was the services sector which rose from 26% in 1965 to 40% in 1976. Thus, these changes did not result in a significant diversification of the productive structure of the economy. In general, the GRZ did far better in providing services over this period than it did in encouraging productivity.

B. Current Economic Crisis

1. Principle Causes

Zambia's current economic crisis originates in the dualistic structure of the economy which has traditionally relied upon copper earnings for government revenues and foreign exchange. Although the government's development strategy was to use the financial resources generated by the mining sector to diversify the economy, the allocation of these resources tended to reinforce the dualistic structure of the economy rather than mitigate it.

The vulnerability of the economy to its overdependence on copper became evident in 1975 when the price of copper plummeted and remained low through 1978. The repercussions in the Zambian economy were increasingly felt owing to the modern sector's heavy reliance on imported goods both for consumption and as inputs into the industrial and agricultural sectors. By 1976, Zambia was faced with a major economic crisis as government revenues fell, the balance of payments deficit deepened, and the demand for essential imports could not be met.

Fluctuations in world copper prices have traditionally posed difficulties for Zambian economic planners. Since independence in 1964, copper prices have peaked three times in regular cycles: 1966, 1969/1970 and 1973/1974. In early 1974, prices rose to a post-independence high of \$1.52 per pound resulting in high government revenues and a large trade surplus. However, in 1975, the world-wide recession sharply reduced copper demand and the average price plunged to \$0.56 per pound. In real terms this was the lowest price since 1957.

Unlike previous copper price cycles, the downside of the latest cycle remained low for over four years. In 1977, the average price was \$0.59 per pound, and in 1978, it rose to only \$0.62 per pound. Largely due to this sharp decline in copper prices, the terms of trade declined by over 50% from 1972 to 1978.

Since February 1979, prices have risen and averaged about \$0.90 per pound during 1979. In the first quarter of 1980, prices rose to \$1.18 per pound due to world market speculation in precious metals. Prices have since returned to normal market levels and stood at \$0.91 per pound as of June 1980.

Transportation bottlenecks caused by instability in southern Africa also worsened Zambia's economic situation during this period. Landlocked deep within the African continent, Zambia has always paid dearly for the transportation of its imports and exports. Until 1973, Zambia had four access routes to the sea: 1) the rail route through Zimbabwe to ports in Mozambique and South Africa; 2) a road and rail route through Malawi to ports in Mozambique; 3) a road route through Tanzania to the port in Dar es Salaam; and 4) a rail route through Zaire to the port of Lobito in Angola.

In January 1973, Zambia lost the southern route when the border with Zimbabwe was closed; this route carried 60% of trade in 1972. Most of the traffic was diverted to the Lobito route, which in 1974 carried 50% of trade. In August 1975, the Lobito route was closed owing to civil war in Angola. Thereafter, Zambia relied on ports in Mozambique (through Malawi) and in Kenya and Tanzania (through Tanzania.) In early 1976, Kenya ports, as well as trade with Kenya, were cut off by the closing of the Kenya/Tanzania border.

The Tanzania-Zambia Railway (TAZARA) was opened in August 1976, and during its first year, TAZARA and the Tanzania road route carried about 83% of Zambia's trade. However, both of these northern outlets have also been fraught with difficulties. The TAZARA route has suffered from congestion at the Dar es Salaam port, a shortage of rail wagons and locomotives, poor maintenance capacity and destruction resulting from Rhodesian military actions. Use of the road route declined in 1978 because only 130 of 480 government-operated trucks were operable.

In response to the deterioration of the transport situation, the Zambian authorities reopened the rail route through Zimbabwe in October 1978 for both copper and other essential goods such as maize imports and fertilizer. However, in October and November of 1979, Rhodesian forces destroyed numerous access bridges and roads to Zambian outlets to Tanzania and Botswana. This was done to force the GRZ to use its influence to secure concessions from the Zimbabwe African People's Union (ZAPU) at the Rhodesian constitutional conference in London. Most of this damage has now been repaired, and the transport situation is almost back to "normal" for the first time in years.

Overall, transportation difficulties have cost Zambia millions of dollars in scarce foreign exchange over the past several years. Major outlays have been required to construct alternative rail and road routes to the north and freight costs have been much higher to move trade over these extended routes. Costs have also been high in terms of the inability to move stockpiled inventories; the opportunity costs of foregone production; and the added inflationary pressures resulting from imports being held in transit.

2. Balance of Payments

The financial consequences of Zambia's continued heavy dependence on copper earnings, the decline in copper prices and the high costs of constructing and maintaining transportation outlets to the sea have been particularly acute on the balance of payments (BOP). About 85% to 90% of Zambia's foreign exchange earnings continue to derive from copper (90%-95% including other mineral exports), and traditionally, Zambia had had a large surplus on merchandise trade. However, about half of export earnings are absorbed by payments on services and transfers because copper production depends heavily on foreign personnel and capital, as well as on expensive

transport costs. Until 1975, Zambia enjoyed a generally healthy balance of payments position although even during these early years, a gradual deterioration in the external accounts was taking place.

a. 1965-1974

After independence and prior to 1975, Zambia's trade balance fluctuated erratically from a low of U.S.\$15 million in 1971 to a high of U.S.\$670 million in 1969 (see Annex A Table 4*). These fluctuations were mainly due to variations in copper prices. Trade surpluses followed a downward trend over this period falling from an average of U.S.\$286 million per year between 1965 and 1970 to U.S.\$242 million for the years 1971 to 1974. A declining trend also occurred in the current account due to deteriorating external terms of trade, stagnating export volumes, and increasing payments for services and private transfers. To offset this downward trend, external borrowings increased. However, these borrowings and other net capita inflows did not increase as much as the current account deficits and Zambia's foreign exchange reserves fell from an average of U.S.\$280 million during 1965-1970 to a U.S.\$210 million average for 1971-1974.

b. 1975-1978

In 1975, world copper prices plunged, and from 1975 to 1978, the current account averaged a deficit of about U.S.\$320 million a year (see Annex A, Table 5**). After borrowing heavily in 1975, net capital inflows fell from 1976 to 1978, resulting in large overall deficits. These deficits led to an accumulation of external payments arrears which stood at U.S.\$620 million at the end of December 1978.

The most important factor contributing to this deterioration was a 50% decline in the real price of copper from 1969 to 1978. Another major

*1965-1972: K1=US\$1.40; 1973-1974: K1=U.S.\$1.55

**Conversion rates: 1975 US\$1=SDR.82362; 1976 US\$1=SDR.86616
1977 US\$1=SDR.85652; and 1978 US\$1=SDR.79872.

reason was the virtual stagnation in the volume of copper exports which averaged about 650,000 tons over the same period (see Annex A, Table 7). Copper exports were also adversely affected by the 1978 transportation crisis which prevented Zambia from exporting a substantial part of its production. Due mainly to these factors, exports fell from a high of U.S.\$1,396 million in 1974 to U.S.\$829 million in 1978.

During this period, imports also declined sharply from U.S.\$1,144 million in 1975 to U.S.\$773 million in 1978. However, in terms of volume, the level of imports in 1978 was just about half that prevailing during 1969-1973. The 1978 transportation crisis also affected imports causing periodic shortages of vital and essential consumer goods. The composition of imports improved from 1975 to 1978 with consumption of food, clothing and transport declining from 28% to 20% of total imports (see Annex A, Table 7). Both intermediate and investment goods increased as a proportion of imports to 55% and 25% of total imports respectively.

In the services account there was some improvement over the 1975-1978 period. Although investment income rose from a net outflow of U.S.\$117 million to U.S.\$129 million between 1975 to 1978, private transfers and other services decreased by about U.S.\$50 million. Government transfers showed the greatest improvement, from a net inflow of U.S.\$5.2 million to U.S.\$25.0 million over the four-year period.

The overall terms of trade deteriorated significantly and seemingly permanently during the 1970's. If 1969-73 is taken as a base of 100.0 the terms of trade turned against Zambia as follows:

| 1974 | 1975 | 1976 | 1977 | 1978 |
|------|------|------|------|------|
| 95.4 | 46.4 | 51.6 | 45.2 | 43.0 |

Although the terms of trade improved somewhat in 1979 with the increase in copper prices, it did not attain the average of the early 1970's since world-wide

inflation continued to be felt through import prices.

In the capital account, public and private sector net outflows were sharply reduced from U.S.\$210 million in 1975 to U.S.\$18 million in 1978. However, external debt increased dramatically at over 20% per annum from 1973 to 1977. (see Annex A, Table 9). Zambia's external debt position at the end of 1977 stood at U.S.\$1.4 billion or 55% of GDP. Estimates for Zambia's external debt position at the end of 1978 show a decline to 41% of GDP, with debt service payment at \$240 million, or about 28% of export receipts. Considering the recovery in 1979 and 1980 export earnings, the debt service ratio is presently more on the order of about 20%.

c. 1979-1980: Signs of Recovery

After suffering severe BOP deterioration and stagnation in the 1975-1978 period, favorable events in 1979 contributed to a significant recovery. Toward the end of 1978, the railway link to South Africa through Zimbabwe was reopened. This facilitated the export of all 1979 copper production and carry-over stocks that had accumulated in 1978. World market prices rose from the 1978 average of U.S.\$0.62 per pound to \$0.90 per pound in 1979. A two-fold increase in cobalt prices coincided with increased production capacity. As a result, exports increased 65% over those in 1978. Imports rose by 20% while net service payments decreased by 4%. Overall the current account moved from a U.S.\$242 million deficit in 1978 to a U.S.\$151 million surplus in 1979.

In the capital accounts official capital inflows rose substantially moving the balance of payments position from a 1978 deficit of U.S.\$259 million to a 1979 surplus of U.S.\$233 million. Discounting the 1979 exports of 1978-produced copper totalling U.S.\$161 million, the overall BOP position in 1979 would still show a surplus of U.S.\$58 million. This improvement permitted the GRZ to reduce the amount of outstanding external

payments arrears from U.S.\$620 million at the end of 1978 to U.S.\$470 million at year-end 1979.

Balance of payments projections for 1980 are presented in Annex A, Table 6*. These estimates, prepared by the GRZ and IMF in March, 1980, show continuing improvement resulting in another U.S.\$195 million drawdown against arrearages by year end. At this writing, it appears that this forecast is optimistic. Payments on arrearages stopped after the first quarter due to pent-up demand for imports and a slackening of foreign exchange control. In some instances, import payments have been delayed suggesting the possibility that arrearages may increase before further reductions are made.

While copper prices surged in the first quarter with the possibility of higher than forecasted export earnings, prices have since returned to more normal market determined levels and the current exports projection is still believed valid. Developments have not occurred which suggest any major forecast changes in the capital accounts. In conclusion, the GRZ's BOP performance in 1980 will not match that in 1979 with the result that arrearages may not be significantly reduced and could possibly increase. Nevertheless, the prospect of a GRZ-IMF Extended Finance Facility lends optimism toward tighter foreign exchange allocation and continued recovery in 1981.

3. Public Finance

The financial position of the government reflects the difficulties which the economy has experienced during the present decade. Until 1975, taxation of the copper mining sector represented an important source of revenue for the government. Mining revenues in the 1960's represented about 60% of government revenue. In the 1970's they reached a peak in 1974 at K340 million, representing 52% of total government revenue, up from 13% and 28%

*Conversion rates: 1978 U.S.\$1=SDR.79872;
1979 U.S.\$1=SDR.77740;
1980 U.S.\$1=SDR.76923 (est.)

respectively in 1972 and 1973 (see Annex A, Table 11).

Because of the huge losses in earnings resulting from the collapse of copper prices in 1975, mining revenues fell to K12 million in 1976 or less than 3% of total revenue. From 1977 to 1979, there was virtually no revenue from the mining sector. Projected mining tax revenue for 1980 stands at about K41 million, or about 6% of total revenue.

To offset the loss in mining revenues since 1976, the GRZ has successfully diversified the revenue base. Taxes on domestic goods and services increased from K86 million in 1974 to K240 million in 1979. Taxes on income have nearly doubled to K230 million over the same period. Thus, total revenue since the 1974 peak has never declined to pre-1974 levels in absolute terms.

Performance on the expenditure side was less successful during the mid-1970's than for revenue generation. When revenues declined in 1975-1977, expenditures were not adjusted downward and large government deficits resulted. These deficits, of which the domestic banking system system financed over 80%, averaged 16% of GDP.

In 1978 and 1979, strict discipline over budgetary expenditures was generally maintained with the major exception of subsidies and net lending to the government (see Annex A, Table 12). In both years, recurrent expenditures rose in absolute terms but fell marginally in real terms. Capital budget outlays in 1979 were also above targeted expenditures but rose in line with the 1979 inflation rate of about 10%.

Subsidies (mainly on maize and fertilizers) were K59 million and K42 million in 1977 and 1978 respectively. Although these were targeted to fall to K30 million in 1979, they rose instead to K94 million. Current estimates are that these may reach K150 million in 1980. Net lending to the government (primarily to parastatals accruing deficits because of uneconomic pricing) totalled K65 million in 1979. This compares to K24 million

established under the stand-by agreement. While the 1979 figure exceeded the target, it still represents an improvement over the 1978 level of K107 million.

Overall, the budget deficit fell from K260 million in 1977 to K196 million in 1978. Present estimates show a 1979 deficit of K231 million compared to a targeted figure of K187 million. As already indicated, this below-targeted performance is due primarily to overruns in the subsidy and net lending accounts. Though the 1979 deficit represents an increase over 1978, a much higher proportion of this was financed by external financing. Central Bank financing fell from K93 million in 1978 to K60 million in 1979 and is targeted at K60 million in 1980.

Budget projections for 1980 are shown in Annex, A Table 12. These figures indicate a deficit of K186 million. However, in August, the GRZ approved a K214 million supplemental budget to cover the higher cost of subsidies and constitutional and statutory expenditures. While far exceeding the targeted deficit, the IMF does not find this overly disturbing. In the case of the additional subsidy costs (attributed to higher than forecast costs for maize procurement), the Fund considers these unavoidable. As for the additional constitutional and statutory outlays, the IMF describes these as mostly bookkeeping transfers which similarly do not demonstrate an erosion of fiscal discipline. A supplemental capital expenditures budget is also expected to be approved but will only be about K10 million.

In addition, to these supplemental budgets, regular budget expenditure estimates are also likely to be exceeded due to higher than projected increases for wages and recurrent costs related to defense expenditures. Because of these added outlays, bank financing of the budget, targeted at K60 million, will likely be much higher as well.

4. Monetary Developments

Zambia's banking system consists of the Bank of Zambia which acts as the central bank, and four

commercial banks of which three are foreign subsidiaries and one is owned by the government. Insurance companies and other financial institutions are mostly government-owned and also act as commercial banks in housing, agriculture and savings and loans.

Monetary developments through 1977 reflect large expansion in domestic credit owing to borrowing by the government and mining sectors. In 1977, domestic credit expanded by 30%, and the money supply rose by 12% (see Annex A, Table 13).

In 1978 and 1979, the government undertook a stabilization program to restrict credit, especially that of the government and mining sectors. Private sector credit was also controlled. The liquidity position of banks was tightened through the imposition of a 100% reserve requirement in April 1978, and through the enforcement of the kwacha counterpart requirement for foreign exchange applications. As a result of these measures, domestic credit expansion slowed to 18% in 1978 and to 8% in 1979. The GRZ will aim to expand domestic credit in 1980 by about 10% and credit will be allocated more toward priority sectors of the economy, especially agriculture.

The money supply increased 30% in 1979. However, after taking into account a sharp drop in the money supply which occurred at the end of 1978, the rise in average money balances during the year was more on the order of 15%. The money supply is targeted to increase 20% in 1980. Although this may be higher in light of budget overruns necessitating additional bank deficit financing.

Domestic price increases were only about 10% in 1979 despite the much more sizeable increase in money supply. Because of the need of economic enterprises to rebuild their liquidity positions, the expansionary impact of money supply increases was reduced in 1979. While in 1980 there remains a need to rebuild liquidity positions in the industrial sector, budget overruns and money supply

expansion could still push price level increases to as high as 15 to 20 percent. This compares with a 10% increase targeted under the 1980 stabilization program.

5. Economic Growth

The net result of Zambia's financial difficulties of recent years has been an adverse impact on real economic growth. Between 1973 and 1976, real GDP grew by an average of 3% per annum. However, in 1977 and 1978, real growth declined by 4.5% and 0.3% respectively. For 1979, real GDP is estimated to have declined another 9.0%.

In terms of sectoral performance, mining showed the sharpest decline with its relative share of GDP falling from 32% in 1974 to 11% in 1977. Mining's share rose relatively to 12% and 18% in 1978 and 1979 respectively (see Annex A, Table 2). Over the same period, agriculture's share rose from 10% to 15%, manufacturing from 13% to 16%, and services from 12% to 16%. These shifts primarily reflect the disproportionate sharp decline in the mining sector's share rather than offsetting increases in other sectors. For example, over this period, the real rate of increase in agricultural output fell from 5% to less than 1% in 1978 and a 9% decline in 1979. Manufacturing registered a less than 10% increase in 1979 after a 7% growth in 1978 and three consecutive years of negative growth before 1978. Services declined from 8% to a minus 4% in 1978 followed by a 10% increase in 1979 (see Annex A, Table 3).

In the agricultural sector, weather conditions, inappropriate prices, the lack of spare parts, credit, transport and marketing and input delivery have been among the problems impeding the growth of this potentially dynamic sector. Agriculture experienced a particularly poor year in 1979 due to severe drought and resulting huge crop losses.

The mining sector has experienced mixed performance over the past two years with its contribution

to real GDP falling 19.8% in 1979 after showing a 7.5% increase in 1978. Higher copper prices and cost saving measures to improve the efficiency of mining operations contributed to the 1978 improvement. However, in 1979, supply bottlenecks and the loss of key personnel led to the sharp reduction in copper production. Despite this decline, the financial position of the mining companies was further strengthened in 1979 and were able to show profits for the first time in four years.

The poor performance of the manufacturing sector in recent years has been primarily due to the scarcity of foreign exchange, price control policies and limitations on raw material imports. Despite the improvement in 1978, the performance in 1979 was stagnant and capacity utilization will probably not increase in the near future unless imports of essential inputs are increased.

C. Corrective Measures

The Government has undertaken a series of corrective measures to stabilize the economy since the onset of the economic crisis in 1976. These have included an initial stabilization program in 1976 and a stand-by arrangement with the IMF (April 1978). In addition, the Third National Development Plan (1979-1983) has laid the basic groundwork for diversifying the economy; nationwide food production programs are being launched; and Zambia is continuing its efforts to promote political stability in southern Africa.

1. Stabilization Program

Faced in early 1976 with unfavorable prospects for a quick recovery in world copper prices, the GRZ initiated a program to stabilize the economy. These early measures included a 20% devaluation of the kwacha in July 1976, fiscal measures to diversify sources of government revenue and to contain government capital expenditures, and incentives to stimulate the diversification of the economy toward increased

agricultural and industrial production.

These initial efforts met with only limited success, and in April 1978, the Government negotiated a two-year stand-by arrangement with the International Monetary Fund. This program made available SDR 250 million (U.S.\$313 million) in IMF credits. The stand-by arrangement supported a comprehensive stabilization program, of which the main objectives were to achieve an overall balance of payments equilibrium by 1980, reduce inflation, resume economic growth, and set the basis for diversification of the economy through efficient resource allocation, especially in terms of fiscal performance. In addition, the program was to gradually eliminate external payments arrears which, at the beginning of the program, stood at SDR 467 million (U.S.\$585 million).

Zambia's implementation of the stand-by arrangement has been largely successful (see Annex A, Exhibit 14). As described above, the balance of payments showed marked improvement in 1979 permitting a large payment surplus and a reduction in external arrearages. In the area of public finance, the revenue base was diversified and strengthened; discipline was exercised over expenditures; and the resort to deficit financing was restrained. These factors plus restrictions on the expansion of domestic credit contributed to reductions in the rate of price increases from about 18% in 1977 to about 10% in 1979. With the termination of the stand-by agreement in April 1980, there is evidence of some slackening in financial discipline. However, prospects for a GRZ-IMF Extended Finance Facility seem good and this should again help tighten fiscal and monetary control.

Despite this generally improved performance, major economic development problems still must be resolved. The GRZ still carries heavy external payments arrearages despite the 1979 and 1980 projected balance of payments improvement. The resumption of economic growth, a major objective of the stand-by arrangement, has been elusive although a modest increase is now projected for 1980. Critical to

the resumption of sustained growth will be bolder GRZ efforts to undertake policy reforms conducive to structural economic diversification. Price policy and subsidization problems continue to plague the agricultural and manufacturing sectors. Some parastatal enterprises, in particular, continue to operate inefficiently and require subsidization for a variety of reasons.

The prime example of such deficit-operated parastatals is the National Agricultural Marketing Board (NAMBoard). NAMBoard is plagued by contradictory price and subsidization policies, agricultural credit difficulties, and transport and distribution problems. Because of NAMBoard's deficit, the Zambian government was unable to contain its borrowing from the banking system during the second half of 1979, and these subsidies will bring similar pressures to bear in 1980.

Thus, while the GRZ-IMF stand-by arrangement has been largely successful as measured by several key indicators, the most difficult tasks of economic recovery structural adjustment and the resumption of growth still lie ahead. The GRZ Third National Development Plan establishes a framework within which this can be sought. Still, government reforms adequately supported by external assistance over the next few years will be essential to achieving a sustainable recovery.

2. Third National Development Plan

The Third National Development Plan (TNDP) covering the period 1979 to 1983 seeks "to diversify the economic structure in order to reduce the economy's dependence on copper and to undertake a crash economic program of promoting agriculture and industry based on the use of local raw materials and the establishment of the necessary capital goods industries". The plan gives highest priority to rural development and includes other objectives as follows:

- promote fuller employment generation;
- promote prospecting and exploitation of non-copper minerals;

- reduce rural-urban income disparities;
- promote a regional pattern of development;
- speed up the process of Zambianization;
- expand education and training facilities;
- and
- obtain a real growth in GDP of 6% over the plan period.

These objectives are appropriate in light of Zambia's current economic situation and progress toward achieving them would contribute to developing a more resilient economic structure. However, the plan appears to be an ambitious undertaking and unrealistic in terms of the resources likely to be available for implementing it.

On the latter point, the plan projects total investments of K3,354 million. Of this amount K1,439 million (43%) will be provided from the government budget, including donor assistance; K1,085 million (32%) by parastatal internal resources; K530 million (16%) by external financing to parastatals; and K300 million (9%) by the private sector.* These estimates are not realistic in that they do not reflect fiscal and other commitments which constitute an integral part of the government's economic stabilization program. Nor are they adjusted for the balance of payments constraints in recent and coming years.

In view of the shortfall in financial resources suggested above, a more realistic investment plan is required. An annual development plan is now prepared to supplement and implement the TNDP. However, it too lacks the in-depth analysis required to efficiently allocate and coordinate the use of scarce national resources. In short, the TNDP and the annual development plan provide useful frameworks within which general development efforts can proceed, but a more refined spending program is necessary.

*Of total investments, 15% or K420 million is allocated to agricultural development. Of this latter amount, the government is expected to finance 87%. Agriculture figures more prominently in the government's share of investments, with 31% of total government investments being allocated to agriculture, in addition to other allocations for rural roads.

3. Food Production Programs

To stimulate agricultural production and initiate efforts to diversity the economy via the agricultural sector, the GRZ has launched two major food production programs. One is the LIMA Program designed to promote the cultivation of small quarter acre gardens in urban and rural areas. The other is "Operation Food Production", a grander scale nationwide program to boost food production. The LIMA program was begun in 1979. Operation Food Production is being initiated this year.

a. LIMA Program

The LIMA program is an extension program designed around a farm input package for units of one-fourth hectare. Its fundamental principle is the encouragement of the rational use of agricultural inputs on standardized units of land using standardized measures for fertilizer, seed and insecticide. The LIMA program is directed at small farmer agricultural production and includes the use of existing technologies disaggregated into usable packages.

b. Operation Food Production

Faced with forecasts that Zambia would have to spend K60 million (US\$75 million) to import 3.5 million 90 kg bags of maize during 1980 (K38 million on maize and K22 million on transport), President Kaunda called a special seven day continuous meeting of the UNIP Central Committee to discuss methods of boosting food production. The result was the launching of Operation Food Production on May 23.

The program is a large one, envisaging the expenditure of K400 million (U.S.\$500 million) over ten years to boost food output by a combination of large capital intensive farms, mobilization of traditional farmers and new incentives to farmers. The strategy involves the establishment of 1) two 20,000 hectare state farms in each of Zambia's nine

provinces; 2) expansion of the size of hitherto unsuccessful reconstruction centers to 1,000 hectares each; and 3) encouragement of producer cooperatives which have declined in recent years.

Because of the generally poor records of both the rural reconstruction centers and producer cooperatives, many observers are skeptical about the ability of these units to transform themselves into the spearheads of a campaign for higher agricultural production. However, more considerable results are expected from measures designed to encourage individual farmers, and expatriate farmers in particular. Among these measures were decisions to 1) allow farmers to remit 50 ngwee^{1/} of foreign exchange for a) every 90 kg bag of maize in excess of 5,000 bags; b) every 90 kg bag of soya in excess of 1,000 bags; and c) every 90 kg bag of wheat in excess of 2,000 bags; 2) a K2 reduction in the price of all 50 kg bags of fertilizer ^{2/}and 3) tax concessions for farmers including a reduction in the duty on imported tractors. Also expected is a reorganization of the key parastatal companies in the agricultural sector, namely NAMBoard, the Agricultural Finance Company, and the Tobacco Board of Zambia.

4. Peace Efforts in Southern Africa

Zambia's efforts to bring about peaceful transition to majority rule in southern Africa must also be cited among the measures taken to stabilize the economy. The costs of maintaining economic sanctions against Rhodesia, particularly transport-related costs, placed heavy financial strains on the GRZ. Zambia's role in bringing about a negotiated settlement to the Rhodesia-Zimbabwe conflict is well recognized, and the more stable political climate in the region will enhance the prospects for economic recovery.

D. Prospects for Economic Recovery

At this time, the GRZ is at a key turning point as regards the nation's future development. Over the

^{1/} 100 ngwee = 1 kwacha

^{2/} This has been subsequently increased to K3 per 50 kg bag.

past two years, stabilization efforts have succeeded in weathering the worst of the current financial crisis. Budgetary discipline has been strengthened, prudent monetary policies have been followed, and at the end of 1979, external arrears had been reduced beyond expectations at the start of the year. Copper prices have improved significantly as has the financial performance of the mining companies.

Despite these successes, long term exploitation of Zambia's economic development potential will depend upon the determination with which the GRZ adopts economic policies conducive to structural change and economic growth. Zambia's need for economic structural change is justified not only by the severe and erratic economic fluctuations of the past but by the future prospects for the exploitation of Zambia's copper resources. Present known resources are expected to be depleted within about 20 years and production is likely to remain relatively constant at about 550,000 to 600,000 tons per year.

To significantly increase the rate of extraction would require heavy capital investments to process lower grade areas. Projected copper prices over the intermediate term suggest that these investments would not be economically justifiable. Cost savings and marginal increases could accrue from more efficient management and capacity utilization. However, notable future increases in copper mining revenues and foreign exchange earnings will come about through higher prices rather than increased output. Current price projections indicate modest and steady increases in the years ahead. But as in the past, there are no guarantees of such predictable performance in the volatile world copper market.

Bringing about the economic structural change needed requires persevering efforts on several challenging fronts. These include continuing efforts to maintain the financial stability of the

economy; the restructuring of relative domestic prices, particularly of agricultural products, to improve resource allocation; the adjustment of fiscal and monetary policies to promote exploitation of the agricultural sector; improvement in the performance of parastatals; and the strengthening of institutions supportive of structural diversification. Further strengthening of the government's development planning capacity at both national and ministerial levels is especially needed to better plan investment programs and allocate scarce financial resources in accordance with established priorities.

Economic revitalization in this broader sense will require several years. Despite stated GRZ priorities toward rural development, recovery in the mining and manufacturing sectors must be supported as well. Assuming copper prices and production remain favorable, at least 2 to 3 years will likely be required to simply eliminate arrearages and bring capacity utilization of the industrial sector up to more normal levels. Foreign exchange allocation supportive of structural diversification will be made but will be constrained by these competing needs. This "competition" can be reduced to the extent external assistance is available to fund structural diversification programs.

Donor balance of payments support in the near future can thus be expected to have more of a developmental impact than in the past assuming the GRZ undertakes the necessary diversification measures as indicated above. In light of the above prognosis, the donor community should coordinate efforts and activities to support policy reorientation. At the same time, the GRZ should make every effort to mobilize and direct donor resources to support diversification. In particular, an IMF Extended Finance Facility and/or an IBRD Structural Adjustment Program complemented by other donor assistance would seem especially appropriate at this time.

E. Other Donor Assistance*

Zambia signed international assistance agreements totalling U.S.\$232.4 million in 1979 (see Annex A Table 15). Of this total, U.S. \$130.3 million was commodity assistance, U.S. \$28.7 million was food aid, and U.S. \$73.6 million was project assistance. U.S.\$69.4 million was in the form of grants and U.S.\$163.2 million in the form of loans. Other major donors providing commodity aid in 1979 were Iraq (US\$30.0 million), Japan (U.S. \$26.2 million), Romania (U.S. \$15.0 million), Netherlands (U.S. \$13.0 million), India (U.S. \$12.3 million), and the Federal Republic of Germany (U.S. \$5.0 million). The U.S. \$159.0 million in 1979 commodity aid, including food programs, compares with U.S. \$112.5 million provided in 1978. Annex A Table 16 is also included to illustrate the type commodities provided under other donors programs.

In terms of overall aid, the U.K. is traditionally the largest donor providing U.S. \$75 million to U.S. \$90 million in assistance each year. Other major donors in 1979 were the U.S. (U.S. \$51.3 million), Iraq (U.S.\$39.0) Japan (U.S. \$26.2 million) and the EEC (U.S. \$21.5 million). Under the SDR 250 million IMF standby agreement, SDR 100 million was utilized in 1978 and SDR 100 million was utilized in 1979.

Donor assistance in 1980 is expected to rise to even higher levels. President Kaunda is on an aid seeking mission at this writing and the GRZ is targeting to sign assistance agreements totalling K450 million (U.S. \$562.5 million) for 1980. The remaining SDR 50 million under the IMF standby agreement was utilized in 1980 and prospects appear favorable for a three-year Economic Finance Facility to commence in early 1981.

* Also see Annex A, Table 1.

IV. Proposed Commodity Import Program.

A. Objectives

In consideration of the GRZ's balance of payments difficulties and long term development objectives as described above, AID proposes to loan the Government of Zambia U.S.\$15 million from the Economic Support Fund. The loan will be utilized through a Commodity Import Program (CIP) to (1) provide short-term balance of payments relief; contribute to the GRZ's longer run objectives to accelerate agricultural development and diversify the structure of the economy; and 3) support the GRZ and AID/Zambia's goals to increase food production and raise small farmers' incomes.

A major national problem adversely impacting on the accomplishment of all of these objectives is Zambia's declining domestic food production. The severity of the problem is discussed in Annex B. Therein it is noted that the volume of Zambia's domestically produced and marketed maize progressively fell from 578,000 MT in 1978 to 334,000 MT in 1979 and is estimated at 390,000 MT in 1980. This compares with 750,000 MT produced in 1976 and 690,000 MT in 1977. In 1979, only about 50% of the nation's maize consumption requirements were met with domestic production, and prospects for 1980 are nearly as bad. Over the same years, budgetary subsidies, attributed largely to uneconomic pricing of maize and fertilizer, increased from K42 million to K94 million to an estimated K150 million in 1978, 1979 and 1980 respectively.

To assist the GRZ in meeting its food production challenge, the foreign exchange proceeds, local currency generations, and economic measures negotiated under this loan will all be directed towards achieving maize self-sufficiency and reducing budgetary subsidies. In so doing, the broader objectives of the loan will be supported as well.

B. Commodities to be Financed

As officially requested (see Annex C), it is proposed that the foreign exchange provided under this loan be used to procure the following materials required

for the domestic production of fertilizers.

| <u>Description of Raw Material</u> | <u>Quantity (MT)</u> | <u>Approx. Value US\$ CIF Kafue</u> |
|------------------------------------|----------------------|-------------------------------------|
| Borax | 40 | 24,000 |
| Potassium Chloride | 200 | 84,000 |
| Potassium Sulphate | 7,000 | 3,500,000 |
| Single Super Phosphates | 1,100 | 473,000 |
| Triple Super Phosphates | 11,500 | 5,290,000 |
| Di-Ammonium Phosphates | 11,200 | 5,600,000 |
| Coating Agent (NUFLO 10) | 350 | 105,000 |
| TOTAL | 31,390 | 15,076,000 |

Utilization of these commodities will support Zambia's agro-industrial development and will help increase the yields and total output of Zambia's staple food crops, especially maize. In so doing, these commodities will contribute towards increasing domestic food supplies and satisfying Zambia's basic human needs.

The finished fertilizer materials financed under the past three CIP loans to Zambia have accounted for 30% to 35% of the country's total sales. Zambia's fertilizer projected sales in 1981 will be upwards of 185,000 MT consisting primarily of NPK compounds and urea. A more detailed analysis of Zambia's past and projected sales and current stock position is discussed in Annex D. The estimated 31,390 MT to be procured under this loan represents 45 percent of 1980/81 and 1981/82 projected imported raw material requirements and can potentially contribute to the production of about 55,000 MT or roughly 30% of expected sales in 1981.

The selection of these raw materials as opposed to finished product is proposed in light of Zambia's increased domestic capacity to produce and blend fertilizers. This additional capacity, an expansion of Nitrogen Chemicals of Zambia Ltd. (NCZ), will come on stream in April 1981. An analysis of the plant's capability to start production on schedule

is included herein as Annex E. Any residual amount of funds available after the materials are purchased will be used to procure agricultural equipment and spare parts.

In the unlikely event that NCZ experiences unexpected and lengthy delays in start-up, it is proposed that the loan finance finished product instead. Should it become necessary to identify still other alternatives, commodity selection will be directly supportive of the agricultural sector and must basically represent large volume purchases and a small number of commodity categories. This latter requirement is necessary because of the limited commodity management support available to administer and implement the loan.

C. Use of Local Currency Generations

Despite GRZ intentions to eliminate the subsidies on maize and fertilizers over the past two years, these outlays rose sharply in 1979 and 1980 (see Annex B). Contributing to these increases were poor domestic maize harvests necessitating costly imports, higher prices of fertilizer imports, higher maize prices paid to domestic producers, and GRZ reluctance to pass these costs on to consumers.

To help reverse this trend it is proposed that the local currency generated under this loan be used in support of a GRZ-AID program now being negotiated (see following discussion of measures to achieve maize self-sufficiency and reduce maize subsidies through producer and consumer price adjustments. Specifically it is planned that local currencies will be used to partially subsidize maize consumer prices. The subsidization will be done on a declining graduated basis (allowing maize consumer prices to be adjusted suitably in accordance with a schedule to be adopted in consultation with AID prior to April 1, 1981. The results of the study cited in B.1.b. below will be instructive in this regard. It is anticipated that local currencies generated through the FY 1981 PL 480 agreement will contribute to this program as well.

Under CIP loans prior to the FY 1980 loan (611-K-005), AID and the GRZ agreed that counterpart generations be attributed to specific line items in the GRZ capital budget. Attributions of local currencies generated through 1979 disbursements from Loans 611-K-002/003/and 004 are shown in Annex F.

Loan disbursements under Loan 611-K-005 will all occur in 1980. Unlike attributions under the previous loans, these generations will be allocated solely to agricultural and rural development activities. The GRZ will submit a report on the use of these attributions in 1981.

D. Agricultural Sector Support Measures

A key feature of the FY 1981 loan program is the negotiation of several measures supportive of the loan objectives outlined in Section IV A above. These measures are outlined below.

A. "In implementing these support measures which complement the overall objectives of the Third National Development Plan (TNDP), specific emphasis will be placed on contributing directly to development in poor rural areas and in enabling the poor to participate actively in increasing agricultural production through small farm agriculture.

B. The Government of the Republic of Zambia will:

1. (a) Reinforce the planning unit within the Ministry of Agriculture and Water Development charged with undertaking comprehensive annual and ad hoc reviews of agricultural producer prices and fertilizer subsidies.
- (b) (i) Conduct a comprehensive review of maize producer prices and fertilizer subsidies to determine if there is sufficient incentive to reduce the prevailing maize production shortfalls; (ii) undertake this review between the signing of this Agreement and March 31, 1981; (iii) base the review on the following principles: (a) current production prices in the region; (b) self-sufficiency; (c) the cost of production plus a reasonable profit margin; and (d) comparative costs of importation; and (iv) keep AID advised of the findings of the review during the month of April 1981.
- (c) Establish agriculture producer prices at levels aimed at achieving the goal of maize self-sufficiency by 1982.

- (d) Adopt a selective approach to the subsidization of fertilizer and other input costs in order to provide farmers, especially traditional and emergent farmers, with the necessary incentives to increase the production of maize and to reduce subsidies to manageable levels.
2.
 - (a) Reduce consumer subsidies on maize and fertilizer to align retail prices more closely to producer prices.
 - (b) Reduce progressively the per unit maize subsidy (i.e. the difference between maize producer prices and the wholesale prices of roller and breakfast meal) within a period to be agreed with AID by June 1981.
3. To permit commensurate increases in maize producers prices in real terms which will stimulate production, without simultaneously enlarging Zambian budgetary subsidies caused by differences between maize consumer and producer prices. Utilize local currency attributable to this loan to partially subsidize maize producer/consumer prices. This subsidization is to be done on a declining graduated basis allowing maize consumer prices to be adjusted suitably, in accordance with a schedule to be adopted in consultation with AID prior to May 1, 1981. The results of the study cited by B.1.(b) above will be instructive in this regard.
4. Adopt procedures to improve the Ministry of Agriculture and Water Development's crop forecasting by improving the accuracy of the data base and the timeliness of the publication of the forecast.
5. Through the Ministry of Agriculture and Water Development, revive a regular market news service.
6. To assure coordination of food and fertilizer imports, provide the U.S. Government monthly (within 21 days of the close of the month) statistics on fertilizer and maize. This will include (i) beginning of month/opening stock position, (ii) imports, (iii) internal

procurement, (iv) sales and (v) end-of-month closing stock position.

In October of 1981, furnish the USG a statement of the progress the Government of the Republic of Zambia has made in carrying out the above measures."

As of this writing, negotiations of the above measures are underway. On November 10, 1980, AID/Zambia, the NCDP and MAWD reached tentative agreement on the measures. Because approval from higher GRZ officials is required, it is not certain whether all of the measures will appear in the loan agreement, nor whether they will appear in the precise language as presently shown.

E. Loan Program Rationale

1. Relationship to AID/Zambia Program

The proposed loan represents an integral component of AID/Zambia's overall program to increase food production and to raise small farmers' incomes. The significance of this year's loan program is best viewed in terms of the development of the AID/Zambia program over the past few years and the relationships it has with complementary program elements.

For several years prior to FY 1980, the U.S. assistance program to Zambia consisted primarily of CIP and food aid activities, both of a non-project and balance of payments and budgetary support nature. During those years, Zambia's financial crisis was so severe that stabilization assistance rather than project aid was of paramount need.

It was also during these years that the need for diversification of the economy was strongly felt, and this objective became the central theme of the GRZ's Third National Development Plan (TNDP, 1979-1983). Under the plan, highest priority was placed on revitalizing the agricultural sector. This reorientation in development focus and the prospect of a steady although slow economic recovery, prompted a complementary transition in the U.S. AID program to Zambia. This transition involves a gradual evolution from purely non-project stabilization assistance to a more project-based program. As already described in Section III D, the present overall program is at a stage including both categories.

A combination of non-project and project assistance is especially appropriate at this time for the AID/Zambia program must function on both the policy and action fronts as stated in the FY 1982 Zambia Country

Development Strategy Statement (CDSS). Program intervention on the policy front is essential because difficult policy changes, adequately supported by external technical assistance are still needed to support the shift in GRZ development priorities. In this regard, the CIP and PL-480 programs offer substantial foreign exchange and local currency assistance to support GRZ-AID agricultural initiatives.

Directly complementing these programs is technical assistance offered by the Zambia Agricultural Training Planning and Institutional Development Project (ZATPID-611-0075). This is a unique AID activity designed to identify weaknesses in policies related to agricultural development. The project provides the technical assistance and training required to strengthen GRZ analytical and decision making capabilities in the policy area concerned.

On the action front, the AID/Zambia program has as its base a major Agricultural Research and Extension Project (611-0201). This project was approved this September and project team arrival is scheduled to begin in February, 1981.

The common threads that weave these program elements together are the GRZ and AID/Zambia goals to increase food production and to raise small farmers' incomes. Tracing the development of the CIP programs over the past two years serves to both explain the rationale for the current loan proposal as well as demonstrate how AID/Zambia program components are linked towards achieving these common goals.

2. FY 1980 Commodity Import Loan Program

The FY 1980 Commodity Import Loan and the FY 1980 PL-480 program initially signaled the transition to a more development oriented AID program to Zambia. The self-help criteria contained in the PL-480 agreement requested that the GRZ act upon several substantive self-help measures related to boosting domestic food production. The FY 1980 CIP Program Assistance Approval Document (PAAD) endorsed the self-help criteria as being supportive of the CIP objectives.

At the time the FY 1980 PAAD was prepared, AID/Zambia had a newly arrived professional staff of only one and consequently a rather limited knowledge of Zambia's agricultural sector. Therefore, the FY 1980 PAAD sought to gain an updated and rudimentary enough understanding of the agricultural sector to identify

major problem and policy concerns meriting GRZ-AID emphasis. An initial but cursory review was also made of the fertilizer sub-sector. Problem and policy areas identified fell within three basic categories: overall agricultural sector constraints and priority development needs; knowledge of the traditional farmer; and small farmer access and use of fertilizer.

On the basis of these findings, recommendations were made to undertake major studies relating to agricultural program planning, the small farmer, and fertilizer distribution and use. These recommendations also provided initial guidance for AID/Zambia program development. FY 1980 funding to undertake these and other studies as suggested by the CDSS was made available through authorization of the ZATPID project (611-0075).

3. FY 1981 Commodity Import Loan Program

AID/Zambia has gained considerable knowledge of the agricultural sector and has supplemented its professional technical staff with a PL-480 Officer and an Agricultural Officer. Therefore, this year AID/Zambia has chosen to negotiate and support the agricultural economic measures described in Section IV D above.

Although negotiation of the economic measures will not be completed until the signing of the Loan Agreement, the aims of the negotiations are to reinforce the MAWD's planning unit responsible for analyzing agricultural prices and subsidies, especially those for maize and fertilizer. AID/Zambia is prepared to support strengthening of the staff through the ZATPID project. It is planned that annual and ad hoc reviews prepared by the unit will be the basis for establishing producer prices that will bring about maize self-sufficiency. At the same time, fertilizer prices and maize consumer prices will be set such that they will reduce the current heavy drain of subsidies on budgetary resources. By June 1981, the GRZ and AID will agree upon target dates for achieving these goals.

The use of loan proceeds to import raw materials will complement these measures by providing the fertilizers needed to support the hoped for production response. Use of the local currency generated under this loan to partially subsidize consumer maize prices will

support implementation of the economic and financial measures. Other major features of this year's loan program are an analysis of Zambia's fertilizer marketing system (Annex G); and a scope of work for a major fertilizer sector study (Annex H).

Looking beyond this year's loan, it is envisaged that a major fertilizer sector study will be undertaken in 1981 along the lines recommended in the attached scope of work. Funding for such a study is available through the ZATPID project (611-0075). It is possible that this study would be the basis for a major sector or sub-sector support loan. Such a loan would have a significant commodity component and would represent a logical developmental evolution of the CIP program in Zambia.

V. Fertilizer Marketing in Zambia

A. Zambian Agriculture and Fertilizer

As summarized in the FY 1982 Zambia Country Development Strategy Statement (CDSS), the problems facing agriculture are complex. Solutions are available but sustained implementation of the policies needed to attain self-sufficiency in food production have not been sufficient to date. Yet,

GRZ development priorities have shifted to agriculture in recent years and efforts are being made to establish the policy, institutional and structural environment required to stimulate and sustain agricultural development.

Of particular concern in these efforts is the role of fertilizers. Because the soils of Zambia have an inherent low fertility status, fertilizers are needed to maintain current food production levels and any sustained expansion in the future. Research shows that Zambia's soils respond well to fertilization and good management practices. To be able to reap the benefits that Zambia's soils and new high yielding plant varieties can produce, fertilizers and technology must be available to all categories of farmers. This can be accomplished through an adequate fertilizer marketing and distribution system and under the umbrella of an integrated approach to agricultural development.

Recognizing the importance of fertilizers to the agricultural economy, this section will describe the fertilizer sub-sector and will provide a preliminary evaluation of the fertilizer marketing system. A proposal for a more in depth fertilizer sector study, placing special emphasis on small and emergent farmers, is included herein as Annex H.

The Third National Development Plan, 1979-1983 (TNDP), aims to expand the agricultural output of small and emergent farmers. Presently it is not known how much is getting to the small and emergent farmers. Nor is it known if fertilizers are available to them but is not being used. The proposed study will examine these and other pertinent questions.

If fertilizer consumption increases as a result

of GRZ efforts to boost small and emergent farmers' production, Zambia's fertilizer bill can be expected to increase as well. Considering that the country's fertilizer costs already approach U.S.\$75 million per year and that these costs are continually rising, it becomes increasingly important to strive for an efficient system of marketing and distribution.

B. Fertilizer Sub-Sector

1. Key Institutions

Listed below are the major institutions involved in the fertilizer sub-sector and the functions they perform:

a. National Agricultural Marketing Board (NAMBoard)

NAMBoard is the most significant of all institutions involved in the fertilizer sub-sector. In consultation with the National Fertilizer Committee it determines the types and quantities of fertilizers to be imported. In addition, it advises the National Commission for Development Planning in pricing; manages the importation of fertilizers; and is primarily responsible for the storage and distribution of fertilizers throughout the country.

b. National Council for Scientific Research

The National Council for Scientific Research co-ordinates the activities of agricultural research. Zambia's 12 research stations and 17 zonal sub-stations research and field test fertilizer products and make recommendations as to type, formulation and use.

c. National Fertilizer Committee

The National Fertilizer Committee advises NAMBoard on the type and quantities of fertilizers to be imported. Committee members include representatives from the Ministry of Agriculture and Water Development (MAWD), Commercial Farmers Bureau (CFB), Bank of Zambia (BZ), Nitrogen Chemicals of Zambia, Ltd. (NCZ), Tobacco Board of Zambia (TBZ), and NAMBoard's bankers. The committee meets in April of every year.

d. Central Supply and Tender Board

The Central Supply and Tender Board tenders for the fertilizer requirements on behalf of NAMBoard. Tendering and receiving of quotations are finalized during July and August.

e. National Commission for Development Planning

The National Commission for Development Planning (NCDP) determines fertilizer prices. NCDP sets prices in consultation with NAMBoard and NCDP's pricing decisions are subject to approval by the Office of the President. Prices are set with the primary goal of maintaining a fair rate of return to farmers. Preliminary estimates place fertilizer subsidies at between 60% to 75% of the landed cost in Zambia.

f. Ministry of Agriculture and Water Development Extension Service

The Extension Service undertakes promotional activities such as fertilizer trials, farmer meetings, and advising farmers on what fertilizers to use, rates and methods of application.

g. Nitrogen Chemicals of Zambia, Ltd.

Nitrogen Chemicals of Zambia, Ltd. (NCZ) is the only industrial manufacturer of fertilizer in Zambia. Presently NCZ only produces about 20% of Zambia's total fertilizer requirements. However, the plant is expanding its capacity such that by 1985 it will be able to satisfy approximately 80% of total domestic fertilizer demand.

2. Fertilizer Consumption*

Zambia's annual fertilizer sales since 1975 have varied between 129,000 MT and 146,000 MT (See Table 1). The estimated annual value of the fertilizer sold has ranged between \$25.0 million and \$40.0 million.

*It is important to note that these consumption figures are not very accurate indicators of demand because sales to date are more a reflection of availability than actual demand.

Projected fertilizer sales for 1980 and 1981 are 157,500 MT and 173,200 MT, respectively.

The higher expected sales figures for 1980 and 1981 are attributed to a number of factors. With the ending of the Rhodesia War, it is expected that those areas which had reduced agricultural output due to security problems will now increase the acreage under cultivation and hence the demand for fertilizers. In addition, sales are expected to increase in response to a recently announced higher farm gate price for maize, the country's largest single crop. Fertilizer prices have also been reduced to stimulate its use and to increase food production.

Most of the fertilizers are sold in the Southern, Central, and Eastern provinces which encompass most of the main line-of-rail area. Since 1977 almost 80% of all fertilizer was sold in these provinces (See Table 2). NAMBoard forecasts no significant change in regional consumption percentages in 1980. A more detailed analysis of "Fertilizer Sales, Imports and Beginning Stock Positions" is included as Annex D.

TABLE 1

Total Fertilizer Supply and
Utilization in Zambia

1975 - 1981
(000 MT)

| <u>Year</u> | <u>Beginning Stocks</u> | <u>Imports</u> | <u>Production</u> | <u>Sales</u> | <u>Exports</u> |
|-------------|-------------------------|----------------|-------------------|--------------|----------------|
| 1975 | 70.0 | 121.0 | 11.0 | 133.6 | 0 |
| 1976 | 68.5 | 150.0 | 15.3 | 145.9 | 0 |
| 1977 | 88.0 | 157.9 | 28.9 | 164.5 | 0 |
| 1978 | 98.2 | 198.1 | 25.6 | 129.6 | 0 |
| 1979 (PRE) | 183.3 | 95.2 | 25.3 | 143.0 | 0 |
| 1980 (EST) | 160.6 | 157.1 | 25.0 | 157.5 | 0 |
| 1981 (FOR) | 185.1 | 96.0 | N/A* | 173.2 | 0 |

SOURCE: NAMBoard, September 1980

* Not Available

TABLE 2
Fertilizer Sales by Province
1978 - 1979
(Percent)

| <u>Province</u> | <u>1977</u> | <u>1978</u> | <u>1979</u> | <u>Provisionary 1979 (000 MT)</u> | <u>Estimated 1980</u> |
|-----------------|-------------|-------------|-------------|---|---------------------------|
| Southern | 39 | 39 | 44 | 64.4 | 44 |
| Central | 27 | 29 | 24 | 35.1 | 24 |
| Eastern | 12 | 12 | 12 | 16.7 | 12 |
| Lusaka | 11 | 10 | 9 | 12.7 | 9 |
| Copperbelt | 2 | 4 | 3 | 4.3 | 3 |
| Northern | 5 | 3 | 5 | 7.8 | 5 |
| Western | 1 | 1 | 1 | 1.0 | 1 |
| N. Western | 1 | 1 | 1 | 1.4 | 1 |
| Luapula | 1 | 1 | 1 | 2.0 | 1 |
| Total | 100% | 100% | 100% | 145.3* | 100% |

SOURCE:.. NAMBoard, August 1980

3. Fertilizer Supply

Zambia's fertilizer production facilities are presently limited. Over 80 percent of the fertilizer purchased by NAMBoard is imported. Almost all of the imported materials are NPK compounds and urea. Since 1977, the United States Commodity Import Program (CIP) has financed an annual average of 50,000 MT or over 38 percent of total fertilizer imports (See Table 3).

Zambia is in the midst of completing an expansion of its fertilizer production facilities which will enable the country to produce about 142,300 MT by 1985 or about 80% of 1985 estimated requirements. To manufacture these compounds, it will be necessary to import about 64,000 MT of raw materials annually. The value of these raw materials will be roughly \$22 million per year in 1980 prices. Therefore, to support Zambia's

fertilizer consumption trends, significant levels of foreign exchange will be needed for the foreseeable future, whether it be to import the final fertilizer product or the raw materials to domestically produce the fertilizers.

TABLE 3
Fertilizer Purchases by NAMBoard
(000 MT)

| <u>Year</u> | <u>Domestic</u> | <u>Imported</u> | <u>Imported from U.S.A. with C.I.P. funds</u> | <u>Total Purchases</u> |
|-------------|-----------------|-----------------|---|------------------------|
| 1975 | 11.0 | 121.0 | (0) | 132.0 |
| 1976 | 15.3 | 150.0 | (0) | 165.3 |
| 1977 | 28.9 | 197.9 | (26.0) | 186.8 |
| 1978 | 25.6 | 189.0 | (62.0) | 244.7 |
| 1979 (PRO) | 25.3 | 95.2 | (70.0) | 120.5 |
| 1980 (EST) | 25.0 | 157.1 | (50.6) | 182.1 |
| 1981 (FOR) | N/A* | 96.0 | N/A* | N/A* |

SOURCE: NAMBoard, August 1980

*Not available

4. Fertilizer Use

Principle crops receiving fertilizer applications are maize, wheat, sunflower, vegetables, tobacco, and sugar cane. MAWD officials report that the major crops being fertilized by all categories of farmers are maize and wheat. Although it was not possible to obtain a tonnage breakdown of fertilizers used on the various crops, a preliminary analysis (See Table 4) suggests that over 75% is utilized in staple food production, particularly maize. Examining the quantities of fertilizer sold during the maize planting season and adjusting for the fertilizer types sold during this period for non-staples (i.e. tobacco) suggests that upwards of 70% of all fertilizer sold was used on maize in 1979.

The determination of how much fertilizer is utilized by the traditional, emergent, and commercial farmer categories remains unknown. Some informal estimates place the use of fertilizer by commercial farmers at as high as 75%.

TABLE 4

Estimated Fertilizer Use for
Maize Production

| | <u>1979 (000 MT)</u> | <u>Percent of Total</u> |
|---|----------------------|-------------------------|
| Metric tons of fertilizer sold during the maize planting season | 109.3 | 75.4% |
| Proportion which could have been used for tobacco (A,C, and V compounds) | 6.2 | 4.3% |
| Biased upward estimate of the amount of fertilizer possibly used on maize | 103.1 | 71.1% |

SOURCE: NAMBoard, September 1980

A case study undertaken by the C I P design team analyzed one of NAMBoard's major depots and the surrounding rural depots serviced by it. Sales at the main depot were roughly equivalent to sales of all the rural depots combined. From interviews held with various depot officials, it was concluded that commercial farmers usually purchase fertilizer directly from the main depot and the traditional and emergent farmers purchase primarily from the rural depots. Thus, it can be stated that traditional and emergent farmers are getting fertilizers, but it is still not known how much they receive nationwide or if it is an adequate amount. Given the limited information available at an aggregate level, a more intensive and extensive investigation of fertilizer use patterns must be undertaken before any clear statements can be made about fertilizer use by crop or by farmer type.

5. Fertilizer Distribution

NAMBoard currently has the primary responsibility for fertilizer distribution and operates 14 major depots and 467 permanent rural depots. In addition, this system is supplemented by provincial agricultural cooperative unions. The large Northern Province Cooperative Marketing Union for example, reportedly operates 500 permanent and seasonal pick-up and delivery points. While the cooperative systems seem quite extensive, it should be noted that many are weak and are not very effective. Because NAMBoard has no transport capability, transportation services must be contracted for all fertilizer movements from the ocean ports to Zambia and then into the rural areas.

The GRZ has decided to shift NAMBoard rural distribution responsibility to local cooperatives and only maintain its 14 major depots throughout the country. This transfer of responsibility is to be completed by March 31, 1981. However, this targeted date appears unrealistic because few details of how the system will work have been released. Moreover, as already suggested, many if not most of the cooperatives have insufficient resources and lack the trained personnel required to rapidly assume the task of servicing all of the rural areas.

To date, the cooperatives and unions have focused more heavily on purchasing crops than selling inputs. A recently published report shows that during 1977, the cooperative unions purchased 46 percent of all officially purchased maize nationwide leaving the balance of 54 percent to NAMBoard. In the four provinces where the cooperative unions operated, they accounted for 83 percent of all official maize purchased. However, in fertilizer sales, the unions accounted for less than 15 percent nationwide.

Currently there are five provincial marketing cooperative unions. The provincial unions ranked in terms of their capability to continue crop procurement and to assume NAMBoard's distribution responsibility from the provincial level down, are Eastern, Southern, Northern, Luapula, and North-Western provinces. Membership is estimated to be around 100,000 farmers out of a total of nearly

600,000. The cooperatives greatest constraint, as viewed by the Marketing and Cooperatives Division (MAWD), is the limited capabilities of the lower echelon personnel.

C. Fertilizer Marketing System

Annex G provides a preliminary assessment of the fertilizer marketing system in Zambia. Major conclusions and recommendations of the study are outlined below.

1. Organization

Fertilizer marketing functions are carried out in Zambia by different organizations. An organization that will be responsible for all marketing functions and profit and loss accountability needs to be developed for successful fertilizer marketing in Zambia.

The CIP team recommends that an in depth study be made of the fertilizer marketing system to determine constraints on fertilizer consumption, distribution, product suitability, promotion and pricing, and to determine an effective fertilizer marketing organization within the Zambian economic, cultural and political environments. The study will give special considerations to a marketing system that will aid the small farmer.

It was also found that the cooperatives carry out more marketing functions than NAMBoard and that operation procedures established by the government favor the cooperatives over NAMBoard for a successful fertilizer marketing organization.

2. Small Farmer Access

There are many areas where small farm holders (traditional) have to travel long distances to purchase fertilizer. There are means of making fertilizers available to these farmers. The CIP team recommends that the in depth study determine the areas not being served by the present distribution system, how far farmers are willing to travel for inputs, and a means of making fertilizers available to the small farmers.

3. Fertilizer Supply and Demand Analysis

Although sales data is available, actual fertilizer demand is not known at the present subsidized prices because there has not been an unlimited timely supply available to all farmers. The CIP team recommends that the in depth study include an analysis of fertilizer supply and demand by crops and by provinces. It is further recommended that the study include a five year demand projection by crops.

4. Sales Promotion Activities

Sales promotion activities, i.e. demonstrations, field days, advertising, etc., are presently the responsibility of the Extension Service. Very few activities are being carried out at the farmer level. A successful fertilizer marketing organization must have a means of promoting its products and services and must be responsible for the promotion program. The CIP team recommends that the in depth study analyse the promotion activities required and determine a plan whereby the marketing organization can be responsible for promoting its products and services.

5. Agronomic Research

Presently all agronomic research and field trials are carried out by the Research Division, Ministry of Agriculture and Water Development within the national research network. Research on fertilizers to identify the nutrients that must be applied on different soils for projected crop yields seems to be more than adequate and well ahead of most developing countries in Africa. Crop responses to N-P-K and S have been identified. Boron for cotton production on selected soils is necessary.

The present fertilizer distribution system is not involved in agronomic research and product development. A good fertilizer marketing organization should be involved in the agronomic research. The marketing organization should be involved in feeding back to the research organization site-specific fertilizer responses, conditions and problems so that solutions can be found. The marketing organization should be included in carrying out trials on customers' fields to verify recommendations from research findings. The CIP team therefore recommends that the in depth study include an analysis of the present agronomic research procedures and determine a plan for involving the marketing organization in the coordination, feedback of field problems, and field testing fertilizer products that are sold.

Fertilizer response curves have not been established for most crops. Crop responses have been established for medium levels of application but do not extend to points of diminishing returns. A plan for encouraging this research should be worked out with the national research system.

Crop response to applications of lime is significant at the lower soil ph levels, and at these levels the crop response lime can exceed the response to N-P-K. Although limestone deposits have been identified in all of the provinces, Zambia does not have a lime industry.

A plan for developing a lime quarry and distribution network for agricultural use could be a highly successful USAID agriculture project.

6. Data Needs

Accurate base data are not available for managing a successful fertilizer marketing organization. Data are needed for understanding the farmer and his markets, sales forecasting, efficiency of applications and to identify constraints. Information is available in the present system but not in a ready-to-use form. The CIP team recommends that the in depth study include an analysis of the documentation procedures and outline a system of reporting essential base data.

7. Personnel Development

Both NAMBoard and the cooperative unions have personnel development programs. NAMBoard's training program is not as documented or as well organized as the cooperatives and is carried out on a rather informal basis. It was found that training by both organizations took place more at the top of the management ladder than at the middle and lower levels. There was insufficient time to survey enough managers of primary cooperatives, rural depots and key distribution warehouses to determine the effectiveness of the training programs. The CIP team recommends that an analysis of the personnel development programs be made during the in depth study and that a plan made to develop employees to their highest level of productivity.

VI. Loan Implementation and Administration

A. Loan Implementation

1. Status of Existing Commodity Import Loans

The FY 1978 Commodity Import Loan Agreement (\$30,000,000) was signed on March 30, 1978. The first Letter of Commitment was issued in July, 1978. The major part of this loan was drawn down very rapidly. However, during implementation some residual funds became available from the fertilizer and stock feed transactions, and a problem also arose in procuring spare parts from General Motors. The GRZ therefore requested a one-year extension of the terminal disbursement date in order to utilize all of the funds. Accordingly, the terminal disbursement date was extended to February 28, 1980. As of July 31, 1980, there was an unexpended balance in the loan of \$459,644,75. This is expected to be drawn down well within the period of the extension.

The FY 1979 Commodity Import Agreement (\$20,000,000) was signed on February 26, 1979. The GRZ's procurement plan for the loan was to use the entire amount for the purchase and shipment of fertilizer. The first Letter of Commitment was issued in June of 1979. Within three months thereafter, the entire fertilizer procurement of approximately 70,000 metric tons was en route to Zambia. After the fertilizer procurement contracts were finalized, there was a balance of approximately \$488,000 in the loan. Now that all shipments of fertilizer have been completed and payments made, there is a residual balance of \$581,842 as of July 31, 1980. Of this amount, approximately \$220,000 is being used to import agricultural equipment and spare parts. The GRZ has requested that the uncommitted balance of \$361,842 be used to supplement the purchase of fertilizer raw materials under the loan 611-K-005.

The FY 1980 Commodity Import Agreement (\$17,000,000) was signed on February 15, 1980. The GRZ's procurement plan was again to use the entire loan for the procurement of fertilizer and the related delivery services. The first Letter of Commitment was issued on June 30, 1980. By July 14, 1980,

Letters of Commitment had been issued for \$16,999,746.11 to cover the fertilizer and freight. By August 15, 1980, the entire fertilizer procurement of 53,744 metric tons had been shipped from the U.S., destined for the ports of East London in South Africa and Beira in Mozambique.

On August 29, 1980, an amendment to the FY 1980 loan was signed for \$3,000,000. The GRZ plans to use these funds, along with the available residuals from the FY 1978 and FY 1979 loans to purchase raw materials for manufacturing compound fertilizers at the Nitrogen Chemical plant. Since these materials are required at the plant by late February of 1981, it is expected that the entire \$3,000,000 will be disbursed by January of 1981.

2. Commodity and Source Eligibility

The GRZ has requested that raw materials for the manufacture of compound fertilizers by Nitrogen Chemicals of Zambia, Ltd. (NCZ) be financed under the loan. NCZ is a \$360,000,000 installation now completing an expansion which will enable it to manufacture compound fertilizers. (See Annex E for details). Any residual amount of funds available after the materials are purchased will be used to procure agricultural equipment and spare parts. Commodity eligibility for these and any other items requested will be restricted to those that are supportive of the agriculture sector.

The authorized source and origin of commodities and related services to be financed under the loan will be A.I.D. Geographic Code 000 (U.S. only), with the exception of a waiver to Code 899 for ocean transportation services. The waiver request and justification are included as Annex J.

3. Implementation Schedule

The following is the proposed implementation schedule for the loan:

| | |
|--|---------------------|
| a) Loan authorization | late November, 1980 |
| b) Loan signing | late November, 1980 |
| c) Disbursement of 100% FOC fertilizer raw materials | late November, 1980 |

| | |
|---|----------------------|
| d. CP's met | Early December, 1980 |
| e. Contracts awarded for fertilizer raw materials | December, 1980 |
| f. First L/Com opened | January, 1981 |
| g. First Commodity Shipment | January, 1980 |
| h. First Disbursement | January, 1980 |
| i. Final Disbursement | February, 1982 |

The above schedule appears realistic in view of the GRZ's plan for using the loan for fertilizer raw materials, and the timing of the requirement for the materials. Commissioning of NCZ's new expansion is scheduled to commence in late 1980, with the requirement for the initial supply of raw materials to be on site by mid to late February of 1981. This initial supply is being financed under the \$3 million addition to the FY 80 loan. Since the plant is scheduled to go into full commercial production in June of 1981, the raw materials to be financed under this loan have to be purchased at an early enough date to meet this schedule. In this respect, it is essential that the loan be authorized as soon as feasible in FY 1981.

If it is assumed that the loan will be authorized in November, it is anticipated that it may be possible to purchase and ship the materials before the arrival of the "window period" of February through May, when A.I.D. normally does not allow the purchase or shipment of fertilizer under A.I.D. financed programs. If the authorization of the loan takes place at a later date, it will be necessary to consider procurement and shipment of the materials during the window period.

4. Commodity Arrival and Utilization

In view of the plans by the GRZ to allocate the total proceeds of the loan to NCZ, it is expected that the commodities will be expeditiously cleared from the ocean port of discharge by a commercial freight clearing and forwarding firm and transported to Zambia as quickly as possible. In order to assure the timely clearing and forwarding of the commodities, a request is being made that a portion

of the loan funds be made available for this purpose is included as Annex J. The waiver was requested by the GRZ due to the scarcity of foreign exchange and delays in opening letters of credit for the freight forwarders. This resulted in delays in the clearance and forwarding of goods. Since all the funds are being allocated to one entity, the process of monitoring arrival and utilization will be simplified.

5. Inland Transportation of Commodities

As a landlocked country, the GRZ has been confronted with recurrent transportation bottlenecks in the movement of goods to and from neighbouring ocean ports. A long series of major bottlenecks began in 1973 with the closure of the then Rhodesia border. In 1975 it lost the Benguela Railway route to the port of Lobito due to internal political problems in Angola. This combination of events placed an extremely heavy burden on the road route through Tanzania to the port of Dar es Salaam. While the amount of cargo moving through the port of Mombasa in Kenya was not great, the closure of the border between Tanzania and Kenya by Tanzania in 1977 cut off this route.

In the meantime, the TAZARA Railway, which is jointly owned and operated by Tanzania and Zambia, commenced services from the port of Dar es Salaam on a limited basis in 1976, and moved to full operation in 1977. However, by mid-1978 this new route was beset with extensive operational problems, partially resulting from the departure of the Chinese technicians who had built and initiated the operation of the railroad. At approximately the same time, the port of Dar es Salaam had become heavily congested. As the situation worsened, fertilizer shipments in excess of 100,000 tons were routed to the ports of Beira and Beira in Mozambique. This action resulted in these ports quickly becoming congested, causing the shipments to be diverted further down the coast to the ports of Maputo in Mozambique and East London in South Africa. This meant shipping the cargo by rail through South Africa and into Mozambique, where it

was picked up by truck and hauled to Zambia via the ferry crossing on the Zambezi River at Kasungula. This was a very slow and difficult route. In the face of failure to provide needed fertilizer to farmers for the fall planting season, in October of 1978, arrangements were concluded for shipments by South African Railways through Rhodesia.

With the peace settlement and independence of Zimbabwe this year, the old and most favored rail route from Beira through Zimbabwe is again operational. However, the route is being operated at considerably less than full capacity due to a multitude of problems, ranging from inadequate handling equipment at the port to a shortage of locomotives and rail wagons. There is only one train per day being dispatched from Beira to Zimbabwe. The distance from Beira to Umtali, which is just across the Mozambique border in Zimbabwe, is approximately 150 miles. It currently takes the train approximately 3 days to cover this stretch of track. The Zambian cargo is transported as far as Wankie in Zimbabwe, where it is then off-loaded and moved the last leg of the trip by truck. The reason the wagons do not go all the way to Zambia is that they are being used for back-hauling coal from Wankie to Beira.

The East London route is still being used and is currently heavily congested with emergency maize imports. Of the 53,744 tons of fertilizer being imported under the FY 1980 Commodity Import Program Loan, approximately 40,570 tons are being shipped through East London and the remaining 13,174 tons through Beira. The South African Railways is allocating 105 rail wagons per working week to move fertilizer from East London to Zambia. On the basis of this schedule, it will take approximately 10 weeks to move the fertilizer from East London to Zambia.

With respect to the transport of commodities to be financed under this loan, it is expected that there will be less difficulties than in past years. During August of this year, tripartite talks were held in Lusaka between Tanzania, Zambia and the People's Republic of China which resulted in an

agreement for the Chinese to return technicians to assist in the operation of the TAZARA Railway. Additionally, in early September the Government of Zambia received 60 units of a total order of 100 Mack trucks being financed through an arrangement with the Eximbank. The balance is expected to arrive within the next two months.

B. Loan Administration

1. Administrative Responsibility

The administrative responsibility for the loan will rest with the Ministry of Finance. This responsibility will include the preparation of all reports, assurance of compliance with all A.I.D. requirements and the issuance of Financing Requests to A.I.D.

Primary responsibility for managing A.I.D.'s implementation functions under the loan will be shared jointly by REDSO/EA in Nairobi, Kenya and the A.I.D. Representative assigned to Zambia. If necessary, AID/W will provide TDY support and will assist the Zambian Embassy to undertake any formal procurements for which bids are to be received in Washington.

2. AID Procurement Procedures

A.I.D.'s standard Commodity Financing Procedures, as set forth in A.I.D. Regulation 1, will be followed for this loan. All procurement by the public sector will be conducted under formal competitive bid procedures, except in certain cases where negotiated procurement would be more appropriate and justifiable. For purposes of loan implementation, any parastatal organization which is more than 50% owned by the GRZ will be considered a public sector entity. Procurement by the private sector will be carried out in accordance with the negotiated procurement procedures as set forth in Section 201.23 of A.I.D. Regulation 1.

C. GRZ Import Procedures

Under normal GRZ import procedures, an importer first applies for a foreign exchange allocation through the International Technical Committee. After this application is approved, the importer applies

for an import license from the Ministry of Commerce. At present, the issuance of import licenses are subject to strict control and are issued quarterly on the basis of quotas set by a ministerial committee in consultation with the Bank of Zambia and the Ministry of Finance. After the license is approved, the importer must get a letter of credit, which at this time could take several months due to the arrearages problem discussed in Section III. After issuance of the letter of credit, the commodities are shipped, and payment is made.

In the case of imports tied to foreign loans such as this one, a separate more expeditious process is used. When the importer applies for a license (in this case, NCZ), a ministerial committee will immediately allocate and approve a license for the previously agreed upon end use. This will insure the immediate opening of a letter of credit against AID-issued letters of commitment. Thus, under this procedure, it is anticipated that importers will save a substantial amount of time in getting orders placed and letters of credit opened.

4. Loan Disbursement

As can be seen from the above status of existing loans, the GRZ has established a very acceptable record in drawing down the funds. The proceeds of this loan are expected to be disbursed within an 18-month period after the time the loan agreement is executed. Therefore, the terminal disbursement date will be set 18 months from the loan agreement date. The terminal date for requesting disbursing authorizations will be set at 12 months from the loan agreement date.

5. Method of Disbursement

It is expected that all disbursements under the loan will be through direct A.I.D. letters of commitment to suppliers.

VII. Conditions Precedent

The PAFB includes one condition precedent to be fulfilled by the Government of Zambia prior to the loan agreement being signed. This condition is that the Government of Zambia must be satisfied that all papers of the PAFB have been submitted to the relevant authorities and that the Government of Zambia has agreed to all the terms and conditions of the loan agreement.

satisfactory to AID. This provision will allow maximum time and flexibility for AID/Zambia and the GRZ to successfully negotiate the measures.

VIII Other Considerations

A. Impact on U.S. Balance of Payments

The short-run impact of the loan on the U.S. balance of payments position will be minimal. In the long-run, U.S. exporters may be able to establish market positions in Zambia, but the transportation cost disadvantage of buying from the U.S. (as opposed to traditional European suppliers) could militate against any lasting inroads.

B. Use of U.S. Government Excess Property

AID will review the possibilities of the financing of excess property under the loan. However, it is unlikely such property will be appropriate given the nature of the commodities to be purchased.

C. Relation to U.S. Export-Import Bank Credit

The U.S. Export-Import Bank's exposure as of May 30, 1980 was estimated at U.S. \$ 96.4 million as follows:

| | |
|-------------|------------|
| Short-term | U.S.\$ 8.0 |
| Medium-term | 12.0 |
| Long-term | 76.4 |
| | <hr/> |
| | U.S.\$96.4 |
| | <hr/> |

Most of this exposure is to the two major copper companies, both whose credits are guaranteed by the Government.

Eximbank has avoided taking on any additional exposure in transactions which would be subject to the trade arrears delay, but has been willing to consider new supplier credits if the government guarantee is available. In some cases, however, unguaranteed credits may be approved if they are for profitable, foreign exchange generating uses for which commercial term credit service can be justified.

Eximbank has concentrated its direct credit/financing operations mostly in Zambia on projects that use foreign exchange and that are profitable and self-liquidating. During this year Zambia always applied for \$100 million in credits to purchase some machinery

747-200 B Combi aircraft and related equipment. This application was denied approval because it did not meet this criterion.

Given the nature of Eximbank's activities in Zambia, it can be concluded that this proposed loan does not present any conflict in interest to current or planned Eximbank exposure.

IX. Recommendations

It is recommended that AID authorize a U.S. \$15 million loan to the Government of the Republic of Zambia subject to the following terms:

(a) Repayment to A.I.D. in U.S. dollars within forty (40) years after the first disbursement, including a grace period not to exceed ten (10) years.

(b) Interest payable to A.I.D. in U.S. dollars at two percent (2%) during the grace period and three percent (3%) thereafter.

(c) Commodities and related services financed under the loan shall have their source and origin in the U.S. (A.I.D.) Geographic Code 000), except for charges related to ocean transportation for which a source waiver to Code 899 is included as Annex J.

(d) Such other terms and conditions as A.I.D. may deem advisable.

It is not anticipated that the GRZ will have difficulty repaying the proposed loan. Prospects are good that a GRZ-IMF Extended Finance Facility will be arranged during early 1981. This should help tighten the relaxation in foreign exchange control experienced over the past few months and continue the favorable balance of payments trend begun in 1979. Assuming prudent foreign exchange management and continuing improvement in world copper prices, the current level of arrearages could be eliminated in two to three years and Zambia's credit worthiness would be strengthened accordingly. Moreover, given the ten-year grace period on principal payments and the concessionary terms of the loan, repayments should not place an excessive strain on the GRZ either during the grace period or thereafter. The grant element of the loan is about 75%.

ANNEX A

| | |
|----------|--|
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TABLE 2

G.D.P. by Economic Activity at Market Prices and Values

| | 1974 | | 1975 | | 1976 | | 1977 | | 1978 | | 1979 | |
|--|---------------|-------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|
| | Kmn | % | Kmn | % | Kmn | % | Kmn | % | Kmn | % | Kmn | % |
| Primary Sector: | 815.1 | 42.6 | 421.6 | 26.3 | 615.1 | 31.3 | 555.2 | 27.1 | 644.6 | 28.3 | 838.5 | 32.4 |
| Agriculture, livestock, fishing and forestry | 199.4 | 10.4 | 206.4 | 12.9 | 273.3 | 13.9 | 321.5 | 15.7 | 357.8 | 15.7 | 375.0 | 14.5 |
| Mining | 615.7 | 32.2 | 215.2 | 13.4 | 341.8 | 17.4 | 233.7 | 11.4 | 286.8 | 12.6 | 463.5 | 17.9 |
| Secondary Sector: | 406.7 | 21.3 | 444.5 | 27.7 | 508.3 | 25.9 | 549.9 | 26.9 | 584.0 | 25.6 | 587.8 | 22.7 |
| Manufacturing | 238.5 | 12.5 | 250.3 | 15.6 | 275.6 | 14.0 | 314.0 | 15.4 | 383.9 | 16.8 | 411.5 | 15.9 |
| Construction | 127.0 | 6.6 | 158.2 | 9.4 | 184.9 | 9.4 | 185.4 | 9.0 | 151.6 | 6.6 | 124.2 | 4.8 |
| Electricity and water | 41.2 | 2.2 | 43.0 | 2.7 | 47.8 | 2.5 | 50.5 | 2.5 | 48.5 | 2.1 | 52.1 | 2.0 |
| Tertiary Sector: | 636.4 | 33.3 | 874.3 | 42.1 | 793.7 | 40.5 | 895.0 | 43.7 | 1003.6 | 44.0 | 1106.4 | 42.7 |
| Trade, hotels and restaurants | 190.0 | 9.9 | 157.5 | 9.8 | 184.4 | 9.4 | 212.0 | 10.3 | 254.6 | 11.2 | 690.4 | 11.2 |
| Transport and Communications | 76.3 | 4.0 | 88.5 | 5.5 | 118.5 | 6.0 | 135.5 | 6.6 | 144.0 | 6.3 | 160.3 | 6.2 |
| Financial institution, Real Estate and business services | 135.1 | 7.1 | 159.8 | 10.0 | 181.5 | 9.3 | 202.0 | 9.9 | 223.0 | 9.8 | 242.8 | 9.4 |
| Community, Social and personal services | 235.0 | 12.3 | 268.5 | 16.8 | 309.3 | 15.8 | 345.5 | 16.9 | 382.0 | 16.7 | 412.9 | 15.9 |
| Customs duties on final demand | 55.4 | 2.9 | 62.0 | 3.9 | 45.4 | 2.3 | 46.0 | 2.3 | 50.0 | 2.2 | 59.0 | 2.3 |
| Sub-Total | 1913.6 | 100 | 1602.4 | 100.0 | 1962.5 | 100.0 | 2046.1 | 100.0 | 2282.2 | 100.0 | 2591.7 | 100.0 |
| Correction for imputed Bank charges | 21.0 | | 19.0 | | 22.0 | | 22.5 | | 23.5 | | 25.4 | |
| TOTAL | 1892.6 | | 1583.4 | | 1940.5 | | 2023.6 | | 2258.7 | | 2566.3 | |

Source: Central Statistical Office and Bank of Zambia

TABLE 3

G.D.P. by Economic Activity at Constant 1971 Price and Values

| | 1974 | | 1975 | | 1976 | | 1977 | | 1978 | | 1979 | |
|--|----------------|-------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------|-------------|
|  | Kmn | % | Kmn | % | Kmn | % | Kmn | % | Kmn | % | Kmn | % |
| I Primary Sector: | 824.8 | 42.0 | 584.9 | 40.3 | 670.1 | 42.6 | 637.9 | 42.5 | 673.8 | 44.8 | 558.5 | 40.8 |
| of which: Agriculture, livestock, fishing and forestry | 150.5 | 10.1 | 157.0 | 10.8 | 166.9 | 10.6 | 168.2 | 11.2 | 169.0 | 11.2 | 153.4 | 11.2 |
| Mining | 474.3 | 31.9 | 427.9 | 29.5 | 503.2 | 32.0 | 469.7 | 31.3 | 504.8 | 33.6 | 405.1 | 29.6 |
| II Secondary Sector: | 339.4 | 22.8 | 345.0 | 23.8 | 362.1 | 23.1 | 353.5 | 23.6 | 328.4 | 21.8 | 309.8 | 22.6 |
| of which: Manufacturing | 178.9 | 12.0 | 157.6 | 10.9 | 151.9 | 9.7 | 141.4 | 9.4 | 150.7 | 10.0 | 151.9 | 11.1 |
| Construction | 114.4 | 7.7 | 138.5 | 9.5 | 157.6 | 10.0 | 154.3 | 10.3 | 119.4 | 7.9 | 96.0 | 7.0 |
| Electricity and water | 46.0 | 3.1 | 48.9 | 3.4 | 52.6 | 3.4 | 57.8 | 3.9 | 58.3 | 3.9 | 61.9 | 4.5 |
| III Tertiary Sector: | 494.6 | 33.3 | 494.9 | 34.1 | 519.0 | 33.0 | 482.4 | 32.8 | 491.0 | 32.8 | 489.8 | 35.8 |
| of which: Trade, hotels and restaurants | 147.9 | 10.0 | 123.8 | 8.5 | 127.2 | 8.1 | 114.5 | 7.6 | 114.9 | 7.6 | 113.8 | 8.3 |
| Transport and Communications | 54.6 | 3.7 | 57.6 | 4.0 | 67.0 | 4.3 | 62.0 | 4.1 | 63.2 | 4.2 | 66.0 | 4.8 |
| Financial institutions, real estate and business services | 119.5 | 8.0 | 132.9 | 9.2 | 136.4 | 8.7 | 125.9 | 8.4 | 121.9 | 8.1 | 121.5 | 8.9 |
| Community, social and personal services | 172.6 | 11.6 | 180.6 | 12.4 | 188.4 | 11.9 | 190.0 | 12.7 | 191.0 | 12.7 | 188.6 | 13.8 |
| IV Customs duties on final demand | 28.8 | 1.9 | 26.9 | 1.9 | 20.1 | 1.3 | 16.0 | 1.1 | 12.0 | 0.8 | 11.5 | 0.8 |
| Sub-Total: | 1,487.6 | 100 | 1,451.7 | 100 | 1,571.3 | 100 | 1,499.8 | 100 | 1,505.2 | 100 | 1,369.7 | 100 |
| Correction for imputed bank charges | 13.7 | | 13.6 | | 13.1 | | 11.0 | | 8.8 | | 8.2 | |
| Total | 1,473.9 | | 1,438.1 | | 1,558.2 | | 1,488.8 | | 1,496.4 | | 1,361.5 | |

Source: Central Statistical Office and Bank of Zambia

TABLE 4
SUMMARY BALANCE OF PAYMENTS, 1965-1976
(millions of Kwacha)

| | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 ^{1/} | 1975 ^{4/} | 1976 ^{4/} |
|--|--------------|--------------|--------------|--------------|---------------|--------------|---------------|---------------|--------------|--------------------|---------------------|---------------------|
| Exports of goods (f.o.b.) | 366.8 | 446.0 | 465.2 | 534.0 | 852.6 | 673.2 | 479.2 | 543.2 | 733.5 | 898.2 | 523.1 | 705.0 |
| Imports of goods (c.i.f.) | 241.9 | 294.0 | 373.6 | 422.0 | 373.3 | 408.0 | 468.5 | 485.7 | 433.3 | 636.2 | 734.6 | 597 |
| Trade balance ^{1/} | <u>124.9</u> | <u>152.0</u> | <u>91.6</u> | <u>112.0</u> | <u>479.3</u> | <u>265.2</u> | <u>10.7</u> | <u>57.5</u> | <u>300.2</u> | <u>262.0</u> | <u>-211.5</u> | <u>108.0</u> |
| Other Non-factor Services (net) | -14.3 | -31.7 | -32.7 | -37.9 | -42.5 | -50.3 | -35.8 | -36.1 | -48.7 | -70.1 | -57.0 | -48.0 |
| Factor Services (net) | -45.5 | -58.0 | -50.6 | -52.1 | -47.5 | -33.4 | -43.6 | -74.1 | -77.3 | -62.2 | -45.0 | -86.0 |
| Transfers (net) | - 3.5 | - 9.6 | 0.1 | -24.9 | -51.0 | -104.5 | -107.8 | -96.1 | -80.8 | -81.2 | -79.0 | -77.0 |
| Current Account Balance | <u>61.6</u> | <u>52.7</u> | <u>8.4</u> | <u>- 2.9</u> | <u>338.3</u> | <u>77.0</u> | <u>-176.5</u> | <u>-148.8</u> | <u>93.4</u> | <u>48.5</u> | <u>-392.5</u> | <u>-103.0</u> |
| Private Capital (net) ^{2/} | | | 14.3 | 19.3 | -166.1 | 44.5 | 11.5 | 63.6 | -180.1 | -25.9 | 278.1 ^{5/} | 125.6 ^{5/} |
| Public Capital (net) | | | 0.7 | 20.0 | 7.1 | -2.3 | 19.9 | 13.3 | 137.0 | 36.8 | 84.8 | 26.0 |
| Other Capital (net) ^{3/} | | | -26.4 | 5.7 | - 6.3 | - 4.4 | 25.8 | 15.7 | 1.3 | -9.2 | -3.7 | -7.2 |
| Capital Account (net) | | | <u>-11.4</u> | <u>45.0</u> | <u>-165.3</u> | <u>37.8</u> | <u>57.2</u> | <u>92.6</u> | <u>-41.8</u> | <u>1.7</u> | <u>359.2</u> | <u>144.4</u> |
| Errors and Omissions | | | -20.4 | -36.5 | -45.4 | - 1.0 | -76.1 | -51.4 | -63.0 | -40.8 | -118.3 | -79.1 |
| Change in Net Foreign Assets (- = Increase) | | | +23.4 | - 5.6 | -127.6 | -113.8 | +195.4 | +107.6 | +11.4 | - 9.4 | +151.6 | +39.7 |

Exports of goods, f.o.b. minus imports of goods, c.i.f.
Includes the parastatal sector.
Includes SDR allocations, gains and losses from currency alignments and miscellaneous monetary transactions.
Preliminary estimates by mission and official sources.
1975 estimate includes K102.1 million in accumulated arrears in payments for imports and private transfers. 1976 estimate includes the additional K103.6 million in arrears that had accumulated by December 31.
Source: IMF Balance of Payments Yearbook, C.S.O. Monthly Digest of Statistics, Zambian officials and Mission estimates.
(Table from IBRD Report No. 1586b-ZA, Zambia: A Basic Economic Report, Oct. 3, 1977).

TABLE 5

Zambia: Balance of Payments 1975-78

(In millions of SDRs) ^{1/}

| | 1975 | 1976 | 1977 | Prelim- inary 1978 |
|------------------------------------|---------------|---------------|---------------|--------------------------|
| Exports, f.o.b. | 659.7 | 901.5 | 767.6 | 687.5 |
| Imports, c.i.f. | <u>-942.4</u> | <u>-737.8</u> | <u>-711.2</u> | <u>-624.9</u> |
| Trade balance | -312.7 | 163.7 | 56.4 | 62.6 |
| Investment income | -96.0 | -132.2 | -113.7 | -102.8 |
| Other services | -81.9 | -50.2 | -57.8 | -62.3 |
| Private transfers | -106.5 | -103.6 | -82.7 | -84.8 |
| Government transfers | <u>4.3</u> | <u>9.2</u> | <u>12.6</u> | <u>19.5</u> |
| Total | -280.0 | -276.7 | -241.6 | -230.4 |
| Current account balance | -592.7 | -113.0 | -185.2 | -167.8 |
| Capital transactions | | | | |
| Government, net | 108.5 | 34.2 | 16.8 | 53.1 |
| Private long-term, net | 209.8 | 70.4 | -0.4 | -38.1 |
| Private short-term, net | 15.6 | -62.9 | 21.6 | -18.0 |
| Other ^{2/} | <u>-60.7</u> | <u>-94.1</u> | <u>-95.3</u> | <u>-36.2</u> |
| Total | 273.2 | -52.4 | -57.3 | -39.2 |
| Overall balance | -319.5 | -165.4 | -242.5 | -207.0 |
| Net foreign assets (increase -) | 193.7 | 48.3 | 74.7 | 105.0 |
| Payments arrears (decrease -) | 130.5 | 125.8 | 170.2 | 102.0 |
| Valuation adjustment | -4.7 | -8.7 | -2.5 | |

Source: C.S.O. and staff estimates.

^{1/} Conversion rates 1975: K = SDR 1.278; 1976 K = SDR 1.2143; 1977 K = SDR 1.0848; and 1978 K = SDR 1.0034.

^{2/} Including errors and omissions.

(Table from IMF Report SM/79/248: Zambia - Recent Economic Developments, Oct. 11, 1979.)

TABLE 6

Zambia: Balance of Payments, 1977-80

(In millions of SDRs)

| | 1977 | 1978 | 1979 | | 1980 Forecast |
|--|-------|-------|-------------------|---------------------|------------------|
| | | | Program <u>1/</u> | Prelim. estimate | |
| Merchandise | | | | | |
| Exports, f.a.o.b. | 768 | 662 | 887 | 1,091 | 1,200 |
| Imports, c.i.f. | -711 | -617 | -661 | -751 | -910 |
| Freight and insurance | (129) | (123) | (140) | (155) | (188) |
| Trade balance | 57 | 45 | 226 | 340 | 290 |
| Services and unrequited transfers | | | | | |
| Investment income | -114 | -109 | -145 | -120 | -137 |
| Other services (net) | -58 | -64 | -70 | -58 | -79 |
| Private transfers (net) | -83 | -85 | -75 | -86 | -86 |
| Government transfers (net) | 13 | 20 | 15 | 36 | 20 |
| Total | -242 | -238 | -275 | -228 | -282 |
| Current account balance | -185 | -193 | -49 | 112 | 8 |
| Nonmonetary capital transactions | | | | | |
| Government | 17 | 53 | 133 | 142 | 79 |
| Mining companies | -15 | -15 | -12 | 5 | -102 |
| Other <u>2/</u> | -60 | -52 | -87 | -101 | |
| Total | -58 | -14 | 34 | 46 | -23 |
| SDR allocations | -- | -- | 15 | 15 | 15 |
| Overall balance | -243 | -207 | -- | 173 | -- |
| Net foreign assets (increase -) | 73 | 105 | 73 | -28 | 150 |
| Payments arrears (decrease -) | 170 | 102 | -73 | -145 | -150 |

Sources: Central Statistical Office; Bank of Zambia; and staff estimates.

1/ As shown in EBS/79/194.2/ Including errors and omissions.(Table from IMF Report EBS/80/53: Zambia-Review and Consultation Under Stand-By Arrangement, March 12, 1980.)

TABLE 7

Zambia: Exports of Principal Commodities, 1974-78

(Values in millions of kwacha; volumes in thousands of tons; and unit value in kwacha per ton)

| | 1974 | 1975 | 1976 | 1977 | 1978 (Preliminary) |
|--------------|---------|---------|---------|---------|-----------------------|
| Copper | | | | | |
| Value | 838.5 | 472.0 | 688.6 | 645.9 | 598.5 |
| Volume | 673.0 | 641.0 | 746.0 | 666.6 | 599.5 |
| Unit value | 1,245.0 | 736.0 | 923.0 | 969.0 | 998.0 |
| Zinc | | | | | |
| Value | 25.2 | 20.3 | 26.6 | 17.9 | 17.6 |
| Volume | 50.2 | 41.3 | 51.2 | 34.9 | 35.5 |
| Unit value | 502.0 | 492.0 | 520.0 | 513.0 | 496.0 |
| Lead | | | | | |
| Value | 7.2 | 5.7 | 4.4 | 5.7 | 3.3 |
| Volume | 18.8 | 19.4 | 14.8 | 10.9 | 6.7 |
| Unit value | 383.0 | 294.0 | 297.0 | 523.0 | 493.0 |
| Cobalt | | | | | |
| Value | 7.9 | 7.1 | 15.9 | 15.3 | 36.7 |
| Volume | 1.9 | 1.3 | 2.3 | 1.6 | 1.8 |
| Unit value | 4,158.0 | 5,462.0 | 6,913.0 | 9,562.0 | 20,389.0 |
| Tobacco | | | | | |
| Value | 5.8 | 5.0 | 5.1 | 5.8 | 3.7 |
| Volume | 4.9 | 5.3 | 4.6 | 3.5 | ... |
| Unit value | 1,184.0 | 943.0 | 1,109.0 | 1,657.0 | ... |
| Other, value | 20.5 | 10.9 | 11.3 | 17.9 | 23.6 |
| Total, value | 905.1 | 521.0 | 751.9 | 708.5 | 683.4 |

Sources: Central Statistical Office, Monthly Digest of Statistics; and data provided by the Zambian authorities.

(Table IMF Report SM/79/248: Zambia - Recent Economic Developments, Oct. 11, 1979.)

TABLE 8

Imports by Commodity Groups 1973 — 1979
(K million)

| | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1978(a) | 1979(a) |
|--------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Food, beverages and tobacco | 25.3 | 44.9 | 36.7 | 26.6 | 29.6 | 32.2 | 22.6 | 29.2 |
| Crude materials | 5.4 | 10.4 | 9.9 | 7.2 | 8.8 | 9.0 | 6.4 | 7.4 |
| Electricity, minerals, oils and fats | 37.6 | 67.9 | 90.2 | 83.3 | 90.1 | 94.2 | 60.9 | 85.9 |
| Chemicals | 35.1 | 48.5 | 77.3 | 68.2 | 58.9 | 66.0 | 45.9 | 55.8 |
| Manufactures | 102.7 | 166.4 | 168.9 | 96.8 | 117.9 | 98.1 | 66.4 | 90.6 |
| Machinery and transport equipment | 138.9 | 165.8 | 211.3 | 166.9 | 205.1 | 175.7 | 129.4 | 157.3 |
| Other and unspecified | 1.8 | 2.8 | 3.3 | 19.8 | 19.6 | 18.9 | 14.7 | 16.6 |
| TOTAL | 346.9 | 506.7 | 597.6 | 468.8 | 530.0 | 494.1 | 346.3 | 442.8 |

Source: Central Statistical Office
Notes: (a) First nine months.

TABLE 9
TRADE WITH SELECTED COUNTRIES
(K'000)

| | United Kingdom | | South Africa | | China | | USA | | Japan | | West Germany | | East African Countries | |
|-----------------|----------------|---------|---------------|---------|---------------|---------|---------------|---------|---------------|---------|---------------|---------|------------------------|---------|
| | Total Exports | Imports | Total Exports | Imports | Total Exports | Imports | Total Exports | Imports | Total Exports | Imports | Total Exports | Imports | Total Exports | Imports |
| 1970 | 160,074 | 80,559 | 8,682 | 59,097 | 34,067 | 2,168 | 1,442 | 32,902 | 166,459 | 21,909 | 84,151 | 16,478 | 1,708 | 13,981 |
| 1971 | 79,187 | 97,091 | 10,447 | 60,891 | 32,061 | 4,085 | 4,557 | 43,359 | 99,669 | 26,833 | 45,520 | 17,558 | 2,537 | 14,173 |
| 1972 | 107,650 | 94,867 | 10,804 | 59,308 | 12,635 | 9,829 | 2,288 | 35,008 | 110,608 | 38,843 | 45,520 | 21,539 | 1,984 | 9,718 |
| 1973 | 148,264 | 74,708 | 2,120 | 41,069 | 13,538 | 9,600 | 3,896 | 31,258 | 178,901 | 31,200 | 75,524 | 22,578 | 3,080 | 12,301 |
| 1974 | 195,793 | 99,435 | 3,413 | 38,716 | 21,900 | 21,311 | 5,289 | 39,652 | 176,345 | 48,571 | 114,736 | 40,949 | 10,480 | 15,468 |
| 1975 | 117,312 | 118,328 | 1,722 | 40,379 | 13,028 | 17,078 | 132 | 74,477 | 90,930 | 53,584 | 73,703 | 43,862 | 2,140 | 8,074 |
| 1976 | 103,728 | 112,341 | 1,806 | 34,999 | 19,041 | 8,959 | 116,371 | 50,728 | 125,873 | 22,065 | 106,021 | 33,602 | 7,206 | 10,984 |
| 1977 | 113,349 | 121,480 | 1,735 | 38,524 | 22,907 | 6,697 | 72,847 | 57,524 | 124,141 | 25,401 | 102,406 | 62,871 | 6,322 | 9,139 |
| 1978* | 98,797 | 122,506 | 800 | 32,411 | 20,625 | 6,286 | 70,111 | 38,692 | 132,021 | 21,906 | 77,285 | 54,697 | 5,019 | 8,251 |
| 1976 January | 7,090 | 9,978 | 91 | 1,980 | — | 1,268 | 3 | 5,296 | 4,194 | 3,783 | 3,826 | 4,569 | 125 | 815 |
| February ... | 6,545 | 8,907 | 121 | 4,678 | 1,514 | 965 | 16 | 2,989 | 5,918 | 2,104 | 13,199 | 2,018 | 413 | 721 |
| March | 5,874 | 11,781 | 163 | 2,076 | — | 1,697 | 36,319 | 3,953 | 7,603 | 2,641 | 4,176 | 2,265 | 351 | 843 |
| April | 5,354 | 9,560 | 205 | 3,770 | 5,116 | 1,194 | 23,090 | 6,410 | 8,145 | 2,305 | 6,740 | 1,756 | 504 | 495 |
| May | 8,420 | 8,210 | 135 | 1,708 | — | 657 | 10,867 | 2,733 | 4,903 | 1,662 | 3,588 | 2,309 | 816 | 709 |
| June | 5,884 | 9,352 | 133 | 2,197 | 3,875 | 719 | 9,060 | 3,202 | 12,179 | 1,323 | 10,416 | 1,481 | 276 | 571 |
| July | 7,102 | 7,588 | 141 | 2,105 | 2,070 | 594 | 7,424 | 7,991 | 9,369 | 1,114 | 4,498 | 2,311 | 512 | 1,356 |
| August | 11,861 | 9,474 | 1 | 2,912 | 2,242 | 352 | 3,182 | 2,334 | 26,914 | 1,091 | 5,153 | 2,794 | 300 | 1,293 |
| September ... | 10,712 | 8,723 | 103 | 6,515 | 2,214 | 470 | 1 | 3,696 | 14,389 | 1,486 | 18,813 | 4,000 | 2,697 | 986 |
| October | 12,154 | 11,498 | 349 | 2,784 | 1,065 | 273 | 15,625 | 3,046 | 11,848 | 871 | 10,339 | 2,291 | 339 | 752 |
| November ... | 9,476 | 8,088 | 170 | 1,766 | — | 358 | 1,991 | 5,944 | 9,344 | 2,007 | 11,077 | 5,151 | 527 | 1,408 |
| December ... | 13,256 | 9,180 | 195 | 2,508 | 946 | 412 | 8,792 | 3,134 | 11,068 | 1,677 | 14,196 | 2,657 | 346 | 1,033 |
| 1977 January | 10,006 | 8,975 | 55 | 3,715 | — | 266 | 862 | 5,287 | 16,655 | 2,122 | 12,464 | 4,668 | 297 | 846 |
| February | 9,036 | 8,912 | 47 | 3,397 | 2,074 | 212 | 545 | 3,991 | 14,559 | 1,571 | 8,067 | 9,269 | 43 | 1,173 |
| March | 7,631 | 7,953 | 234 | 4,673 | 2,159 | 761 | 4 | 3,062 | 9,737 | 667 | 14,082 | 12,921 | 174 | 410 |
| April | 15,569 | 8,985 | 148 | 2,886 | 4,303 | 530 | 3,779 | 3,632 | 8,112 | 1,464 | 7,777 | 5,926 | 394 | 321 |
| May | 7,855 | 12,446 | 117 | 2,971 | 7 | 566 | 6,191 | 4,437 | 15,389 | 3,134 | 6,053 | 5,125 | 729 | 883 |
| June | 10,173 | 8,885 | 245 | 3,278 | 3,904 | 914 | 9,958 | 8,036 | 9,317 | 3,667 | 7,197 | 2,415 | 347 | 444 |
| July | 10,121 | 11,013 | 143 | 3,176 | 929 | 147 | 14,582 | 5,325 | 9,785 | 2,815 | 12,192 | 3,133 | 517 | 634 |
| August | 11,349 | 12,393 | 10 | 3,381 | 3,895 | 1,041 | 5,032 | 4,621 | 8,348 | 2,022 | 9,468 | 3,084 | 620 | 977 |
| September ... | 3,861 | 10,523 | 91 | 3,141 | 881 | 892 | 3,302 | 3,001 | 9,448 | 2,183 | 5,519 | 3,705 | 1,989 | 1,048 |
| October | 7,211 | 11,102 | 159 | 2,082 | 1,752 | 615 | 13,055 | 4,914 | 6,940 | 1,254 | 4,875 | 4,562 | 326 | 929 |
| November ... | 11,566 | 10,765 | 262 | 2,514 | 2,122 | 259 | 8,301 | 6,935 | 6,878 | 1,826 | 7,973 | 5,164 | 352 | 545 |
| December ... | 8,970 | 9,628 | 224 | 3,312 | 887 | 410 | 7,235 | 4,258 | 8,972 | 2,534 | 6,739 | 2,899 | 584 | 928 |
| 1978* January | 7,165 | 14,043 | 100 | 2,879 | — | 618 | 6,343 | 5,490 | 3,316 | 2,051 | 4,357 | 3,652 | 547 | 995 |
| February | 7,168 | 9,575 | 31 | 2,805 | 2,265 | 874 | 11,157 | 1,499 | 12,475 | 2,015 | 4,676 | 3,259 | 124 | 778 |
| March | 8,327 | 9,129 | — | 2,269 | 1,546 | 477 | 1,528 | 4,464 | 5,259 | 1,579 | 5,292 | 3,098 | 573 | 499 |
| April | 6,089 | 10,342 | 206 | 1,500 | — | 484 | 11,439 | 1,657 | 2,658 | 1,096 | 11,843 | 3,152 | 545 | 665 |
| May | 5,038 | 10,744 | 5 | 2,456 | 3,235 | 1,196 | 16,236 | 2,751 | 3,437 | 2,036 | 5,271 | 2,795 | 249 | 368 |
| June | 16,577 | 10,326 | — | 2,845 | — | 247 | 7,644 | 1,501 | 22,399 | 949 | 5,331 | 2,769 | 568 | 797 |
| July | 7,993 | 7,676 | 14 | 1,427 | — | 460 | 879 | 2,021 | 11,001 | 1,087 | 6,391 | 3,435 | 641 | 714 |
| August | 14,180 | 11,912 | 5 | 4,054 | 8,635 | 391 | 598 | 3,794 | 14,286 | 3,563 | 7,755 | 9,546 | 380 | 427 |
| September ... | 5,627 | 10,695 | 8 | 2,248 | — | 483 | 3,379 | 2,244 | 15,296 | 2,152 | 10,409 | 4,095 | 628 | 1,186 |
| October | 8,813 | 9,111 | 2 | 3,408 | 3,877 | 650 | 3,572 | 4,720 | 6,640 | 2,156 | 12,417 | 3,317 | 138 | 601 |
| November ... | 5,247 | 10,408 | 53 | 2,544 | — | 188 | 4,101 | 4,692 | 17,462 | 1,176 | 4,159 | 4,900 | 514 | 680 |
| December ... | 6,575 | 8,544 | 88 | 3,980 | 1,058 | 189 | 3,227 | 3,861 | 17,791 | 2,030 | 1,386 | 9,880 | 73 | 542 |
| 1979* January | 4,349 | 10,613 | 922 | 3,703 | — | 13 | 3,723 | 1,813 | 13,715 | 1,268 | 8,446 | 3,991 | 514 | 1,718 |
| February | 17,169 | 11,643 | 853 | 3,357 | 1,286 | 184 | 2,486 | 6,772 | 23,778 | 1,389 | 1,378 | 3,192 | 267 | 382 |
| March | 21,924 | 11,311 | 276 | 4,970 | 4,388 | 134 | 7,224 | 5,752 | 26,297 | 1,583 | 10,709 | 3,897 | 962 | 1,113 |
| April | 8,066 | 9,572 | 12 | 3,224 | 6,679 | 298 | 3,193 | 1,884 | 9,073 | 2,351 | 10,659 | 3,786 | 165 | 665 |
| May | 9,344 | 13,979 | 15 | 4,342 | 1,655 | 54 | 11,713 | 3,096 | 11,867 | 3,417 | 7,725 | 2,857 | 678 | 477 |
| June | 17,767 | 11,135 | 64 | 3,844 | 824 | 1,137 | 11,023 | 2,479 | 29,580 | 1,221 | 9,432 | 3,230 | 64 | 823 |
| July | — | 19,165 | 37 | 9,023 | 280 | — | 9,586 | 5,312 | 15,936 | 6,022 | 7,345 | 4,607 | 886 | 579 |
| August | 16,712 | 14,704 | 451 | 8,051 | 10,728 | 58 | 14,756 | 4,929 | 13,003 | 1,190 | 5,287 | 3,610 | 522 | 1,294 |
| September ... | 14,234 | 12,542 | 449 | 9,897 | 2,518 | 72 | 15,361 | 3,197 | 9,334 | 1,403 | 10,691 | 3,280 | 450 | 925 |

*Preliminary

SOURCE: Central Statistical Office

TABLE 10

Zambia: External Public and Publicly Guaranteed Debt, 1/ 1973-77

(In millions of U.S. dollars)

| | 1973 | 1974 | 1975 | 1976 | 1977 |
|--|------------------------|--------------|-------------|--------------|--------------|
| Debt disbursed and outstanding <u>2/</u> | 655.2 | 762.2 | 1,098.8 | 1,251.1 | 1,392.0 |
| By type of debtor | | | | | |
| Government | 454.7 | 531.3 | 636.4 | 683.2 | 719.0 |
| Mining companies | 69.6 | 74.6 | 232.5 | 285.5 | 276.7 |
| Others | 130.9 | 156.3 | 229.9 | 282.4 | 396.3 |
| By type of creditors | | | | | |
| International organizations | 93.1 | 137.6 | 195.8 | 265.9 | 310.0 |
| Foreign governments | 189.1 | 294.0 | 374.2 | 445.2 | 480.9 |
| Financial institutions | 268.9 | 240.6 | 402.2 | 407.4 | 373.9 |
| Suppliers' credit | 69.6 | 63.8 | 104.0 | 113.7 | 205.9 |
| Others <u>3/</u> | 34.5 | 26.2 | 22.6 | 18.9 | 21.3 |
| Total debt service | <u>362.5</u> <u>4/</u> | <u>105.6</u> | <u>88.4</u> | <u>112.7</u> | <u>180.7</u> |
| Amortization | <u>274.7</u> | <u>61.9</u> | <u>45.0</u> | <u>55.5</u> | <u>120.3</u> |
| Interest | 87.8 | 43.7 | 43.4 | 57.2 | 60.4 |
| of which obligations due to: | | | | | |
| Financial institutions | 27.0 | 60.8 | 41.9 | 62.1 | 114.9 |
| International organizations | 9.6 | 13.3 | 15.6 | 18.9 | 25.8 |
| Foreign governments | 6.1 | 6.5 | 10.5 | 16.0 | 20.2 |
| Suppliers' credit | 12.6 | 14.4 | 19.1 | 14.6 | 18.4 |
| Memorandum items: | | | | | |
| Outstanding debt/GDP | 26.8 | 26.2 | 45.0 | 46.2 | 54.6 |
| Total debt service/exports <u>5/</u> | 14.3 | 7.6 | 11.0 | 10.8 | 20.2 |

Source: International Bank for Reconstruction and Development.

1/ Debt with original maturity of one year and over.2/ End of period.3/ Mainly bonds sold in the United Kingdom.4/ Of which US\$200.5 million are due to payments of obligations rising from the nationalization of the mining companies in 1969.5/ Excluding payments related to nationalization.

TABLE 11

Zambia: Central Government Finance, 1972-79

(In millions of kwacha)

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 <u>1/</u> | 197 <u>Budg</u> |
|-----------------------------------|--------------|----------------|--------------|--------------|--------------|--------------|----------------|-----------------|
| Revenue | 298.9 | 386.9 | 651.0 | 462.3 | 462.0 | 510.7 | 582.9 | 574.0 |
| Taxes on mining | (55.7) | (110.6) | (339.2) | (59.3) | (11.6) | (0.1) | (--) | (9.0) |
| Other | (243.2) | (276.3) | (311.8) | (403.0) | (449.2) | (510.6) | (582.9) | (564.0) |
| Total expenditure and net lending | 476.9 | 516.2 | 566.6 | 776.2 | 731.9 | 770.1 | 779.2 | 771.0 |
| Current expenditures | 330.6 | 373.3 | 404.3 | 531.8 | 562.4 | 593.6 | 580.1 | 57.7 |
| Capital expenditures | 103.2 | 97.7 | 112.8 | 143.6 | 122.8 | 92.3 | 91.7 | 75.6 |
| Net lending | 43.1 | 45.2 <u>2/</u> | 49.5 | 100.8 | 46.7 | 84.2 | 107.4 | 37.7 |
| Current surplus or deficit (-) | -31.7 | 13.6 | 246.7 | -69.5 | -100.4 | -82.9 | 2.8 | -83.7 |
| Overall surplus or deficit (-) | -178.0 | -129.3 | 84.4 | -313.9 | -269.9 | -259.4 | -196.3 | -197.0 |
| Financing | <u>178.0</u> | <u>129.3</u> | <u>-84.4</u> | <u>313.9</u> | <u>269.9</u> | <u>259.4</u> | <u>196.3</u> | <u>197.0</u> |
| Net foreign borrowing | 15.4 | 41.7 <u>3/</u> | 37.1 | 84.8 | 30.1 | 19.0 | 52.4 | 102.3 |
| Net domestic borrowing | 126.6 | 87.6 | -121.5 | 229.1 | 239.8 | 240.4 | 139.8 | 94.7 |
| Of which: | | | | | | | | |
| banking system | (116.2) | (61.7) | (-127.0) | (239.7) | (237.2) | (219.8) | (93.0) | (71.7) |
| nonbank | (4.8) | (25.7) | (40.2) | (17.7) | (2.6) | (20.6) | (14.9) | (23.0) |
| others | (41.6) | (0.2) | (-34.7) | (-28.3) | (--) | (--) | (36.0) | (--) |

Sources: Ministry of Finance, Financial Reports (Annual), 1972-77; Estimates of Revenue and Expenditure, 1978; and data provided by the Zambian authorities.

1/ Preliminary estimate.

2/ Excludes ZIMCO bond redemption of K 149.8 million.

3/ Excludes Eurodollar loans of K 97 million used for ZIMCO bond redemption.

(Table from IBRD Report No. 1586b-ZA, Zambia: A Basic Economic Report, Oct. 3, 1977).

TABLE 12

Zambia: Fiscal Situation, 1978-80

(In millions of kwacha)

| | 1978 | 1979 | | 1980 |
|---|--------------|-------------------------------|---------------------|--------------|
| | | Program forecast <u>1/</u> | Present estimate | Budget |
| Revenue | | | | |
| Mining taxes | -- | 9.1 | -0.8 | 41.0 |
| Income tax | 217.7 | 216.0 | 229.8 | 237.5 |
| Taxes on domestic goods and services | 210.5 | 216.6 | 238.9 | 271.5 |
| Excise duties | (178.4) | (190.6) | (204.8) | (235.4) |
| Sales tax | (32.1) | (26.0) | (34.1) | (35.8) |
| Taxes on international trade | 50.7 | 48.0 | 67.5 | 73.4 |
| Other revenue | 104.0 | 84.3 | 104.4 | 114.5 |
| Total | <u>582.9</u> | <u>574.0</u> | <u>639.8</u> | <u>737.9</u> |
| Expenditure | | | | |
| Recurrent expenditures | 580.1 | 660.5 | 718.4 | 752.8 |
| Of which: | | | | |
| subsidies | (42.1) | (30.4) | (94.3) | (90.6) |
| interest payments | (78.4) | (117.1) | (101.4) | (133.1) |
| Capital expenditure | 91.7 | 75.6 | 87.7 | 109.3 |
| Net lending | 107.4 | 24.4 | 64.8 | 61.5 |
| Total | <u>779.2</u> | <u>760.5</u> | <u>870.9</u> | <u>923.6</u> |
| Deficit | <u>196.3</u> | <u>186.5</u> | <u>231.1</u> | <u>185.7</u> |
| Financing | | | | |
| External | 52.4 | 133.5 | 141.9 | 95.3 |
| Inflow | (92.1) | (180.6) | (179.9) | (144.6) |
| Outflow | (39.7) | (47.1) | (38.0) | (49.3) |
| Internal nonbank | 14.9 | 23.0 | 14.9 | 53.3 |
| Inflow | (41.9) | (41.0) | (41.0) | (67.0) |
| Outflow | (27.0) | (18.0) | (26.1) | (13.7) |
| Bank financing | 93.0 | 50.0 | 60.0 | 60.0 |
| Other <u>2/</u> | 36.0 | -20.0 | 14.3 | -- |

Source: Data provided by the Zambian authorities.

1/ As shown in EBS/79/194.2/ * Residual.(Table from IMF Report EBS/80/53: Zambia-Review and Consultation Under Stand-By Arrangement, March 12, 1980.)

TABLE 13

Zambia: Monetary Survey, 1976-80

(In millions of kwacha; end of period)

| | 1976 | 1977 | 1978 | | | | 1979 | | | | 1980 1/ | |
|--------------------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | | | Mar. | June | Sept. | Dec. | Mar. | June | Sept. | Dec. | Feb. | Dec. |
| Net foreign assets | <u>-114.6</u> | <u>-183.5</u> | <u>-198.4</u> | <u>-239.2</u> | <u>-281.6</u> | <u>-311.6</u> | <u>-267.9</u> | <u>-250.8</u> | <u>-272.1</u> | <u>-283.1</u> | <u>-288.0</u> | <u>-433.0</u> |
| Domestic credit | <u>970.6</u> | <u>1,261.4</u> | <u>1,551.4</u> | <u>1,364.5</u> | <u>1,420.1</u> | <u>1,484.0</u> | <u>1,482.9</u> | <u>1,480.4</u> | <u>1,536.9</u> | <u>1,604.7</u> | <u>1,645.0</u> | <u>1,765.0</u> |
| Net claims on Government | 571.1 | 791.1 | 846.4 | 1,015.3 | 1,026.1 | 1,061.8 | 1,064.6 | 1,074.0 | 1,091.6 | 1,121.7 | 1,142.0 | ... |
| Bank of Zambia claims on | | | | | | | | | | | | |
| mining companies | 45.3 | 113.8 | 136.1 | 72.0 | 96.0 | 114.0 | 95.0 | 80.0 | 76.0 | 76.0 | 60.0 | ... |
| Others | 354.2 | 356.5 | 368.9 | 277.2 | 298.0 | 308.2 | 323.3 | 326.4 | 359.3 | 407.0 | 443.0 | ... |
| Assets = Liabilities | <u>856.0</u> | <u>1,077.9</u> | <u>1,153.0</u> | <u>1,125.3</u> | <u>1,138.5</u> | <u>1,172.4</u> | <u>1,215.0</u> | <u>1,229.6</u> | <u>1,264.8</u> | <u>1,321.6</u> | <u>1,357.0</u> | <u>1,332.0</u> |
| Money | <u>376.7</u> | <u>386.4</u> | <u>383.9</u> | <u>380.3</u> | <u>377.3</u> | <u>391.7</u> | <u>393.7</u> | <u>398.6</u> | <u>450.3</u> | <u>513.3</u> | | |
| Currency | 121.1 | 118.4 | 114.7 | 113.5 | 120.0 | 130.9 | 118.8 | 115.7 | 128.0 | 126.2 | | |
| Demand deposits | 255.6 | 268.0 | 269.2 | 266.8 | 257.3 | 260.8 | 274.9 | 282.9 | 322.3 | 387.1 | 873.0 | 992.0 |
| Quasi-money | <u>246.8</u> | <u>312.1</u> | <u>324.6</u> | <u>287.8</u> | <u>271.0</u> | <u>247.8</u> | <u>262.3</u> | <u>306.6</u> | <u>295.4</u> | <u>318.9</u> | | |
| Other items (net) | <u>232.5</u> | <u>379.4</u> | <u>444.5</u> | <u>457.2</u> | <u>490.2</u> | <u>532.9</u> | <u>559.0</u> | <u>524.4</u> | <u>519.1</u> | <u>489.4</u> | <u>484.0</u> | <u>340.0</u> |

Sources: Bank of Zambia, Quarterly Statistical Review; and data provided by the Zambian authorities.

1/ Projections based on policies included in the 1980 financial program.

(Table from IMF Report EBS/80/53: Zambia-Review and Consultation Under Stand-By Arrangement, March 12, 1980.)

TABLE 14
Zambia Performance Under Stand-By Arrangement in 1978 and 1979
and Quantitative Criteria for the 1980 Program

| | 1978 | | | 1979 | | | 1980 ^{1/} |
|--|------|-------|------|------|------|-------|--------------------|
| | June | Sept. | Dec. | Mar. | June | Sept. | Feb. |

(In millions of kwacha)

Net domestic assets of the banking system during the period ending:

| | | | | | | | | |
|---------|-------|-------|-------|-------|---------------------|---------------------|---------------------|-------|
| Ceiling | 1,375 | 1,435 | 1,490 | 1,559 | 1,607 ^{2/} | 1,632 ^{2/} | 1,690 ^{2/} | 1,690 |
| Actual | 1,355 | 1,420 | 1,484 | 1,483 | 1,514 ^{2/} | 1,581 ^{2/} | 1,650 ^{2/} | ... |

Net bank credit to the Government during the period ending:

| | | | | | | | | |
|---------|-------|-------|-------|-------|---------------------|---------------------|---------------------|-------|
| Ceiling | 1,023 | 1,043 | 1,068 | 1,102 | 1,117 ^{2/} | 1,157 ^{2/} | 1,202 ^{2/} | 1,187 |
| Actual | 1,015 | 1,025 | 1,062 | 1,055 | 1,108 ^{2/} | 1,137 ^{2/} | 1,167 ^{2/} | ... |

Bank of Zambia lending to the mining companies during the period ending:

| | | | | | | | | |
|---------|----|-----|-----|-----|-----|-----|-----|-----|
| Ceiling | 77 | 102 | 120 | 150 | 150 | 100 | 100 | 60 |
| Actual | 77 | 101 | 119 | 96 | 80 | 76 | 76 | ... |

(In millions of SDRs)

External payments arrears outstanding at the end of period:

| | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-------------------|
| Ceiling | 477 | 442 | 397 | 485 | 470 | 395 | 375 | 345 ^{3/} |
| Actual | 478 | 505 | 495 | 464 | 411 | 393 | 350 | ... |

New external borrowing directly undertaken or guaranteed by the Government in the maturity range:

1-15 years

| | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|
| Ceiling | ... | ... | 280 | ... | ... | ... | 300 | ... |
| Actual | ... | ... | 119 | ... | ... | ... | 93 | ... |

1-10 years

| | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|----|
| Ceiling | ... | ... | ... | ... | ... | ... | ... | 60 |
|---------|-----|-----|-----|-----|-----|-----|-----|----|

1-5 years

| | | | | | | | | |
|---------|-----|-----|----|-----|-----|-----|----|-----|
| Ceiling | ... | ... | 50 | ... | ... | ... | 70 | 20 |
| Actual | ... | ... | 14 | ... | ... | ... | 42 | ... |

^{1/} Proposed limits.

^{2/} The ceiling also includes any external borrowing on commercial loans for balance of payments purposes (K 45 million by the end of 1979). Therefore, changes in the ceilings and the reported credit aggregates differ from the changes in and amounts of bank credit shown in Table 5 and Appendix Table III below by the amount of disbursements under this loan.

^{3/} March 31, 1980.

(Table from IMF Report EBS/80/53: Zambia-Review and Consultation Under Stand-By Arrangement, March 12, 1980.)

TABLE 15

ZAMBIA

Major international assistance agreements - 1979

| <u>Donor/Lender</u> | <u>Type of assistance</u> | <u>Amount</u> (in millions of United States \$) |
|--|---|---|
| 1. United States of America | (a) fertilizer - grant | 20.0 |
| | (b) food - grant | 10. |
| | (c) food - loan | 12. |
| | (d) commodity - loan | 8. |
| 2. Iraq | (a) general loan - purpose to be agreed | 30.0 |
| | (b) grant - purpose to be agreed | 9.0 |
| 3. Japan | commodity loan | 26.2 |
| 4. European Economic Community | (a) cotton development project - grant | 2.2 |
| | (b) cotton development project - loan | 8.1 |
| | (c) site and service - loan | 3.2 |
| | (d) Batoka breeding ranch - loan | 2.4 |
| | (e) Npika urban water supply - loan | 2.7 |
| | (f) Agricultural multipurpose - loan | 2.9 |
| 5. Romania | commodity loan | 5.0 |
| 6. Netherlands | (a) commodity loan | 10.6 |
| | (b) commodity loan | 2.4 |
| 7. India | commodity loan | 12.3 |
| 8. International Development Association | (a) coffee production project - grant | 6.0 |
| | (b) technical assistance credit | 5.0 |
| 9. Sweden | grant - for development projects | 10.8 |
| 10. Agricultural Development Fund | water supply and sewage - loan | 10.2 |
| 11. Africa Development Bank | Maamba collieries - loan | 6.4 |
| 12. Federal Republic of Germany | (a) food aid - grant | 1.3 |
| | (b) commodity assistance - grant | 5.0 |
| 13. OPEC Special Fund | railway project - loan | 4.5 |
| 14. Canada | food aid - grant | 1.0 |
| 15. Norway | emergency food aid - grant | 1.9 |
| 16. Austria | emergency aid - grant | .2 |
| Total | | <u>232.6</u> |

SOURCE: UN/Zambia

1979 COMMODITY AID ZAMBIA

| <u>Source of Assistance</u> | <u>Mill</u> | <u>Description</u> |
|-----------------------------|-----------------------------|--|
| USA | 15,000 | GRANTS: Provision of spare parts for railway rolling stock and road graders in 1979. |
| FRG | 11,110,000 (1979-80) | LOAN: For purchase of locomotives for Zambia Railways. Interest 2% grace period 10 years, repayment 30 years. |
| FRG | 5,330,000 (1979-80) | LOANS: For procurement of general commodities: i.e. \$4,060,000 - Transport \$1,270,000 - various other sectors. Interest 2%, Grace period 10 years, repayment 30 years. |
| FRF | 50,000,000 (1979-81) | LOAN: For purchase of industrial, agricultural and transport equipment. Disbursement in 1979 = \$880,000. |
| INDIA | 1,250,000 | CREDIT: By Industrial Development Bank of India to the Govt. of Zambia to finance import of capital goods and machinery. |
| INDIA | 1,250,000 | CREDIT: By Govt. of India to the Govt. of Zambia to finance the import of capital goods and machinery. |
| INDIA | 15,000,000 | CREDIT: Commercial credit by private Indian agencies to Zambian parastatals and private firms to finance the import of trucks, buses, etc. |
| JAPAN | 30,000,000 | LOAN: For purchase of railway wagons, trucks and chemical fertilizers. Interest 4%, grace period 5 years, repayment 12 years. |
| NETHERLANDS | 17,000,000 | LOANS AND GRANTS: Import Support Programme: For purchase of essential imports for the production process and also fertilizers, chemicals, vaccines, tractors and tractors during 1979. |
| GERMANY | 1,040,000 (1977-onwards) | GRANTS: For purchase of commodity goods. In 1979 - \$1,040,000. |
| GERMANY | 1,041,176 | GRANTS: Import Support Programme: To Bank of Zambia (Fertilizers) and Equipment (spare parts). during 1979. |
| GERMANY | 7,244,111 | EMERGENCY AID (GRANTS): During 1979 - Telecommunications \$2,500,000; Zambia's Railway \$1,011,764; Fuel Imports \$1,176,000; Transport to Central Zambia \$1,176,470. |

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Source of Assistance

Description

UN Food Aid Grant, 1978 - To supply 13,000 tonnes of maize; funds generated from sale of the maize will be used to finance development programmes/projects.

CONCESSIONAL LOAN: Food Imports. Fully disbursed during 1979 for wheat, oil and rice imports. Agreement signed in 1979.

Total Commodity Aid - \$147,775,291

SOURCE: UN/ZAMBIA

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ANNEX B

MAIZE PRODUCTION, PRICING AND SUBSIDIZATION

I. Past Trends and Recent Developments

A. Production and Imports

From independence in 1965 to 1977, Zambia was self-sufficient in maize production. The only exception was in 1968 after three consecutive years of poor weather. Maize traded through official marketing channels peaked in 1976 at 749,971 MT but by 1979 it had declined by over 55 percent to 333,945 MT (See Table 1). Zambia began importing maize in 1978.

The dramatic decline in production is attributed to three factors. First, Zambia has had two consecutive years of poor weather since 1979. Second, maize producers' profit margins have declined because of a) Zambia's deteriorating terms of international trade making imported inputs more costly; b) the limited availability of foreign exchange to purchase agricultural machinery and spares; and c) the effects of the Rhodesia War. Finally, GRZ agricultural policies have not adequately compensated for these rising producer costs, and maize producers have shifted to other alternatives (i.e. livestock) which yield higher returns.

B. Producer Prices

Producer prices have been continually rising since 1968 with the largest producer price increases coming during the 1978-1981 period (see Table 2). These price increases were larger relative to all other crops, except soyabeans, during the 1975-1979 period. This reflects the GRZ's attempts to stimulate production through absolute and relative producer price increases. The GRZ instituted a uniform maize producer price policy in 1975 and this system remains in effect today.

C. Producer Subsidies

In addition to producer price increases, the GRZ attempts to stimulate maize production through the subsidization of agricultural inputs, primarily fertilizers (see Table 3). Since a majority of the fertilizer is used on maize, increases in the fertilizer subsidy is an added incentive for maize producers. The fertilizers most important to maize production are the NPK compounds 'R', 'X', and 'D', and the nitrogenous fertilizers (urea, etc.) Table 4 shows the fertilizer subsidies as a percent of the total costs to the GRZ. The adjustment of the fertilizer subsidy by the GRZ to affect production is not readily apparent because of the fluctuations in world market fertilizer prices and the GRZ's efforts to keep the overall fertilizer subsidy "manageable."

Despite the GRZ's increases in producer maize prices and adjustments in fertilizer subsidies, marketed production continued to decline. The major problem in stimulating maize production seems to be the GRZ's lack of knowledge or recognition of the extent of rising production costs. Thus, even though the producer price of maize was rising faster, relatively and absolutely,

than all other crops (except soya beans), the increases were not sufficient to increase production. As is usually the case, it is difficult to estimate how much of the production decline was due to poor weather versus inadequate agricultural policies.

D. Consumer Subsidies

Since independence the GRZ has followed a policy of minimizing consumer costs for food, particularly in the mining and urban sectors. As a result, Zambia's primary staple, roller meal (ground maize), is sold to consumers at a subsidized price. The consumer maize subsidy was the largest single GRZ subsidy in five out of seven years between 1972 and 1978 (see Table 3). This subsidy does not include the fertilizer subsidy of the maize producer price.

In an effort to maintain total subsidies at a manageable budgetary level, the GRZ increased the wholesale price of maize from K6.25 to K10.21 in August, 1979. A corresponding adjustment was made in the retail price of roller meal from K8.45 per 90 kg bag to K13.86, representing a 64 percent increase. The impact of this change on the maize subsidy for 1979 or 1980 is not yet available. However, the overall subsidy levels for 1979 and 1980 have increased to K94.3 million and K150.0 million, respectively. Informal GRZ discussions indicate that the largest increases are in the maize and fertilizer subsidies. Although the 1979 and 1980 subsidy levels increased significantly over earlier levels, these increases were unavoidable because of the higher than forecast international maize prices, fertilizer imports, and related transport costs.

In the last two years the GRZ has recognized the critical nature of its maize pricing and subsidization problems as is evidenced by the above increases in producer and consumer maize prices. Furthermore, the Government has initiated two major food production programs, LIMA and Operation Food Production (see page 41).

Now that the hostilities in Zimbabwe have subsided, Zambia can more fully concentrate its efforts on the forthcoming adjustment period. Any improvements in the agricultural sector will be slow because of the difficulties in reversing trends established during the war. The strained financial position of parastatals (which contribute well over 50 percent to GDP), GRZ budget deficits, and shortages of skilled human resources will continue to constrain agricultural development. However, given normal rainfall patterns during the next several years and more effective agricultural policies, Zambia should be able to reduce its maize imports and maize and fertilizer subsidy costs in the not too distant future.

II. FUTURE TRENDS

Over the next five years, Zambia's agricultural sector will be undergoing two significant structural adjustments as follows:

1) A shift from importing to domestically producing upwards of 80 percent of the nation's total fertilizer requirements (See Annex E).

2) A shift in responsibility for agricultural inputs distribution and maize collection from NAMBoard to provincial cooperative unions (See Annex G)

Both of these adjustments are projected to be completed by 1984. Therefore, the following analysis and projected trend of maize and fertilizer prices and subsidies extends to and includes 1984.

The primary concern for obtaining these estimates is to 1) estimate the orders of magnitude concerning the impact of these adjustments on the GRZ's level of future subsidy payments; and 2) identify areas in which beneficial agricultural policy adjustments can be made. In determining future estimated GRZ subsidies, the unit of analysis is the estimated subsidy per 90 kg bag of roller meal. This is ground maize ready for final sale to consumers.

A. FERTILIZER

The calculations of the fertilizer subsidies necessitated various assumptions concerning future sales, type and quantities of fertilizers domestically produced, fertilizer losses (i.e. spoilage, theft, etc.), and fertilizer prices. Appendix I to this Annex details the methodology used to obtain these estimates.

The fertilizer subsidy per 90 kg bag of roller meal is projected to increase from about K 2.50 per bag in 1980 to almost K6.00 per bag by 1984 (see Table 5). The percent of the subsidy to total costs is projected to rise from 57 percent to 76 percent over this period. This rise is due to the increased cost to the GRZ of domestically produced fertilizer and the assumption to let the fertilizer subsidy rise as opposed to the already large and politically sensitive maize subsidy.

B. DOMESTIC MAIZE

The projected rise in the maize subsidy from 1980 to 1984 is constant on a percentage basis, but increases absolutely (see Table 6). Adjustments for projected inflation rates account for almost all of the estimated increases.

C. IMPORTED MAIZE

The absolute or percentage levels of the subsidy for imported maize does not vary significantly between 1981 and 1984. Key to this factor is

moderately rising international maize prices which were based on earlier trends. Substantial changes can occur if, for example, the Republic of South Africa (RSA) unexpectedly increases its maize prices to Zambia as recently occurred.

D. ANALYSIS OF SUBSIDIES

Table 8 summarizes the subsidies per bag of roller meal for fertilizer, domestically produced maize and imported maize. In order to determine the total subsidy cost to the GRZ of domestically produced maize, the fertilizer subsidy must be added. Thus, column (4), Table 8 presents the estimated total cost to the GRZ of selling 90 kg bag of roller meal to consumers. Comparing these costs with the cost of importing the equivalent bag of roller meal, column (5), results in the conclusion that the imported maize is substantially more expensive (see column (6)).

Even though the additional cost of an imported bag of maize declines as the NCZ fertilizer plant starts production, the additional subsidy cost of importing that bag of maize is still estimated to be over 100 percent more than the subsidy cost of a domestically produced bag. This conclusion is, of course, subject to margins of error. However the magnitude of the difference between the cost of domestically produced maize versus imported maize is such that the GRZ can afford to pay more for domestically produced maize (thereby stimulating production) and still reduce the rate of increase of overall maize and fertilizer outlays. Such a strategy may appear attractive but before a determination can be made, the overall subsidy costs to the GRZ should be examined. It may be that even though the rate of increase declines, the total level is still unacceptable.

Table 9 summarizes recent and projected trends in Zambia's marketed maize production and import requirements, and converts them to roller meal equivalents. Using Table 9 estimates to multiply times the per bag of roller meal subsidy estimates from Table 8 provides approximations of the total future GRZ subsidy outlays for fertilizers and maize. These results are summarized in Table 10. Not unexpectedly, the fertilizer subsidy outlays increase four-fold between 1980 and 1984. The maize subsidy, excluding fertilizer, increases modestly over this period, but remains at a minimum K25 million per year above the fertilizer costs.

Comparing these estimates with actual GRZ subsidy outlays provides a benchmark against which to compare the forecast subsidy levels (See Table 11). For two years against which there is data to compare, the estimated and actual subsidy levels do not provide a clear perspective of the "realism" of the analysis. Because of the usual problems with national accounts and not knowing what exactly took place during 1976 renders the 1977 estimate noncomparable. The same can be said for the 1978 estimate, although it appears to be more in line with the GRZ actual figure. To determine the comparability of the 1977-78 estimates with the actual GRZ subsidies, more background research is required.

The large jump in estimated subsidies between 1978 and 1979 appears to be reflected in an overall GRZ subsidy estimate of K94.0 million (see Table 3). Of that total it is still indeterminate how much was for maize versus fertilizer. Given the level of maize imports during 1979, it is

suspected that most went to finance the maize subsidy.

Once the NCZ fertilizer facility starts commercial production, overall subsidy payments are forecast to increase by about 47 percent above 1979 levels, which was a bad year for subsidies. Given Zambia's near term economic prospects as summarized in section III, such an increase in the budget will have to be financed by curtailing other programs or increasing the GRZ deficit and stimulating inflation.

The political ramifications of such an increase are becoming increasingly important. In the 1980 budget speech, numerous apologies were made by the finance minister in trying to explain why overall subsidies rose from a projected 1979 level of K30.7 million to about K94.0 million. The GRZ is reaching a point where alternative methods for reducing maize imports and reducing maize subsidies must be more closely examined in order for the nation to capitalize on the improved atmosphere for development within the region. In view of these problems, AID/Zambia is considering using the combined food and commodity import program local currency generations to assist the GRZ's efforts to make the current situation manageable in the foreseeable future.

III. ILLUSTRATIVE POLICY ADJUSTMENT SCENARIOS

During the forthcoming negotiations with the GRZ, a multitude of scenarios modelling alternatives toward approaching self-sufficiency in maize production and reducing GRZ maize subsidy outlays can be envisioned. For illustrative purposes, three scenarios are presented below.

A. SCENARIO 1

In scenario 1 the producer and consumer price changes against the base year of 1980 were:

| <u>YEAR</u> | <u>PRODUCERS PRICE</u> | <u>CONSUMER PRICE</u> |
|-------------|----------------------------|---------------------------|
| 1981 | i + 15% | i - 8% |
| 1982 | i + 30% | i - 4% |
| 1983 | i + 40% | i |
| 1984 | i + 45% | i + 4% |

where i = inflation rate = 10%

The impact of increased producer prices on domestic maize production is indeterminate. However, a production response was formulated based upon the author's experience in Zambia. It, admittedly, remains subject to controversy. The results of this policy adjustment alternative are presented in Table 12. Over the 1980-1984 period domestic maize production

was assumed to have increased from 3.7 million bags to 7.5 million bags. Thus by 1984 roughly 78 percent of maize purchased by the GRZ will come from domestic sources. The impact on overall maize subsidy levels was to reduce them from K66.3 million to K47.5 million, not including the USAID subsidy assistance. If the USAID subsidy assistance in 1984 is added to the GRZ portion, the total maize subsidy is about K11 million below the 1980 level. Realizing that it is an absolute decrease, in spite of inflation, gives it more value.

B. SCENARIO 2

In scenario 2, the consumer price adjustment was raised from the base period of 1980 as follows:

| <u>YEAR</u> | <u>CONSUMER PRICE</u> |
|-------------|-----------------------|
| 1981 | i - 5% |
| 1982 | i |
| 1983 | i + 5% |
| 1984 | i + 10% |

The impact of these consumer price adjustments was to eliminate the need for USAID maize subsidy assistance by 1983. Under this policy adjustment, the surplus could possibly be used to reduce the fertilizer subsidy.

C. SCENARIO 3

Because it is unknown how price responsive Zambia's maize producers are, Scenario 3 analyzes the impact of having to pay high producer prices to achieve the same production increases as examined in scenario 1. The assumed producer price increases over the 1980 base year are:

| <u>YEAR</u> | <u>PRODUCER PRICE</u> |
|-------------|-----------------------|
| 1981 | i + 20% |
| 1982 | i + 35% |
| 1983 | i + 45% |
| 1984 | i + 50% |

Using the same consumer price changes as in Scenario 1, the results show that the USAID contribution would have to increase dramatically to keep the maize subsidy at its 1980 level.

In the above scenarios, USAID assistance figures included CIP local currency generations. Depending upon future availabilities of funds, ect., USAID contributions to support subsidies could increase through agriculture sector loans and P.L. 480 programs.

The scenarios presented provide a glimpse of the potential complexities in the forthcoming negotiations. However, if policy adjustments are not made, the level of maize subsidies will continue to rise and begin to constrain the GRZ's other budgetary categories.

TABLE 1

Zambia: Marketed Maize Production, Imports, and Consumption
1975 - 1980

| Year | Maize Marketed Through Official Marketing Channels | Maize Imports | Maize Available for Consumption | |
|-------------|---|------------------|------------------------------------|-----------|
| | MT | MT | MT | Mil. Bags |
| 1975 | 559,480 | - | 559,480 | 6.2 |
| 1976 | 749,971 | - | 749,971 | 8.3 |
| 1977 | 696,451 | - | 696,451 | 7.7 |
| 1978 | 577,815 | 66,989 | 644,304 | 7.2 |
| 1979 (PRE.) | 333,945 | 314,126 | 648,071 | 7.2 |
| 1980 (EST.) | 390,000 | NA | NA | NA |

Source: MAWD, NCZ and AID staff estimates

TABLE 2

GRZ Producer Price for Maize

1965 - 1982

(Kwacha/Bag)

| <u>Year</u> | <u>Price</u> | <u>Year</u> | <u>Price</u> |
|-------------|--------------|-------------|--------------|
| 1965 | 3.45 | 1975 | 5.00 |
| 1968 | 2.90 | 1976 | 6.30 |
| 1969 | 3.20 | 1977 | 6.30 |
| 1970 | 3.50 | 1978 | 6.80 |
| 1971 | 4.00 | 1979 | 9.00 |
| 1972 | 4.30 | 1980 | 12.00 |
| 1973 | 4.30 | 1981 | 13.50 |
| 1974 | 4.30 | 1982 | NA |

Source: MAWD, NCZ and AID staff estimates

TABLE 3
 Budgetary Subsidies
 1972 - 1979
 (Millions of Kwacha)

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 ^{1/} |
|----------------------------------|------|------|------|------|------|------|--------------------|
| Total subsidies | 33.3 | 37.0 | 47.4 | 82.8 | 59.8 | 66.2 | 42.1 |
| Maize subsidy | 8.4 | 10.1 | 12.3 | 19.8 | 22.0 | 26.4 | 18.0 |
| Fertilizer subsidy | 3.7 | 2.7 | 8.4 | 32.9 | 22.1 | 17.7 | 12.1 |
| Other | 21.2 | 24.2 | 26.7 | 30.1 | 15.7 | 22.1 | 12.0 |
| Of which: | | | | | | | |
| tobacco | 1.6 | 0.1 | 2.9 | 3.4 | 2.2 | 2.3 | 3.0 |
| Rural Development Council | -- | 2.6 | 1.0 | 1.1 | 0.7 | 1.1 | 1.0 |
| Marketing agencies ^{2/} | 9.9 | 3.9 | 6.8 | 3.8 | 9.5 | 15.9 | 6.0 |
| Cold storage Board | -- | 1.6 | 0.8 | 2.3 | 1.0 | 2.0 | 2.0 |

Sources: Ministry of Finance, Financial Report 1972-78; Estimates of Revenue and Expenditure, 1979; and data provided by the Ministry of Finance.

^{1/} Provisional.

^{2/} Covers subsidies on a variety of crops and agricultural inputs, mostly channeled through rural cooperatives.

TABLE 4

Fertilizer Subsidies
Percent of GRZ Total Costs
1975 - 1980

| <u>Year</u> | <u>NPK Compounds</u> | <u>Nitrogenous</u> |
|-------------|----------------------|--------------------|
| 1975 | 68 | 77 |
| 1976 | 45 | 63 |
| 1977 | 47 | 46 |
| 1978 | 51 | 45 |
| 1979 (EST.) | 34 | 43 |
| 1980 (EST.) | 57 | 57 |

Source: MAWD, NCZ and AID staff estimates

TABLE 5

GRZ Fertilizer Subsidy*
Per 50 ks. Bag
1977 - 1984

| <u>Year</u> | <u>Average Fertilizer Subsidy (Kwacha/Bag)</u> | <u>Subsidy as Percent of Total Cost of Fertilizer (%)</u> |
|-------------|--|---|
| 1977 | 1.60 | 47 |
| 1978 | 1.86 | 48 |
| 1979 | 2.76 | 39 |
| 1980 | 2.49 | 57 |
| 1981 | 3.81 | 67 |
| 1982 | 4.38 | 70 |
| 1983 | 4.83 | 72 |
| 1984 | 5.94 | 76 |

Source: MAWD, NCZ and AID staff estimates
* See Appendix I for explanatory notes.

TABLE 6
GRZ Subsidy on Domestic Maize
Per 90 Kg. Bag
1977 - 1984

| <u>Year</u> | <u>Average Domestic Maize Subsidy Excluding Fertilizer*</u> (Kwacha/bag) | <u>Subsidy as Percent of Total Cost of Domestic Maize Excluding Fertilizer</u> (%) |
|-------------|---|---|
| 1977 | 1.77 | -NA- |
| 1978 | 1.92 | -NA- |
| 1979 | 2.07 | -NA- |
| 1980 | 2.40 | 20 |
| 1981 | 2.51 | 19 |
| 1982 | 2.67 | 19 |
| 1983 | 2.80 | 20 |
| 1984 | 3.01 | 18 |

Source: MAWD, NCZ, and AID staff estimates.

*See Appendix II for explanatory notes.

NA - Not available

TABLE 7

GRZ Subsidy on Imported Maize
Per 90 Kg. Bag
1977 - 1984

| <u>Year</u> | <u>Average Imported Maize Subsidy*</u> (Kwacha/bag) | <u>Subsidy as a Percent of Total Imported Maize Cost</u> (%) |
|-------------|--|---|
| 1977 | -- | -- |
| 1978 | 18.61 | 69 |
| 1979 | 15.20 | 52 |
| 1980 | 17.25 | 55 |
| 1981 | 17.85 | 54 |
| 1982 | 18.48 | 52 |
| 1983 | 18.93 | 51 |
| 1984 | 19.30 | 49 |

Source: MAWD, NCZ and AID staff estimates.

*The imported maize was costed by approximating the average cost of importing maize CIP landed Zambia. Since information was not obtained in time for this analysis, a middle ground cost between the lowest cost location (RSA) and the highest cost location (USA) was used. Then the same handling, milling, etc. costs and consumer prices were applied as were for domestically produced maize.

TABLE 8

Estimated Subsidy Costs of Roller Meal Produced
Per 90 Kg. Bag
1977 - 1984

| <u>Year</u> | <u>Average Fertilizer</u> | <u>Domestic Maize (Excluding Fertilizer)</u> | <u>Domestic Maize (Including Fertilizer)</u> | <u>Imported Maize</u> | <u>Additional Cost of Imported Maize Subsidy Above Domestic Maize Subsidy</u> |
|--------------------------------------|-------------------------------|--|--|---------------------------|---|
| Kwacha Per 90 Kg. Bag of Roller Meal | | | | | |
| 1977 | 1.60 | 1.77 | 3.37 | | |
| 1978 | 1.86 | 1.92 | 3.78 | 18.61 | 14.83 |
| 1979 | 2.76 | 2.07 | 4.83 | 15.20 | 10.37 |
| 1980 | 2.49 | 2.40 | 4.89 | 17.25 | 12.36 |
| 1981 | 3.81 | 2.51 | 6.32 | 17.85 | 11.53 |
| 1982 | 4.38 | 2.67 | 7.05 | 18.48 | 11.43 |
| 1983 | 4.83 | 2.80 | 7.63 | 18.93 | 11.30 |
| 1984 | 5.94 | 3.01 | 8.95 | 19.30 | 10.35 |

Source: MAWD, NCZ and AID staff estimate

TABLE 9

Estimated Quantities of Maize and Roller Meal
Marketed by NAMBoard
1977 - 1984
(Million 90 Kg. Bags)

| Year | Maize Marketed through NAMBoard | | Roller Meal ^{2/} Equivalent | |
|------|------------------------------------|----------|---|----------|
| | Domestic ^{1/} | Imported | Domestic | Imported |
| 1977 | 7.4 | - 0.5 | 6.9 ^{3/} | -- |
| 1978 | 6.4 | 0.8 | 5.9 | 0.7 |
| 1979 | 3.7 | 3.9 | 3.3 | 3.5 |
| 1980 | 4.3 | 3.7 | 3.9 | 3.3 |
| 1981 | 5.0 | 3.4 | 4.5 | 3.1 |
| 1982 | 5.1 | 3.1 | 5.1 | 2.8 |
| 1983 | 6.3 | 2.9 | 5.7 | 2.6 |
| 1984 | 6.9 | 2.7 | 6.2 | 2.4 |

Source: MAWD, NCZ and AID staff estimates.

^{1/} Domestic consumption series assumes the historical 3 percent per annum increase in consumption from the base year of 1978.

^{2/} Uses a 90 percent extract rate.

^{3/} Only 6.9 milled, since rest was exported.

TABLE 10

Estimated Total Subsidies
for Maize and Fertilizer
Millions of Kwacha
1977 - 1984

| <u>Year</u> | <u>Fertilizer</u> | <u>Domestic Maize (Excluding Fertilizer)</u> | <u>Imported Maize</u> | <u>Domestic and Imported Maize (Excluding Fertilizer)</u> |
|-------------|-------------------|--|---------------------------|---|
| 1977 | 9.9 | 11.0 | -- | 11.0 |
| 1978 | 10.8 | 11.1 | 13.0 | 24.1 |
| 1979 | 9.1 | 6.8 | 53.2 | 60.0 |
| 1980 | 9.7 | 9.4 | 56.9 | 66.3 |
| 1981 | 17.1 | 11.3 | 55.3 | 66.6 |
| 1982 | 22.3 | 13.6 | 51.7 | 65.3 |
| 1983 | 27.5 | 16.0 | 42.2 | 58.2 |
| 1984 | 36.8 | 18.7 | 46.3 | 65.0 |

Source: MAWD, NCZ and AID staff estimates.

TABLE 11
Comparison of Estimated Total Subsidies
With GRZ Estimates
 Millions of Kwacha
 1977 - 1984

| <u>Year</u> | <u>Fertilizer</u> | | <u>Maize</u> | | <u>Total</u> | |
|-------------|-------------------|------------|--------------|------------|--------------|------------|
| | <u>AID</u> | <u>GRZ</u> | <u>AID</u> | <u>GRZ</u> | <u>AID</u> | <u>GRZ</u> |
| 1977 | 9.9 | 17.7 | 11.0 | 26.4 | 20.9 | 66.2 |
| 1978 | 10.8 | 12.1 | 24.1 | 18.0 | 34.9 | 30.1 |
| 1979 | 9.1 | NA | 60.0 | NA | 69.1 | NA |
| 1980 | 9.7 | NA | 66.3 | NA | 76.0 | NA |
| 1981 | 17.1 | NA | 66.6 | NA | 83.7 | NA |
| 1982 | 22.7 | NA | 65.3 | NA | 87.6 | NA |
| 1983 | 27.5 | NA | 58.2 | NA | 85.7 | NA |
| 1984 | 36.8 | NA | 65.0 | NA | 101.8 | NA |

Source: MAWD, NCZ and AID staff estimates.
 NA - Not available.

TABLE 12

Alternative Subsidization Scenarios
Millions of Kwacha
1980 - 1984

| <u>Year</u> | Future Trend With GRZ Financing All Of Maize Subsidy Costs ^{1/} | Financing of Maize Subsidy: | | | | | |
|-------------|---|---------------------------------|--------------|---------------------|--------------|--------------------|--------------|
| | | <u>Scenario #1^{2/}</u> | | <u>Scenario #2</u> | | <u>Scenario #3</u> | |
| | | <u>GRZ</u> | <u>USAID</u> | <u>GRZ</u> | <u>USAID</u> | <u>GRZ</u> | <u>USAID</u> |
| 1980 | 66.3 | 66.3 | 0.0 | 66.3 | 0.0 | 66.3 | 0.0 |
| 1981 | 66.6 | 60.5 | 12.0 | 46.7 | 12.0 | 63.5 | 12.0 |
| 1982 | 65.3 | 58.1 | 12.0 | 36.4 | 12.0 | 78.8 | 12.0 |
| 1983 | 58.2 | 53.9 | 10.0 | -50.4 ^{3/} | 0.0 | 130.8 | 10.0 |
| 1984 | 65.0 | 47.5 | 8.0 | -71.0 | 0.0 | 251.4 | 8.0 |

Source: MAWD, NCZ and AID staff estimates.

^{1/} From Table 10.

^{2/} See Appendix III for assumptions on which those estimates are based.

^{3/} Negative number denotes surplus. With these reserves the fertilizer subsidy costs start to be reduced or lower consumer prices until subsidy equals zero.

APPENDIX I

Explanatory Notes to Table 5

The calculations leading to the fertilizer subsidy estimates necessitated various assumptions concerning future fertilizer sales, prices, etc.

To simplify the analysis, the fertilizers were grouped into functional categories. These categories, also used by NAMBoard, are 1) tobacco (includes A, C, V); 2) maize (includes X, R, D); and nitrogenous (includes urea, ammonia nitrate, etc). Other fertilizers which did not fit into these categories were not included due to their low volume.

Total sales figures were based upon NCZ and NAMBoard estimates of future total fertilizer sales projections. By working backwards and using NCZ expected production capabilities over the next five years, total levels of domestic fertilizer production were obtained. It was then assumed that beginning stocks which are running approximately 100 percent of sales would decline due to reduced transport, foreign exchange, and other problems which plagued NAMBoard in the past and were the primary reason for such high stock levels. Imports were calculated on a residual category. At this point, the total fertilizer supply and utilization was adjusted to reflect the fact that as domestic ammonia nitrate sales increases imported urea sales will decrease at a faster rate because the value to producers in terms of the nitrogen content between the two is not one to one. This adjustment was undertaken because upon analyzing the unadjusted figures, unrealistic increases in nitrogen application rates were suggested.

Future imported fertilizer prices were obtained by trending prices from the 1975-1980 period. Based on NCZ's estimates, which may vary considerably, once the fertilizer plant actually commences production, NCZ will sell its fertilizer to NAMBoard at about 50 percent above the C.I.P. landed Zambia cost of the corresponding imported fertilizer. NAMBoard fertilizer handling costs are trended from 1975-80 handling costs. NAMBoard's handling charges include the prorated costs of fertilizer personnel, cost of capital tied up in fertilizer, distribution charges, and a 3 percent fertilizer loss estimate. Based on IFDC research in developed and developing countries, the fertilizer loss estimates were raised by 6 percent for imported and 4 percent for domestically produced fertilizer, thereby raising the loss estimate to 9 percent and 7 percent, respectively.

The handling charges were not altered to reflect the change in responsibility from NAMBoard to the cooperative unions. Details

of the transfer of responsibility have not, as of August, been decided upon by the GRZ. Future handling charges for fertilizer remain indeterminate under the coops responsibility. GRZ officials seem to be split in what the impact will be or their direction. For this reason handling costs per bag of fertilizer were trended, based on 1975-80 data.

The determination of fertilizer sale prices to producers was based upon what would be the best way to keep producer prices low, producer return constant or highly increasing, and the maize subsidy low. This alternative was chosen because it reflects the GRZ's political sensitivity about the large size of the maize subsidy, and it minimizes the publically visible spread between what the GRZ pays producers for maize and sells it to consumers for. Thus, fertilizer prices to producers were extrapolated at 1980 prices. With this information, the subsidies for the maize and nitrogenous fertilizer categories was calculated. Then the categories were weighed together to derive an annual fertilizer subsidy estimate reflecting imported and domestically produced fertilizer. The lowest estimated fertilizer usage rates per hectare divided by average yield provided an estimate of the average subsidy per bag of maize. Lastly, these figures were converted to the roller meal equivalent.

APPENDIX II

Explanatory Notes to Table 6

The maize subsidy, excluding the fertilizer component, was the cost of the maize (producer price) plus all handling, milling, distribution, selling costs and loss estimates less the consumer price. The producer price was calculated on the estimated costs of production of commercial farmers plus a 12 percent return on investment starting in 1981 and increasing by 2 percent thereafter. The commercial farmer costs were used because the GRZ believes the commercial farmers have higher cost per unit of production and thus setting price in relation to the most expensive producer will assure incentives for all. (It should be noted that USAID/Zambia ZATPID project will examine this assumption to determine its accuracy.) Increasing the return on investment reflects the intentions of the GRZ to expand production. In any case, producer prices would have to increase just to keep pace with rising production costs. The handling, milling, etc. estimates were based on a detailed 1977-78 analysis and were extrapolated at an inflation rate of 15 percent for 1979 and 10 percent thereafter. These costs were converted to a roller meal basis and then the consumer price for roller meal was deducted. The price for roller meal rose with the rate of inflation as an approximation for the GRZ's minimal attempts to keep the maize subsidy manageable. The remainder is the subsidy per bag of roller meal.

Due to a lack of time, the 1977-79 estimates were obtained from a World Bank report. Although the methodologies differ somewhat, the error introduced is not believed to be significant.

APPENDIX III

Assumptions Relating to Subsidy Estimates
In Table 12, Scenario #1
1980 - 1984

- 1980: Inflation (i) = 10%
Consumer Price (cp) = K13.68
Producer Price (pp) = K12.00
Roller Meal Sales (rms) = 7.2 million bags roller meal
Marketed Production (mp) = 4.3 million bags maize
Maize Imported (mi) = 3.7 million bags maize
- 1981: Inflation (i) = 10%
Consumer Price (cp) = K13.95
Producer Price (pp) = K15.00
Roller Meal Sales (rms) = 7.6 million bags roller meal
Marketed Production (mp) = 5.0 million bags maize
Maize Imported (mi) = 3.7 million bags maize
- 1982: Inflation (i) = 10%
Consumer Price (cp) = K14.79
Producer Price (pp) = K18.75
Roller Meal Sales (rms) = 7.9 million bags roller meal
Marketed Production (mp) = 5.8 million bags maize
Maize Imported (mi) = 3.1 million bags maize
- 1983: Inflation (i) = 10%
Consumer Price (cp) = K16.27
Producer Price (pp) = K22.50
Roller Meal Sales (rms) = 8.3 million bags roller meal
Marketed Production (mp) = 6.8 million bags maize
Maize Imported (mi) = 2.4 million bags maize
- 1984: Inflation (i) = 10%
Consumer Price = K18.54
Producer Price (pp) = K25.88
Roller Meal Sales (rms) = 8.6 million bags roller meal
Marketed Production (mp) = 7.5 million bags maize
Maize Imported (mi) = 2.1 million bags maize



REPUBLIC OF ZAMBIA

NATIONAL COMMISSION FOR DEVELOPMENT PLANNING

OFFICE OF THE PRESIDENT
NATIONALIST/MBITA RD
P.O. BOX 50268
LUSAKA

18th September, 1980

H.E. Mr. Frank G. Wisner,
Ambassador,
Embassy of the United States of America.
LUSAKA.

Your Excellency

GRZ REQUEST FOR USAID COMMODITY LOAN FOR US
FISCAL YEAR, 1981.

On behalf of the Government of the Republic of Zambia, I wish to formally request the Government of the United States of America for a US \$20 million Commodity Loan to finance importation of raw materials for local production of fertiliser compounds.

As Your Excellency is aware, a large portion of previous USAID loans has been used to finance importation of fertiliser in its finished form. When the expansion programme currently under way is completed at Nitrogen Chemicals Zambia Ltd., Zambia will be able to produce most of the fertiliser locally but will need raw materials. It is for this reason that this loan request is being made to your Government.

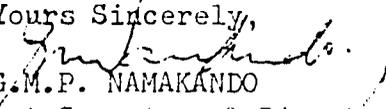
Commissioning of the expanded plant will be early next year. It would be appreciated therefore if this loan application could be favourably considered as soon as possible to enable us to procure the raw materials in time for the commissioning.

In addition, we would request the US Government to waive the condition that commodities have their source and origin in the United States of America and thereby permit procurement of the raw materials from the cheapest source.

I await Your Excellency's favourable response to this request.

Accept, Your Excellency, the assurances of my very highest consideration.

Yours Sincerely,


G.M.P. NAMAKANDO

Actg. Permanent Secretary & Director-General
NATIONAL COMMISSION FOR DEVELOPMENT PLANNING

c.c. Permanent Secretary,
Ministry of Finance,
LUSAKA.

Analysis of NAMBoard's Fertilizer
Sales, Imports and Beginning Stocks

I. Summary and Conclusions

The GRZ aims to stock a minimum in-country supply of 50,000 MT of fertilizers but prefers to maintain a one-year supply composed of in-country stocks and shipments in the pipeline. This is believed justified in view of Zambia's long history of difficulties in having adequate supplies available to meet farmer needs on a timely basis. The reasons for maintaining such an inventory and pipeline level are based upon i) historical problems of obtaining necessary foreign exchange; ii) inland transportation obstacles; and iii) problems of internal distribution and timing of in-country arrivals due to the limitations in domestic transportation capacity.

An analysis of Zambia's projected sales, beginning stocks and fertilizers in the pipeline suggests there is sufficient fertilizers on hand for 1981. The current levels of stocks maintained can be expected to decline as the transport and other regional problems due to the Rhodesia war decline. As in the past, most of Zambia's fertilizer consumption is in the form of urea and NPK compounds.

II. Past Trends and Experience

Table 1 summarizes Zambia's total fertilizer supply and utilization from 1975 thru 1981. Noticeable is the marked increase in beginning stock figures beginning in 1979. This is primarily the result of NAMBoard's action to overcome the long history of problems it faces in meeting farmers fertilizer needs on a timely basis. The problems have tended to lay in three areas.

First, NAMBoard has had a history of not receiving the necessary foreign exchange on a timely basis to finance in-land transport. Furthermore, once the foreign exchange is obtained, NAMBoard may not get the required rail or truck space because higher priority items (i.e. maize) have been allocated most of the available space. Thirdly, if NAMBoard does not have the fertilizer in the major depots ready for rural distribution by June-July, then NAMBoard underutilizes its transport. That is, during June-August the trucks would go into the rural areas partially full with agricultural inputs and come out full with newly harvested maize. Then, when the needed fertilizers finally arrived in country, the trucks would again go into the rural areas to distribute the fertilizer and this time return empty since most of the maize would have already been harvested and sold to NAMBoard by August-September. Finally, if the fertilizer has not been delivered into the rural areas by the start of the rains, it will not be delivered for that crop year. This raises NAMBoard's storage costs until it is sold the following crop year.

Table 1
Total Fertilizer Supply and
Utilization in Zambia
 1975 - 1981
 (000 MT)

| <u>Year</u> | <u>Beginning Stocks</u> | <u>Imports</u> | <u>Production</u> | <u>Sales</u> | <u>Exports</u> |
|-------------|-------------------------|----------------|-------------------|--------------|----------------|
| 1975 | 70.0 | 121.0 | 11.0 | 133.6 | 0 |
| 1976 | 68.5 | 150.0 | 15.3 | 145.9 | 0 |
| 1977 | 88.0 | 157.9 | 28.9 | 164.5 | 0 |
| 1978 | 98.2 | 198.1 | 25.6 | 129.6 | 0 |
| 1979 (PRE) | 183.3 | 95.2 | 25.3 | 143.0 | 0 |
| 1980 (EST) | 160.6 | 157.1 | 25.0 | 157.5 | 0 |
| 1981 (FOR) | 185.1 | 96.0 | N/A* | 173.2 | 0 |

Source: NAMBoard, September 1980

* Not Available

For these reasons NAMBoard works toward stocking at least 50,000 MT in-country, but prefers to maintain a one-year supply composed of in-country stocks and shipments in the pipeline. With more fertilizer readily available NAMBoard is better able to satisfy the farmers' fertilizer needs on a more timely basis. In addition, NAMBoard would be better utilizing hired transport space as it delivered all the required inputs into the rural areas and on the same trip collected the harvested maize when returning to the main depots. Thus, given these factors, NAMBoard's seemingly high stock position is in actuality probably a better business practice for NAMBoard and the nation as a whole.

III. Current and Projected Positions

It is estimated that current (August, 1980) in-country stocks are 129,000 MT with another 97,800 MT in the pipeline. Projected sales in 1981 are 173,200 MT. Given the traditionally heavy fertilizer sales during October-December and the arrival of most of the pipeline, NAMBoard projects beginning stocks in 1981 to be almost 185,000 MT. This leaves a surplus of roughly 12,000 MT above projected sales for 1981. Thus it is concluded that the current stock position is not not excessive, and that 1981 requirements will be adequately met.

Table 2: Fertilizer Supply and Utilization 1979-81

| Product | 1979 | | | 1980 | | | 1981 | | | | |
|----------------|------------------|---------------|------|-----------------|------------------|---------------|----------------|--------------|-------------------------|-----------------------------|--------------|
| | thousands of MT | | | thousands of MT | | | thousand of MT | | | | |
| | Beginning Stocks | Imports | | Sales | Beginning Stocks | Imports | | Sales (Est.) | Beginning Stocks (Est.) | Imports Requirements (Est.) | Sales (Est.) |
| | U.S. AID | Other Sources | | | U.S. AID | Other Sources | | | | | |
| A | 0.3 | - | - | 0.2 | 0.1 | - | - | 0.1 | - | - | - |
| C | 11.1 | - | - | 4.3 | 6.8 | - | 5.0 | 4.7 | 7.1 | 6.0 | 5.2 |
| U | 5.8 | - | - | 1.3 | 4.6 | - | - | 1.4 | 3.2 | - | 1.6 |
| R | 16.0 | 10.5 | 25.9 | 26.4 | 26.0 | 40.6 | - | 29.1 | 37.5 | 25.0 | 32.0 |
| X | 10.4 | 19.8 | - | 20.0 | 10.3 | 10.0 | 27.5 | 22.0 | 25.8 | 5.0 | 24.1 |
| D | 43.1 | - | - | 28.0 | 15.1 | - | 20.0 | 30.8 | 4.3 | 45.0 | 33.9 |
| Urea | 60.6 | 39.0 | - | 42.4 | 57.2 | - | 54.0 | 46.6 | 64.6 | 15.0 | 51.3 |
| AS | 10.1 | - | - | 0.9 | 9.3 | - | - | 1.0 | 8.3 | - | 1.0 |
| Sodium Nitrate | 1.2 | - | - | 0.2 | 1.1 | - | - | 0.2 | 0.9 | - | 0.2 |
| SSP | 1.6 | - | - | 0.1 | 1.5 | - | - | 0.1 | 1.4 | - | 0.2 |
| TSP | 7.6 | - | - | 1.6 | 6.0 | - | - | 1.7 | 4.3 | - | 1.9 |
| MOP | 1.4 | - | - | 0.1 | 1.3 | - | - | 0.1 | 1.2 | - | 0.2 |
| SOP | 0.7 | - | - | 0.1 | 0.6 | - | - | 0.1 | 0.5 | - | 0.1 |
| Total | 169.9 | 69.3 | 25.9 | 125.6 | 139.9 | 50.6 | 106.5 | 137.9 | 159.1 | 96.0 | 151.7 |
| (Local) AN | 13.2 | - | 25.3 | 17.8 | 20.7 | - | 25.0 | 19.7 | 26.1 | NA | 21.6 |
| Grand Total | 183.1 | 69.3 | 51.2 | 143.4 | 160.6 | 50.6 | 31.5 | 157.5 | 185.2 | NA | 173.3 |

Source: NAMBoard, August 1980.

Table 2 summarizes 1981 fertilizer imports by type. No significant change has occurred in the composition of 1981 forecasted fertilizer imports as compared to the previous several years.

Because the general development climate in the region has improved, it is expected that in the future NAMBoard will realize that such high beginning stocks are no longer required. However, any decrease in these stocks positions can only be expected if Zambia's transport and foreign exchange situations significantly improve.

IV. Analysis by Fertilizer Type

The major fertilizers sold by NAMBoard are urea, compounds R, X and D, and ammonium nitrate. These are used on a number of crops, primarily maize, wheat, cotton, rice and soybeans. Table 1 summarizes the beginning inventory, imports, and sales figures for these fertilizers and those which are less important in terms of volume.

Urea is the largest single selling item. Between 1975 and 1978 NAMBoard sold between 27,500 and 47,700 MT annually, but entered each year with inventories ranging between only 1,000 and 15,500 MT. This meant that NAMBoard had to rely considerably on imports to meet its yearly sales volumes. In the summer and fall of 1978, severe inland transportation problems beset Zambia so that much of the imported urea did not arrive in country until after the planting season and had to be carried as inventory into 1979. Similarly much of the 39,000 MT imported in 1979, all under AID financing, arrived in Zambia too late for the planting season and is just now being sold for use in the 1980 growing season. Urea imports for 1980 will total 54,000 MT (none of which is AID financed).

The next largest selling fertilizer is compound 'D' with sales during the 1975 - 1978 period ranging between 24,700 and 31,7000 MT per year. Over these years, the beginning stock and late arrival of imports paralleled that for urea. In 1979 beginning stocks exceeded sales by about 15,100 MT. Much of the 57,400 MT imported in 1978, including the 40,200 MT of AID-financed product, appeared as beginning inventory in 1979. Only 20,000 MT was imported in 1980, none of which was AID financed.

Next in sales volume is compound 'X'. From 1975 to 1979 sales hovered at about 20,000 MT per year with the exception of 1977 when sales increased to 30,000 MT. In the case of compound 'X', stocks plus imports for the years 1975 - 1980 amounted to about 10,000 MT above each year's sales. Of the 20,000 MT imported in 1978, AID financed approximately half.

AID financed all of Zambia's imports of compound 'X' in 1979. This decreased to about one fourth of 10,000 MT of all 'X' imports planned for 1980. As evidenced from the 1979 and 1980 beginning stock figures in Table 1, imports of compounds 'X' in 1978 and 1979 arrived in Zambia prior to the planting season.

The statistics for compound 'R' also indicate timely arrival of product. In 1978 and 1979 AID financed about one half and one quarter, respectively, of Zambia's imports of compound 'R'. In 1980 all planned imports of compound 'R' are AID financed.

NAMBoard procures ammonium nitrate locally from Nitrogen Chemicals of Zambia (NCZ). Ammonium nitrate is not subject to the vicissitudes of overland transport as are the imported products. Since 1977 NAMBoard has procured approximately one half of NCZ's ammonium nitrate production.

TABLE 1

Historical Fertilizer Supply and Utilization Tables, 1975-81.
thousands of MT)

Urea

| Year | Beginning Stocks | Imports | Sales |
|------|------------------|-----------------------|----------|
| 1975 | 1.061 | 40 | 32.043 |
| 1976 | 9.018 | 51.18 | 46.78 |
| 1977 | 13.418 | 49.82 | 47.713 |
| 1978 | 15.525 | 72.6 ^(b) | 27.536 |
| 1979 | 60.589 | 30.012 ^(a) | 42.402 |
| 1980 | 57.199 | 54 | 46.642 * |
| 1981 | 60.557 | 15* | 51.306 * |

(a) 39.012 - USAID-financed

(b) U.S., Japan, Europe sources

Compound 'D'

| | | | |
|------|--------|---------------------|---------|
| 1975 | 14.167 | 34.5 | 24.705 |
| 1976 | 23.962 | 40 | 30.411 |
| 1977 | 33.551 | 14 | 31.673 |
| 1978 | 15.878 | 57.4 ^(a) | 30.184 |
| 1979 | 43.094 | 0 | 28.005 |
| 1980 | 15.089 | 20 | 30.805* |
| 1981 | 4.284* | 45.0* | 33.886* |

* Estimated

(a) 40.2 USAID-financed, remainder from Germany

Table 1 (Cont.)

Compound 'R'

| Year | Beginning Stocks | Imports | Sales |
|------|------------------|------------|---------|
| 1975 | 2.504 | 15 | 17.483 |
| 1976 | 0.021 | 25 | 21.909 |
| 1977 | 3.112 | 29.090 | 23.472 |
| 1978 | 8.73 (a) | 24 (a) | 16.709 |
| 1979 | 16.021 (b) | 36.4 (b) | 26.446 |
| 1980 | 25.973 (c) | 40.620 (c) | 29.092* |
| 1981 | 37.501* | 25.0* | 32.001* |

*Estimated

(a) 12.00 USAID-financed, remainder from Japan and Europe.

(b) 10.50 USAID financed

(c) 40.62 USAID financed

Compound 'X'

| | | | |
|------|---------|-----------|---------|
| 1975 | 23.694 | 0 | 20.36 |
| 1976 | 3.334 | 29.5 | 22.161 |
| 1977 | 10.673 | 30 | 30.121 |
| 1978 | 10.552 | 20 (a) | 20.166 |
| 1979 | 10.386 | 19.83 (b) | 19.952 |
| 1980 | 10.264 | 37.5 (c) | 21.948* |
| 1981 | 25.816* | 5.0* | 25.143* |

* Estimated

(a) 10.00 USAID-financed, remainder from Germany

(b) 19.83 USAID financed

(c) 10.00 USAID financed

Table 1 (Cont.)
Ammonium Nitrate (local)

| Year | Beginning Stocks | Production | Sales |
|------|------------------|------------|---------|
| 1975 | 13.155 | 11 | 17.793 |
| 1976 | 6.362 | 15.335 | 17.284 |
| 1977 | 4.413 | 28.866 | 23.339 |
| 1978 | 7.94 | 25.6 | 20.292 |
| 1979 | 13.248 | 25.339 | 17.842 |
| 1980 | 20.745 | 25 | 19.626* |
| 1981 | 26.119* | | 21.589* |

Others (Compounds A, C, V and AS, Sodium Nitrate, SSP, TSP, MOP, SOP)

| Year | Beginning Stock's | Imports | Sales |
|------|-------------------|---------|---------|
| 1975 | 15.453 | 31.5 | 21.155 |
| 1976 | 25.798 | 4.32 | 7.329 |
| 1977 | 22.789 | 26.0 | 9.189 |
| 1978 | 39.6 | 15.1 | 14.719 |
| 1979 | 39.881 | 0 | 8.692 |
| 1980 | 31.189 | 5.0 | 9.492* |
| 1981 | 25.697* | 6.0* | 10.322* |

* Estimated

Source: Namboard

ANNEX E

Analysis of Operational Capability
Nitrogen Chemicals of Zambia, Ltd. Fertilizer
Production Facility

I Background and Summary

Nitrogen Chemicals of Zambia, Ltd. (NCZ), was formed in 1967 as part of the Industrial Development Corporation (INDECO), a state-owned and controlled group of manufacturing and trading companies. Construction began in 1969, with Kobe Steel of Japan responsible for the overall design, supply of machinery and equipment and supervision of the commissioning of the plant. The plant was opened in May 1970 and Kobe Steel remained until 1971 to assist with overall management.

From 1972 until 1976, the Italian firm, Monte Edison, provided the plant's general manager and works manager. Expatriates were secured from India and an intensive training program for Zambians was begun. In 1976, Zambians took over as general manager, production manager and chief engineer in addition to a number of other managerial posts.

In 1975, under a supplier credit, the services of the West German firm, Klockner, were obtained to begin expansion of the plant. When the plant reaches full production capacity in 1985, the plant is expected to meet 80% of Zambia's total fertilizer requirements.

The AID fertilizer team found that NCZ has the necessary equipment for manufacturing the required compound fertilizers. Adequate plans also appear to have been made to insure that sufficient manpower is available for the plant commissioning (start-up). Commissioning is expected to start November 3, 1980 and commercial production is scheduled to begin July 1981.

The fertilizer facility was initially scheduled to start production in mid-1978 for a total cost of K126 million. For reasons largely beyond the GRZ's control, total projected costs are now estimated at K289 million,* an overrun of 128%. Taking into account this capitalization structure, depreciation, estimated operating costs and profit margin, NCZ estimates that it will cost about

*U.S. \$360 million equivalent

50% more to produce fertilizers domestically than to import the finished product. In order to put the plant on a more firm financial footing and not pass these higher costs on to the farmer, the GRZ has agreed to assume a large portion of the debt. With this assistance, NCZ's present cash flow analysis shows profitability by the fifth year; i.e., 1987/88.

Against these initially burdensome costs to the GRZ must be weighted other factors providing direct and potential benefits. These include an estimated \$34 million annual savings in foreign exchange (based on 1985 production using 1980 prices), and a 55% reduction in demand for space for fertilizer shipments on the various congested inland transportation routes. Cost savings may also be realized in the future if (1) oil prices continue to increase faster than coal such that NCZ's coal gasification process becomes relatively cheaper, and (2) a new technique for the partial acidulation of rock phosphate proves feasible and import substitution for phosphatic materials becomes possible. It must finally be noted that the plant represents an important contribution to GRZ efforts to strengthen the country's self-sufficiency.

It is concluded that even though the plant plans a heavy financial burden on the GRZ, the foreign exchange, transport, and other benefits weigh significantly in favor of the plant. In addition, the plant's financial posture could possibly strengthen in the future as indicated above.

II. Technical Analysis

A. Existing Production Capabilities

Nitrogen Chemical of Zambia, Ltd. (NCZ) began production in 1971-72. Table 1 summarizes NCZ's production history.

TABLE I

Production History
Nitrogen Chemicals
of Zambia, Ltd.
(000 MT)

| <u>YEAR</u> | <u>AMMONIA</u> | <u>NITRIC ACID</u> | <u>AMMONIUM NITRATE</u> |
|-------------|----------------|--------------------|-------------------------|
| 1971-72 | 15.0 | 25.4 | 32.5 |
| 1972-73 | 14.3 | 24.5 | 29.3 |
| 1973-74 | 26.4 | 48.4 | 53.4 |
| 1974-75 | 26.1 | 47.6 | 52.1 |
| 1975-76 | 22.4 | 40.3 | 44.0 |
| 1976-77 | 24.4 | 44.8 | 49.1 |
| 1977-78 | 24.0 | 44.1 | 47.5 |
| 1978-79 | 24.8 | 44.7 | 48.8 |
| 1979-80 | 23.9 | 43.7 | 46.9 |

Source: NCZ

Of the plant's total ammonium nitrate production, half is usually sold to the mines as explosives and the remainder is sold to the National Agricultural Marketing Board (NAMBoard) as fertilizer.

B. Expected Production Capabilities

The expansion program is an integrated approach to increase the production capacity of the existing ammonia, nitric acid, and ammonium nitrate facilities and to install facilities for the production of fertilizer products. Current and projected levels expected by 1985 when the plant reaches full production are summarized in Table 2. A total of six new operations comprise the plant's expansion program. Each operation is analyzed by the product produced.

1. Ammonia. Currently NCZ produces about 24,000 MT of ammonium per year. To increase ammonia production, NCZ is expanding the capacity of the coal gasification unit and the ammonia plant by 220 tons of ammonia per day or about 66,000 tons per year for 300 operating days per year. Thus, total projected production will be about 90,000 MT per year. Of the increased production 4,000 MT per year will be used as feedstock for the existing nitric acid^{1/} and ammonium nitrate plants. This additional feedstock will permit the facility to produce ammonium nitrate at maximum output. The remaining increased output of ammonia will be used as the basic raw material in the production of ammonium nitrate and ammonium sulphate and to a lesser extent as an input in the production of compound fertilizers.

The basic raw materials in the production of ammonia will be coal from the Maamba Collieries and nitrogen from the air. Through the gasification of coal^{2/}, NCZ obtains the necessary hydrogen. Nitrogen is obtained through the liquification and partial distillation of air. Using the standard Haber process, the nitrogen and hydrogen are reacted to yield ammonia.

TABLE 2
Current and Expected Products
Nitrogen Chemicals Of Zambia, Ltd.
(000 MT)

| <u>Material</u> | <u>Current Production 1979-80</u> | <u>Expected Production by 1983-85</u> | <u>Production Increase</u> |
|----------------------------|---|---|--------------------------------|
| 1. Ammonia | 23.9 | 89.9 | 66.0 |
| 2. Nitric Acid | 43.7 | 113.7 | 70.0 |
| 3. Ammonium Nitrate | 46.1 | 130.0 | 83.1 |
| 4. Sulfuric Acid | 0 | 60.0 | 60.0 |
| 5. Ammonium Sulfate | 0 | 50.0 | 50.0 |
| 6. Compound Fertilizers | 0 | 172.5 | 142.5 |

^{2/} The carbon dioxide generated in the coal gasification process is captured and sold to the local beverage industry
^{1/} Ammonia is an input into the production.

TABLE 2 (cont'd)

| | | | |
|--------------|--------------|--------------|--------------|
| of which A | (0) | (1.3) | (1.3) |
| C | (0) | (11.5) | (11.5) |
| V | (0) | (4.8) | (4.8) |
| D | (0) | (47.9) | (47.9) |
| R | (0) | (22.7) | (22.7) |
| X | (0) | (54.3) | (54.3) |
| <u>TOTAL</u> | <u>114.5</u> | <u>586.1</u> | <u>471.6</u> |

Source: NCZ

2. Nitric Acid. Currently the plant produces about 44,000 MT of nitric acid per year. The capacity of the nitric acid plant is being expanded by 212 tons per day corresponding to about 70,000 tons per year for 330 operating days per year. Thus, total nitric acid production is projected to be about 114,000 MT. In this process, ammonia is oxidized to nitric acid, and the nitric acid is used in the production of ammonium nitrate.

3. Ammonium Nitrate. From present production levels of about 47,000 MT, the expansion hopes to increase ammonium nitrate output to 130,000 MT. The capacity of the ammonium nitrate plant is being expanded by 242 tons per day corresponding to about 80,000 tons per year based on 330 operating days per year. The major portion of the added output will be prilled and sold as ammonium nitrate fertilizer while the remainder will be used in the production of compound fertilizers. Raw materials for the production of ammonium nitrate are ammonia and nitric acid. Thus, from all indigenously available raw materials, NCZ is producing all the ammonium nitrate sold in Zambia.

4. Sulfuric Acid. NCZ currently does not produce sulfuric acid, but needs it for the domestic manufacture of ammonium sulfate. The sulfuric acid plant will not

*These letters denote the various NPK compounds which will be produced. See Table 3 for exact composition of compounds.

commence operations at the same time as the rest of the fertilizer expansion program. Capacity of the plant, now scheduled to be operational about March, 1983, will be 60,000 MT of sulfuric acid per year. Until that time NCZ intends to import its annual requirement of approximately 40,000 MT from South Africa.

The sulfur to produce the acid will be extracted from locally available pyrites. Using a standard process, the sulfur will be burned in air to form sulfur dioxide. This will be further oxidized to sulfur trioxide which will then be combined with water to produce sulfuric acid.

5. Ammonium Sulfate. The new facility for the manufacture of ammonium sulfate will have a capacity of 151 tons per day corresponding to about 50,000 tons per year based on 330 operating days per year. This is essentially for captive consumption in the production of compound fertilizers while a smaller portion may be sold as ammonium sulfate fertilizer.

Raw materials for the production of ammonium sulfate are ammonia and sulfuric acid. The acid is reacted with ammonia to produce the ammonium sulfate required to produce compound fertilizers.

6. Compound Fertilizers. The new plant for the manufacture of compound fertilizers has a projected capacity of about 432 tons per day or roughly 142,000 tons per year based upon 330 operating days. The final level of output will depend upon the product split between the various grades of nitrogen, phosphorus and potassium (NPK) compound fertilizer. Grades to be produced are summarized in Table 3.

TABLE 3

Grades and Formulazation of NPK Compound
Fertilizer to be Produced by
Nitrogen Chemicals of Zambia, Ltd.

| <u>Mixture</u> | <u>Nitrogen (N)</u> | <u>Phosphorus (P₂O₅)</u> | <u>Potassium (K₂O)</u> | <u>Sulfur (S)</u> | <u>Boron (B)</u> |
|----------------|-------------------------|--|---------------------------------------|-----------------------|----------------------|
| A | 2 | 18 | 15 | 10 | 0.1 |
| V | 4 | 18 | 15 | 10 | 0.1 |
| C | 6 | 18 | 12 | 10 | 0.1 |
| D | 10 | 20 | 10 | 10 | 0 |
| X | 20 | 10 | 5 | 10 | 0 |
| R | 20 | 20 | 0 | 10 | 0 |

Source: NCZ

The main raw materials in the production of compound fertilizer are ammonium nitrate, ammonia, ammonium sulfate and compounds of phosphorous and potassium. Materials produced at the NCZ complex that will be used in the production of NPK fertilizer are ammonium nitrate, ammonium sulfate and ammonia (the latter to control ph) Phosphatic materials known as single super phosphate (SSP), triple super phosphate (TSP), and di-ammonium phosphate (DAP) will have to be imported, as well as borax, potassium sulfate and potassium chloride.

When the complex is fully operational in 1984, the compound fertilizer manufacturing facility will be able to produce the following minimum daily and annual rates shown in Table 4.

TABLE 4

Projected Compound Fertilizer Production
in 1984, Nitrogen Chemicals of Zambia, Ltd.

| <u>Grade</u> | <u>MT/Day</u> | <u>Production days</u> | <u>Annual Production/MT</u> |
|--------------|---------------|------------------------|-----------------------------|
| A | 460 | 3 | 1,220 |
| C | 460 | 25 | 11,200 |
| V | 400 | 12 | 4,900 |
| D | 440 | 109 | 48,000 |
| R | 330 | 69 | 22,600 |
| X | 485 | 112 | 54,400 |
| | | 330 | 142,320 |

Source: NCZ

It should be noted that NCZ's NPK production capacity of 142,320 MT per year is nameplate capacity. For example, the original ammonia plant was designed for an output of 96 MT of ammonia per day. During the commissioning period, it was found output was restricted to 83 MT per day or 13.5% less than nameplate capacity. Should a similar reduction in capacity be realized during commissioning of the NPK plant, annual NPK output would approximate 123,300 MT rather than 142,320 MT. This should still be sufficient to meet Zambia's projected compound fertilizer sales as shown by the comparison in Table 5 of NCZ's production to NAMBOARD's estimated compound fertilizer sales. Compound sales have considerable room for increasing before meeting the plant maximum capacity even if it is lower.

TABLE 5

Compound of NCZ Nameplate Capacity
and NAMBOARD Sales
(000 MT)

| <u>Product</u> | <u>NCZ Annual Nameplate Capacity</u> | <u>NAMBOARD SALES</u> | | |
|----------------|--|------------------------|------------------------|------------------------|
| | | <u>(est.) 1979</u> | <u>(est.) 1980</u> | <u>(est.) 1981</u> |
| A | 1.3 | 0.2 | 0.1 | - |
| C | 11.5 | 4.3 | 4.7 | 5.2 |
| V | 4.8 | 1.3 | 1.4 | 1.6 |
| D | 47.9 | 28.0 | 30.8 | 33.9 |
| R | 22.7 | 26.4 | 29.1 | 32.0 |
| X | 54.3 | 20.0 | 22.0 | 24.1 |
| TOTAL | 142.5 | 80.2 | 88.1 | 96.8 |

Source: NCZ

C. Raw Materials Requirements

The materials required for the operation of the NCZ facility are divided into those which are domestically available and those which must be imported.

1. Available Domestically

All the materials required for the production of ammonia, nitric acid, and ammonium nitrates are available domestically. The nitrogen is captured from the air and the coal comes from Maamba Collieries. Coal consumption is expected to increase from 65,000 MT to 230,000 MT per year in 1985 when the plant reaches full production. The water and electricity to operate the plant will be plentifully available. Financing has been completed to expand domestic coal production commensurate with NCZ's needs.

2. Imported. The quantity of materials which needs to be imported will vary until the sulfuric acid and compound fertilizer facility reaches full production. All sulfuric acid will be imported from R.S.A. until the sulfuric acid plant starts production. When the entire plant reaches full production, the sulfuric acid and ammonium sulfate production facilities will all be supplied with domestically available materials.

The NPK facility is currently scheduled to be commissioned during the first calendar quarter of 1981 with commercial production scheduled to commence about July 1981. Full production is anticipated by 1984-85. Until the plant reaches full production, its raw material requirements will be less. The basic quantities of imported materials required per metric ton are shown in Table 6.

TABLE 6
Imported Materials Required per MT Compound Fertilizers
Nitrogen Chemicals of Zambia, Ltd.
 (kg)

| <u>Grade</u> | <u>Boron</u> | <u>DAP</u> | <u>SSP</u> | <u>TSP</u> | <u>KSO</u> | <u>KCL</u> | <u>Clay</u> |
|--------------|--------------|------------|------------|------------|------------|------------|-------------|
| A | 9 | - | 474 | 208 | 298 | - | 10 |
| C | 9 | - | 296 | 274 | 179 | 50 | 6 |
| V | 9 | - | 337 | 259 | 222 | 63 | 10 |
| D | - | 26 | - | 400 | 198 | - | - |
| R | - | 422 | - | - | - | - | 10 |
| X | - | 147 | - | 64 | 99 | - | 6 |

Source: NCZ

On the basis of the above data, NCZ's imported requirements are presented in Table 7.

TABLE 7

Imported Raw Material Requirements
Nitrogen Chemicals of Zambia, Ltd.
(MT)

| | <u>Pre-Comm- issioning 1980/1981</u> | <u>Post-Comm- issioning 1981/82</u> | <u>Full Pro- duction 1983/84</u> |
|---------------|--|---|--|
| Borax | 169 | 48 | 68 |
| MOP | 480 | 255 | 361 |
| SOP | 5,650 | 9,889 | 14,009 |
| SSP | 2,540 | 1,498 | 2,122 |
| TSP | 5,900 | 16,130 | 22,851 |
| DAP | 11,830 | 15,752 | 22,815 |
| Coating agent | 460 | 479 | 679 |
| TOTALS | 27,029 | 44,051 | 62,905 |

Source: NCZ

When the entire expansion program has been completed by 1985, NCZ will only have to import raw materials for the production of NPK compounds. The annual tonnage is projected to be about 64,000 MT per annum to produce roughly 142,000 MT of NPK fertilizers.

D. Plant Operations

1. Commissioning (Start-up)

Nitrogen Chemicals of Zambia (Ltd) has the necessary equipment for manufacturing the required intermediate products and the chemically combined NPK compound fertilizers. Construction has been completed on parts of this unit and these parts are already undergoing start-up trials. As with all manufacturing units, modifications may be necessary during the start-up period. Except for the coal gasification unit, the equipment and

operational procedures are rather simple and standard for the industry. The compound fertilizer factory should attain a high percentage of rated capacity within a 2-month period of start-up.

The new NPK fertilizer production facilities are expected to have the first trial run in February of 1981. Materials for testing the system need to be in east or southern Africa ports by January 1, 1981 for onward shipment and arrival at Nitrogen Chemicals by February 1, 1981. As processing and storage of the materials is a part of testing the system, having the materials for the start-up is important to the operational success of the compound fertilizer factory.

2. Fertilizer Processing

Materials to be used in compound fertilizers will be stored in large concrete bins located in the storage area adjacent to the granulating unit. Ammonium sulfate will come directly to the storage bins from the ammonium sulfate plant by conveyor belt. Ammonium nitrate solution will come directly from the ammonium nitrate plant to the granulator by pipe lines. Imported materials will arrive by rail car in bags. The bags will be opened and the fertilizer placed on elevators for movement to storage bins.

As the materials are needed they will be taken by pay loader to elevators for delivery by a belt conveyor system to a hopper just above the granulating drum. The materials will then be automatically weighed and metered into the granulator. Each specific chemically mixed NPK grade will be produced by feeding, along with steam, the necessary quantities of the above raw materials into a drum granulator. Anhydrous ammonia, used to control the ph of the mixture in the granulator is piped directly into the granulator from the ammonia plant. This is a standard established method

for the manufacture of chemically reacted NPK fertilizer. The continuous feed system and granulator has a rated production capacity of 18 tons of compound fertilizer per hour.

From the granulator the fertilizers are delivered to the dryer. The dryer is fed by tail gas from the coal gasification plant. Additional feedstocks will be required and will be supplied as fuel oil. The fertilizer will be dried to 3% moisture or less. From the dryer the fertilizers are passed to a drum air cooler. The granules are cooled rapidly to produce hardness.

From the cooler the fertilizer passes through a series of screens causing over and under sized granules to return to the system for reprocessing. The properly sized fertilizer is then coated with a diatomaceous earth (kaolinite clay) to prevent caking. The coating is necessary on the high nitrogen compound fertilizers to reduce the hygroscopic characteristics and insure a better conditioned fertilizer for application in the field. By means of an over head conveyor belt system, the finished fertilizer is dropped into six storage bins of 70,000 MT capacity each to await bagging and shipment. Storage space is ample and should not offer any problems for unbagged finished product.

The finished compound fertilizers will be taken by front end loaders and dumped in an elevator for delivery to the bagging unit. The unit has one bagging line that automatically weighs and delivers 50 kg. to each bag. The bags are automatically stitched at the top, 3 cm from the selvedge.

Plans call for a woven ultraviolet-stabilized poly-propylene bag to be used with a 2 mil poly-propylene liner. The liner and outside bag are stitched together instead of the liner being heat sealed or closed separately. The bagging unit is also capable of handling 25 kg. bags, should it become necessary in the future. The bagging unit is equipped with two conveyor lines. One is for loading trucks and the other for rail cars. The rated

capacity of the bagging unit for 50 kg is 30 tons per hour.

3. Possible Constraints

A few constraints that could arise were identified. It is possible that production may be limited by the inability to receive raw materials. Fertilizer materials shipped into the complex will be in bags. The bags must be opened and disposed of in a small work area.

Space for storing bagged finished product near the bagging lines is also limited. The plan is to bag and move the fertilizer directly on to rail cars and trucks. Only 75-100 tons can conveniently be stored on the loading platform. This may offer some problem in the future. However, storage space currently exists for 70,000 MT of fertilizer.

Finally, it was recognized that ammonium nitrate solutions place an upper limit on nitrogen levels in high analysis compound fertilizers. Therefore, other sources of nitrogen must be used in the formulation to make the high analysis mixtures D, X and R. Because of this, continued reliance on imported raw materials (DAP, etc) can be expected.

III. Management Analysis

1. Present Management Structure

NCZ currently has a labor force of 726 people, of which 46 are expatriates. For purposes of this analysis, management is divided into three categories: top, middle and lower levels. Zambians fill 36 percent of the top managerial positions including the top three positions. Of the middle managers (supervisors), Zambians constitute nearly 70 percent. All the lower level managers (assistant supervisors) are Zambians. Presently, more than 200 Zambians or more than 30 percent of the locals have over 10 years experience with the company.

NCZ reports low personnel turnover except in the area of instrumentation. For these skilled employees, the mines offer more attractive salaries and benefits.

2. Expansion Plans

With the fertilizer expansion, an additional 35 expatriates will be hired at the supervisory (middle management) level and an additional 700 Zambians. Throughout the commissioning period of about 8 months, Klochner, the prime contractor for the NPK facility, will provide up to 100 temporary people to assist in the plant's testing and operation.

NCZ has a plan for developing personnel to manage the compound fertilizer production facility as well as the other plants in the complex. For management and training purposes the complex has been divided into four sub-units consisting of:

1. gasification - ammonia - carbon dioxide
2. nitric acid - ammonia nitrate
3. ammonium sulfate, and
4. compound fertilizers.

All management personnel have completed a minimum of three months of on-the-job training in operational procedures in each of the four sub-units and will receive further updates as the various facilities become operational.

New management employees will complete the same course. Engineering students are selected upon completion of their college and academic requirements for a career with NCZ. The new employees are first given a 2-3 weeks orientation course in the especially designed and constructed training building. The orientation course is taught by the manager of each production facility. Upon completion of the orientation course the new engineering employees will complete the 12 month on-the-job training course. New line employees receive classroom orientation training, though training is primarily on the job.

3. Conclusion

At present there are enough expatriates, trainees and Zambians in Nitrogen Chemicals to operate the fertilizer factory. Adequate plans appear to have been made to insure that sufficient manpower is

available for commissioning. The start-up period will determine any weaknesses in this area.

IV. Financial Analysis

The fertilizer facility was initially scheduled to start commercial production in mid-1978 for a total cost of K126 million. Commissioning is now expected to officially start November 3, 1980 and commercial production is scheduled for July 1981. The postponements were a result of three problems: an underestimate of the cost of off-site work; the appreciation of the Deutschmark; and the closure of the Angolan import route, though which equipment was being shipped.

The expansion plant, when commissioned, is estimated to cost K286.8 million, an overrun of 128%. Of this total, K157.2 million represents foreign loans including German suppliers' credits of K103.3 million and French buyers credits of K53.9 million. K62.6 million of these loans is directly attributable to the delay in commissioning including K44 million for the German credit and K18.6 million for the French. The GRZ has agreed to contribute K35 million to the company's equity. To assist the GRZ in buying this equity, Iraq is providing a US \$30 million loan. The loan is for eight years, carries an interest rate of 2½% per annum, and repayment begins October 1982.

The remaining K94.6 million of capitalization requirements will be lent to the company by the GRZ on a long-term basis. The principal loan will be repayable in 50 years inclusive of a grace period of 10 years. The loan will bear interest of 10% per annum. The GRZ will agree to a moratorium on interest charges for the years 1981/82 and 1982/83. Interest charges for these two years will amount to K18.9 million to be paid in 1988/89. The cost of moratorium will be provided at 10% of the sum involved.

To be able to commission the plant and start commercial production by July 1981, NCZ estimated it needed another K55-60 million*. This financing is needed for raw materials, replacement of equipment and payment of contractor fees and contingencies. The proposed 1981 CIP loan and the remainder of the 1980 CIP would provide about K15 million of this amount.

Two syndicated loans now being negotiated with Citibank (K20 million) and Barclays Bank (K20-25 million) is expected to finance the remainder. The Citibank loan is for five years and will bear an interest of 2% per

*K20 - 25 million of this total is required to retire and/or service debt.

annum over the London interbank offered rate. The Barclay loan will be for five years and will carry a 12% per annum interest charge. At this writing, both syndications are more than half subscribed and the banks are optimistic that they will be repaid based on their favorable view of the NCZ's projected cash flow. In addition, the loans will be fully guaranteed by the GRZ.

Not included in the above total is the cost of constructing the sulfuric acid plant. Financing for this facility was arranged in July, 1980 when Japan and Zambia signed a K17 million concession loan. The GRZ will also provide an additional K4.4 million for local currency costs. The sulfuric acid facility is expected to start commercial production by mid-1983.

B. Operating Costs

Until the plant starts operation, actual cost relationships can not be established. Rough estimates have been made and these are addressed within the context of the cash flow discussion below. As NCZ's increased operating costs will primarily be from the increased use of coal and imported raw materials, these items are discussed further below.

With coal consumption by NCZ expected to increase from 65,000 MT, to 230,000 MT, Zambia's only mine has already undertaken steps to reverse the trend of declining coal production. Using loans from the Africa Development Bank and the EEC, Maamba Collieries expects to increase coal production commensurate with NCZ's increased demand. If supply problems should arise, NCZ believes that it would probably receive status as a priority receiver of coal.

Several international donor organizations have questioned whether Zambia's coal supply is of a high enough quality for the gasification process. To date, the preliminary tests suggest it is. The CIP design team had no basis to doubt the results. However, in the event that the coal's quality is too low, a readily available supply of high quality coal would be available from Wankie, Zimbabwe. These mines are only 100 km south of Livingstone, Zambia. This potential issue will not be resolved until the plant is in operation.

The costs related to the importation of the required raw materials was calculated from general market prices in early September 1980. Total costs of NCZ's imported raw materials to East African ocean ports approximate \$9.0 million for the pre-commissionary, \$14.6 for post-commissionary and \$21.3 million when NCZ

reaches full production. To these values port charges must be added (roughly \$60 per MT). Also, fluctuations in the market prices for the above raw materials, most of them fertilizers in their own right, could have a considerable effect on these estimates.

C. Cash Flow

NCZ will sell all the fertilizer it produces to NAMBoard on the basis of cost plus reasonable margin. NCZ's margin is equivalent to a 10 percent return on capital.

On the basis of the above capitalization structure, estimated operating costs and margin, NCZ estimated that its selling price to NAMBoard for NPK compounds would be approximately 50% higher than the C&F landed Zambia costs for imported fertilizers. Included in this calculation are allowances for depreciation as follows:

| | |
|--------------------------------|-----|
| Leasehold Land and Building | |
| -- Long-term Lease | 2 % |
| -- Short-term Lease | 2½% |
| Plant and Machinery | 2½% |
| Motor Vehicles | 25% |
| Office Furniture and Equipment | 25% |
| Residential Furniture | 25% |

As noted above, the high costs of domestic production are largely due to cost overruns attributed to reasons beyond the plant's control. In order to put the plant on a more firm financial footing and not pass these higher costs on to the farmer, the GRZ has agreed to assume a large portion of the debt. The GRZ will treat the K62.6 million attributed to overruns as its contribution to the company's equity capital. This is additional to the K35 million already agreed to.

Without the GRZ assuming this debt, fertilizer prices to NAMBoard would have been on the order of K600 per MT. With this assistance, prices will be as follows:

| | <u>UNIT</u> | <u>1980/81(K)</u> | <u>1981/82</u> |
|------------------|-------------|-------------------|----------------|
| A.N. Fertilizer | MT | 378.81 | 435.00 |
| A.N. Dense | MT | 387.64 | 427.00 |
| A.N. Porous | MT | 394.95 | 435.00 |
| A.N. Nitric Acid | MT | 184.29 | 215.00 |
| Compound - C | MT | | 422.00 |
| Compound - R | MT | | 489.00 |
| Compound - D | MT | | 481.00 |
| Compound - X | MT | | 486.00 |
| Carbon Dioxide | MT | 220.00 | 250.00 |

With the financial assistance the company is receiving as described above, NCZ's present cash flow analysis shows profitability by the fifth year; i.e., 1987/88. However, the GRZ must still repay the debt it has assumed. Thus, from the economic standpoint of Zambian society (see below) as opposed to the financial performance of the firm, the plant still represents a costly venture.

It should finally be noted that it will be more costly to the GRZ if it did not operate the plant. If the GRZ simply closes the plant, it must still pay the sunk costs in the plant. Paying these costs plus those of imported fertilizers would probably be higher than operating the plant as presently planned.

V. Economic Analysis

The economic analysis of the plant looks beyond the financial analysis and views NCZ's significance in the broader context of its impact on Zambian society. The financial costs have been indicated. Against these costs, other factors producing both direct and potential benefits must be considered. In the final analysis, it must be determined whether these benefits are sufficient to justify AID support of the plant.

A major area where the GRZ gains by domestically producing fertilizers is in the area of foreign exchange. Using 1980 as a reference point, if the fertilizer facility reaches full production (142,320 MT) the projected foreign exchange requirements for the raw materials (C.I.F. ocean ports in Africa) is about \$21 million. The equivalent cost of importing the 142,320 MT of fertilizer is over \$50 million or roughly an additional \$29 million.

A second area in which foreign exchange will be saved is in reduced transport costs of shipping the commodities to Zambia from the ocean ports. To domestically produce 142,320 MT of fertilizer, a projected

63,900 MT of raw materials will have to be imported. Thus, domestic production of the fertilizers would save transportation costs on over 78,000 MT. Using a conservative average freight charge from the coastal ports to Zambia of \$58 per metric ton, the foreign exchange savings could amount to upwards of \$4.5 million per year.

The domestic production of fertilizer would also reduce fertilizer losses from shipment to Zambia. Although the exact size of this loss is unknown, it appears to be substantial. For example, a Japanese supplied fertilizer shipment recently arrived in Zambia two years late. The fertilizer lost was valued at nearly one half a million dollars. NAMBoard reported to the CIP design team that such losses were not uncommon. These losses are all direct foreign exchange losses to Zambia.

To summarize, the GRZ can potentially reduce its future foreign exchange expenditures on fertilizers by over \$34 million per annum. This is equivalent to roughly 5 percent of Zambia's total estimated imports during 1979. Given Zambia's current economic situation as summarized earlier, the potential foreign exchange benefit of producing fertilizer domestically is substantial.

A second area where the GRZ benefits from the domestic production of fertilizer is the reduced demand for space on the various in-land transportation routes. Zambia has had a history of transportation problems in trying to obtain a sufficient number of railcars and trucks to move the country's imports to Zambia from the various ocean ports. By producing fertilizer domestically the physical quantity which needs to be imported declines by an average of 55 percent. For example, if the plant is producing at full capacity, roughly 78,000 MT (the difference between 142,320 MT and 63,900 MT) would not have to be brought in. This is the equivalent of 2,053 railcars which now could be used for alternative purposes.

What has been happening in the past is that imported fertilizers have not always been reaching Zambia on a timely basis, even though it arrives in port as scheduled. One reason has been that other higher priority commodities such as maize have received the scarce transportation space. Secondly, the GRZ has had numerous problems finding the foreign exchange to finance the inland freight. Thus, by producing fertilizer domestically, the GRZ reduces another problem which has plagued the nation since independence.

The third area where the GRZ stands to benefit is if the future price of oil continues to increase faster than coal. Traditionally, oil has been a major input into the manufacture of fertilizer. However, with the increasing problems regarding the availability and cost of oil, alternative methods of manufacturing fertilizers, such as the NCZ's gasification of coal process, become more viable. A testimony to the gasification of coal process as a viable alternative is the considerable world wide effort towards refining this technology. Thus, while the current financial analysis of the plant may be negative, in the medium term, it may become competitive.

A fourth area in which the GRZ and the country will gain is in the increased domestic economic activity related to the operation of the fertilizer facility. NCZ estimates the addition of 600 new jobs at the plant and an additional one thousand new jobs nationwide in various support industries such as in the manufacture of fertilizer bags.

The final area in which Zambia may serve additional foreign exchange could be the development of phosphate deposits. It was reported in the Overseas News, May 1978 that large phosphate reserve deposits had been found in the Feira district of Zambia by Mindeco Limited (The deposit was found while prospecting for copper). More deposits have been reported in the Nbombwa hill in the Isoka district in the Northern Province.

In a discussion with a representative from Mindeco the CIP design team was informed that the phosphate deposits were not large and might prove to be uneconomical for processing. However larger deposits have been reported along the Tanzania-Zambia border, in Tanzania. A plan for Zambia and Tanzania to cooperatively develop a source of phosphate could be explored as well as further analysis of domestic phosphate deposits.

The International Fertilizer Development Center (IFDC) and other research organizations have developed a technique for partial acidulation of rock phosphate. The process utilizes less acid since a completely acidulated phosphate is not produced. The process is proving to cost less in manufacturing cost and is also producing a positive agronomic crop response.

A study to determining the feasibility of processing the known rock phosphate should be undertaken. If the supply of rock phosphate would only be adequate to supply Zambia's P_2O_5 requirement for 10 years it may prove to be worthwhile.

Aside from the questions of economics and finance, the national security and self-sufficiency interests of landlocked Zambia must be recognized. This is a non-quantifiable benefit highly valued by the government and a sensible one in the uneasy political climate of southern Africa.

Weighting all of the above factors, AID/Zambia recommends that AID support the GRZ request to assist the plant. It is recognized that the main factors contributing to the financial weakness of the plant emanate from the political instability of recent years and that these were largely beyond the GRZ's control. It is further recognized that the plant will probably be less of a financial burden on the GRZ if it operates the plant. Finally, it is believed that the other economic and political benefits cited above adequately compensate for the plant's financial shortcomings.

September 9, 1980

U.S. A.I.D. Representative,
C/O American Embassy,
LUSAKA.

Attention: Mr. John A. Patterson

Dear Sir,

A.I.D. LOAN NO. 611-k-004/003/002

With reference to your Implementation Letter No. 3 dated 4th February 1980, I enclose herewith Certification of Attribution of Zambia Kwacha countervalue Generation under AID Program Loan No. 611-k-004/003/002 for the budget year ending 31st December, 1979.

Yours faithfully,

K. Sabaratnan
for/PERMANENT SECRETARY
MINISTRY OF FINANCE.

*Retyped copy of original.

ZAMBIA PROGRAM LOANBudget Heads Eligible for Local Currency Attribution Under
AID PROGRAM LOAN 611-k-004/003/002Government of the Republic of Zambia Annual Estimates of
Revenue and Expenditures, Capital Budget Expenditures

| Eligible Budget Heads | <u>1979</u> K |
|--|--------------------|
| 320 (Office of the Prime Minister)- Provincial Administration and Local Govt. Division Loans and Investments | 6,844,000 |
| 321 Ministry of Finance - Loans and Invest- ments | 69,882,683 |
| 329 Provincial Administration & Local Government Division (Office of the Prime Minister) | 830,527 |
| 338 National Commission for Development Planning (Office of the Prime Minister) | 400,000 |
| 344 Ministry of Labour and Social Services | 100,576 |
| 346 Ministry of Health | 885,765 |
| 351 Ministry of Power, Transport and Communications | 3,262,409 |
| 364 Ministry of Works and Supply | 45,993,216 |
| 380 Ministry of Education and Culture | 5,302,132 |
| 385 Ministry of Lands and Natural Resources | 691,090 |
| 389 Ministry of Agricultural and Water Development | <u>15,317,586</u> |
| | <u>149,509,984</u> |

ATTACHMENT B

Certification of Attribution of Zambia Kwacha Countervalue

Generations Under AID Program Loan Number 611-k-004/003/002

(For Budget Year Ending December 31, 1979)

| | |
|--|---------------------|
| 1. Total Actual Capital Budget Expenditures for Eligible Budget Heads | - K 149,509,984 |
| 2. Less: Amounts Funded by External Assistant other than AID | <u>K 39,671,243</u> |
| 3. Sub Total | 109,828,741 |
| 4. Amount of Countervalue Attributed | K 24,047,831 |
| 611-k-004 | - 15,328,128 |
| 611-k-003 | - 8,604,912 |
| 611-k-002 | - 114,791 |

I certify that the above is an accurated and correct statement
of the Kwacha Countervalue attributed to the AID Program Loan
No. 611-k-004/003/002.

(Signed)

Authorized Government of
Zambia Representative

ANNEX G

Analysis of Zambia's
Fertilizer Marketing System

A general overview of the fertilizer sub-sector is presented in Section VA. Section VB summarizes the major conclusions and recommendations of the following analysis.

I. Marketing System Components

There is not a fertilizer marketing organization in Zambia that carries out all of the marketing functions of product selection, pricing of product, distribution (place) and promotion. The four P's are carried out by different organizations and collectively they form the marketing system. As detailed in Section VA, the marketing system in Zambia is presently comprised of the following bodies:

- National Agricultural Marketing Board - product selection, pricing, imports, storage, and distribution.
- National Council for Scientific Research - agronomic research and field testing.
- National Fertilizer Committee - product selection.
- Central Supply and Tender Board - tendering.
- National Commission for Development Planning - pricing.
- Ministry of Agriculture and Water Development Extension Service - sales promotion and advisory assistance.
- Nitrogen Chemicals of Zambia, Ltd. - domestic manufacturer .

As a general rule, the probability of a successful fertilizer marketing program is rather low when marketing functions are allocated to different organizations for execution. Almost without exception the highly

successful fertilizer programs, as measured against increased sales and crop production, are those where marketing functions are vested in one organization.

II. Distribution

The National Agricultural Marketing Board (NAMBoard) is primarily responsible for the distribution of fertilizers and currently operates 14 major depots and 467 permanent rural depots. Supplementing this system are five provincial agricultural cooperative unions although to date they have focused more on purchasing crops than selling inputs.

Figure 1 indicates the physical movement of fertilizers from the ports to the farmers as carried out by NAMBoard. There are a total of 14 key distribution warehouses, of which Lusaka is the largest and most centrally located. NAMBoard also operates 467 permanent rural depots. The locations of these facilities are shown in Table 1.

FIGURE 1

Physical Movement of Fertilizer by NAMBoard

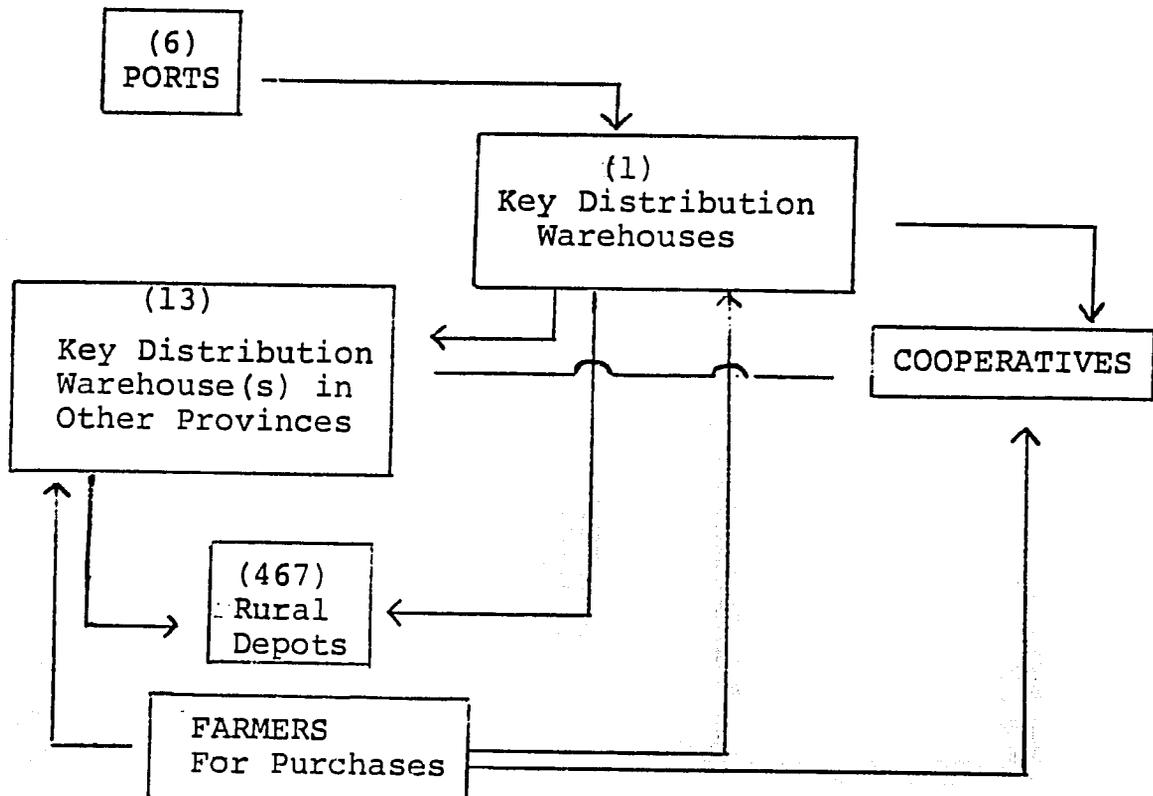


TABLE 1Locations of NAMBoard's Marketing
Centers and DepotsNAMBoard s 14 Key Distribution Centers

| | | | |
|-----|-------------------------|---|------------------------|
| 1. | Lusaka Complex | - | Central Province |
| 2. | Lusaka main grain depot | - | Central Province |
| 3. | Chisamba | - | Central Province |
| 4. | Monze | - | Southern Province |
| 5. | Livingstone | - | Southern Province |
| 6. | Choma | - | Southern Province |
| 7. | Kabwe | - | Central Province |
| 8. | Ewana Mkubwa | - | Copperbelt Province |
| 9. | Kitwe | - | Copperbelt Province |
| 10. | Chipata | - | Eastern Province |
| 11. | Mongu | - | Western Province |
| 12. | Mansa | - | Luapula Province |
| 13. | Solwezi | - | North Western Province |
| 14. | Kasama | - | Northern Province |

NAMBoard 's 467 Rural Depots

| | |
|------------------------|------------|
| Southern Province | 47 |
| Lusaka " | 35 |
| Central " | 149 |
| Copperbelt " | 32 |
| Eastern " | 31 |
| Western " | 40 |
| North Western Province | 52 |
| Luapula Province | 68 |
| Northern Province | 13 |
| TOTAL | <u>467</u> |

From the ports, fertilizers move directly to the Lusaka distribution warehouses and to the other key distribution centers located on the rail lines. Fertilizers to centers not on the rail lines are delivered by truck from the Lusaka warehouse.

There are four areas of rural depot concentration. The greatest concentration is along the rail line in the Central Province where most of the maize and tobacco is produced. Both of these cash crops are heavily fertilized. Rural depots are similarly concentrated along the rail line in the Southern Province, another maize producing area. There are also concentrations of depots in the maize producing areas of the Eastern Province along the Mozambique and Malawi borders and in Western Luapula Province along the Zaire border. The rice producing areas of Chama, Eastern Province, Kawambwa and Mansa in Luapula and Kalabo and Sesheke in the Western Province are served by rural depots as well.

There are several areas where NAMBoard has not been able to expand even though crop reports indicate there are enough hectares of maize, sunflower, vegetables and cassava to justify a rural depot. Areas where there are no rural depots that should be served include the following:

| | <u>Area</u> | <u>Province</u> |
|----|---------------|-----------------|
| a) | Chililabombwe | Copperbelt |
| b) | Mufulira | Copperbelt |
| c) | Chavuma | North Western |
| d) | Sichole | Western |
| e) | Sioma Nwezi | Western |
| f) | Muyombe | Northern |
| g) | Zimba | Southern |

Almost daily NAMBoard receives requests for the establishment of additional rural depots. However, from a business viewpoint it is difficult to justify a depot in villages where only 35-40 small farm holders reside and purchase some 100 - 125 bags of fertilizers annually. NAMBoard has experimented with the establishment of temporary depots which maintain a supply of fertilizers during the crop

planting season and then close down when it ends. These temporary depots have not proven successful and the more remote villages and small farm holders now appear to have limited access to fertilizer distribution points. These farmers must have fertilizers and technology if their productivity and level of living is to be improved.

The distribution network as described above is as it presently exists. The GRZ has decided to reorganize it, and effective March 31, 1981, NAMBoard's role in the importation and distribution of fertilizers will be considerably reduced. NAMBoard will continue to import fertilizers for another two years or until the 1984/85 fertilizer year. At that time the function of importing fertilizer will be handed over to Nitrogen Chemicals of Zambia, Ltd. (NCZ). As the NCZ factory comes on stream, progressively less fertilizer will be imported. By 1984/85, it is forecast that NCZ will be producing at full capacity and providing about 80% of Zambia's fertilizer requirements.

Under the reorganized distribution system, NAMBoard will continue to operate the 14 key distribution warehouses and will sell only to large commercial farmers that purchase in quantities of 50 tons or more. However, all rural depots will be handed over to the cooperative unions for management.

The cooperative marketing system has a better chance of success in fertilizer marketing than NAMBoard because under the proposed reorganization they are allowed a 10% margin on sales. With this incentive the cooperatives could become a strong marketing force.

The cooperative organization is made up of three levels of management. At the first level there is a Cooperative Federation that helps to coordinate the activities of all cooperatives in Zambia. Their efforts are mainly directed towards obtaining favorable government policy and actions to aid the cooperative movement.

Below the Federation, but still a part of the Federation, are the cooperative unions. These are formed by the primary agriculture marketing cooperatives for the purpose of helping to coordinate their activities in purchasing, selling, training and management.

At the local level there are the primary cooperatives. These can be formed in two ways. One way is for farmers to act together and form a primary marketing cooperative. The manager is selected by the membership. Cooperatives may become a member of a cooperative union or not. The second way is for a cooperative union to select a site and open a retail cooperative store. The manager is selected by the cooperative union. This seems to be a store owned and operated by the cooperative union.

The Department of Marketing and Cooperatives within the Ministry of Agriculture and Water Development helps in the formation of cooperative societies. In 1977 there were 149 multi-purpose primary cooperatives and 300 producer and farm settlements primary cooperatives.

Reports received by the CIP team regarding the activities of the cooperatives revealed many areas of poor management and performance. Studies completed that analyze the operations of the cooperatives indicate that performance in many places may be retarding agriculture production.

III. Fertilizer Sales

A. Past and Projected Sales

Fertilizer demand at the present subsidized rate has never been established for Zambia. This is because each season the late arrival and/or inadequate distribution of supplies have prevented a good check on actual demand. At present the best guide to demand is an analysis of past sales.

Table I, Section VB ("Fertilizer Sub-Sector") shows that sales have increased from 133,600 MT in 1975 to 157,500 MT in 1980. Sales for the 1981 fertilizer year are forecast at 173,200 MT. Table I, Section VB also indicates that inventories are accumulating and this will enable the system to make fertilizers available to farmers on a more timely basis.

Fertilizer sales by months for 1978 and 1979 are shown in Table 1 (page). Sales increased sharply during the maize, tobacco and sorghum planting season of September, October, November, January and February. The sales in Sept., October and November of 1978 differed from those in the same months of 1979 due to the late arrival of rains in 1979.

TABLE 1
NAMBoard Fertilizer Sales by
Months 1978 and 1979

| Month | 1978 | | 1979 | |
|-----------|-------------------|----------------------|---------------------|----------------------|
| | Cumulative Tonnes | Monthly sales Tonnes | Accumulative Tonnes | Monthly Sales Tonnes |
| January | 19,199.20 | 19,199.20 | 20,460.78 | 20,460.78 |
| February | 28,633.60 | 9,434.4 | 32,497.14 | 12,036.36 |
| March | 36,576.40 | 7,942.8 | 38,670.86 | 6,173.71 |
| April | 37,153.10 | 578.7 | 41,175.62 | 2,504.76 |
| May | 38,883.0 | 1,727.9 | 44,087.34 | 2,911.72 |
| June | 42,463.60 | 3,580.6 | 45,646.32 | 1,558.98 |
| July | 44,761.20 | 2,297.6 | 49,834.91 | 4,188.59 |
| August | 46,917.80 | 2,156.6 | 56,231.91 | 6,396.33 |
| September | 50,358.80 | 3,441. | 70,506.41 | 14,275.17 |
| October | 68,882.20 | 18,523.4 | 88,208.11 | 17,701.70 |
| November | 97,996.50 | 21,114.3 | 116,051.46 | 27,843.35 |
| December | 130,077 | 32,080.5 | 145,042.16 | 28,990.70 |
| | 130,077 | 130,077 | 145,042.16 | 145,042.16 |

Source: NAMBoard F.I.P.S. Division Sales Analysis.

Table 2 below indicates the increase in fertilizer by nutrients for a) agriculture land; b) arable land and c) per capita for the years 1972 and 1977.

TABLE 2
Fertilizer Consumed per Hectare

| | <u>Nitrogen</u> | | <u>Phosphate</u> | | <u>Potash</u> | |
|-----------------|----------------------|-------------|------------------|-------------|---------------|-------------|
| | <u>1972</u> | <u>1977</u> | <u>1972</u> | <u>1977</u> | <u>1972</u> | <u>1977</u> |
| | (a) Agriculture land | .7kg | 1.2kg | .3kg | .7kg | .1kg | .2kg |
| (b) Arable land | 5.0kg | 8.3kg | 2.4kg | 4.7kg | 1.0kg | 1.2kg |
| (c) Per capita | 5.5kg | 7.8kg | 2.6kg | 4.7kg | 1.1kg | 1.2kg |

SOURCE: FAO Fertilizer Year Book, 1978.

From 1972 to 1977 nitrogen consumption per hectare of arable land increased from 5.0 kg to 8.3 kg, an increase of 66%. Phosphate increased from 2.4 kg to 4.7 kg for an increase of 95.8%. Potash had the smallest increase of only 2%. The small increase in potash is to be expected since the soils of Zambia are not deficient in this element.

There are indications that the increase in total fertilizer consumption results from both an increase in rates per hectare and the number of

hectares fertilized. Table 3 compares yields and number of hectares planted to crops in 1976 and 1977. The number of hectares planted in total cereals fell from 1.317 million hectares in 1976 to 1.268 million in 1977 a decrease of 49,000 hectares. At the same time yields dropped from 926 kg/ha in 1976 to 885 kg/ha in 1977.

The number of hectares planted in maize fell by 50,000 hectares over the same period, however, total maize production went up by 70,000 MT. This increase can be accounted for by the fact that yields per hectare went up from 909 kg/ha in 1976 to 1,019 kg/ha (1.02 tons) in 1977.

In addition to maize, production per hectare went up in 1977 over 1976 for groundnuts and sugar cane. There are many factors that account for these increased yields per hectare. Weather factors, varieties, cultural practices and many others can claim some credit for the yield increases. The increase in the consumption of nutrients per hectare of arable land must be given some credit as well.

The FAO projects an increase in fertilizer demand of 10% per year. This forecast may be possible considering the present rate of increase in the population, an improving diet and a positive government policy to increase the small farm holders income. If this projection is correct, more retail outlets providing a timely supply of essential inputs must be established.

B. Sales by Provinces and Depots

Table 2, Section VB shows the distribution of fertilizer sales by provinces for the years 1977 through 1980. These figures show that the Southern, Central and Eastern Provinces accounted for 90,720 MT or 70% of total sales in 1978. These provinces are the major maize and tobacco producing areas in Zambia.

Table 4 shows that no correlation exists between the number of rural depots and the volume of sales by provinces. For example, the Southern Province has 47 depots averaging 1,370 MT in sales per

TABLE 3

CROP PRODUCTION IN ZAMBIA
BY AREA PLANTED TOTAL PRODUCTION AND YIELD PER HECTARE
1976 and 1977

| | <u>1,000 ha</u> | <u>1,000 mt</u> | <u>Yield (kg/ha)</u> |
|------------------------|-----------------|-----------------|----------------------|
| Cereals, total: | | | |
| 1976 | 1,317 | 1,220 | 926 |
| 1977 | 1,268 | 1,123 | 885 |
| Maize 1976 | 1,100 | 1,000 | 909 |
| 1977 | 1,050 | 1,070 | 1,019 |
| Root and Tubers 1976 | 56 | 184 | 3,286 |
| 1977 | 57 | 187 | 3,286 |
| Mostly Cassava 1976 | 53 | | |
| 1977 | 54 | | |
| Pulses 1976 | 20 | 12 | 614 |
| 1977 | 20 | 12 | 596 |
| Groundnuts 1976 | 30 | 30 | 1,000 |
| 1977 | 32 | 32 | 1,019 |
| Sunflower seed 1976 | 19 | 13 | 679 |
| 1977 | 18 | 12 | 667 |
| Cotton (seed) 1976 | 6 | 5 | 753 |
| 1977 | 6 | 3 | 500 |
| Cotton (lint) 1976 | 1 | - | - |
| 1977 | 1 | - | - |
| Palm | - | 64,000 | - |
| Kernels | - | 65,000 | - |
| Vegetables | - | 180 | - |
| | - | 184 | |
| Fruits | - | 61 | |
| | - | 62 | |
| Sugarcane 1976 | 9 | 860 | 101,176 |
| 1977 | 9 | 950 | 101,556 |

Source: 1977 FAO Production Yearbook

TABLE 4
NUMBER OF RURAL DEPOT AND
FERTILIZER SALES BY PROVINCES 1979

| Province | Number of Depots | Sales 000/MT | % of Total Sales | Sales per Depot M/T |
|---------------|---------------------|-----------------|------------------------|---------------------------|
| Southern | 47 | 64.4 | 44 | 1370 |
| Central | 149 | 35.1 | 24 | 236 |
| Eastern | 31 | 16.7 | 12 | 539 |
| Lusaka | 35 | 12.7 | 9 | 363 |
| Copperbelt | 32 | 4.3 | 3 | 134 |
| Northern | 13 | 7.8 | 5 | 600 |
| Western | 40 | 1.0 | 1 | 25 |
| North Western | 52 | 1.4 | 1 | 27 |
| Luapula | 68 | 2.0 | 1 | 19 |
| Total | 467 | 145.3* | 100 | (Av. 311) |

Difference from Table 1 due to rounding and is not significant.

depot whereas Western, North Western and Luapula Provinces with a total of 160 depots averaged less than 30 MT per depot.

C. Sales by Product Type and Crop

Table 5 shows fertilizer sales by type product for the years 1976 through 1979. The sale of grade R,X, urea and ammonium nitrate account for the largest tonnage. Grades R,X, and D are recommended for most crops including maize, rice, wheat and sorghum. Grades A, C and V are recommended for tobacco. On the basis of these uses by product type, the estimate is made in section VB that approximately 71% of the total fertilizer consumed in 1979 was used on maize.

An analysis of sales by types and years failed to indicate any major shift in fertilizer products used. When the CIP team surveyed large commercial farmers they pointed out that given a preference at equal cost per unit of nitrogen, ammonium nitrate would be selected because of the volatilization of urea.

D. Cooperative Sales

Cooperatives purchase fertilizers from NAMBoard's key distribution warehouses in the provinces. Sales are then made to farmers through the Cooperative Credit Scheme. The cooperatives make sales in the Eastern, Southern, Northern and Luapula provinces.

Cooperatives' sales are strongest in the Eastern Province where in 1978 they sold 1,765 MT through the Credit Scheme. These sales amounted to 10% of total sales. This 10% share was also maintained in 1979.

The cooperatives will have to staff-up quickly if they are to take over NAMBoard's rural depots and have anything approaching a viable operation in 1981. The cooperatives are in a strong position to have an effective fertilizer marketing operation in due time. NAMBoard never will under the present mandate of operating without an incentive sales program.

The cooperatives are allowed a 10% reduction in the purchase price of fertilizer from NAMBoard. This 10% is then added back to the sales price of the fertilizer. The sales price is fixed at the uniform price level set by the government. The 10% margin gives the cooperatives a means of generating funds for expansion.

In addition the cooperatives negotiate the cost of distributing their fertilizer sales with the government and are paid this cost, sometime in advance of making the sales. This practice could lead to gross inefficiencies in their distribution program.

TABLE 5

NAMBOARD FERTILIZER SALES BY TYPES
1976 - 1979
(MT)

| <u>Type</u> | <u>1976</u> | <u>1977</u> | <u>1978</u> | <u>1979</u> |
|--------------|----------------|----------------|----------------|----------------|
| A | NIL | 303 | 476 | 151 |
| C | 3,228 | 539 | 5,988 | 4,298 |
| V | 563 | 4,117 | 3,617 | 1,282 |
| R | 21,909 | 23,472 | 16,709 | 26,448 |
| X | 22,161 | 30,121 | 20,166 | 19,952 |
| D | 30,411 | 31,673 | 30,184 | 28,005 |
| Urea | 46,780 | 47,713 | 27,536 | 42,402 |
| A/SULPHATE | 715 | 2,197 | 2,030 | 870 |
| A/NITRATE | 17,284 | 25,339 | 20,292 | 17,842 |
| S/NITRATE | 708 | 254 | 163 | 156 |
| K/CHLORIDE | 38 | 134 | 87 | 140 |
| K/SULPHATE | 1 | 35 | 62 | 62 |
| T.S.P. | 1,325 | 1,480 | 1,588 | 1,588 |
| S.S.B. | 751 | 130 | 308 | 137 |
| OTHERS | 4,900 | 6 | 471 | 2,035 |
| TOTAL | 150,774 | 167,507 | 130,077 | 145,368 |

Source: National Agricultural Marketing Board, F.I.P.S.
Division Sales Analysis.

E. Fertilizer Prices

Uniform fertilizer prices per metric ton are shown in Table 6 of the years 1975 through 1980. Prices have accelerated sharply since 1975. Compound fertilizer increased by approximately 61% in 1976 over 1975 prices. Urea increased by 66% and ammonium nitrate by 58% in 1976 over 1975 prices. 1976 reflects the big jump in cost of production due to the increase in feed stock prices.

The sales price for compound grades V,R,X and D continued to increase in 1980. Urea increased by 10% in 1980 over the 1979 sales price whereas ammonium nitrate increased 16% to K181 per metric ton. Presently urea is the best buy for farmers as it costs K0.42 per unit compared to K0.54 per unit for ammonium nitrate. The CIP team was told that the ammonium nitrate price would be brought more in line with urea when the new ammonium nitrate facility at Kafue comes on stream.

IV. Sales Promotion Activities

NAMBoard and the cooperatives do not carry out any special sales programs or campaigns. They have the one sales program of continuously offering fertilizers for sale to farmers that come to existing rural depots and primary marketing cooperatives.

There would appear to be many sales programs available to the marketing system that are not being utilized. Sales quota's, advertising, demonstrations, field days, truck load village sales, sub-agents in villages not served by a retail outlet and many other promotion activities could have application. Different sales programs should be tried to determine the best for local conditions.

At present the nearest thing to a sales program is limited employee training on the sale of products. In a normal fertilizer marketing organization, the retail dealer is a very important key to the sale of fertilizers and customer satisfaction. The retailer is normally the last person to talk with the farmer on farming practices before he goes to the field and applies the inputs.

In the NAMBoard system, fertilizer sales managers are not adequately trained to advise the farmers on use. The CIP team only surveyed a small sample. However, it was found and verified by NAMBoard management that most depot managers had only attended a one week seminar on fertilizer use. If managers had been on the job as long as five years they had attended two seminars. The CIP team found that the managers were unable to give recommendations as to the rates per hectare for different crops, either for the basic dose or for the top dressing. Approximately 75% of the fertilizer sales managers are women.

TABLE 6
FERTILIZER SELLING PRICE PER MT
(1975-198)

| TYPE | YEAR | | | | | |
|--------------------------------|-------|--------|--------|--------|--------|--------|
| | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
| 'A' | 80.00 | 140.00 | 140.00 | 140.00 | 140.00 | 140.00 |
| 'C' | 78.00 | 135.00 | 135.00 | 175.00 | 175.00 | 180.00 |
| 'V' | 78.00 | 120.00 | 120.00 | 120.00 | 120.00 | 160.00 |
| 'R' | 85.00 | 136.00 | 136.00 | 176.00 | 176.00 | 195.80 |
| 'X' | 83.00 | 134.00 | 134.00 | 174.00 | 174.00 | 195.80 |
| 'D' | 80.00 | 131.00 | 131.00 | 170.00 | 170.00 | 192.00 |
| S/A | 60.00 | 96.00 | 96.00 | 124.00 | 124.00 | 145.00 |
| UREA | 81.00 | 135.00 | 135.00 | 175.00 | 175.00 | 193.00 |
| Sodium Nitrate | 80.00 | 140.00 | 140.00 | 181.00 | 181.00 | 224.00 |
| SSP | 38.00 | 90.00 | 90.00 | 117.00 | 117.00 | 144.00 |
| TSP | 78.00 | 129.00 | 129.00 | 167.00 | 167.00 | 230.00 |
| MOP | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 96.00 |
| K ₂ SO ₄ | 84.00 | 84.00 | 84.00 | 84.00 | 84.00 | 111.00 |
| A/N | 76.20 | 120.00 | 120.00 | 156.00 | 156.00 | 181.00 |

Source: Namboard F.I.P.S. Division Sales Analysis

Advice to farmers is left almost entirely to the Extension Service. NAMBoard has one agronomist and one entomologist stationed at Lusaka to aid individual farmers that request help. They are not allowed to call on farmers or conduct educational type functions and solicit business. NAMBoard has been told repeatedly not to enter this field of activity since it is a function of the Extension Service.

V. Agronomic Program

A. Key Institutions

The agronomic programs for the marketing system are carried out by the Ministry of Agriculture and Water Development's Research Division. The locations of the research facilities are shown on Map 1.

NAMBoard and the cooperatives, the organizations distributing the fertilizer, do not carry out any agronomic trials to determine the effectiveness of fertilizers. NAMBoard utilizes a farm outside Lusaka for testing plant protection chemicals against label recommendations before offering them for sale to farmers. The Extension Division has the responsibility for the transfer of information to farmers.

The CIP team reviewed the current fertilizer research work being carried out by the research network. Reports of the division are published annually. It appears that more research has been carried out in Zambia than most developing African countries.

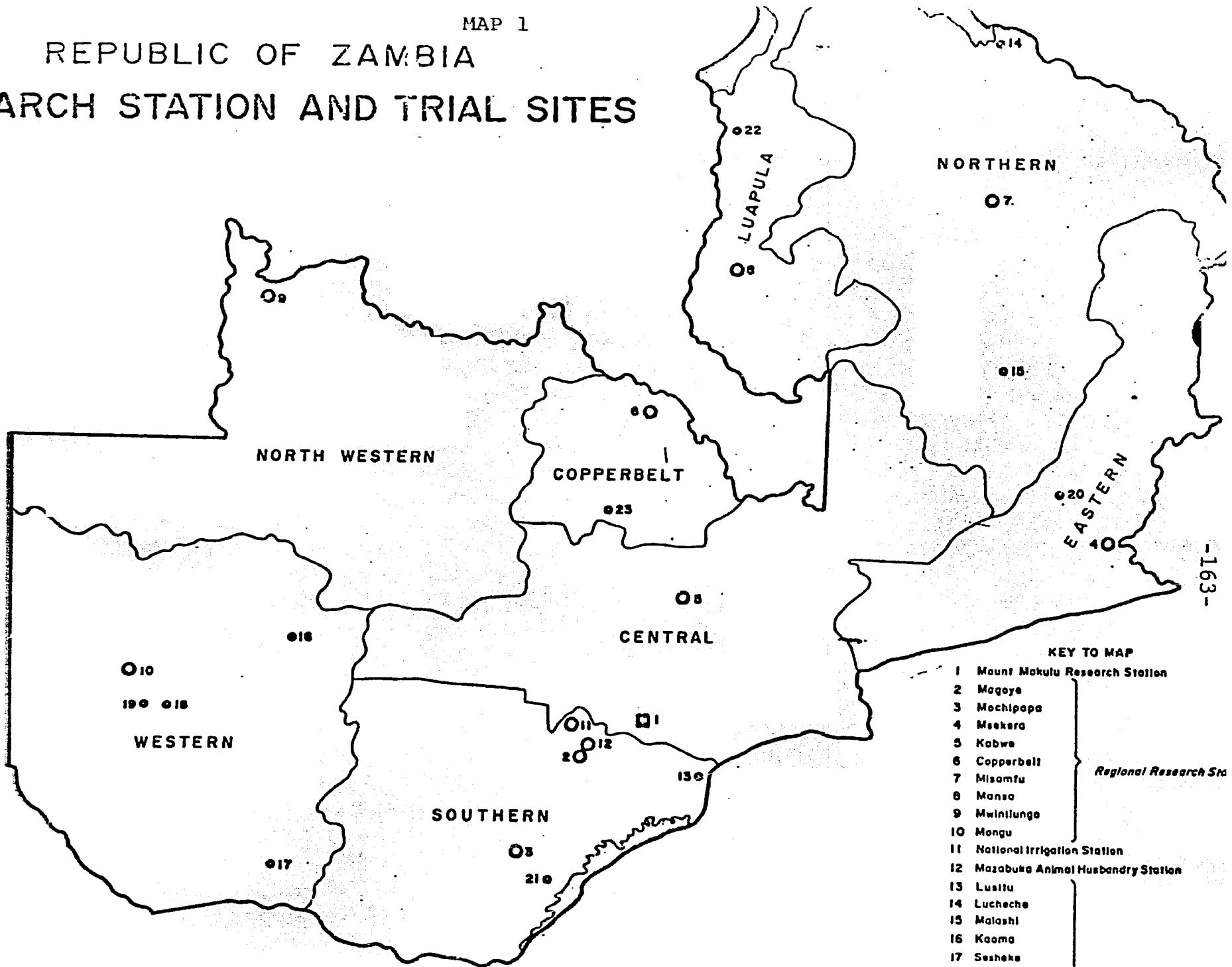
B. Fertilizer Recommendations

Fertilizer recommendations of the Research Division for major crops are given in Table 7. These recommendations are based on experiments and field trials carried out in each of the provinces. The CIP team considered the rates recommended for cotton to be somewhat low. The nitrogen level on maize seems to be a little low for yields in the 5.0 ton per hectare range. Phosphate could also be a little low. The CIP team also considered the nitrogen recommendation on rice to be low for good yields. Dried beans receive a high nitrogen recommendation due to the fact that nitrogen fixation by this legume was found to be low.

The best way to sum up the fertilizer requirements of Zambia is to quote Dr. J.K. McPhillips, Senior Soil Chemist at the National Research Station, Mount Makulu.

"Responses to all three nutrients have been established in Zambia. This is hardly surprising - as a glance at the soils map of Zambia indicates the generally low inherent fertility of the soils. Nowhere is found large areas of such naturally fertile soils that good yields can be obtained without the use of fertilizers, for even a short period of time. What is remarkable, however, is the high potential such soils have for crop production provided fertilizers are used, and the relatively modest requirements of PK and S. Nitrogen is an exception

MAP 1
 REPUBLIC OF ZAMBIA
 RESEARCH STATION AND TRIAL SITES



KEY TO MAP

- | | | |
|----|-----------------------------------|--------------------------------|
| 1 | Mount Makulu Research Station | } <i>Regional Research Sta</i> |
| 2 | Magoya | |
| 3 | Mochipapa | |
| 4 | Msekera | |
| 5 | Kabwe | |
| 6 | Copperbelt | |
| 7 | Misamfu | |
| 8 | Manisa | |
| 9 | Mwinilunga | |
| 10 | Mongu | |
| 11 | National Irrigation Station |  | } Sub-Stations |
| 12 | Mazabuka Animal Husbandry Station | |
| 13 | Lusitu | |
| 14 | Lucheche | |
| 15 | Malashi | |
| 16 | Kaoma | |
| 17 | Sesheke | |
| 18 | Katiba Valley | |
| 19 | Namushakende | |
| 20 | Jumbe | |
| 21 | Siatwinda | |

TABLE 7

FERTILIZER RECOMMENDATIONS FOR ZAMBIA*

| CROP | AREA RATE PER LIMA |  | AREA RATE PER LIMA |  | AREA RATE PER LIMA |  | AREA RATE PER LIMA | | SUMMARY RATE PER HECTARE FOR COUNTRY |
|---|--------------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|---------------|--|
| | NORTHERN PROVINCE | | SOUTHERN PROVINCE | | WESTERN PROVINCE | | EASTERN PROVINCE | | |
| 7) Beans (DEITP) Basal Top Dress | 1 bag (50kgs) | 20-10-10-10 | 1 bag | 10-20-10-10 | | | 1 bag | 10-20-10-10 | 20-40-20-20 |
| | 1 bag (AN) | 33.5- 0- 0- 0 | 1 bag | 33.5- 0- 0- 0 | | | 1 bag | 33.5- 0- 0- 0 | <u>67</u> 87-40-20-20 |
| 8) Sunflower Basal Top Dress | 1 bag (50kgs) | 10-20-10-10 | | | 1 bag | 10-20-10-10 | 1 bag | 10-20-10-10 | 20-40-20-20 |
| | 1 bag (AN) | 33.5- 0- 0- 0 | | | 1 bag | 33.5- 0- 0- 0 | 1 bag | 33.5- 0- 0- 0 | <u>67</u> 87-40-20-20 |
| 9) Cotton Basal | | | 1 bag | 20-20- 0-10 | | | 1 bag | 20-20- 0-10 | 40-40- 0-20 |
| 10) Sorghum Basal | | | 1 bag | 20-20- 0-10 | 1 bag | 20-10- 5-10 | 1 bag | 20-20- 0-10 | 40-40- 0-20 |
| 11) Cowpeas Basal | | | 1 bag | 10-20-10-10 | 1 bag | 10-20-10-10 | 1 bag | 10-20-10-10 | 20-40-20-20 |
| 12) Soybeans Basal | | | 1 bag | 10-20-10-10 | | | 1 bag | 10-20-10-10 | 20-40-20-20 |
| 15) Bulrush Millet Basal | | | 1 bag | 20-20- 0-10 | 1 bag | 20-10- 5-10 | | | 40-20-10-20 |

* Taken from Lima Crop Memo, Department of Agriculture, Research Branch
 ** A LIMA represents 1/4 hectare

TABLE 7

FERTILIZER RECOMMENDATIONS FOR ZAMBIA*

| CROP | AREA RATE PER LIMA ** | | AREA RATE PER LIMA | AREA RATE PER LIMA | AREA RATE PER LIMA | SUMMARY RATE (Kg OF NUTRIENT) PER HECTARE | | | |
|------------------------|-------------------------------------|---------------|--------------------|--------------------|--------------------|---|-------|---------------|-------------------|
| | NORTHERN PROVINCE | | SOUTHERN PROVINCE | WESTERN PROVINCE | EASTERN PROVINCE | | | | |
| | GRADES - N - P - K - S | | " | " | " | | | | |
| 1) Maize Basal | 1 bag (50kgs) | 20-10- 5-10 | 1 bag | 20-20- 0-10 | 1 bag | 20-10- 5-10 | 1 bag | 20-10- 5-10 | 40-20-10-20 |
| Top Dress | 1 bag (AN/urea) | 33.5- 0- 0- 0 | 1 bag | 33.5- 0- 0- 0 | 1 bag | 33.5- 0- 0- 0 | 1 bag | 33.5- 0- 0- 0 | 67 |
| | | | | | | | | | 107-20-10-20 |
| 2) Groundnuts Basal | 1 bag (50kgs) Single Super | 0-20- 0-12 | 1 bag | 0-20- 0-12 | 1 bag | 0-20- 0-12 | 1 bag | 0-20- 0-12 | 0-40- 0-24 |
| 3) Rice Basal | 1 bag (50kgs) Compound | 10-20-10-10 | 1 bag | 10-20-10-10 | 1 bag | 10-20-10-10 | | | 20-40-20-20 |
| Top Dress | 1/2 bag A/N) | 17- 0- 0- 0 | 1/2 bag | 17- 0- 0- 0 | 1/2 bag | 17- 0- 0- 0 | | | 33 |
| | | | | | | | | | 53-40-20-20 |
| 4) Soybean Basal | 1 bag (50kgs) (D) | 10-20-10-10 | | | | | | | 20-40-20-20 |
| 5) Finger Millet Basal | 1 bag (50kgs) (X) | 20-10- 5-10 | | | | | 1 bag | 20-10- 5-10 | 40-20-10-20 |
| 6) Cassava | No Recommendation | | No Recommendation | | | No Recommendation | | | No Recommendation |

being required in fairly large amounts, for all but leguminous crops, but this is not unexpected when the organic matter content of even the best soils is rarely above 3 percent, with 1 percent being a medium value over large areas of sandvelt soils.

What is surprising, indeed perhaps unique, is the need for sulphur in any programme of crop fertilization in Zambia. Large responses to sulphur have been found throughout the country and sulphur deficiency has been established as being so widespread as to be endemic."

shows
Table 8 / the response of maize to sulphur. These yields were obtained with the long 165 day maturing maize. With the introduction of the single hybrid maize variety SR52 that matures in 115-120 days, yields of 70 plus bags (6.3 ton per ha.) are possible.

TABLE 8

Response to Sulphur on Maize
(Yield in 90kg Bags per Hectare)

| Treatment* | Misamfu | Kaoma | Lundazi |
|------------------------|---------|-------|---------|
| Control | 8 | 13 | 15 |
| Urea | 8 | 20 | 15 |
| Sulphate of Ammonia | 30 | 30 | 58 |
| Urea-Sulp- hur | 30 | 30 | 58 |

Source: Fertilizer Recommendations in Zambia, Paper no. 6
J. K. McPhillips.

*All plants except Control received a basal dose of P and K

Boron is the only micro nutrient studied in Zambia to show crop responsiveness to any large extent. Of the field crops, cotton has been shown to be particularly susceptible to boron deficiency and an overall application of Solubor to give a minimum of 1Kg/ha boron is generally recommended wherever cotton is grown. Table 9 shows the response of cotton to boron at Magoye in 1969 and 1970.

TABLE 9

Response to Boron on Cotton at Magoye

| Boron Level Kg/ha | Seed Cotton 1968-69 | Yield Kg/ha 1969-70 |
|-------------------|---------------------|---------------------|
| 0 | 1,673 | 1.944 |
| 1 | 2,261 | 2,758 |

Source: Fertilizer Recommendations in Zambia

Paper No. 6, J.K. McPhillips

C. ECONOMICS OF APPLICATION

How much response and return the farmer can expect from an application of fertilizer is an important issue to the farmer and also the country in increasing total food production and small farm holders income. Table 10 shows the average expected response to the use of the recommended fertilizers

If only 1.5% of the reported 600,000 farmers could be motivated into moving into the improved farming category, and increase yields by 30 bags on one hectare, it would mean 243,000 more tons of maize valued at approximately K36.4 million.

If the traditional farmer plants the recommended variety of maize and moves into the improved category as shown in the table, he could expect a yield increase of 30 bags of maize per hectare. The cost of fertilizer at 1980 prices would be K9.79 for one bag of Grade X and K9.65 for one bag of Urea for a total cost of K19.44. The extra maize produced would sell for K13.50 per bag and bring the farmer an extra K405.00 per hectare. The reward for the traditional farmer to adopt modern practices is good. He must be made aware of this reward if he is to adopt the technology.

TABLE 10
 EXPECTED CROP RESPONSE TO
 RECOMMENDED FERTILIZER RATES
 (Kg/Ha)

| Crop | Traditional (no fertilizer) | Improved 1/ (small and medium scale) | Commercial (Large Scale) | Top Commercial |
|-------------------------------|--------------------------------|--|--------------------------------|----------------|
| Maize | .900 | 3,600 | 6,000 | 8,000 |
| Cotton | 500 | 1,500 | 2,000 | 2,500 |
| Groundnuts | 500 | 1,000 | 1,600 | 3,000 |
| Tobacco (flue & air cured) | 500 | 1,000 | 1,500 | 2,000 |
| Beans | 200 | 600 | 1,000 | 1,500 |
| Soyabeans | 500 | 1,500 | 2,000 | 2,500 |
| Rice | 800 | 1,600 | 2,500 | 4,000 |
| Wheat (Irrigated) | — | 2,000 | 4,000 | 6,000 |
| Sunflower <u>2/</u> | 200 | 800 | 1,000 | 1,200 |

1/ Response can vary by plus or minus 20 percent according to area and

2/ New varieties are showing more promise

NOTE: Top Commercial represents actual yields consistently achieved on some of the better managed farms in good season.

Nitrogen, phosphate and potash plus sulfur and some boron are receiving all the promotional activities. There is not a liming industry although it was reported that good calcium carbonate deposits are available in each of the provinces. Research shows that response to calcium rates alongside the response expected from the regular fertilizers. Table 11 shows the response of maize, seed cotton and groundnuts to applications of lime. The response is close to 100% for a small application of lime.

TABLE 11

Response of Maize, Seed Cotton
and Groundnuts to Lime.

| A) | Lime Kg/ha | Maize - yield 90kg bags/ha (PH 4.5) | | |
|----|---------------|---|-----------------|----------------|
| | | <u>Monze</u> | <u>Magoye</u> | <u>Misamfu</u> |
| | 0 | 26 | 5 | 8 |
| | 1000 | 47 | 28 | 19 |
| | | Seed cotton - yield Kg/ha (PH 4.6) | | |
| | | <u>1968-69</u> | <u>1969-70</u> | |
| B) | 0 | 823 | 982 | |
| | 700 | 1622 | 1253 (residual) | |
| | | Groundnuts - Makulu Red - Yield Kg/ha (PH 4.7) | | |
| | | <u>Magoye</u> | | |
| C) | 0 | 1123 | | |
| | 2000 | 2023 | | |

VI. MARKETING RESEARCH

Factual base data are essential for planning and managing a successful fertilizer marketing organization. Marketing information is needed to understand the Zambian farmer and his environments, determine sales performances, evaluate the effectiveness of the marketing system, identify constraints to sales of fertilizers and to develop a basis for forecasting fertilizer demand.

NAMBoard and the cooperatives need help with marketing research and documentation. The CIP team found very little evidence of any market research within the marketing system. Information on sales is available at the retail depots, key distribution warehouses, etc. However, a system of reporting and analysis is not being carried out.

In 1978 NAMBoard employed the services of a consultant to develop an inventory and sales documentation system. The consultant's report did not include a system for reporting but only pointed out the need for such a system. NAMBoard has since acquired the services of a statistician to develop a reporting system.

NAMBoard has not conducted any product research. They have a hand operation in the Lusaka key distribution warehouses for bagging 10 kg bags of fertilizer for the urban gardens and city farmers. Sales have been so brisk they are unable to satisfy demand with their hand operation. Market research has not been carried out to determine the size of the market and if other markets exist. The size of bags were not researched but decided arbitrarily.

When the CIP team interviewed the Department of Marketing and Cooperatives and inquired about their marketing research capability, the acting Deputy Director stated that this is the area where assistance is urgently needed. The cooperatives do not have a marketing research department at present. Some of these functions are carried out by the marketing staff.

At the present time a marketing research function has not been identified and carried out in the marketing system. Both NAMBoard and the Department of Marketing and cooperatives acknowledge that they need assistance in obtaining market research data.

VII. PERSONNEL DEVELOPMENT

An organization is only as good as the people representing it. Good capable people must be employed and continuously trained so that each can perform to their highest level of productivity. NAMBoard has a low key unofficial personnel development program that takes the form of course training. The cooperatives have an announced plan for education and training. Both are being carried out in a somewhat low key manner.

NAMBoard has a policy of sending its firstline staff to courses for career development. In 1979 the manager of the Fertilizer Insecticide, Pesticide and Seed Division (F.I.P.S.) attended a six-week fertilizer marketing course in the United States. All managers of departments have attended specialized courses within the past four years.

NAMBoard conducts on-the-job training for new employees. In so far as possible, a new employee is given training by an experienced employee before being assigned to a job. Retail depot managers for fertilizer sales and crop purchasing are given training before assignments are made.

NAMBoard conducts an annual seminar on the use of inputs for retail and key warehouse managers. The seminar is conducted by the manager of the F.I.P.S. Division. The seminar has a duration of one to two weeks depending upon the training schedule to be carried out. When the CIP team inquired about attendance to the seminar, it was found that most managers had only attended two within a four-year period. The seminar courses seemed to be weak on subject matter and presentation.

The top management at NAMBoard appears to be well qualified and trained for their positions. It was found that additional training is needed at the retail management level.

The Ministry of Lands and Agriculture, Department of Marketing and Cooperatives' Annual Report for the year ending December 31, 1977 states the following regarding education and training. "The fast rate of Cooperative and Agriculture Marketing expansion during the last five years has given rise to an urgent need for intensive training of the departmental personnel, the cooperative members and employees". In interviewing the top management of the Cooperative Union, the CIP team was told that personnel selection and career development was their number one problem.

Training in the field of cooperatives has been aided by SIDA, the International Co-operative Alliance (ICA) the Savings and Credit Cooperatives, the K.A. Foundation of the Republic of West Germany, Bread for the World, the World Council of Credit Unions, the Credit Union League of Canada, and ACOSCA. Training divisions have been established in all nine administrative provinces.

In 1977 the following educational and training functions were conducted.

| <u>Activity</u> | <u>Member of Staff</u> | <u>Duration</u> |
|---|------------------------|-----------------|
| 1. Advance courses attended outside Zambia. | 9 | 30 M/M |
| 2. 182 one day courses or seminars. | 7,426 | 31 M/M |
| 3. 94 one-two weeks. | 2,106 | 765 M/M |
| 4. 16 courses organized by Kabwe College on leadership, accounting etc. for a period of 86 weeks. | 347 | 7,460 M/M |

The amount of training carried out in 1977 for personnel development in the cooperatives as stated by the annual report of the Department of Marketing and Cooperatives is impressive. In interviewing the operative personnel the CIP team got the impression that the top management were capable and well trained. Training at the middle management, society and membership levels needs intensifying.

ANNEX H

SCOPE OF WORK

FERTILIZER SECTOR STUDY

During the first half of September 1980, a USAID fertilizer team completed a review of Zambia's fertilizer requirements, the capability of Nitrogen Chemicals of Zambia, Limited to produce compound fertilizers, and the marketing functions carried out by the National Agricultural Marketing Board (NAMBoard). The team found that some essential information and data required for planning and managing a national fertilizer program was either not available or had not been brought together as a resource material. The team also recognized many constraints to the supply and consumption of fertilizers. Some of the problems have simple solutions while others are more complex and will require an in depth study to determine a satisfactory solution. It is proposed that USAID, NAMBoard and the cooperative union jointly undertake a Fertilizer Sector Study. The study would assess the fertilizer industry and determine present and future constraints to fertilizer consumption by all classes of Zambian farmers and recommend a plan to overcome the constraints.

I. OBJECTIVES

The objectives of the Fertilizer Sector Study would be:

(1) To identify the essential data required for successfully planning and managing a fertilizer system and develop a system for obtaining the data on a routine basis.

(2) To assess the current fertilizer marketing system and its constraints and recommend a plan for overcoming each constraint.

(3) To recommend an improved fertilizer marketing system or any component thereof, should the study indicate an improvement is feasible. This

improved system will aim to make fertilizers available to farmers on a timely basis and at the most economical cost. This in turn will help the country meet it's goals to increase food production and increase small farmers incomes.

(4) To make recommendations on government policy and actions required to support the planning and management of an effective fertilizer marketing system as implied in the three objectives so stated above.

II. THE STUDY

The study will consist of four parts: Part I will deal with data collection, documentation and developing a system for collecting and publishing the data annually; Part II will be an analysis of the present fertilizer marketing and distribution system, including an analysis of existing constraints; Part III will consist of recommendations for a new and/or improved marketing system or a change in any of the components that the study deems necessary; and Part IV will deal with the government policy and actions that are required to support an effective fertilizer marketing system in Zambia.

Part I: Data Collection and Documentation

In order to plan and manage a successful fertilizer marketing organization, relevant data must be available on a timely basis for sound decision-making. Data must be continuously collected and analysed on past performance and projections must be made regarding future courses of action. All available essential data for managing a fertilizer marketing system will be collected and analysed. Data that is not available but required will be identified. A plan will be recommended for data collection, analysis and publishing on an annual or as needed basis. Data collected will include but not necessarily be limited to the following items:

1. Using existing agriculture data, evaluate and describe the following current practices and situations: a) large and small farmer access

to the fertilizer marketing system; b) fertilizer consumption by type, by crop, and by nutrient; c) consumption rates per hectare of large commercial farmers, emergent farmers and small farmers by provinces and principle crop types (i.e. maize, tobacco, sorghum, millet, vegetables etc); d) average crop yields; e) total crop production, f) number of farms and farmers; g) prices of farm produce; and h) the cost of producing major crops and returns to farmers. Data will be collected from such sources as the Ministry of Agriculture, Central Statistical Office, National Commission for Development Planning, University of Zambia, NAMBoard, Central Research Institute FAO, World Bank, USAID, and other relevant studies.

2. Compile available fertilizer statistical data on the following:

- a) Fertilizer imports and domestic production for the past five years.
- b) For imports, the F.O.B. price per metric ton and the average cost of delivery to key distribution points and selected retail depots for the past two years.
- c) For domestically produced fertilizer, F.O.B. factory prices, delivered prices to key distribution points and selected retail depots for the past two years.

3. Part I will also prepare fertilizer supply and demand projections based on the present population growth rate and the need to provide a basic diet. Five year supply/demand projections will be made for the following:

- a) Fertilizer products
- b) Plant nutrients
- c) Major classes of crops
- d) Provinces or area
- e) Supply points for products.

Part II: Analysis of Marketing System

Marketing includes all the activities required in determining the best available product for the farmers, delivery of the product to the farmers, prices of products and promotional activities required to encourage farmers to use the product. The present

fertilizer marketing system will be analysed to determine its effectiveness in all components. The following assessments will be made:

1) Identify and describe the fertilizer marketing organization(s) in Zambia.

2) By means of maps, charts, drawings, etc. identify and describe the distribution system as to:

a) Warehousing

- 1) Number and location by types
- 2) Storage capacity
- 3) Present inventory
- 4) Extent of utilization
- 5) Through-put tonnage for the last fertilizer year
- 6) Estimated cost per ton of through-put
- 7) Incentive programs for management
- 8) Accounting procedures followed
- 9) Key constraints
- 10) Plans for expansion

b) Retail outlets (dealers)

1. Number and location
2. Storage capacity
3. Present inventory
4. Sales last fertilizer year
5. Average number of staff
6. Average cost per ton of sales
7. Incentive programs for management
8. Other inputs handled and sold
9. Key constraints to sales

c) Market coverage by retail outlets

1. Identify retail outlets by major farming areas
2. Identify areas where farmers are not served by outlets
3. Estimate average distance farmers are willing to travel for fertilizer

d) Modes of transportation and fertilizer handling procedures

1. To ports
2. To key distribution points
3. To retail depots
4. Key constraints

3) Describe the agronomic research and procedures employed to determine the fertilizer products that should be offered for sale to the farmers. Procedures should include but not be limited to the following:

a) Identifying crop production problems, particularly at the small farmer level and feeding them back to research stations, marketing organization or other facilities for determining a solution.

b) Agronomic research to determine the nutrients and levels that should be applied on farmers fields.

c) Farmer field testing of proven basic research data.

d) Procedures for transferring research information to farmers.

4) Identify and describe the sales promotion activities conducted during the last fertilizer year to encourage the use of fertilizers. The activities and number carried out should be identified by the following categories: the marketing organization (NAMBoard); the Ministry of Agriculture and Water Development's Co-operatives, Extension and Research departments, FAO and others. The activities should include but not be limited to the following:

a) Sales Campaigns
1. Village promotions
2. National promotions

b) Field days
1. Sowing and planting
2. Harvesting
3. Demonstrations
4. Fertilizer trials

c) Soil Testing
1. Number tested for farmers
2. Availability
3. Campaigns

- d) Advertising
 - 1. Newspapers
 - 2. Billboard and wall posters
 - 3. Radio
- e) Training Courses
 - 1. Management
 - 2. Product use
 - 3. Sales techniques
- f) Leaflets to be read by:
 - 1. Farmers
 - 2. Retailers
 - 3. Extension workers

5) Determine the fertilizer product price. A cost analysis of the cost will be made. The cost breakdown and analysis will be in two categories. Category I is marketing cost and would include:

- a) Cost and freight (CIF) price at port
- b) Documentation and quality control at port
- c) Port charges
- d) Transportation cost
- e) Fertilizer loss in transit and re-bagging
- f) Interest charges
- g) Storage cost at warehouse
- h) Loading and unloading cost at warehouses and retail depots
- i) Storage cost at Retail Depots
- j) Promotional cost
- k) Incentive plan (bonus or marketing margins) Category II will be a determination of the present subsidy levels for different fertilizer products and an analysis of the subsidy cost. The subsidy analysis will include direct and indirect cost for the following:
 - a) Transportation
 - b) Administration
 - c) Product losses
 - d) Marketing cost
 - e) Capital
 - f) Subsidy cost of product

6) Identify and describe the present agriculture crop production credit programs. The analysis should include:

- a) The organization and procedure for making funds available for farmer loans.
- b) The procedures farmers must follow in obtaining loans.
- c) The percentage of total loans, in number and amount, obtained by commercial, emergent and traditional farmers in the last fertilizer year.
- d) Determine the farmer cost of loans as to interest and other cost.
- e) Security and other conditions farmers must meet in qualifying for a loan.
- f) Principle constraints on the use of loans to purchase essential crop production inputs.

Part III: Improving the Fertilizer Marketing System

Taking into consideration the economic, cultural, social, political and legal environments of Zambia and the needs of farmers to have a timely supply of fertilizers, recommendations will be made to: 1) improve the present marketing system with required component changes that the study indicates are advantageous; 2) adapt a new marketing system designed especially for Zambia that will identify the markets, provide effective farmer customer and product service and put the right product at the right place, at the right time; 3) adapt methods for the removal of constraints on marketing and farmer use as identified; 4) recommend additional retail outlets and different type outlets to make fertilizers available on a timely basis, if needed; 5) recommend different modes of transportation if required; 6) recommend different bagging, bulk and handling procedures that are applicable; and 7) identify a training program for all levels of operations for personnel development.

Part IV: Supportive Government Policy

The creation of a fertilizer production and marketing facility does not necessarily guarantee that farmers will increase the use of fertilizers and in turn

expand agriculture production. The government must have supporting policies to help make the system work. The areas where additions or changes in government policies are needed to support the marketing effort will be identified, and recommended policy changes will be made. Specific areas that will be studied and may require some changes in policy will include but not be limited to the following:

- a) Organizational structure for the marketing system
- b) Accountability within the marketing system
- c) Personnel control
- d) Supply
- e) Transportation, road, rail and water
- f) Ware housing and storage
- g) Sales promotion
- h) Pricing of fertilizer products
- i) Subsidies
- j) Marketing margins
- k) Rural roads
- l) Marketing of farm produce
- m) Crop produce prices
- n) Taxation
- o) Fertilizer credit
- p) Farm technology
- q) Input and Supply
- r) Quality control
- s) Data documentation

III. TIMING OF STUDY

It is proposed that the study be carried out at the end of the 1979/80 fertilizer and crop year. The study should commence in May 1981 and be concluded before the start of the 1980/81 crop season on October 1, 1981.

IV. GRZ COUNTERPARTS

It is recommended that NAMBoard and the co-operative union provide three counterparts for the team making the study. The counterparts should consist of an Agricultural Economist, a Marketing Specialist and a Transportation

and Storage Specialist. The length of time will be for two months.

V. PERSONNEL & BUDGET REQUIREMENTS FOR THE STUDY

The following is an estimation of personnel, time requirements and budget expense that will be necessary to carry out the study. It is estimated that it will require 19 man months to complete the study at an estimated cost of \$240,000.

Budget Estimate: Zambia Fertilizer Sector Study

| <u>Personnel Requirements and Salary</u> | <u>Man/Months</u> | <u>Cost</u> |
|--|-------------------|------------------------------|
| Marketing Economist (Team Leader) | 4 | 18,400 |
| Agricultural Economist - Policy | 4 | 17,000 |
| Agricultural Economist - Prices | 3 | 12,500 |
| Agonomist - Crops | 3 | 18,000 |
| Transportation Specialist | 3 | 17,500 |
| Fertilizer Storage Specialist | 2 | <u>9,200</u> |
| Sub total | | \$ 92,600 |
| <u>Support Staff Requirements and Salary</u> | | |
| Artist | 0.75 | 1,300 |
| Typist | 2.5 | 2,500 |
| Clerks (2) | 1.5 | <u>1,800</u> |
| Sub total | | \$ 5,600 |
| <u>Logestics</u> | | |
| Per Diem 400 days @ \$85 = | | 34,000 |
| Car Rentals (3 cars) 150 days @ 51.84 | | 7,776 |
| Office Space Zambia 90 days @ 51.20 = | | 4,600 |
| Air tickets - 6 round trips Zambia | | 14,500 |
| Resource materials - maps, books etc. | | 800 |
| Editing and Word Processing | | 2,000 |
| Printing final report 500 copies | | 3,000 |
| Communications | | 400 |
| Overhead, 52% of person cost | | 51,100 |
| Misc. and inflation 10% | | <u>23,635</u> |
| Sub total | | \$ 141,811 |
| Total cost of study | | <u><u>\$ 240,011</u></u> |

ANNEX I

INITIAL ENVIRONMENTAL EXAMINATION

Project Country: Zambia

Project Title: Zambia Commodity Import Loan

Funding: FY 81 \$15,000,000 (Loan)

Period of Project: The terminal date for requesting disbursement authorization is 12 months from the date of the loan agreement. The terminal disbursement date is 18 months from the loan agreement date.

IEE Prepared By: Forest Duncan, AFR/DR/SDP

Environmental Action Recommended: Negative Determination

Concurrence: AFR/DR/SDP: BBoyd
AFR/SA: MDagata
GC/AFR: EDragon

BBoyd 12/22/80
MDagata 12/19/80
EAD 12/22/80

On October 23, 1980, amendments to A.I.D. Regulation 16 became effective and were published in the Federal Register on the same date. As amended, Section 216.3(a)(2) provides that the IEE will include a Threshold Decision made by the officer in the originating office who signs the PID. If the IEE is completed prior to or at the same time as the PID, the Threshold Decision will be reviewed by the Bureau Environmental Officer concurrently with approval of the PID. The Bureau Environmental Officer will either concur in the Threshold Decision or request reconsideration by the officer who made the Threshold Decision, stating the reasons for the request. Differences of opinion between these officers shall be submitted to the Assistant Administrator at the same time that the PID is submitted for approval.

In accordance with the revised procedures, the recommended Negative Determination of the Design Officer is treated as the Threshold Decision, and upon concurrence of the Africa Bureau Environmental Officer, the regulatory requirements of Regulation 16 will have been met.

1. Description of Project

Zambia is currently facing serious balance of payments deficits as a result of overdependence on copper mining. Depressed copper prices plus declining production volumes have eroded Zambia's historically favorable current account position and led to extensive external borrowing, a decline in foreign reserve holdings and a large accumulation of payments arrears on imports. The GRZ is undertaking appropriate economic and financial measures to ameliorate the current crisis and has developed the Third National Development Plan (TNDP) which focuses on the diversification of the Zambian economy.

The proposed \$15,000,000 commodity import loan will provide the GRZ with needed foreign exchange for essential public and private sector imports and will contribute to the GRZ's development program by generating counterpart funds. Commodities financed under the loan will be inputs required by the agricultural sector (excluding pesticides)

II. Recommended Environmental Action

In accordance with AID Reg. 16, paragraph 216-2 (f) it has been determined that a negative determination is appropriate regarding the environmental impact of this activity. As the proceeds of the loan will not be used for the purpose of carrying out a specifically identifiable project or projects, an Environmental Assessment or Environmental Impact Statement is not required.

ANNEX J

WAIVER REQUEST FOR OCEAN TRANSPORT SERVICES

I. Waiver Required

Procurement source and origin waiver from AID Geographic Code 000 (U.S. only) to Code 941 (Special Free World) or to Code 899 (Free World) to the extent that the freight tender demonstrates that U.S. or Code 941 flag vessels are unavailable for ocean transport services to ocean ports in east and southern Africa.

II. Summary Waiver Information

| | |
|-----------------------------|--|
| Cooperating Country: | Zambia |
| Authorizing Document: | PAAD |
| Project: | Zambia Commodity Import Loan |
| Nature of Funding: | Ocean transport services for fertilizer and fertilizer materials to east and southern Africa ocean ports |
| Approximate Total Value: | Up to \$4.0 million |
| Probable Source: | Code 899 (Free World) countries |

III. Discussion

AID policy requires AID Geographic Code 000 (U.S. only) source and origin procurement for Economic Support Funds (ESF) loans. This applies to the procurement of transport services as well as the commodities financed under the proposed loan. Because other heavy demands will be made upon the limited supply of suitable U.S. flag vessels during the time of shipping (July - September 1981), it is probable that either insufficient U.S. flag vessels or Code 941 flag vessels will be offered to transport the commodities during this required period. It is essential that the fertilizer and fertilizer raw materials be shipped at this time in order to arrive in Zambia for processing and distribution prior to the beginning of the growing season in October.

Handbook 1, Supp. B., Ch. 7B4b(1)(c), authorizes a waiver from Code 000 to Code 941 vessels when United States and cooperating country vessels are unavailable, and from Code 941 to Code 899 vessels when in addition Code 941 are unavailable and when the cargo is ready for shipment, and it is reasonably evident that delaying the shipment would subject either the supplier or cargo to additional costs, or the importer to significantly delayed receipt of cargo.

Because Zambia has no available foreign exchange to finance ocean freight on the commodities to be financed, all ocean freight must also be financed under this loan. From past

experience it appears that there will not be sufficient U.S. or cooperating flag vessels to transport these commodities at the time they will be shipped. To the extent they are available Code 941 flag vessels will be used instead. However it also appears that Code 941 flag vessels may not be available. Therefore at least some Code 899 flag vessels will have to be used to transport these commodities.

The total cost of non-U.S. flag freight to be financed for fertilizer under this waiver, if approved, cannot be known until freight offers are received and matched up with fertilizer bids. It is estimated that non-U.S. flag freight may cost about \$80 per ton. Thus, a single chartered non-U.S. flag ship of 15,000 tons would cost about \$1.2 million. If all shipments had to move on non-U.S. flag vessels, the amount of the waiver could reach \$4 million or slightly more if relatively low fertilizer prices permit procuring somewhat more than 32,000 tons of fertilizer and fertilizer raw materials with available loan funds. It may be noted that in a similar procurement of fertilizer by Zambia last year, U.S. flag ships were available to carry half of the tonnage.

IV. Justification

The previously mentioned transport services are essential to the successful implementation of the proposed commodity import loan and are not available from the authorized source. Procurement from Code 941 and Code 899 countries is necessary to the attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program.

V. Recommendation

That to the extent it is necessary to move the fertilizer and fertilizer raw materials you a) authorize the financing of ocean transportation on vessels of any Code 941 flag if it is determined by AID that U.S. and cooperating country flag vessels are not available; and b) authorize the financing of ocean transportation on vessels of any Code 899 flag if it is determined by AID that Code 941 flag vessels are not available; and c) certify that the interests of the U.S. are best served by permitting financing of transportation services on ocean vessels under flag registry of free world countries other than the cooperating country and countries included in Code 941.

ANNEX K

STATUTORY CHECKLIST

COUNTRY CHECKLIST

Listed below are, first, statutory criteria applicable generally to FAA funds, and then criteria applicable to individual fund sources: Development Assistance and Economic Support Fund.

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 116. Can it be demonstrated that contemplated assistance will directly benefit the needy? If not, has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights?

This loan will finance fertilizer imports which will be used primarily on the country's staple crop - corn.
2. FAA Sec. 481. Has it been determined that the government of the recipient country has failed to take adequate steps to prevent narcotics drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?

No
3. FAA Sec. 620(b). If assistance is to a government, has the Secretary of State determined that it is not dominated or controlled by the international Communist movement?

Yes, Secretarial determination No. 77-1 dated 10/28/76
4. FAA Sec. 620(c). If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) the debt is not denied or contested by such government?

We are not aware of any such case.

5. FAA Sec. 620(c)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities? No
6. FAA Sec. 620(a), 620(f), 620D; FY 80 App. Act. Sec. [511, 512 and 513.] Is recipient country a Communist country? Will assistance be provided to Angola, Cambodia, Cuba, Laos or Vietnam? Will assistance be provided to Afghanistan or Mozambique without a waiver? No
7. FAA Sec. 620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression? No
8. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, of U.S. property? No
9. FAA Sec. 620(1). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason? Not applicable
10. FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5. If country has seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters. Not applicable
- a. has any deduction required by the Fishermen's Protective Act been made?

- b. has complete denial of assistance been considered by AID Administrator?
11. FAA Sec. 620; FY 80 App. Act Sec. [518.] (a) Is the government of the recipient country in default for more than six months on interest or principal of any AID loan to the country? (b) Is country in default exceeding one year on interest or principal on U.S. loan under program for which App. Act appropriates funds? No
12. FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the percentage of the country's budget which is for military expenditures, the amount of foreign exchange spent on military equipment and the amount for the purchase of sophisticated weapons systems? (An affirmative answer may refer to the record of the annual "Taking Into Consideration" memo: "Yes, taken into account by the Administrator at time of approval of Agency OYB." This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.) Under the FY 1980 assessment of defense expenditures as required by Sect. 620(s), it was concluded that there is no impediment to consideration of economic aid to Zambia. FY 1975 data shows that Defense expenditures as a percent of Central Government expenditures were 9.23%. Military imports as a percent of total imports were 5.61%.
13. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States. If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption? No
14. FAA Sec. 620(g). What is the payment status of the country's U.S. obligations? If the country is in arrears, were such arrears taken into account by the AID Administrator in determining the current AID Operational Year Budget? Current
15. FAA Sec. 620A, FY 80 App. Act, Sec. [521.] Has the country granted sanctuary from proscription to any individual or group? No, not to our knowle :

which has committed a war crime?

16. FAA Sec. 666. Does the country object on basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. there to carry out economic development program under FAA?
17. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards? Has it denoted a nuclear device after August 3, 1977, although not a "nuclear-weapon State" under the nonproliferation treaty?

B. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria.

a. FAA Sec. 102(b)(4). Have criteria been established and taken into account to assess commitment progress of country in effectively involving the poor in development, on such indexes as: (1) increase in agricultural productivity through small-farm labor intensive agriculture, (2) reduced infant mortality, (3) control of population growth, (4) equality of income distribution, (5) reduction of unemployment, and (6) increased literacy.

Not applicable regarding this loan. However, Zambia's Third National Development Plan (TNDP) stresses Agricultural and Rural development. The mutual GRZ/AID objectives are to increase food production and small farm income in conjunction with TNDP strategy.

b. FAA Sec. 104(d)(1): IDC Act of 1979.
If appropriate is this development (including Sahel) activity designed to build motivation for smaller families through modification of economic and social conditions supportive of the desire for large families in programs such as education in and out of school, nutrition, disease control, maternal and child health services, agricultural production, rural development, assistance to urban poor and through community-based development programs which give recognition to people motivated to limit the size of their families?

Not applicable. However, see B.1.a. above.

2. Economic Support Fund Country Criteria.

a. FAA Sec. 502B. Has the country (a) engaged in consistent pattern of gross violations of internationally recognized human rights or (b) made such significant improvements in its human rights record that furnishing such assistance is in the national interest?

No

b. FAA Sec. 533(b). Will assistance under the Southern Africa program be provided to Angola, Mozambique, Tanzania, or Zambia? If so, has President waived prohibition against the assistance by determining that such assistance will further U.S. foreign policy interests?

Statute repealed.

c. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?

Not applicable.
This is a loan.

d. FY 80 App. Act Sec. [510.] Will assistance be provided for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?

No

e. FAA Sec. 620B, P.L.94-329 Sec. 406. Will ESF be furnished to Argentina or Chile?

Not applicable

NONPROJECT CHECKLIST

A. GENERAL CRITERIA FOR NONPROJECT ASSISTANCE

App. Unnumbered; FAA Sec. 653(b)

(a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the nonproject assistance;

FY 81 Congressional Notification submitted

(b) is assistance within (Operational Year Budget) country or international organization allocation reported to the Congress (or not more than \$1 million over that figure plus 10%)?

Yes

2. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

No further legislative action is required to implement the program.

3. FAA Sec. 209, 619. Is assistance more efficiently and effectively given through regional or multi-lateral organizations? If so why is assistance not so given? Information and conclusion whether assistance will encourage regional development programs. If assistance is for newly independent country, is it furnished through multilateral organizations or in accordance with multilateral plans to the maximum extent appropriate?

Not applicable

4. FAA Sec. 601(a); (and Sec. 201(f) for development loans). Information and conclusions whether assistance will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use

(a) Loan will finance import of commodities with long-term objective of increasing Zambia's ability to engage in international trade; (b) under AID Regulation I procedures

of cooperatives, credit unions and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.

private initiative and competition will be fostered; (c) no direct impact; (d) no direct impact; (e) Loan will promote efficiency through imports of needed commodities; and (f) no direct impact.

5. FAA Sec. 601(b). Information and conclusion on how assistance will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

Following Regulation I procedures, assumes there will be maximum private participation in transactions financed under the loan.

6. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the United States are utilized to meet the cost of contractual and other services.

Not applicable

7. FAA Sec. 612(d). Does the United States own excess foreign currency and, if so, what arrangements have been made for its release?

No. Not Applicable

B. FUNDING CRITERIA FOR NONPROJECT ASSISTANCE

1. Nonproject Criteria for Security Supporting Assistance

a. FAA Sec. 531. How will this assistance support promote economic or political stability? Is the country among the 12 countries in which Supporting Assistance may be provided in this fiscal year?

This loan will assist the GRZ in improving its balance of payments situation.

Yes.

2. Nonproject Criteria for Development Assistance

a. FAA Sec. 102(c); Sec. 111; Sec. 281a. Extent to which activity

This loan will finance agricultural inputs to

will (1) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production, spreading investment out from cities to small towns and rural areas; and (2) help develop cooperatives, assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local government institutions?

assist the GRZ in developing rural areas and increasing food production.

b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available: (include only applicable paragraph — e.g., a, b, etc. -- which corresponds to sources of funds used. If more than one fund source is used for assistance, include relevant paragraph for each fund source.)

(1) [103] for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; (103A) if for agricultural research, is full account taken of needs of small farmers;

Not applicable

(2) [104] for population planning of health; if so, extent to which activity extends low-cost, integrated delivery systems to provide health and family planning services, especially to rural areas and poor; extent to which assistance gives attention to interrelationship between (A) population growth and (B) development and overall improvement in living standards in developing countries. Is activity designed to build motivation for small families in programs such as education in and out of school, maternal and child health services, agriculture production, rural development, and assistance to urban poor?

Not applicable

- (3) [105] for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development; Not applicable
- (4) [106] for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is:
- (a) to help alleviate energy problem; Not applicable
- (b) reconstruction after natural or manmade disaster; Not applicable
- (c) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance; Not applicable
- (d) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development. Not applicable
- (5) [107] by grants for coordinated private effort to develop and disseminate intermediate technologies appropriate for developing countries. Not applicable
- c. FAA Sec. 207; Sec. 113. Extent to which assistance reflects appropriate emphasis on: (1) encouraging development of democratic, economic, political, and social institutions; (2) self-help in meeting the country's food needs; (3) improving availability of trained worker-power in the country; (4) programs designed to meet the country's health needs; (5) other important areas of economic, political, and social develop-

ment, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or (6) integrating women into the recipient country's national economy.

d. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.

Not applicable

e. FAA Sec. 201(b)(2)-(4) and (8); Sec. 201(e); Sec. 211(a)(1)-(3) and (8). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth; or of educational or other institutions directed toward social progress? Is it related to and consistent with other development activities, and will it contribute to realizable long-range objectives?

Not applicable

f. FAA Sec. 201(b)(6); Sec. 211(a)(5), (6). Information and conclusion on possible effects of the assistance on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving or safeguarding the U.S. balance-of-payments position.

See page 73
Section VII A of
Loan Paper.

3. Nonproject Criteria for Development Assistance (Loans only)

a. FAA Sec. 201(b)(1). Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.

See page 45, Section III E of Loan Paper

b. FAA Sec. 201(b)(2); 201(d). Information and conclusion on (1) capacity of the country to repay the loan, including reasonableness of repayment prospects, and (2) reasonableness and legality (under laws of country and United States) of lending and relending terms of the loan.

See page 75 Section VIII of Loan Paper

c. FAA Sec. 201(e). If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to AID an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?

Not applicable

d. FAA Sec. 202(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources?

Not applicable

4. Additional Criteria for Alliance for Progress

[Note: Alliance for Progress assistance should add the following two items to a nonproject checklist.]

a. FAA Sec. 251(b)(1)-(8). Does assistance take into account principles of the Act of Bogota and Charter of Punta del Este; and to what extent will the activity contribute to the economic or political integration of Latin America?

Not applicable

b. FAA Sec. 251(b)(8); 251(h).
For loans, has there been taken into account the effort made by recipient nation to repatriate capital invested in other countries by their own citizens? Is loan consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress (now "CEPCIES", the Permanent Executive Committee of the OAS) in its annual review of national development activities?

Not applicable

STANDARD ITEM CHECKLIST

A. PROCUREMENT

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of goods and services financed? Yes

2. FAA Sec. 604(a). Will all commodity procurement financed be from the United States except as otherwise determined by the President or under delegation from him? Yes

3. FAA Sec. 604(b). Will all commodities in bulk be purchased at prices no higher than the market price prevailing in the United States at time of purchase? Yes

4. FAA Sec. 604(c). Will all agricultural commodities available for disposition under the Agricultural Trade Development & Assistance Act of 1954, as amended, be procured in the United States unless they are not available in the United States in sufficient quantities to supply emergency requirements of recipients? No agricultural commodities are anticipated under this loan.

5. FAA Sec. 604(d). If the cooperating country discriminates against U.S. marine insurance companies, will agreement require that marine insurance be placed in the United States on commodities financed? Yes

6. FAA Sec. 604(e). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? No agricultural commodities are anticipated under this loan.

7. FAA Sec. 604(f). Are there arrangements whereby a supplier will not receive payment under the commodity import program unless he/she has certified to such information as the Agency by regulation has prescribed? Yes, thru the use of Letters of Commitment and Letters of Credit.

8. FAA Sec. 608(a). Will U.S. Government excess property be utilized wherever practicable in lieu of the procurement of new items? Yes

9. MMA Sec. 901(b). (a) Compliance with requirement that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates. Yes

10. International Air Transport. Fair Competitive Practices Act, 1974

If air transportation of persons or property is financed on grant basis, will provision be made that U.S.-flag carriers will be utilized to the extent such service is available?

This program is loan financed.

B. OTHER RESTRICTIONS

1. FAA Sec. 620(h). Do arrangements preclude promoting or assisting the foreign aid projects or activities of Communist-Bloc countries, contrary to the best interests of the United States? Yes

2. FAA Sec. 636(i). Is financing prohibited from use, without waiver, for purchase, long-term lease, exchange, or guaranty of sale of motor vehicle manufactured outside the United States? Yes

3. Will arrangement preclude use of financing:

a. FAA Sec. 114. to pay for performance of abortions or involuntary sterilizations or to motivate or coerce persons to practice abortions? to pay for performance of involuntary sterilizations as method of family planning or to coerce or provide any financial incentive to any person to practice sterilizations? Yes

b. FAA Sec. 620(g). to compensate owners for expropriated nationalized property? Yes

- c. FAA Sec. 660. to finance police training or other law enforcement assistance, except for narcotics programs? Yes
- d. FAA Sec. 662. for CIA activities? Yes
- e. App. Sec. 103. to pay pensions, etc. for military personnel? Yes
- f. App. Sec. 106. to pay U.N. assessments? Yes
- g. App. Sec. 107. to carry out provisions of FAA Sections 209(d) and 251(h)? (transfer to multilateral organization for lending). Yes
4. FAA Sec. 201(d). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter? Can the country borrower service the loan on harder than standard development loan terms? Yes, the U.S. and other international donors have determined that the GRZ should service loans on concessional terms.

DEC 31 1980

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

John W. Koehring
FROM: AAA/AFR/DR, John W. Koehring

Problem: Your signature is required for the attached Action Memorandum to the Administrator recommending a Commodity Import Program (CIP) Loan of up to \$15,000,000 to the Government of the Republic of Zambia (GRZ). It is planned that the entire authorized amount of \$15,000,000 will be obligated in FY 1981.

Discussion: The proposed loan will (1) help mitigate Zambia's current balance of payments problems; (2) contribute to the GRZ's objectives to accelerate agricultural development and diversify the economy; and (3) support GRZ/AID-Zambia's goal to increase food production and raise small farmer's income. Foreign exchange provided under the loan will be allocated for fertilizer raw materials or fertilizers to be processed by a new plant expansion scheduled to start operation in July 1981. Utilization of these commodities will help increase the yields and total output of Zambia's staple food crop maize.

A waiver is being requested in an amount of up to \$4,000,000 for Code 941 and 899 (Free World) countries to procure ocean transport services to ocean ports in East and Southern Africa. A justification is contained in Annex J of the Program Assistance Approval Document (PAAD). The proposed CIP Loan has been thoroughly reviewed by the appropriate committees, and the analyses were found to be acceptable in all respects.

Recommendation: That you sign the Action Memorandum to the Administrator recommending authorization of the FY 1981 CIP loan for Zambia and the requested waiver. The IEE is attached with the concurrence of the Bureau Environmental Officer.

Attachments:

1. Action Memorandum for the Administrator
2. PAAD

Clearances:

| | | | |
|--------------------------------|-----------------|-------|-----------------|
| Go DAA/AFR: WHNorth | <u>RAS</u> | Date: | <u>12/30/80</u> |
| AAA/AFR/DP: RStacy | <u>RAC</u> | Date: | <u>12/31/80</u> |
| AFR/SA: TMorse | <u>for W.W.</u> | Date: | <u>12/30/80</u> |
| AFR/DR: NCohen | <u>(MUR)</u> | Date: | <u>12/21/80</u> |
| AFR/DR/SA: WWolff | <u>W.W.</u> | Date: | <u>12/12/80</u> |
| AFR/DR/SDP: BBoyd (draft) | | Date: | <u>12/12/80</u> |
| GC/AFR: EDragon | <u>E.D.</u> | Date: | <u>12/23/80</u> |
| SER/COM/ALI: PHagan (draft) | | Date: | <u>12/15/80</u> |
| AFR/DR/ARD: BWhittle (draft) | | Date: | <u>12/12/80</u> |
| STATE (AF/S): RProctor (draft) | | Date: | <u>12/15/80</u> |
| PPC/PDPR: HLubell (subs) | | Date: | <u>12/12/80</u> |
| AFR/DP/PPEA: FDuncan (draft) | | Date: | <u>12/10/80</u> |

all
 AFR/DR/SA: AHarding:agb:12/17/80