

USAID/Kenya

FERTILIZER MARKETING DEVELOPMENT  
PROGRAM IMPACT STUDY

Final Report  
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AGRICONSULT

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BEST AVAILABLE

## ACKNOWLEDGEMENTS

This study was conducted by AGRICONSULT LTD, a Kenyan firm of consultants. The study team comprised of Dr. G. M. Ruigu, Agricultural Economist, as the Team-Leader, Mr. Henry Ogola as the Fertilizer Sector Specialist, Mr. P. K. Kimuyu, Economist and Mr. Ngure Mwaniki, Policy Economist. Short-term but useful contribution was also made by Mr. Boris Tismnieszky. The team also included a number of professional supporting staff and research assistants who made a very useful contribution to the accomplishment of the assignment. Full co-operation was obtained from USAID staff throughout the course of the study. The project was managed and co-ordinated by Mr. Ngure Mwaniki, Managing Director of Agriconsult Ltd.

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EXECUTIVE SUMMARY1. Fertilizer Marketing in Kenya Prior to 1975

Kenya had in place a viable fertilizer marketing system prior to 1975. At that time the private sector planned and made decisions relating to fertilizer imports, types and quantities to be imported and timing of such imports. The private sector arranged for distribution and the Kenya Fertilizer Association worked out selling prices which were submitted to the Government for approval. There was some competition and various services were provided. Government involvement was limited to payment of subsidy, extension and research services. During that time, fertilizers were available predominantly to the large-scale farmers in time at the correct place. Availability and use by small holders was limited and this was of some concern to the GOK.

2. GOK intervention in fertilizer marketing

The oil crisis in 1973 caused turmoil in the fertilizer markets worldwide. The effects of the turmoil were felt in Kenya too. The rapid escalation of prices as well as serious fertilizer shortages caused a great worry to Kenya and particularly the GOK. This situation triggered increased Government involvement and controls in fertilizer marketing. The GOK's interventions included:

- a) Rigorous applications of control on fertilizer prices.
- b) Direct importation of fertilizer in the form of aid-in-kind.
- c) Use of fertilizer received as aid to keep the local selling prices of fertilizers low.
- d) Granting of monopoly to the inexperienced Kenya National Federation of Co-operatives and later to KFA (now KGGCU) for aid fertilizer distribution.
- e) Introduction of fertilizer import quota allocation system.
- f) Unsuccessful attempts to set up domestic fertilizer manufacturing.

All these factors increased Government involvement and controls in fertilizer marketing. This led to:

- a) Reduced role of the marketing organisations (the majority of them private firms). Private sector marketing decisions in the fertilizer sector regarding types of fertilizers to be imported, timing of importations, and prices were removed.
- b) Price margins were kept too low, at times, and hence unattractive to fertilizer importers and distributors.
- c) The KFA (now KGGCU) emerged as a virtual monopoly controlling over 80 per cent of the fertilizer market in Kenya.

With these developments, the commercial marketing system was thrown into disarray. Availability of fertilizer to farmers in correct quantities and in time became a major problem, particularly among small holders.

### 3. Aid Fertilizer

Kenya received aid fertilizer, for the first time, in 1974. Today aid fertilizers account for over 60 per cent of fertilizer supplies to Kenya. In 1987/88, 225,265 metric tons were imported to Kenya. Out of this, 142,315 metric tons (6.3%) were supplied as aid-in-kind. USA is a major supplier of aid fertilizer to Kenya.

Through U.S.A.I.D, the US first supplied fertilizer to Kenya in 1974. These fertilizers, as well as other aid fertilizer, did not reach the farmers in time or at competitive prices since the marketing system was in disarray.

### 4. Fertilizer Marketing Development Program

By 1982, there was already serious concern on the part of USAID about the inadequate fertilizer marketing system. It was therefore agreed that 14,200 metric tons of fertilizer supplied by USAID under 1982 Development Assistance Grant would be distributed through private sector firms. The fertilizer arrived in 1983/84 and was indeed distributed by 7 private sector firms including the KFA. The IFDC studies of 1984 and 1986 commissioned by USAID/Kenya confirmed that the fertilizer marketing system needed reform. USAID therefore launched the Fertilizer Marketing Program as a component of the Development Assistance (DA) Grant and Economic Support Fund Agreement (ESF). Under this program, the US has, to date, supplied 134,301 metric tons of fertilizers worth US dollars 39 million.

The main objectives of the Fertilizer Marketing Development Program are:-

- a) to increase involvement of the private sector in fertilizer marketing in Kenya;
- b) to improve the capacity of the Government of Kenya in fertilizer planning;
- c) to encourage those involved in agricultural inputs distribution to invest in retail marketing network and services;
- d) to increase overall supply of fertilizers in the country;
- e) to increase farmers awareness of the value and proper use of fertilizer;

The long term goals are:-

- a) putting in place the foundations of a viable commercial marketing system;

- b) assisting the Government of Kenya to develop and implement a national policy on fertilizer marketing;
- c) increasing fertilizer availability and use in Kenya, particularly by smallholders in rural areas, and;
- d) helping the Government of Kenya to better define and play its role in ensuring fertilizer availability to farmers as, and when required.

The strategy for achieving the above goals and objectives was in the form of the Conditionalities and Covenants in the various ESF and DA Agreements promoted as policy and procedures changes since 1983. The sequence of policy and intended procedural changes, and the goals and objectives to be achieved by them are illustrated schematically below.

| Policy and Procedural Changes   | Year | Goal/Objective  |
|---|------|---|
| 1. Cancellation of GOK/KFA sole distribution Agency Agreement             | 1983 | <ul style="list-style-type: none"> <li>i) To lead to wider geographical distribution of fertilizer in rural areas through increased number of distributors</li> <li>ii) To encourage competition at wholesale and retail levels</li> </ul>              |
| 2. Establishment of Fertilizer Committee                                  | 1984 | To create and increase GOK's capability to understand fertilizer policy issues and to plan and develop changes to improve fertilizer marketing efficiency   |
| 3. Development and Publication of Fertilizer Import Plan                  | 1984 | To enable GOK to better understand the country's fertilizer requirements by type and quantity and to plan ahead for timely delivery   |
| 4. Review and Revision of the Fertilizer Pricing structure as appropriate | 1984 | <ul style="list-style-type: none"> <li>i) To adequately compensate fertilizer importers and distributors</li> <li>ii) To establish wholesale and retail prices on a timely basis to enable farmers, distributors and importers to plan ahead</li> </ul> |

| Policy and Procedural Changes   | Year | Goal/Objective   |
|---|------|--|
| 5. Authorization of a surcharge on smaller fertilizer bags other than 50kg bags to compensate distributors for additional costs of handling and bagging   | 1984 | To serve the smallholder farmers better by offering for sale fertilizer and more affordable smaller bags. This was expected to increase fertilizer use by smallholder farmers.                                 |
| 6. Payment for Government aid fertilizers either in cash or by Bank Guarantee not to exceed 180 days  | 1984 | To ensure GOK's exact timing and collection of counterpart funds and instill accountability and efficiency both at GOK and distributor levels  |
| 7. The GOK to make timely request for donor financed fertilizers. The GOK to communicate request to donors by August 15, of each year   | 1984 | To ensure that donor fertilizers are delivered in time   |
| 8. Formation of National Fertilizer Association. The GOK was to facilitate the formation of the Association by assisting in its registration. The GOK was also to inform the Association about formulation of imports plan and invite its comments on the import plan | 1985 | To create a forum for fertilizer importers/distributors to voice their needs and constraints to GOK and to encourage the development of policies and procedures to promote more efficient fertilizer marketing |
| 9. Development of educational leaflets on fertilizer use. The leaflets to be produced by the Ministry of Agriculture in conjunction with research organisations   | 1985 | To increase farmers awareness of the value and proper use of fertilizer  |

| Policy and Procedural Changes  | Year | Goal/Objective   |
|--|------|--|
| 10. Enforcement of distribution criteria by which importers are legible to receive USAID financed fertilizers. The Government of Kenya was to require that only distributors meeting certain criteria would receive USAID financed fertilizers for selling | 1985 | To ensure that all firms allocated fertilizers were genuine and willing to invest in distribution facilities   |
| 11. Allow allocations to end-users to their proven requirements. End users were defined as co-operatives with proven requirements of more than 2,000 metric tons per year  | 1986 | To increase overall fertilizer supply and increase access to it by smallholders through co-operatives and hence increase fertilizer use by smallholders. |
| 12. Import allocation preference to be given to proven importers   | 1986 | To give incentives to genuine importers and distributors to invest in retail services and expand distribution to small holder rural farming areas        |
| 13. Announcement of fertilizer import allocations and prices by a specified date, specification on quota for each season and periodic review and revision of prices  | 1986 | To ensure fertilizer supply and timely availability by encouraging importers to plan ahead and to make timely deliveries                                 |
| 14. Implementation of a new pricing formular establishing wholesale and retail prices based on Benchmark International Price (BIP)   | 1986 | To encourage efficient importation and supply of fertilizers at competitive world market prices and ultimately reduce the cost fertilizer to the farmers |

| Policy and Procedural Changes   | Year | Goal/Objective  |
|---|------|---|
| 15. Establishment of Wholesale and retail margins with adequate incentives for retailers to invest in retail marketing services   | 1986 | To encourage fertilizer distributors in rural areas to invest in expansion of distribution network thereby increasing fertilizer supply to smallholder farmers in rural areas   |
| 16. Establishment of fertilizer Monitoring Unit<br>The unit was to monitor the national and world fertilizer situation and develop a fertilizer information system on requirements, prices, imports, and cost/benefit studies | 1986 | To enable the GOK to better carry out import planning, price reviews and monitor the import of policy and procedural changes and procedural necessary adjustments   |
| 17. Increase total fertilizer supply through commercial fertilizers imports and carry over stocks in each annual plan consistent with expected demand.  | 1986 | To increase competition in fertilizer marketing and to improve fertilizer availability and use by smallholder farmers   |
| 18. Undertake feasibility study to review existing import allocation procedures so as to shorten time and reduce steps in the fertilizer import licensing process   | 1986 | <ul style="list-style-type: none"> <li>i) To enable the GOK to reduce its role in fertilizer allocation and hence reduce administrative costs of GOK's involvement</li> <li>ii) To improve the efficiency of import allocations and licensing system</li> </ul> |
| 19. Formulation and announcement of a policy for improved co-ordination and management of donor-financed and commercial fertilizer imports  | 1986 | To eliminate the negative imports of donor fertilizers on commercial importers willingness to import and invest in fertilizer distribution network  |

| Policy and Procedural Changes  | Year | Goal/Objective  |
|--|------|---|
| 20. Removal of certain types of fertilizers from import allocation system and deregulation of their prices | 1987 | Instituted by the GOK to reduce its control to only those fertilizer types considered crucial for agricultural production |
| 21. Improvement in methodologies and data base for making more accurate forecasts of annual requirements   | 1987 | To lead to more accurate estimation of total national fertilizer requirements   |

## 5. Observed Impacts from Changes

### 5.1 Impact on Availability to farmers

Fertilizer availability to farmers and particularly to smallholder farmers in rural areas has improved over the last 5 years. About 40% of the farmers interviewed stated their fertilizer has become more available. The distance which the farmer has to travel to obtain fertilizers has been reduced considerably and 43% of the smallholders are now able to obtain their fertilizer requirements within a kilometre from their location.

While upto 4 years ago, 85% of farmers obtained their fertilizers from KFA (now KGGCU) only 47.1% of the farmers interviewed stated they were now obtaining fertilizers from KGGCU. Although KGGCU is still dominant due to its extensive distribution network, its share has been reduced and the farmers now have a wide choice of suppliers and hence there is more competition than 5 years ago. About 31.7% of the farmers interviewed stated they had changed their suppliers.

Another indicator of availability is the timeliness of fertilizers. Nearly 75% of the farmers interviewed stated that timeliness in the availability and supply of fertilizers had improved, and 53.3% stated they were able to obtain as much fertilizer as they liked.

The most preferred package is the traditional 50kg bag. However, the smaller packages of 25kg and 10kg bags are popular with smallholders growing maize and horticultural crops. These smallholders can now afford to purchase the smaller packages of 25kg and 10kg which reduce the cash outlay needed.

The improvement of fertilizer availability over the last 5 years can be attributed to the following policy changes promoted by USAID/Kenya:

- a) Cancellation of sole distribution agency agreement between GoK and KGGCU.
- b) Liberalization of the fertilizer marketing system and increased involvement and participation of the private sector in fertilizer distribution.
- c) Authorization of surcharge on small fertilizer packages.
- d) Timely allocation of fertilizer import quotas.

## 5.2 Impact on Use by Farmers

About 95.5% of farmers stated that they used fertilizers regularly. About 55% reported that their use of fertilizers has been increasing. All wheat and coffee crops were fertilized while 90% of maize, potatoes and horticultural crops received some fertilizer. About 61% of the farmers increased their fertilizer use because it has been more available than it was 5 years ago, while 12.4% were more aware of the benefits of fertilizer use.

About 45.4% of all farmers stated that their use of USAID DAP has been increasing over the last 5 years. The reasons given for increased use of USAID DAP by the farmers were its ready availability, and that it was a good and strong fertilizer.

In summary, fertilizer use by farmers and in particular by the smallholder farmers in rural areas, has increased over the last 5 years. This increase has resulted mainly from increased availability of proper types of fertilizers in adequate quantities and appropriate packages at the right time and at more competitive prices which come about as a result of the various policy changes promoted by USAID.

## 5.3 Impact on Farmers' Knowledge of Fertilizer Types, and Benefits

Advice from the Agricultural extension service is the main source of knowledge of reason for use of fertilizers by farmers. Only 23.8% of the farmers interviewed reported that they received information from fertilizer dealers and only 21.1% said that they were being educated by fertilizer dealers.

About 39% of the farmers were more aware of the benefits of fertilizers use now compared to the previous 5 years. About 73% are today aware of the differences between various fertilizer types. Farmers are also aware of the consequences of using wrong fertilizers on their crops. About 85% stated that their knowledge of fertilizers had increased and 87.2% had improved their farming practices. There has, therefore, been an increase in farmers' knowledge about fertilizer use in the last 5 years.

## 5.4 Impact on Proper and Safe Use of Fertilizers by Farmers.

About 91% of the farmers stated that fertilizer use increased their yields. This is an indication that fertilizers are being used properly. About 73% of the farmers were aware of the differences between various types of the fertilizers and their use. They were also aware of the consequences of using wrong fertilizers e.g. they stated that use of top-dressing fertilizer for planting would result into reduction of yields.

### 5.5 Impact on Distribution Outside Major Market Centres.

The number of retailers (stockists) in the rural trading centres who stock fertilizers has increased markedly in the last 5 years. Rural trading centres now have 3-4 fertilizer stockists who also stock other agricultural inputs. Moreover, there are numerous "seasonal" stockists who deal in fertilizers and other inputs only when the season is on. The various distributors reported that they had increased the number of stockists.

Co-operative Unions have also increased their involvement in fertilizer distribution through Co-operative Societies in the rural areas. The increased willingness and ability of distributors to appoint or use stockists to distribute fertilizers is a result of increased supply of fertilizers with better margins now compared to 5 years ago. Thus, fertilizer is now more available in the main market centres and the surrounding rural trading centres. This increased availability in the last 5 years is partly due to increased participation of the private sector in fertilizer distribution; a policy promoted by USAID.

### 5.6 Impact on Distributors to Invest in Distribution Facilities and Services.

Nearly 90% of the distributors interviewed operate a distribution network. As stated above, however, the network is mainly the various stockists. Only 50% of the distributors actually operate branches or sub-branches. About 57% of the distributors have not done any investment in the distribution capacity such as storage warehouses, lorries, etc.; and 18% reported that they had reduced their distribution capacity. The reason given by distributors for this non-investment in new capacity or its reduction is increased competition from the new entrants in the market in the last 5 years. New entrants, however, view their new businesses in fertilizer and agricultural inputs distribution as new investments; and rightly so.

While 95% of the distributors stated they were providing essential advisory services compared to only 76% who did so 5 years ago, the service provided is mainly the selling of fertilizers and advice on its use. Only 2 distributors operated a soil analysis laboratory and only 10% of the distributors made field visits to clients. Thus, although there have been some investment in distribution network and services, the main investment has been in the form of new agro-inputs businesses which have come up across the country in the last 5 years as a result of the opening up of the market; a policy promoted by USAID.

### 5.6 Impact on Wholesale and Retail Prices

About 35% of the stockists interviewed stated the profitability of fertilizers was higher and 50% said that such profitability had improved over the last 5 years. Increased profitability has enabled stockists to stock more fertilizers and attracted new stockists to sell fertilizers. About 43% of the importers/distributors found it easier to give discounts compared

to 5 years ago. This is due to increased profitability/margins obtainable on aid fertilizers and direct allocations to distributors who previously could not obtain direct allocations from the Government.

The majority of the farmers paid the full Maximum Retail Price for fertilizers. Only 12.3% of the farmers obtained discounts and these were the largescale farmers. It appeared that the majority of the farmers, particularly the smallholders, are not even aware of the Maximum Retail Price. There is fertilizer price competition at wholesale level and at major market centres. There is, however, little price competition at retail level in the rural areas.

5.7 Impact on Importers to Import Correct and Sufficient Quantities of Fertilizers at the Right Time and at Competitive Prices

About 92% of the importers are better able to plan their imports compared to only 50% five years ago. Importers also now apply competitive methods of procurement to obtain fertilizers at competitive prices. This has been brought about by the application of the BIP Pricing System.

However, importers have not been able to import sufficient quantities of fertilizers in time. The main reason for this has been GoK's involvement in determining Maximum Retail Prices which are often announced late. Although the demand forecasts are done in time and imports targets are set, and allocations issued in time, the targets are not met due to price uncertainty.

5.8 Impact on the GOK to develop and Implement Improved and Useful Policies and Procedures

The study found that the following improved and useful procedures had been developed over the last 5 years:

- a) The estimates of requirements are based on more realistic data compiled by the Inputs Monitoring Unit. Five years ago the estimates were theoretical. The Ministry of Agriculture prepares the Fertilizer Annual Plan.
- b) The Ministry of Agriculture closely monitors stock levels, sales and performance of the importers. The Central Bank of Kenya is informed well in advance of the import requirements, and allocations in order to ensure timely and adequate availability of foreign exchange.
- c) The GOK has encouraged the formation of the Kenya National Fertilizer Association which it registered in 1986. The Association is proving to be an effective forum for dialogue between the Fertilizer Trade and the GoK on fertilizer matters and allows the importers/distributors to speak with one voice.
- d) A standing steering committee on the Movement of Urgent Public Traffic (including fertilizers) has been formed. The Committee ensures that fertilizer arriving at the port of Mombasa is transported to strategic points of consumption as soon as it arrives.

- e) The GOK has recently published a National Fertilizer Policy Paper in which the importance of fertilizer is clearly recognized. In the policy paper, the problems of the fertilizer industry and marketing are well articulated and positive solutions to these problems are stated.

The GOK is clearly better able to assume a more positive role in fertilizer policy and procedural matters to increase fertilizer availability and use.

#### 5.9 Impact on GOK to Improved Planning

GOK's planning on fertilizer has improved tremendously over the last 5 years. This is a result of the following measures:

- a) The formation of the Fertilizer Committee whose members have focussed a lot of attention on fertilizer matters and thereby gained considerable experience and knowledge on fertilizers.
- b) The establishment of the Inputs Monitoring Unit in the Ministry of Agriculture has ensured improved availability of reliable data on imports, stocks, prices, requirements etc. Five years ago, such data was not readily available.
- c) The training of Government staff involved in fertilizer matters through USAID sponsorships.

#### 5.10 Impact on Donors to Finance Fertilizer Imports and Foster Marketing Development through their Programs

The number of fertilizer donors and quantities of aid fertilizers to Kenya have increased. Whereas in 1983/84 only 4 donors (USA, Netherlands, Japan and F.A.O.) supplied 21,548 metric tons to Kenya as aid, 11 countries are supplying over 140,000 metric tons of aid fertilizers today. Italy, which did not supply aid fertilizer in the past, started doing so in 1984/85. West Germany, which had stopped supplying fertilizers in 1978/79, resumed its aid supplies in 1986/87. The share of aid fertilizers has risen from 36% in 1984/85 to 63% of total fertilizer imports in 1987/88.

Through the initiative of USAID, there has been better donor co-ordination. Following the example of USAID, there have been attempts, albeit varied, by other donors to promote some fertilizer policy changes. Japan, West Germany and Finland have agreed that their fertilizer aid be supplied in the same system promoted by USAID. The Netherlands have agreed to 50% of their fertilizers aid supplies to be distributed in the same manner. Thus there is increased support, by other donors, of the policy and procedural changes promoted by USAID. It is clear that USAID has provided important leadership in this context and that many donors look forward to the success of the AID Fertilizer Market Development Program.

A recent notable development is the apparent unanimous agreement within the donor community that the most effective way to reduce GOK involvement is to phase out aid-in-kind supplies of fertilizer and replace it with other type of assistance, such as balance of payment support which would greatly increase the role of the private sector in fertilizer marketing.

5.11 Impact of Donor Fertilizer on Commercial Fertilizer

Donor fertilizer is of great benefit to agricultural development in Kenya. However, it could hamper the development of a self sustaining commercial fertilizer system. There is evidence that as a result of the policy and procedural changes promoted by USAID, Government's fertilizer management and planning have improved. Such improvement has reduced the negative impact of donor fertilizers on commercial fertilizers.

6. Progress Towards Meeting Objectives

There has been expanded private sector involvement in the fertilizer sector in Kenya, improved GOK capacity to collect and analyse fertilizer sector data for better planning and

decision-making; increased fertilizer retailing; increased farmers' awareness of the benefits and proper use of fertilizers and increased overall supply of fertilizers in the country. The objectives of the USAID Fertilizer Marketing Development Program have therefore been broadly achieved. There is, however, need for further attention to be given to encouraging distributors to invest in retail marketing capacity and services since opening up of the market has tended, in the short run, to discourage such investment.

7. Progress Towards Meeting Goals

Significant progress has been made towards achieving the goals of USAID Fertilizer Marketing Program. Specifically, fertilizer availability in rural market centres and use by smallholder farmers has increased. The GOK has developed a National Fertilizer Policy on fertilizer marketing and is better able to define and carry out its role in the fertilizer sector. Indeed, the foundation of a viable commercial marketing is taking form.

8. The Strategy for Future USAID Programs Aimed at Continued Improvement of Fertilizer Marketing, Availability and Use in Kenya

A viable commercial marketing system is emerging in Kenya. There is an increased involvement of the private sector firms who are expanding their distribution network. This has resulted in increased availability and use of fertilizer by the smallholder farmers. The GOK has begun to liberalize the market. Although the country is still far from having the same fertilizer marketing system which was in place upto the mid-1970s, there have been significant, beneficial, policy changes implemented since 1983 which, if continued with the same momentum, will result in a viable commercial marketing system.

Remaining Constraints:

- a) The supply of fertilizer aid-in-kind has necessitated increased and continued involvement of GOK in fertilizer management. This has denied the private sector the opportunity to make the crucial marketing decisions on importation and distribution of fertilizers. It has created uncertainties which have mitigated against investment and development of the marketing system. There is therefore, need to supply aid fertilizer in forms that minimize GOK's involvement, such as in the form of balance of payment support.
- b) Whilst the decision to open the market is sound, it has led to allocations being granted to end-users. Allocations to end-users have taken away the large-scale sector from the distributors and left them with the less profitable smallholder market segment. The smallholder market segment is limited and expensive to service and cannot alone support a meaningfully large fertilizer private sector.
- c) Price control remains a major constraint. GOK has not been able to announce fertilizer selling prices on time. This has often resulted in non-importation of fertilizers. It is therefore desirable that fertilizer price control should be removed. In the meantime, efforts should be made to announce fertilizer prices simultaneously with import allocations before July 15 of each year. These prices which should be reviewed at least twice a year to take care of changes which might occur in the world market prices, should incorporate adequate wholesale and retail margins.
- d) The Inputs Monitoring Unit in the Ministry of Agriculture, though already established, does not seem to be fully integrated in the civil service adequately enough to guarantee staff tenure and continuity. It is presently weak and needs strengthening.
- e) Lack of credit is a problem. The stockists play a crucial role in distributing fertilizers to the farmers who have no access to credit. With an effective credit system, rural stockists would stock and distribute more fertilizers to the smallholder farmers. The credit issue, particularly credit to fertilizer stockists, demands urgent attention.
- f) The increased use of fertilizers has brought into focus the need for improved soil management practices to reduce any negative effects of fertilizer on soils and environment.

Desirability and/or Scope for Continued USAID Involvement in Fertilizer Marketing in Kenya

a) Validity of Current Goals and Objectives

All goals and objectives of USAID Fertilizer Marketing Development Program remain valid. Significant progress has been made towards their achievement, but a lot of scope still remains. USAID has provided much needed leadership in initiating and promoting the reform process necessary for eventual full development of fertilizer marketing system in

Kenya. The GOK seems to fully appreciate USAID's efforts to this end and most other donors are gradually supporting GOK towards this. USAID's continued leadership will therefore be crucial in ensuring that the development of a commercial fertilizer marketing system remains on a firm foundation.

b) Areas Needing Continued, Refined or Expanded Attention

- i) The other donors should be encouraged to review the nature of their fertilizer assistance to Kenya, so that such assistance promotes the development of a viable commercial fertilizer marketing system.
- ii) Prices of all fertilizers should eventually be decontrolled. In the short run, prices should be announced on time and prices at stockist level in the rural market centres be liberalized immediately since there is no proper basis for setting such prices.
- iii) Opening up the market has resulted in a wide private sector participation. The focus should now be shifted from further expansion to strengthening of private sector firms that have so far demonstrated interest in continued involvement in the sector.
- iv) There is need for the Government to appreciate the need for, and to ensure, continuity of the Inputs Monitoring Unit.

c) Indications from GOK, Other Donors and Private Sector for Continued USAID Involvement in the Sector

The GOK welcomes continued involvement by USAID subject to the modalities of such involvement being worked out and clearly understood by both parties. The donors are generally supportive of the policy and procedural changes promoted by GOK/USAID to develop a fertilizer marketing system. Indeed, there is evidence that donors appreciate USAID's leadership in this area. The farmers who have benefited greatly from USAID Fertilizer Marketing Development Program are happy with USAID's DAP. Although the main distributors are concerned with "unfair competition" from non-genuine distributors who receive allocations, the private sector has benefited immensely from the program and looks forward to USAID's continued involvement in the sector.

9. Strategy for Future USAID Involvement

The USAID Fertilizer Marketing Program has progressively evolved from one promoting improved GOK fertilizer management to one promoting a viable commercial fertilizer marketing system development. Significant progress has been made towards achieving the objectives and goals of the program and a foundation for a viable commercial marketing system has been laid. The main obstacle to the development of this marketing system, however, is the supply of fertilizers in the form of aid-in-kind by various donors which has necessitated deeper GOK's involvement in fertilizer sector particularly in allocation and pricing.

It therefore seems clear that the best strategy for the future is for the donors to provide assistance in the form of foreign exchange for purchase of fertilizers while progressively and selectively phasing out supplies of fertilizers in the form of aid-in-kind. In doing so, however, a system of disbursement of fertilizer aid funds should be carefully designed and implemented so as to avoid possible disruption of fertilizer aid supplies. This strategy should be implemented in such a way that it supports and complements GOK's fertilizer policies as articulated in the National Fertilizer Policy Paper.

CHAPTER I

A. Background

1. The Fertilizer Sector

1.1 Growth and use:

The use of fertilizers in Kenya can be traced back to the 1950's. During that period, however, fertilizer availability and use was restricted to plantation crops such as coffee, tea and sugarcane grown on large estates. It was not until independence in 1963 that fertilizer use among smallholders started. Demand for fertilizers by the smallholder African farmers grew remarkably following the introduction of hybrid maize, improved smallholder access to land with sub division of European owned estates and approval to grow cash crops like coffee and tea. The growth in fertilizer consumption during the 1960's was estimated at 10 percent per year.

1.2 Market Structure - Historical Perspective:

The Government of Kenya (GOK) recognised the importance of increased fertilizer use and in 1963 established a Working Party to identify constraints to fertilizer availability and use by smallholder African farmers (Mackenzie Report 1963). The major impediments were seen to be poor distribution (particularly to meet the growing demand by smallholders) and prices. The existing distribution system catered mainly for the large scale farmers. A fertilizer subsidy together with distribution by co-operatives and stockists were instituted. Thus the first attempt by the government to address the constraints to increased fertilizer availability and use through the development of marketing system began.

Growth in fertilizer use during 1970s and early 1980s was variable but attained an average rate of 5 per cent per annum from 1975 to 1982. The major cash crops, including coffee, tea and sugarcane, account for over 65 per cent of the fertilizer used in Kenya. Another 19 per cent to maize, 12 per cent to wheat while horticultural products such as beans account for another 4 per cent.

There are two distinct categories of fertilizer end users (market) in Kenya i.e. a) the large scale farms and estates and (b) the small holders. While the large scale farmers and estates account for the bulk of fertilizers used in the country, the share of smallholders has grown dramatically from 15 per cent in the 1970s to 42 per cent of the total consumptions in the 1980s. However, the percentage use by smallholders could and should be much

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higher as the increased amount of food needed to feed Kenya's growing population, will come from smallholder production.

Although fertilizer use in Kenya is high by Sub-Saharan African standards, it is still low compared to Latin America and Asia. However, the Government of Kenya set a growth target of 20 percent per annum in Sessional Paper No: 4 of 1981 on National Food Policy. The present consumption of fertilizers is slightly over 200,000 metric tons compared to a potential of 650,000 metric tons per year. As will be discussed later, this gap is largely due to policies and marketing constraints which limit the availability of fertilizers in the Country.

Owing to a great diversity in soil conditions and crop types many types and grades of fertilizers are used in Kenya. Kenya soils are generally deficient in Nitrogen and Phosphate but have an adequate supply of Potassium. The fertilizers used are therefore of high nitrogen and phosphate content. In 1986/87 the composition of fertilizers used were calculated to be as follows:

|                      |       |
|----------------------|-------|
| Straight Phosphatic  | 7.0%  |
| Straight Nitrogenous | 27.0% |
| Ammonium Phosphates  | 29.2% |
| Complex (NPKs)       | 36.0% |
| Straight Potassic    | 0.8%  |

Table 1 below shows the different types of fertilizers used in Kenya in 1986/87:

Table 1.1      Types of Fertilizer used in Kenya 1986/1987

| T Y P E                      | QUANTITY<br>(METRIC TONS) |
|------------------------------|---------------------------|
| Sulphate of Ammonia (SA) 21% | 3,000                     |
| C.A.N. 26%                   | 48,000                    |
| A.S.N. 26%                   | 8,400                     |
| UREA 46%                     | 8,750                     |
| Single Superphosphate 18%    | 4,000                     |
| TSP 46%                      | 8,000                     |
| D.A.P. 18-46-0               | 63,500                    |
| M.A.P. 11-52-0               | 1,000                     |
| N.P.K. 20-20-0               | 18,000                    |
| N.P.K. 20-20-10              | 23,000                    |
| N.P.K. 25-5-5+5%S            | 36,175                    |
| N.P.K. 17-17-17              | 4,500                     |
| N.P.K. 6-18-4Mgo+0.19        | 1,000                     |
| Muriate of Potash 60%        | 1,500                     |
| Sulphate of Potash 50%       | 1,000                     |
| Others (Trace Elements)      | 40                        |

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All the fertilizers used in Kenya are imported commercially by various organizations including the private sector and as aid supplied by various donors. No fertilizer is manufactured in Kenya, although a small plant to produce Single Superphosphate (SSP) will begin operation in Thika this year.

The trend in commercial imports and aid imports from 1982/83 to 1987/88 is presented in Table 2. The share of aid imports has risen from 27 per cent in 1982/83 to 63 per cent 1987/88. Table 3 shows total imports by fertilizer types. Table 4 presents the detailed breakdown of aid fertilizer imports by country and the share of USAID supplies against total aid fertilizers imported over the years. Table 3 in particular points out the significance and variability of aid imports which leads to potential problem in rationalising a marketing system as described in this report.

The fertilizer selling prices are controlled by the Government through the Price Controller who issues the approved Maximum Retail Prices from time to time. Since 1977, the prices have been based on the C & F cost price at Mombasa and are calculated using a formular of :  $(C \& F + 30\% + kShs. 100.00 = \text{Selling Price F.O.R. Mombasa})$ . The Maximum Retail Price for different centres is arrived at by adding transportation (mainly by rail) costs and differs from one district centre to another.

Prior to 1972, there was little Government involvement in fertilizer marketing. The role of the Government was limited to approval of a Selling Price List submitted by the then Kenya Fertilizer Association, payment of fertilizer subsidy, and promotion of fertilizer use through extension, training and research services.

Fertilizer importation and distribution were carried out by several private sector organisations and the Kenya Farmers' Association which was registered and operated both as a Co-operative and a private company. The main features of the system were:

- (a) There was no fertilizer import quota allocation system. Importers could import the quantities and types they thought the market could bare
- (b) Price control on fertilizers was not applied rigorously. The Government, through the Ministry of Agriculture, merely approved the Price List as worked out and submitted by the then Kenya Fertilizer Association.
- (c) The recommendations of Kenya Fertilizer Association, which drew its membership from the main fertilizer importers were a major influence in the government's decision on fertilizer marketing policies.

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- (d) There was the Fertilizer Advisory Committee consisting of Government officials and representatives from the fertilizer trade.
- (e) Fertilizer importers had first to be recognised and registered by the Ministry of Agriculture. The recognition and the registration were accorded on the basis of the following criteria:
  - i. that the importer (organisation) must have a distribution network, or show evidence that it was endeavouring to establish such a network, particularly in the remoter areas of the country.
  - ii. that the importer organisation must have qualified personnel capable of advising the farmers on fertilizer use and benefits.

The importers individually planned, sourced and arranged for the distribution of the fertilizers. During that period, fertilizers were imported and were available to the farmers on time. There was, indeed, some competition in the market although it has been argued that the Kenya Fertilizer Association encouraged non-competitive tendencies or practices. Individual companies conducted fertilizer promotional programmes. There were serious initiatives by the fertilizer importers to establish and develop stockist distribution networks on an exclusive basis throughout the country. Figure 1 shows the existing marketing channels during the early 1970s.

Table 1.2: Total Fertilizer Imports into Kenya 1982/83 - 1987/88 (Metric Tons)

| TYPES OF IMPORTS             | 1982/83 | 1983/84 | 1984/85 | 1985/86 | 1986/87 | 1987/88 |
|------------------------------|---------|---------|---------|---------|---------|---------|
| Commercial                   | 150,500 | 188,160 | 133,324 | 199,552 | 148,049 | 82,950  |
| Aid (donated)                | 54,671  | 25,148  | 73,100  | 145,589 | 82,000  | 142,315 |
| TOTAL                        | 205,171 | 213,308 | 206,424 | 345,141 | 230,049 | 225,265 |
| AID AS % OF<br>TOTAL IMPORTS | 27%     | 12%     | 36%     | 42%     | 37%     | 63%     |

SOURCE: Ministry of Agriculture - Nairobi

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TABLE 1.3: Total Fertilizer Imports into Kenya 1983/1984 - 1987/1988  
(Metric Tons)

| TYPE             | 1983/84 | 1984/85 | 1985/86 | 1986/87 | 1987/88 |
|------------------|---------|---------|---------|---------|---------|
| S.A. 21%         | 14,426  | 22,974  | 12,974  | 3,000   | 3,500   |
| CAN 26%          | 44,506  | 27,000  | 40,700  | 4,800   | 36,500  |
| ASN 26%          | 28,791  | 9,500   | 11,200  | 8,400   | 15,000  |
| UREA 46%         | 5,494   | 15,600  | 38,500  | 8,750   | 6,500   |
| SSP 18%          | -       | 3,000   | 7,000   | 4,000   | -       |
| TSP 46%          | 12,562  | 4,000   | 15,900  | 8,000   | 6,300   |
| DAP 18-46-0      | 40,574  | 48,000  | 67,538  | 63,500  | 76,500  |
| MAP 11-52-0      | 16,045  | -       | 8,500   | 1,000   | 4,953   |
| NPK 20-20-0      | 24,700  | 19,750  | 45,349  | 18,000  | 18,000  |
| NPK 20-20-10     | 901     | 19,000  | 40,500  | 23,000  | 15,110  |
| NPK 25-5-5+5S    | 22,098  | 25,500  | 44,000  | 36,175  | 26,000  |
| NPK 17-17-17     | -       | 4,100   | 6,440   | 4,500   | 5,252   |
| NPK 6-18-20+4Mgo | -       | 2,000   | -       | 1,000   | 1,000   |
| NPK 15-15-6+4Mgo | -       | 1,600   | -       | 1,500   | 1,500   |
| MOP              | -       | 2,600   | 2,100   | 1,040   | 4,030   |
| SOP              | 1,368   | 1,000   | 2,000   | -       | 40      |
| NPK 21-7-14      | -       | -       | -       | -       | 2,300   |
| Hyperphosphate   | 1,000   | -       | 2,000   | -       | 2,000   |
| Other            | 843     | 800     | 420     | 184     | 1,238   |
| TOTAL            | 213,308 | 206,424 | 345,141 | 230,049 | 225,265 |

SOURCE: Ministry of Agriculture - Nairobi

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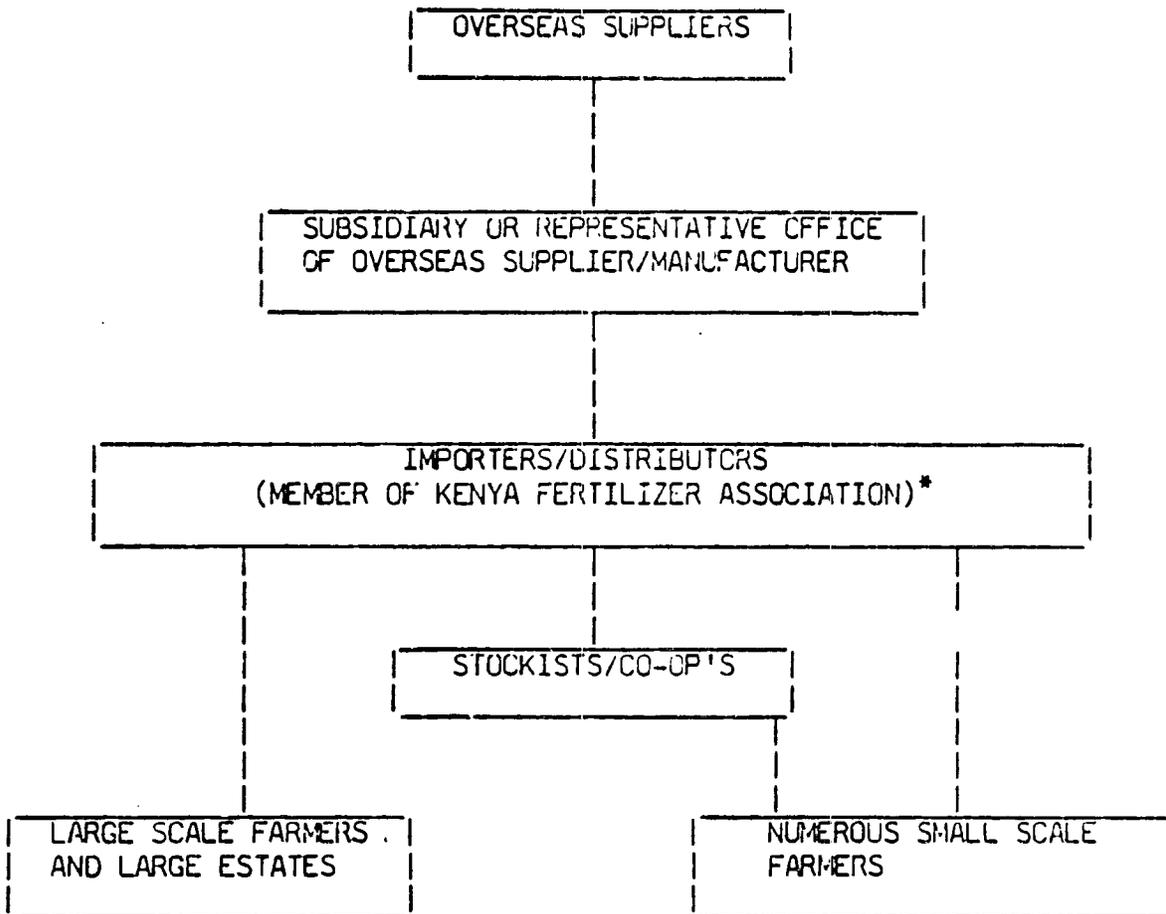
TABLE 1.4: Fertilizer Aid Supplied to Kenya 1979/1980 - 1987/1988 (July - August) Metric Tons

| DONOR                       |       |       |       |       |       |       |        |       |        |  |
|-----------------------------|-------|-------|-------|-------|-------|-------|--------|-------|--------|--|
| COUNTRY                     | 79/80 | 80/81 | 81/82 | 82/83 | 83/84 | 84/85 | 85/86  | 86/87 | 87/88  |  |
| Norway                      | 9400  | 4700  | 5890  | -     | 8430  | -     | 22000  | 15000 | 17110  |  |
| Denmark                     | -     | -     | -     | -     | -     | 12500 | 17500  | -     | -      |  |
| Sweden                      | -     | -     | -     | 7000  | -     | -     | 10500  | 10000 | 15000  |  |
| Finland                     | -     | -     | -     | -     | -     | 7000  | 18000  | -     | -      |  |
| Netherlands                 | 40000 | 13000 | 18000 | 40000 | -     | 24400 | 20000  | 30000 | 30000  |  |
| Japan                       | 8152  | 7500  | 8800  | 3000  | 2500  | 4100  | 8370   | -     | 8705   |  |
| Italy                       | -     | -     | -     | -     | -     | 3000  | 20000  | -     | -      |  |
| W.Germany                   | -     | -     | -     | -     | -     | -     | -      | 7000  | 20000  |  |
| F.A.O.                      | -     | -     | -     | 4500  | -     | 1000  | -      | -     | -      |  |
| U.S.A.                      | -     | 43107 | 20808 | -     | 14218 | 21000 | 29219  | 20000 | 51500  |  |
| TOTAL                       | 57552 | 62217 | 53586 | 54500 | 21548 | 73100 | 145589 | 82000 | 142315 |  |
| USA AS %<br>TO TOTAL<br>AID | -     | 69%   | 39%   | -     | 57%   | 29%   | 20%    | 25%   | 36%    |  |

SOURCE: Ministry of Agriculture - Nairobi

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FIGURE 1: KENYA FERTILIZER MARKETING CHANNEL UPTO 1975



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\* See Annex VII for List of Members of Kenya Fertilizer Association

Despite these early initiatives growth of fertilizer use among smallholders only increased slowly and in 1972 the Government established a Working Party (The Havelock Report) to make further observations and recommendations aimed at enhancing fertilizer availability and use by the smallholder. The major constraints at this time were seen to be lack of competition which led to high prices. The report called for a major restructuring of fertilizer marketing.

In 1972, the recommendations of the Havelock Report were accepted by the Government. Among other things, it recommended the abolition of the Kenya Fertilizer Association arguing that it was a cartel which encouraged non-competitive tendencies. It also recommended the abolition of the recognition and registration of fertilizer importers on set criteria stating that this

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requirement mitigated against competition as it tended to bar new entrants into the market. The report stated that it was, in any case, the duty of the Government extension and research service to provide the farmers with the necessary advise on fertilizer use.

Beginning 1973, the oil crisis brought with it a turmoil in the fertilizer market worldwide. Shortages of fertilizer became rampant and prices were escalating at a rate never known before. Kenya was not spared this experience and the Government, with little information on the market, became suspicious of the importers who were now increasing prices in line with the world market trends.

The Government reacted to this situation by:

- (a) applying rigorous price control procedures on fertilizer prices;
- (b) attempting to enter into direct importation of fertilizers through the Kenya National Trading Corporations (KNTC) a parastatal concern, fully owned by the Government;
- (c) requesting, for the first time, fertilizer donations through the various aid programmes, to be distributed by the Kenya National Federation of Co-operatives (KNFC) and later by Kenya Farmers' Association (KFA) as the sole distribution agent;
- (d) forming a joint venture company for the establishment of a fertilizer manufacturing complex; and
- (e) introducing fertilizer import quota allocation system

Certain Government actions at the time threw the existing marketing system into disarray. Delays in releasing selling prices created uncertainties and resulted in delays in importation hence late arrival of fertilizers. Although the Government did not carry out any direct importation, aid fertilizers started arriving in late 1974. These included those from USAID. The Kenya National Federation of Co-operatives (KNFC), despite its inexperience in fertilizer business, was appointed to distribute aid fertilizer. It was also envisaged that KNFC would remain the main agent for the distribution of GOK aid fertilizer. Early in 1975, the Government announced selling prices for aid fertilizers which were 30% below the prices of commercially imported stocks.

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Huge losses were incurred by the private sector fertilizer traders including the Kenya Farmers' Association (KFA) and also by KNFC. It had also been agreed in the joint venture agreement that the ill-fated Ken-Ren Chemicals and Fertilizers Limited, which was involved in the establishment of a fertilizer complex at Mombasa, would become the sole importer of fertilizers one year prior to the commissioning of the fertilizer plant.

By 1975, it was therefore obvious that Government involvement and controls in the market were increasing and would continue to do so. The commercial importers reacted by:

- (a) not importing fertilizers unless prices had been approved at acceptable levels prior to entering any importation commitment; and
- (b) reducing or stopping investment in fertilizer marketing or business because of uncertainties created by Government interventions.

By 1983, the negative impacts of Government intervention on fertilizer marketing could be summarized as follows:

| <u>COMPANY</u>                                    | <u>STATUS</u>   | <u>IMPACT</u>   |
|---|---|---|
| Mackenzie (Kenya) Ltd                             | Importer/Distributor  | Ceased trading in fertilizers and closed all its branches |
| Kenya Merchants Supply                            | Distributor   | Ceased its operations                                     |
| Intag Limited                                     | Importer/Distributor  | Under receivership  |
| Sapa Chemicals Ind.                               | Importer/Distributor  | Under receivership  |
| Windmill E.A. Limited                             | Importer (Subsidiary of overseas Company, Windmill Holland) | Sold its interest in Kenya                                |
| Albatros E.A. Ltd                                 | Subsidiary of overseas Company (UKF of Holland)             | Closed its offices in Kenya                               |
| Kenya National Federation of Co-operatives (KNFC) | Importer/Distributor  | Under receivership  |

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At the same time there were no proper arrangements for the distribution of aid fertilizer consignments arriving in the Country. Aid fertilizer consignments changed hands three to four times among clearing agents and some less known distributors. There was total lack of accountability and large quantities worth millions of shillings were lost and could not be accounted for.

It can be seen from the above that a viable commercial marketing system with little government involvement was operating prior to 1975. Marketing networks set up by private sector distributors made sure correct types of fertilizers were available to farmers at the right time at the right place at competitive prices. The institution of government controls on importation pricing and distribution put the system in disarray. Marketing networks were no longer in place, and the growth of fertilizer availability and use stagnated. The aim of USAID's involvement in the fertilizer sector in Kenya was to address these problems.

2. Overview of USAID involvement in the fertilizer sector prior to 1983

USAID first supplied fertilizers to Kenya through the Agricultural Sector Program Loan signed in 1973. The fertilizers started arriving in 1974. From then on United States supplied fertilizers to Kenya as shown in Table 5.

TABLE 1.5: USAID Fertilizer Supplies to Kenya 1974 - 1982

| YEAR          | TITLE  | AMOUNT<br>US\$ | PRODUCT | QUANTITY<br>METRIC<br>TONS | ARRIVAL<br>DATE |
|---------------|--|----------------|---------|----------------------------|-----------------|
| 1974          | Program Loan   | 10 million     | TSP     | 10,500                     | December, 1974  |
|               |  |                | DAP     | 5,250                      | January, 1975   |
|               |  |                | TSP     | 5,000                      | February, 1975  |
| 1980/<br>1981 | Economic<br>Support Fund<br>(Fertilizer<br>Grant)          | 20 million     | DAP     | 31,924                     | January, 1981   |
|               |  |                | MAP     | 10,216                     | March, 1981     |
|               |  |                | TSP     | 20,910                     | October, 1981   |
| 1982          | Development<br>Assistance<br>Grant (Agric<br>Sector Grant) | 4.4 million    | DAP     | 9,200                      | 1983/           |
|               |  |                | MAP     | 5,000                      | 1984            |

SOURCE: USAID/KENYA

In these earlier programs, prior to 1984, USAID supported the fertilizer sector simply because using money to supply fertilizers satisfied several objectives simultaneously<sup>3</sup>. USAID financing for fertilizer imports was used mainly for balance of payment and

budgetary support. There were no substantial policy issues raised in these programs. Whilst the lack of inputs was cited as a constraint to agricultural production plans to immediately address the inputs problems were not offered. Thus between 1980 and 1983 the program assistance agreements were non-conditional and there were no long term objectives or a strategy to address marketing constraints.

In 1983, a detailed study was commissioned by USAID to determine what could be learned from earlier experience with financing fertilizer imports. The following issues emerged from the study:

- (a) There was poor accountability by the GOK's distribution agent, the KFA, for the fertilizers it sold and the local currency generations which should have been deposited to the Treasury;
- (b) Suspicion and mistrust existed between the Government and the private Companies involved in fertilizer business, resulting in no constructive dialogue to make changes.
- (c) Several private sector firms were withdrawing from distribution because of the uncertainties in the market and deteriorating profit margins.
- (d) Due to initial pricing problems where some aid fertilizers were more expensive than commercial fertilizers initially, the KFA sold little aid fertilizer and was left with large stocks and carrying charges into the next season. This problem was later resolved.
- (e) The granting of the monopoly on aid fertilizers to KFA was probably the death blow to private sector marketing system development. The aid fertilizers were distributed by KFA on very favourable terms not obtainable by other commercial importers and distributors. This resulted in restricting the market and retarding its development.

The KFA marketed more than 85 per cent of all fertilizers in the country. The balance was imported and distributed by 3-4 commercial firms which sold mainly to estates and large scale farmers. Fertilizer availability to smallholders was restricted to those areas having KFA branch and the maximum allowable retail price was charged due to lack of competition.

### 3. Current Programs (1984 and beyond)

With this experience USAID began a "policy dialogue" to liberalize Kenya's fertilizer marketing system and improve availability and use through greater private sector participation. The first step was to incorporate conditionalities into USAID/Kenya's 1982 Agricultural Sector Grant and subsequent programs.

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The 1982 program under which fertilizers were imported in October, 1983, introduced the concept on a trial basis of allocating aid fertilizers to private firms to sell to farmers under payment by bank guarantees. Allocation to a number of private firms expanded the geographical distribution of fertilizers and payment by bank guarantees instituted accountability. The system worked extremely well.

Whilst previously all aid fertilizers were being distributed by KFA on exclusive basis the Government cancelled its agreement with KFA in 1983. All USAID financed fertilizers were allocated to a number of private sector firms for distribution. In addition all other fertilizers were to be allocated in a similar manner. The number of private sector firms involved in the distribution of aid fertilizers has increased markedly from 1 in 1982/1983 to 65 in 1987/1988. Table 6 shows the various program agreements since 1984 to date. Table 7 shows the trend in private sector participation in USAID fertilizer distribution. Since 1984 USAID has financed the importation of over 167,000 metric tons of fertilizers, mainly D.A.P., worth US Dollars 49 million.

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TABLE 1.6: USAID Fertilizer Supplies to Kenya 1984 - 1988

| YEAR        | AGREEMENT  | ALLOCATION<br>US\$ | DISBURSED | PRODUCT | QUANTITY<br>MET. TONS   | ARRIVAL                      |
|-------------|--|--------------------|-----------|---------|-------------------------|------------------------------|
| 1984        | Agricultural<br>Development<br>Program (615-0230<br>a DA loan                      | 14724314           | 14724314  | DAP     | 20828<br>28500          | Apr 85<br>Oct 85             |
|             |  | 14724314           | 14724314  |         | 49328                   |                              |
| 1985        | Structural Adj-<br>ustment Program<br>(615-0213)<br>Economic Support<br>Fund Grant | 8500000            | 8500000   | DAP     | 152526<br>13656<br>1000 | Aug 85<br>Oct 87<br>Aug 88   |
|             |  | 8500000            | 8500000   |         | 29912                   |                              |
| 1986        | Structural Adj-<br>ustment Program<br>(615-0213)<br>Economic Support<br>Fund Grant | 14441900           | 14441900  | DAP     | 4571<br>19000<br>21993  | Aug 86<br>Aug 88<br>Dec 88*  |
|             |  | 14441900           | 14441900  |         | 45564                   |                              |
| 1987        | Structural Adj-<br>ustment Program<br>(615-0240)<br>Economic Support<br>Fund Grant | 11295000           | 11295000  | DAP     | 31490<br>8007<br>2771   | Jan 88<br>Dec 88*<br>Jan 89* |
|             |  | 11295000           | 11295000  |         | 42268                   |                              |
| GRAND TOTAL |  | 48961214           | 46961214  |         | 167432                  |                              |

SOURCE: USAID/KENYA

\* To be shipped later

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TABLE 1.7: Trend in Aid Fertilizer Distribution by Private Sector in Kenya 1982/1983 - 1987/1988

| Y E A R | QUANTITY (METRIC TONS**) | NO. OF PRIVATE SECTOR DISTRIBUTORS |
|---------|--------------------------|------------------------------------|
| 1982/83 | 20910                    | 1*                                 |
| 1983/84 | 14200                    | 7                                  |
| 1984/85 | 20808                    | 16                                 |
| 1985/86 | 28500                    | 24                                 |
| 1986/87 | 19827                    | 13                                 |
| 1987/88 | 51436                    | 65                                 |
|         | 155701                   | 120                                |

\* KFA (Co-op) Ltd only (now KGGCU)

In July 1987, the IFDC (William and Allgood) was commissioned to conduct an evaluation of the 1984 Agricultural Development Program. The evaluation found that the Kenya fertilizer industry was "drifting aimlessly". They stated that a complete fertilizer marketing system did not exist in Kenya, and recommended the development of a marketing strategy which would support intergrated marketing systems with several centrally managed, autonomous, profit oriented self sustaining distribution firms responsible for all marketing decisions. It was found that the USAID fertilizer program had not addressed this issue. The program was primarily formed for expanding availability and use through private sector distribution but was not creating a self sustaining marketing system.

The report further pointed out that the Government had a key role in encouraging the development of a fully intergrated fertilizer marketing system and recommended that USAID take the leadership in Kenya to make it happen. The USAID responded to this by shifting emphasis from availability and use to the development of a fertilizer marketing system.

The goals of the USAID Fertilizer Marketing Development Program were refined to accomplish the following in the long terms:

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- i) putting the foundations of a viable commercial marketing system in place;
- ii) assisting the Government of Kenya to develop and implement a national policy on fertilizer marketing;
- iii) increasing fertilizer availability and use in Kenya, particularly by smallholders in areas outside the major market centres in the remoter areas;
- iv) helping the Government of Kenya to better define and play its role in ensuring fertilizer availability to farmers as and when required.

In order to achieve these long term goals, the following objectives had to be directly addressed in the USAID program:

- (a) to increase involvement and participation of the private sector in fertilizer marketing in Kenya;
- (b) to improve the capacity of the Government of Kenya in fertilizer planning;
- (c) to encourage those involved in agricultural inputs distribution to invest in retail marketing network and services;
- (d) to increase the overall supply of fertilizers in the country;
- (e) to increase farmers' awareness of the value and proper use of fertilizers.

The strategy to achieve the above goals and objectives were articulated in the form of a number of conditionalities and covenants in each agreement. These conditionalities are reviewed from year to year and necessary adjustment or new conditionalities made to effect better achievement of goals and objectives.

The strategy elements are outlined in Chapter IV of this report.

4. Linkage between USAID Fertilizer Marketing Development Programme and increased agricultural Production in Kenya

Agriculture is the dominant sector of Kenya's economy. It accounts for about one-third of Gross Domestic Product, 70% of the country's employment and about 60% of the export earnings. In addition, agriculture provides nearly all the country's food. Kenya's population has been increasingly very rapidly, the growth rate being 4% per annum. Agriculture has to meet the challenges of providing adequate food for the burgeoning population, employment generation and foreign exchange earnings to fuel the economic growth. Moreover, increased agricultural growth has to be achieved in a less favourable environment of a declining land base. Kenya is short of good agricultural land.

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Out of a total land area of 57 million hectares, less than 20% is arable. Based on agro-ecological characteristics of rainfall, soils and slopes only 7% of total land can be said to be good agricultural land which can support arable agriculture without irrigation. Another 4-5% of the land can support cropping but there are high risks of crop failure due to drought. The rest of the land is suitable for livestock keeping with varying degrees of intensity. The country's pastoralists and game parks are to be found there.

The government of Kenya has chosen land use intensification as the best strategy of developing agriculture to meet the existing challenges. (Kenya, National Food Policy Paper 1981 and Sessional Paper No. 1 of 1986). Fertilizer use is central to the land use intensification strategy. It is also one of the most important inputs accounting for 18% of total value of agricultural inputs in 1984, 27% in 1985 and 22.6% in 1987. (Annex III Table 1).

The national food policy Sessional Paper of 1981 called for an annual growth rate of 20% in fertilizer use which has not been achieved to date. Sessional Paper No. 1 of 1986 has re-emphasized the importance of fertilizer and stressed that fertilizer use is economically beneficial. There is clear evidence from research of the correlation between fertilizer use and higher yields per hectare. In 1983/84 it was estimated that one KShs spent on fertilizer yielded KShs 10 to 12 in revenue to tea and coffee growers, KShs 4 to wheat growers and KShs 3 to maize farmers. The benefit-cost ratios of economic return to fertilizer use in Kenya have been estimated to be 1.74 for maize, 27.7 for coffee, 1.24 for tea and 1.29 for wheat. USAID involvement in the agricultural sector and particularly in fertilizer supply is of great importance. Fertilizer has direct effects on increased food production. It has potential income benefits for smallholders and the country.

Rightly, USAID has recognised that the greatest potential increase from agricultural production from increased fertilizer use is for smallholders. Due to supply and availability constraints, the smallholders do not always apply fertilizer at recommended levels while others do not apply fertilizer at all when growing certain crops. The largescale farmers and plantations receive nearly adequate supplies because they constitute the most lucrative part of the fertilizer market. The largest gap in fertilizer use between present and recommended levels is in smallholder produced maize which varies between 5 and 43% of recommended nutrient levels. For smallholder tea and coffee, it is about 33 and 35% of recommended levels respectively (World Bank, 1985). The targetting of increased fertilizer availability and use by smallholder farmers and efforts to improve the distribution and supply by input distributors to smallholders has great potential of contributing to increased agricultural production in Kenya. The new government fertilizer

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policy paper identifies three principal constraints on fertilizer use to include lack of availability, lack of information on use and insufficient effective demand from farmers. The USAID programme is geared to address these problems through the development of efficient commercial agricultural input marketing system.

The commercial agricultural input marketing system which the USAID Fertilizer Marketing Development Program aims to assist the government to improve is one element which contributes to increased food production. Other elements include rainfall, producer prices, output marketing policies, research, extension, etc. An efficient agricultural input marketing system is needed to provide critical inputs for farm production, including seeds, fertilizers and agricultural chemicals, to farmers at the right time, in sufficient quantities of the right type, at competitive prices, and with effective promotion to encourage proper use and increased farmer demand.

### B1. Purpose of the Study and How Presented

The purpose of this study was firstly, to appraise the impacts on the availability, use and distribution of fertilizer caused by policy and procedural changes promoted by USAID, the GoK and other donors since 1983. Secondly, to evaluate the strategy of the program and its progress toward creating an efficient commercial marketing system and thirdly, to propose new directions for market development thrust.

The Scope of Work of the study was adopted completely as stipulated in the contract (No 615-0510-C-00-8058-- Item III). The study has therefore attempted to:

- A. Describe all changes in public and private sector policies and actions since 1983 which have affected or were intended to affect fertilizer imports, prices, availability and use in Kenya.
- B. Identify factors, both internal and external to Kenya, which have influenced these changes.
- C. Assess the relative permanence of these changes and the desirability of keeping them in place over the short-run (1-3 years) and long-run (3-6 years) and identify the potential factors which could or should modify them.
- D. Determine the Impact that these changes have had on the attitudes and actions of GoK policy makers, private sector importers/distributors, and donors to pursue continued changes within their control to influence improved fertilizer use and distribution in Kenya.

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E. Identify the changes which have had a positive impact on increasing fertilizer use and distribution, and provide recommendations on how donors could help support or modify the continuation of harmful policies and actions.

F. Analyse the impact of all changes in public and private sector policies and actions since 1983 on availability and use.

The detailed Terms of Reference are covered by items F and G as indicated in Annex I. Specifically the study addresses the policy and administrative changes in the area of fertilizer market development resulting from conditions and covenants in the 1984 Agricultural Development Program and the fertilizer marketing components of 1985, 1986 and 1987 Agreements.

An important aspect of this study was to assess private sector involvement in fertilizer marketing including importation, distribution, investment in retail outlets and price competition.

## B2. Methodology

The study began with a thorough review of existing literature relating to policy and administrative changes in fertilizer imports, distribution and use. The literature consisted of various reports of the USAID, Government of Kenya, World Bank and other donors.

Primary data were gathered at various levels including:-

- a) Farm level data pertaining to both small-scale and large scale farmers.
- b) Importer/distributors and retailers of fertilizers, including private and cooperative unions.
- c) Government officials in the Ministry of agriculture, Commerce, Finance, Office of the President, and parastatals.
- d) USAID, World Bank and other donors, including the Netherlands, Sweden, Norway, Germany and Finland.

A structured interview schedule was developed separately for farmers, importer/distributors and retailers (Annex II). The questionnaires were developed after the complete identification of impact indicators.

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Farmers were interviewed in 11 districts including Meru, Embu, Nyeri, Murang'a, Trans Nzoia, Uasin Gishu, Nakuru, Kericho, Nandi, Kakamega and Kisii. This list covers both large-scale and small-scale districts. They also provide a wide ecological variation from low to high rainfall. From each chosen district a minimum sample of 15 farmers were interviewed, giving a total sample of 227 farmers.

The study sought to interview all the main importer/distributors and retailers. At least 21 importer/distributors were interviewed together with 69 retailers/stockists. The latter were spread out in the same districts as the farmers.

Enumerators were hired to interview the farmers and some stockists and were supervised by the core consultants, who also interviewed the importer/distributors. The data were coded and analysed using an SPSS program.

### Presentation

The report is presented in five main parts. Part I consists of the Executive Summary of the entire report. Part II presents the background of the study including a brief description of the evolution of the fertilizer sector in Kenya, and an overview of USAID involvement and current programmes in the sector. It also presents the study purpose. Part III is divided into three sections. Section A presents a description of the changes in GoK, USAID and other donor, and private sector policies and procedures since 1983, then the rationale and expected impacts on fertilizer marketing availability and use from these changes. Section B deals with the observed impacts from changes, while Section C presents an analysis of the impacts. The last part of the report, Part IV outlines a strategy for future USAID programmes geared to improved fertilizer marketing, availability and use in Kenya.

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## CHAPTER II

### DESCRIPTION AND ANALYSIS OF IMPACTS.

#### A. Policy and Procedural Changes Introduced since 1983

This section outlines the elements of the strategy carried out by USAID to achieve the goals and objectives of its Fertilizer Marketing Development Program as outlined in section II A.3 of this report. It includes the rationale for the changes, and their expected impacts on fertilizer marketing, availability and use.

##### 1. Cancellation of Government of Kenya's sole agency agreement with the Kenya Farmers Association (KFA)

In November 1983, the GOK on request from USAID, dissolved its sole agency agreement with the KFA. This change was fully implemented with the 1984 Agricultural Development Program. Prior to this, the KFA distributed all donor financed fertilizer for the government. Combined with its own commercial imports, the KFA distributed more than 85% of all fertilizer in the country. The rest was imported by 3-4 firms which sold mainly to estates and largeholder farmers. The sole agency agreement had, inadvertently, increased KFA's market share at the expense of other fertilizer dealers in the country. There were also problems with the KFA repayment of counterpart funds.

The dissolution was expected to lead to a wider geographical distribution of fertilizers in the rural areas through an increased number of distributors, and to encourage competition at the wholesale and retail levels making fertilizer more affordable by farmers. The opportunity for new firms to distribute donor fertilizer would give them experience in marketing agricultural inputs.

As a result of this change, 7,000 tonnes of DAP imported under the 1982 Agricultural Sector Grant Agreement was sold directly to 6 private sector firms for distribution and the balance (2,000 tonnes of DAP and 5,000 tonnes of MAP was sold to the KFA). In March 1985, a total of 16 private firms distributed 20,500 tonnes of USAID - financed DAP, and a further 28,000 tonnes was distributed by 24 firms in October 1985. The number of firms distributing donor fertilizer is currently more than 40.

##### 2. Establishment of Fertilizer Committee

A condition precedent under the 1984 Agricultural Development Program Loan Agreement required the GOK to establish a Fertilizer Committee (FC) to implement and monitor fertilizer

sector policies, and to develop a national fertilizer import plan specifying types, quantities and timing of fertilizer imports, as well as anticipated donor financing. The FC was a response to the need to create and increase the GOK's capability to understand fertilizer policy issues and to plan and implement changes to improve fertilizer marketing efficiency. It was expected that the GOK would be able to better understand the constraints to increased fertilizer availability and use, develop reforms in the fertilizer sector once it had a core team of technical and managerial personnel in key ministries who could advise policy makers.

### 3. Fertilizer Import Plan

A 1985 evaluation of fertilizer marketing in Kenya found that actual fertilizer demand by type, nutrients, seasonality and regions had not been established in Kenya.

As a result, fertilizer supplies were not reaching distributors, retailers/stockists and farmers in time for proper use. Poor coordination between commercial and donor fertilizer imports, due to the lack of national import plan, made forward planning by commercial importers in what types and amounts of fertilizer they should bring impossible.

Consequently, the FC was required to develop and publicise an annual Fertilizer Import Plan (FIP) showing current stock levels, donor financing intentions and commercial import plans. The FIP was promoted by USAID; and its purpose was to enable the GOK to better understand the country's fertilizer requirements in terms of types and quantities and to plan ahead for timely supply to the farmers.

### 4. Review and Revision of the Fertilizer Pricing Structure as necessary

A covenant for the 1984 Agricultural Development Program (ADP) Agreement required the GOK to review and revise, if necessary, the then current fertilizer pricing formula in order to adequately compensate fertilizer importers and distributors, and to institute incentives for retail marketing. The objectives of such a review would be to establish wholesale and retail prices on a timely basis to enable farmers, distributors and importers to plan ahead; to implement a standardized price structure for fertilizer of the same type arriving at different times; and to establish price levels both wholesale and retail, for various types of fertilizer buyers. The price reviews and revisions were expected to enable the GOK and donors to understand the constraints to the existing system and to make recommendations for improvement.

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5. Policy Authorising a Surcharge on Fertilizer sold in smaller bags

Under the 1984 ADP Agreement, the GOK was to develop a fertilizer packaging policy incorporating the establishment of a policy authorizing a surcharge on fertilizer sold in smaller bags (smaller than the 50kg bags) to compensate distributors for additional costs of handling and bagging. This change was prompted by an observed need to serve the smallholder farmers better. The promotion of sales of the more convenient and more affordable smaller bags was expected to promote increased fertilizer utilisation by the smallholder farmers.

6. Payment for Government Fertilizers either in cash or bank guarantee not to exceed 180 days.

In 1984, it was agreed between USAID and the GOK for the latter to ensure that distributors allocated Government fertilizers pay either in cash or with bank guarantees not to exceed 180 days. This would not only ensure the GOK of exact timing and amounts of counterpart funds, but would also encourage accountability and efficiency by distributors. A key reason for switching to this system was because of previous problems with the KFA not accounting for counterparts, thus making it difficult for USAID to monitor its deposit and end use.

7. The GOK to make timely request for donor financed fertilizer

A covenant under the 1985 ESF Agreement between USAID and the GOK required the GOK to determine the quantities and types of fertilizer to be financed by each donor country, and to communicate such requests to donors by 15th of May each year for the short-rains, and the 15th of August for the long-rains. This requirement was expected to ensure that donor fertilizer is delivered in good time for planting.

8. Formation of the National Fertilizer Association (NFA)

A covenant for the 1985 Structural Adjustment Program Grant Agreement required the GOK to facilitate the formation of National Fertilizer Association by assisting in its registration, informing it about the formulation of the import plan, and providing it with an opportunity to submit its recommendations on the plan. The association was expected to create a forum where private sector fertilizer importers/distributors can voice their needs and constraints to the GOK technical managers and policy makers, and to encourage the development of policies and procedures on the private sector to assist in increasing the overall availability and use of fertilizers through retail marketing development.

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9. Development of educational leaflets on Fertilizer use.

Lack of educational and promotional programs was acknowledged by both the GOK and USAID (GOK Sessional Paper No. 1, 1986 and USAID, 1985), as one void in the fertilizer marketing system. The development and distribution of the educational leaflet was a covenant under the 1985 Structural Adjustment Program (SAP). The leaflets were to be produced by the Ministry of Agriculture in conjunction with research organisations, and were expected to increase farmers awareness of the value and proper use of fertilizer, and to stimulate increased demand.

10. Enforcement of a Distribution Criteria by which Distributors are Legible to Receive Allocations of USAID Financed Fertilizer to sell.

As a covenant under the 1985 SAP Grant Agreement, the GOK was to ensure that only distributors meeting certain retail distribution requirements could be allocated USAID - financed fertilizer. This was to ensure that all firms allocated fertilizers were genuine and willing to invest in distribution facilities, and was expected to lead to investment in such facilities. Too many traders and speculators were allocated fertilizer who resold their allocations to genuine distributors at reduced margins. This change was intended to encourage legitimate distributors to invest in retail marketing facilities and services.

11. Allow Allocations to End-Users to their Proven Requirements

This was promoted by USAID as a covenant for the 1986 Grant Agreement by which the GOK was to allocate USAID financed fertilizer to major end-users, defined as Cooperatives importing more than 2,000 tonnes per year, up to their proven requirements. The intention was to increase overall fertilizer supply and increase access to fertilizer by the smallholder farmers through cooperatives. It was expected that this would lead to increased fertilizer utilisation by the smallholder sector.

12. Allocation Preference to be given to Proven Importers.

This change, promoted by USAID under the 1986 Grant Agreement, was expected to give incentives to genuine importers and distributors to invest in retail facilities and services, and to expand their distribution to smallholder farming areas. This would help in achieving the objective of encouraging distributors to establish retail marketing programs and to distribute fertilizer to smallholder farmers in rural areas. It was also expected to lead to the opening-up of new retail outlets, and reduce the number of traders and speculators receiving allocations.

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13. Announcement of Import Allocations and Prices by a Specified Date, and Periodic Review and Revision of Prices as World Market Prices change.

This change, promoted by USAID, was to reduce uncertainty in fertilizer supply availability by encouraging private importers to plan ahead and make timely fertilizer deliveries bearing in mind the crop seasons, and to improve the realisation of the commercial import component of the annual fertilizer import plan. Commercial importers were not importing their allocation quotas due to the late announcement of prices and allocations. At times when prices were finally announced they were outdated by world market prices which increased the costs of importing fertilizer to Kenya beyond the costs used in establishing the retail ceiling prices. This policy change was expected to improve the timeliness and availability of fertilizer in the country.

14. Implementation of a Pricing Formula Establishing Wholesale and Retail Prices Based on a Benchmark International Price (BIP)

A covenant for the 1986 ESF Grant required the GOK to implement a pricing formula establishing wholesale and retail prices based on a BIP. This was expected to encourage efficient importation and supply of fertilizers at competitive world market prices, and to ultimately reduce the cost of fertilizers to farmers. The policy would also reduce the tendency for importers to over-invoice their consignment, creating artificially high fertilizer prices in Kenya.

15. Establishment of Wholesale and Retail Margins with Adequate Incentives for Retailers to Invest in Retail Marketing Services.

The purpose of this change, promoted by both GOK and USAID (GOK Sessional Paper No. 1, 1986 and SAP, 1986), was to encourage fertilizer distribution in the rural areas by giving retailers adequate profit margins to invest in fertilizer marketing facilities and services. Distributors would be able to cover their increased costs to market fertilizer outside the major marketing centres. This change, together with increased supply of fertilizer, was expected to lead to an expansion of the retail network.

16. Establishment of a Fertilizer Monitoring Unit.

As a covenant in the 1986 SAP Agreement between USAID and the GOK, the latter was to establish a unit to monitor the national and world fertilizer situation and develop a fertilizer information system covering national fertilizer needs, prices imports, sales, stocks, importers' performance and recent information on fertilizer response trials and cost/benefit studies. Such information would be helpful in developing the

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annual import plan. The establishment of the unit was to enable the GOK to better develop import plans, prepare and review fertilizer prices, and monitor the impact of policy changes and make necessary adjustments. It would also create and strengthen a technical body in the government which would advise policy makers on proper policies to promote increased fertilizer use and availability and commercial marketing.

17. Increase Total Fertilizer Supply.

In 1986, USAID required that the GOK increase overall fertilizer supply through commercial importation, donor fertilizer and carry-over stocks in each annual plan consistent with expected demand. This was expected to increase the likelihood of competition in fertilizer marketing and improve fertilizer availability and efficiency to smallholder farmers. As fertilizer supplies increased, the incentives to retail marketing would also increase as the current situation was a seller's market due to limited supplies.

18. Undertake a Feasibility Study to review existing Import Allocation Procedures so as to shorten the time and reduce the steps in the Fertilizer Import Licensing Procedure.

The purpose of this change, promoted by USAID (SAP, 1987), was to enable the GOK to reduce its role in fertilizer allocations, and hence reduce the administrative costs of the GOK's involvement in the fertilizer market. The change was expected to improve the efficiency of import allocations and licensing procedures.

19. Formulation and Announcement of a Policy for Improved Co-ordination and Management of Donor-Financed and Commercial Fertilizer Imports.

The intention of this change, promoted by USAID (SAP, 1987), was to eliminate the negative impact of donor fertilizer on commercial importers' willingness to import and invest in the fertilizer distribution network. The policy was expected to ensure that the presence of donor-financed fertilizers helped promote the development of a self-sustaining fertilizer marketing system.

20. Removal of certain types of fertilizers from the import allocation schedule and deregulation of their prices.

This change recently instituted by the GOK (GOK Fertilizer Policy Paper, 1988), was to reduce GOK's control on allocations and pricing to only those fertilizer types considered crucial for the agricultural sector, and to remove unnecessary distortions resulting from blanket controls. Because of the sensitivity of decontrol of this strategic input, this change would have to be introduced gradually.

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21. Improvement in methodologies and data base for making more accurate forecasts of annual requirements.

Such improvement, entailing greater use of direct field surveys of anticipated demand by large end-users and/or organisations through which most fertilizer passes before distribution to farmers (eg. Kenya Tea Development Authority, British American Tobacco, the National Irrigation Board and Co-operative Unions), was promoted by the GOK (The GOK Fertilizer Policy Paper) and was expected to lead to more accurate estimates of total national fertilizer requirements. Thus, there would be better planning for proper fertilizer types and quantities.

II. B. OBSERVED IMPACTS FROM CHANGES

1. Impact on availability to farmers

As discussed in the introduction, the supply of commercial and donor fertilizer has been increasing in the period under review. This has been translated to increased availability among farmers. Availability to large-scale farmers and estates has never been a problem and this has hardly changed. The supply of fertilizer to this sub-sector is the most lucrative to the importer/distributors and hence the tendency to serve these farmers first. In addition, the large-scale farmers and estates appreciate the importance of fertilizer and seek out available supplies.

During the period under review the situation concerning large-scale farms and estates has hardly changed. Consequently, all the large scale farmers in Nakuru, Uasin Gishu and Trans Nzoia did not have any difficulties obtaining fertilizer.

Availability of fertilizer among co-operatives and hence among small-scale farmers who are cooperatives has improved. The increased supply of fertilizer as a result of the fertilizer program has been translated into greater availability among cooperators. Cooperative Unions have been rather well treated in allocation of import quotas and donor fertilizer (including USAID's) for distribution to their members. In our study, we interviewed a total of eight cooperative unions including Muranga, Kirinyaga, Nyeri, Meru Central, Embu, Machakos, Nandi and Kisii.

These unions have extensive networks through primary societies and coffee factories. The unions retail fertilizers and other inputs to cooperators and non-cooperators in their retail shops. Machakos cooperative union has five consumer shops through which it sells inputs including fertilizer (accounting for 25% of

total sales) and 35 cotton and coffee societies scattered all over the district (and accounting for 75% of the total sales of fertilizer). By contrast the Kirinyaga Union has four retail shops and eight societies with a total of 68 outlets for inputs. The Muranga Union, on the other hand, has four retail shops and 18 coffee societies with a total of 128 outlets for agricultural inputs. The Unions have been increasing their distribution network through the societies. Prior to 1984 only Muranga Union was importing fertilizer but for the 1987/88 season a total of eight Unions have been allocated import quotas these are Muranga, Machakos, Mathira, Meru Central, Embu, Kirinyaga and Meru South Cooperative Union. Not all however will be able to import. The Kirinyaga District Union imported 2,000 tonnes of CAN and 1,000 tonnes of DAP in 1986/87. It pooled its import with Murang'a Union which had greater experience in the business.

Just like the cooperators, the smallholder tea farmers have been well served. The Kenya Tea Development Authority just like the District Cooperative Unions has had a good treatment in fertilizer allocation. Through its extensive network of tea buying centres, it has been able to reach the smallholder tea producers. On 1986/87 the KTDA was allocated a total of 37,000 tonnes nearly all of its requirement.

In our interviews, we used various impacts indicators to establish whether there has been a change in fertilizer availability. When farmers who had increased fertilizer use in the last 5 years were asked to explain their increase in fertilizer use, 38.8% in all areas stated, inter alia, that fertilizer has become more available. Increased availability to farmers has stemmed from increased fertilizer supplies nationally, from increased number of stockists and supply in more appropriate bag sizes. Some 43.2% of the farmers also indicated that they had changed the choice of fertilizer types that they used. Of those who had changed fertilizer types, 13.7% reported that the new types were now more available.

Another indicator of availability is the distance which the farmers had to travel from the farm to obtain fertilizer which is summarised in Table 3.1. Rift Valley North was defined to include Trans Nzoia, Uasin Gishu, and Nakuru, while Rift Valley South included Nandi and Kericho districts. Over 43% of all farms are located within a kilometre of a fertilizer dealer. Distances tend to be longer in areas of large-scale farms and smaller within smallholder areas. The distances to stockists have declined compared to the period prior to 1984. As discussed below importer/distributors have increased their distribution of fertilizer via stockists. The opening up of the market through USAID program has led to a greater number of stockists than hitherto.

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TABLE 2.1: Location of farms from fertilizer supplier by distance & Area (Percent)

| Area              | Distance (Km) |        |         |         |         |
|-------------------|---------------|--------|---------|---------|---------|
|                   | 1 - 5         | 6 - 10 | 11 - 12 | 21 - 30 | Over 30 |
| Eastern           | 66.7          | 2.8    | 14.0    | 16.0    | 0       |
| Central           | 51.3          | 12.1   | 21.8    | 9.7     | 4.8     |
| Rift Valley North | 21.1          | 21.3   | 28.7    | 2.3     | 13.6    |
| Rift Valley South | 51.2          | 20.9   | 23.5    | 2.3     | 2.3     |
| Western           | 41.5          | 12.2   | 29.0    | 14.6    | 2.4     |
| All Areas         | 43.4          | 15.4   | 24.9    | 10.9    | 5.4     |

The respondents were requested to state the type of dealer from whom they purchased fertilizers. Overall 47.1% of all respondents obtained their fertilizers from the KGGCU, 28.1% from stockists, 14.5% from Cooperatives and 6.2% from Mea Ltd. A stockists is a retailer who purchases fertilizers from import/distributors and sells it to the farmers. Usually he/she is independent and sells other product lines. The KGGCU is still dominant given a wide distribution network but increasing competition tends to reduce its market share.

When respondents were asked whether there had been any change of fertilizer dealers in the last five years, 31.7% of the respondents replied in the affirmative. Of these about 16.7% stated that the distance to suppliers has become shorter or nearer while a mere 2.6% stated that distances had increased. On average, there were about four fertilizer dealers in the areas where farmers purchased their supplies. Less than 20% had 3 to 4 dealers and 41% had more than four fertilizer vendors to choose from. On the whole, the average number of dealers has been increasing in the last five years as more and more stockists have established business.

Another indicator of availability is the timeliness of fertilizer availability currently when compared to 5 years ago. The responses are summarised in Table 2.2

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TABLE 2.2: Timeliness of fertilizer supply, 1988 versus 5 years earlier

| <u>Responses</u>         | <u>Absolute frequency</u> | <u>Relative frequency</u> |
|--------------------------|---------------------------|---------------------------|
| Increasingly more timely | 170                       | 74.9%                     |
| Increasingly less timely | 23                        | 10.1%                     |
| No change                | 14                        | 6.2%                      |
| Don't know               | 20                        | 8.8%                      |

Nearly 74.9% of all respondents stated that timeliness in the supply of fertilizer had improved. This means that the majority of farmers could obtain fertilizer in good time for planting season to benefit from the rains. Only a small proportion of the farmers (10.1%) complained that fertilizer was less timely (Table 3.2.) The greater timeliness in fertilizer supply is as a result of increased fertilizer supply generally, better planning by the GoK and the USAID programme.

The farmers were asked whether they were able to use as much fertilizer as they would have liked, and about 53.3% responded in affirmative. As to reasons for not using as much as they would have liked about 18.9% blamed high prices, and another 32.1% stated that they were short of cash. However, 88.1% stated that the right types of fertilizer were available.

A final indicator of availability has to do with appropriateness of the sizes of fertilizer packs and the pricing of the product. Fertilizer has been made available in smaller packages of 10 and 25kgs, in addition to the traditional 50kg pack. Availability of fertilizer in smaller packs has reduced the cash outlay needed to purchase fertilizer by small-scale farmers. This has led to greater affordability by the smallholders. The smaller packages were also said to be useful in planting odd corners of large-farms. A few smallholder farmers wanted still smaller quantities of fertilizer and hence purchased fertilizer loose by the Kilogram.

Table 2.3. shows the farmers' preferred fertilizer package size.

TABLE 2.3: Farmers preferences of fertilizer package size

| <u>Package</u> | <u>No.</u> | <u>Per cent</u> |
|----------------|------------|-----------------|
| Loose          | 21         | 9.2             |
| 10 kg          | 14         | 6.2             |
| 25 kg          | 26         | 11.5            |
| 50 kg          | 166        | 73.1            |
| <b>Total</b>   | <b>227</b> | <b>100.0</b>    |

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The most preferred package is the traditional 50kg package which is preferred by large-scale farmers and smallholder coffee and tea farmers. Smaller packages of 25kg, 10kg and loose are preferred by smallholders growing maize and other horticultural crops. Fertilizer was sold loose in Central districts and went to the production of horticultural crops.

In summary, fertilizer availability has generally improved in the last five years, particularly in rural areas of the country. Increased availability has arisen from a general increase in fertilizer supply countrywide, from more distributors, stockists and cooperatives. This has resulted in greater timeliness of supply. In addition, fertilizer has been less costly for farmers to obtain and the stimulated price competition (see below) has led to some reduction in prices in certain areas. The supply of fertilizer in more appropriate packs has increased affordability by smallholders.

### 2. Impact on Use by Farmers

About 95.5% of our respondents stated that they used fertilizer regularly and this included both large-scale and small-scale farmers. About 54.6% reported that their use of fertilizer has been increasing in the last five years while another 33.5 stated that their use has remained the same. The former were encouraged to increase their use of fertilizer by several factors including greater availability, a bigger number of distributors, smaller bags, better prices and greater knowledge and appreciation of benefits from fertilizer use. The group which did not increase their use consists of the large-scale farmers whose fertilizer use is nearer optimal, and hence did not need to use more and small-scale farmers who felt that the situation had not changed dramatically, particularly with respect to production incentives to warrant much change. The increased fertilizer use in Kenya, therefore, is prevalent strictly among the targetted smallholder farmer population, and among this group slightly more than one-half who use fertilizer have increased their consumption.

Fertilizer use among all types of farmers is widespread and farmers appreciate its usefulness. When the farmers who had increased fertilizer use were asked to explain why their use has been increasing, 12.4% stated that fertilizers are more available (as documented in the previous section) while another 11% felt that their farm needs had increased. Another 4.8% had reduced the use of manure in favour of fertilizer.

About 45.2% of all farmers stated that their use of USAID DAP has been increasing over the last 5 years while another 6.2% stated its use has decreased. Table 3.4. shows the pattern of fertilizer use by area. The planting types DAP and 20:20:0 are the most popular fertilizers.

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The type of fertilizer used depends on the cropping pattern on the crop mix. Maize was the most common crop grown by nearly all farmers. Table 3.5 shows the number and proportion of farmers who applied fertilizer to the given crop in the previous season. One hundred per-cent of wheat and coffee received fertilizer while over 90% of all tea, maize, potatoes and vegetables received some fertilizer. The other crops category comprised a wide range of crops including sisal, sugarcane, pyrethrum, grasses, and some fruits. About 51.2% of these crops and some fertilizer applied in the previous season.

TABLE 2.4: Type of fertilizer used by area (Per cent)

| Type              | Eastern | Central | Rift Valley North | Rift Valley South | Western | All Areas |
|-------------------|---------|---------|-------------------|-------------------|---------|-----------|
| DAP <sup>1</sup>  | 22.2    | 31.7    | 59.1              | 69.8              | 39.0    | 40        |
| 20.20.0           | 2.8     | 48.8    | 10.6              | 20.9              | 19.5    | 19.8      |
| 25.5.5+s          | 16.7    | 2.4     | -                 | -                 | 14.6    | 5.7       |
| 20.10.10          | -       | 4.9     | -                 | -                 | -       | 0.9       |
| 17.17.17          | 2.8     | -       | -                 | -                 | -       | 0.4       |
| ASN               | 8.3     | -       | 1.5               | -                 | -       | 1.8       |
| Urea              | -       | -       | 1.5               | 4.7               | -       | 1.3       |
| CAN               | 41.7    | 9.7     | 7.6               | 2.3               | -       | 11.0      |
| SSP               | 2.8     | -       | 1.5               | -                 | 7.3     | -         |
| TSP               | -       | -       | 1.5               | -                 | 2.4     | 2.2       |
| Other NPK         | -       | 2.4     | 7.6               | 2.3               | 12.9    | 3.9       |
| None              | 2.8     | 0       | 7.6               | 0                 | 4.9     | 3.5       |
| Base <sup>2</sup> | 36      | 41      | 66                | 43                | 41      | 227       |

1/ Diammonium phosphate, which is a planting fertilizer is more popular in the Rift-Valley and Western Provinces where it is used on maize and wheat. In Central and Eastern Province it is also used in planting Irish potatoes.

2/ The base represents the absolute number of farms used to calculate the percentages.

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**TABLE 2.5** Proportion of farmers who grow various crops and applied fertilizers to the crops (%)

| Crop        | Absolute No. of Farmers Growing No. | % of Farmers Growing Crop | Fertilizer (%) |
|-------------|-------------------------------------|---------------------------|----------------|
| Maize       | 213                                 | 93.8                      | 92.5           |
| Beans       | 79                                  | 34.9                      | 62.0           |
| Coffee      | 54                                  | 23.8                      | 100.0          |
| Tea         | 74                                  | 33.5                      | 91.9           |
| Wheat       | 13                                  | 5.7                       | 100            |
| Potatoes    | 60                                  | 28.6                      | 92.3           |
| Vegetables  | 36                                  | 15.8                      | 91.6           |
| Other crops | 67                                  | 29.5                      | 51.2           |

In summary the use of fertilizer among farmers, particularly among small-holders has increased. The increase is explained by greater availability of the commodity, greater number of distributors, smaller packages and hence greater affordability, more timeliness in supply and more knowledge and understanding of benefits among farmers.

3. Impacts on users knowledge of fertilizer types, application and benefits

The farmers who used fertilizer were asked to explain what influenced their decision to use the fertilizer types which they reported. Their responses to this question are presented in Table 3.6.

**Table 2.6:** Farmer explanation of the factors which influenced their decision to use fertilizers by Area. (Per cent)

| Reason             | Eastern | Central | Rift Valley North | Rift Valley South | Western | All Areas |
|--------------------|---------|---------|-------------------|-------------------|---------|-----------|
| Received Extension | 38.9    | 63.4    | 51.5              | 14                | 22.0    | 39.2      |
| Prices Favourable  | 2.8     | 19.5    | 4.5               | 14                | 7.3     | 5.7       |
| Types available    | 16.7    | 14.6    | 9.1               | 27.9              | 36.6    | 20.7      |
| Other Reasons      | 41.7    | 2.4     | 25.7              | 44.2              | 22      | 28.6      |
| N/A                | 0       | 0       | 9.1               | 0                 | 12.2    | 5.7       |
| Base <sup>1</sup>  | 36      | 41      | 66                | 43                | 41      | 227       |

<sup>1</sup> Total number of farms in each area.

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The most common reason for using the given fertilizer is extension advise. In the last five years, the Ministry of Agriculture under the National Agricultural Project has been extending the Training and Visit (T and V) extension programme to most of the districts. The new extension strategy has proved more effective than the previous strategy of one agent, one farmer contact which also tended to be concentrated among progressive farmers and which did not reach most small-scale farmers. The extension service has also become more knowledgeable about fertilizer (given the training component). There is however inadequate soil analysis to enable the extension service to tailor individual farmer advice on his soil conditions.

Another indicator on the knowledge of the use and benefits of fertilizer use is the explanation given by the farmers for the increase in their fertilizer use in the last 5 years. Table 3.7 shows the proportion of farmers who stated that there had been an increase in fertilizer use and the proportion citing increased awareness of fertilizer benefits.

Table 2.7: Proportion of farmers reporting fertilizer increase and increased awareness of benefits

|                               | Eastern | Central | Rift Valley North | Rift Valley South | Western | All Areas |
|-------------------------------|---------|---------|-------------------|-------------------|---------|-----------|
| Proportion reporting increase | 63.9    | 56.1    | 51.2              | 23.3              | 51.2    | 54.6      |
| More awareness of benefits    | 100.0   | 31.7    | 54.5              | 14.0              | 29.3    | 38.8      |

Just over half the respondents reported that fertilizer use was increasing and 38.8% of all the respondents stated that they were more aware of the benefits. The situation however, varies from region to region. From this table we conclude that improved knowledge of a fertilizer is a major factor contributing to increased use and that the extension service has played a major part in providing the information.

A further indicator of farmers knowledge was gained when farmers were asked whether they had changed the choice of fertilizer types in the previous 5 years. For those who had changed the types the reason for the change was sought in order to establish

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whether it was due to increased knowledge about appropriate types. About 14.9% of the respondents stated that previously they could not get the appropriate types and switched to more appropriate types as they became available.

Another 13.7% of the farmers stated that they switched to new types because the supply was increasing while another 1.7% wanted to experiment with new types. Overall 43.2% of the farmers had changed to a new fertilizer while another 51.1% maintained the same type of fertilizer. The latter were aware that they were using the right types and were happy with the effects.

The farmers were asked whether they knew that there were differences between the various fertilizers as a further gauge to their knowledge. About 72.7% answered in the affirmative. Another 7.0% answered in the negative while another 15.4% stated that they did not know. The knowledge concerning the differences in various types of fertilizer had been increasing in the last five years and this helped the farmers to purchase right types. This explains why for instance, the demand for DAP has increased as farmers have sought after it. Table 2.8 summarizes the information on knowledge of fertilizer types.

Table 2.8: Knowledge of Difference in fertilizer types

|                      | Eastern | Central | Rift<br>Valley<br>North | Rift<br>Valley<br>South | Western | All<br>Areas |
|----------------------|---------|---------|-------------------------|-------------------------|---------|--------------|
| Any differences: Yes | 94.5    | 65.9    | 63.6                    | 88.4                    | 58.5    | 72.7         |
| " " No               | 5.6     | 12.2    | 7.6                     | 7.0                     | 14.6    | 7.0          |
| Don't know           | -       | 19.5    | 18.2                    | 4.7                     | 24.4    | 15.4         |
| N/A                  | 0       | 2.4     | -                       | -                       | 2.4     | 4.8          |
| Base                 | 36      | 41      | 66                      | 43                      | 41      | 227          |

In addition, the farmers were also asked to explain what would happen if planting fertilizer was used for top dressing. Table 3.9 shows how the farmers responded.

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Table 2.9: What happens when planting fertilizer is used for top dressing by area and total

| Response                 | Eastern | Per cent<br>Central | Rift<br>Valley<br>North | Rift<br>Valley<br>South | Western | All<br>Areas |
|--------------------------|---------|---------------------|-------------------------|-------------------------|---------|--------------|
| Reduction in yield       | 30.6    | 29.3                | 43.9                    | 90.7                    | 41.5    | 47.6         |
| Destruction of crop/soil | -       | 9.8                 | 7.6                     | -                       | 9.7     | 5.7          |
| Reduced future yield     | -       | 2.4                 | 3.0                     | -                       | -       | 1.3          |
| Never tried              | 2.8     | 12.2                | 9.1                     | 4.7                     | 4.9     | 9.0          |
| Other                    | 63.8    | 19.5                | 4.5                     | -                       | 7.3     | 14.2         |
| D/K, No answer           | 2.8     | 26.8                | 31.8                    | 4.7                     | 36.6    | 10.2         |
| <u>Base</u>              |         | <u>41</u>           | <u>68</u>               | <u>43</u>               |         | <u>227</u>   |

The most common guess of farmers is reduction in yield. Other reasons included the observation that it would be wasteful to use planting fertilizer for top dressing. Some farmers thought that it may also not affect the yields. Such was the case of 19.4% of respondents from Eastern region. Overall only 4% of respondents thought so. This indicates that farmers who are using fertilizer have a good understanding of its properties. The data shows that this type of understanding has improved in the past 5 years due to extension, advice and learning by doing.

The farmers were asked to state their information sources concerning fertilizer use and the benefits to use. The Ministry of Agriculture ranks highest. Fertilizer dealers were reported as sources of information by 23.8% (Table 3.10). Dealers are not prominent as a source of information except in the Rift Valley; particularly in Nandi and Kericho Districts and in the large-scale districts of Trans Nzoia, Uasin Gishu and Nakuru. The dealers are better placed to provide information to the large-scale farms and estates.

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Table 2.10: Sources of information

| Sources                 | Eastern | Central | Rift Valley North | Rift Valley South | Western | All Areas |
|-------------------------|---------|---------|-------------------|-------------------|---------|-----------|
| Fertilizer dealers      | 11.1    | 12.2    | 27.2              | 48.8              | 11.6    | 23.8      |
| Ministry of Agriculture | 69.4    | 75.6    | 54.5              | 41.9              | 48.8    | 57.3      |
| Neighbours              | 2.8     | 7.3     | 1.5               | -                 | 7.3     | 3.5       |
| Others                  | 12.0    | 2.4     | 7.6               | 9.3               | -       | 2.6       |
| N/A                     | 2.8     | 2.4     | 9.1               | -                 | 29.3    | 8.8       |
| Base                    | 36      | 41      | 66                | 43                | 41      | 227       |

The study also attempted to probe from those who reported dealers as their source of information whether the dealers were educating farmers more now about fertilizer use as opposed to 5 years ago. About 21.1% of the farmers responded in affirmative and another 10.6% in the negative. The fertilizer dealers themselves claimed to be providing an information service and advice on fertilizer use. As discussed below at least two of the importer/distributors have soil analysis capabilities.

Overall, the study tried to gauge whether there had been an increase in the farmer's knowledge about fertilizer use in the last 5 years. About 84.6% of the respondents claimed that their knowledge had increased and 87.2% reported that their farming practices had improved. Table 3.11 summarizes the perception of the farmers concerning their change in knowledge about fertilizer use.

Table 2.11: Change in Fertilizer knowledge in the last 5 years

| Change    | Eastern | Central | Rift Valley North | Rift Valley South | Western | All Areas |
|-----------|---------|---------|-------------------|-------------------|---------|-----------|
| Increase  | 97.2    | 92.7    | 8.03              | 90.7              | 65.9    | 84.6      |
| No change | 2.8     | 2.4     | 3.0               | 4.7               | 26.8    | 7.0       |
| N/A, D/K  | 0       | 4.9     | 16.7              | 4.7               | 7.3     | 8.4       |
| Base      | 36      | 41      | 66                | 43                | 41      | 227       |

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According to farmers perception, their knowledge about fertilizer use and the benefits to use has increased as over the last 5 years.

Farmers knowledge on proper and safe use has increased over the last five years as discussed above. The information on proper and safe use has been provided by the Ministry of Agriculture under the T and V extension programme, by fertilizer distributors and from special crop development programmes. The Kenya Tea Development Authority promotes fertilizer use among smallholder tea growers while private companies such as Kenya Breweries Ltd provide advice on barley; Oil Crops Development Ltd of East African Industries (EAI) on sunflower and rape seed, and British American Tobacco (BAT) on tobacco.

A further illustration on farmers awareness about proper use of fertilizer is their responses to the question why they used particular types of fertilizer. As discussed earlier, these are they based on extension advice and/or the of the fertilizer. This can be amplified further by what the farmers thought about the USAID DAP. The farmers views are shown in Table 3.12.

Table 2.12: What farmers think about USAID DAP

|                                     | Total (%) |
|-------------------------------------|-----------|
| Good and strong fertilizer          | 13.3      |
| Better but expensive                | 6.2       |
| Does well with maize                | 4.8       |
| Gives higher yield                  | 7.0       |
| It is the best                      | 15.9      |
| Use it much                         | 5.3       |
| Not informed about it/never used it | 22.9      |
| Others                              | 20.4      |

Most of the farmers comments are favourable but cost is a concern for some, and some are not aware of it, despite its wide availability.

Also related somewhat to proper and safe use, are decision-making concerning purchase of fertilizer and its application. Agricultural extension has been shown to favour men rather than women. Women in Kenya on the other hand provide most of the farm labour and it is important that women be better informed.

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Table 2.13 indicates who decides on the type of fertilizer to purchase while Table 3.14 shows who applies fertilizer.

Table 2.13: Decision-maker on fertilizer purchase

| Person  | Eastern | Central | Rift Valley North | Rift Valley South | Western | All Areas |
|---------|---------|---------|-------------------|-------------------|---------|-----------|
| Husband | 77.8    | 58.5    | 69.7              | 95.3              | 82.3    | 76.2      |
| Wife    | 19.2    | 39.0    | 10.6              | 4.7               | 7.3     | 15.4      |
| Others  | 2.8     | 2.4     | 12.2              | -                 | 7.3     | 5.8       |
| N/A     | -       | -       | 7.6               | -                 | 2.4     | 2.6       |

Decision-making on what fertilizer to purchase is dominated by men. Women make fewer decisions (15.4%) except in Central districts where the figure reaches 39%.

Table 2.14: Applier of fertilizer

| Person  | Eastern | Central | Rift Valley North | Rift Valley South | Western | All Areas |
|---------|---------|---------|-------------------|-------------------|---------|-----------|
| Husband | 69.4    | 39.0    | 30.3              | 81.4              | 24.4    | 46.7      |
| Wife    | 22.2    | 48.8    | 6.1               | 7.0               | 39.0    | 22.5      |
| Others  | 8.3     | 12.2    | 56.1              | 11.6              | 31.7    | 27.8      |
| N/A     | -       | -       | 7.6               | -                 | 4.9     | 3.1       |

Women apply fertilizer much more than they make decisions concerning the purchasing of this commodity. In Central districts, women apply fertilizer more often than men. In the future the number of women decision-makers on farm operations is likely to increase.

In summary, proper and safe use has increased over the last five years. The information on proper and safe use has been provided by Ministry of Agriculture extension staff, by parastatal crop programmes and some private companies. In addition, fertilizer distributors have done their part. The USAID program which has led to opening up of the fertilizer market has contributed to the increased availability.

To conclude this section the study examines what farmers thought should be done to increase their fertilizer use. 44.9% felt that prices should be reduced, about 22.5% felt that supply fertilizer should be increased while 12.8% called for more farmer education.

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Other suggestions include better credit for farmers (22.0%), education for fertilizer dealers, and a more timely payment for farmers produce.

As a summary of this section, knowledge about fertilizer use and benefits has increased among farmers. The increased knowledge has come about from increased T and V extension effort under the National Agricultural Project. The fertilizer distributors have also done their part particularly in the large-scale farm areas. The USAID program which generally has helped to open up the market and to increase available supply has led to some competition in the sector. The distributors have therefore tried to promote fertilizer use by providing information and sometimes by reducing prices. Farmers' familiarity with fertilizer has also increased over the last five years as they have learnt by doing.

### 4. Impact on proper and safe use by farmers

Proper and safe use of fertilizer is partly related to users knowledge as discussed in section 3 above. A major indicator of proper and safe use of fertilizer is the favourable responses of crops through increased yields. The farmers were asked whether the use of fertilizer led to increased yields.

About 90.7% of the farmers interviewed stated that fertilizer use increased their yields. Only 5.3% stated that it did not. The farmers were also aware that there were differences among fertilizer types. As discussed above, 72.7% of the farmers were aware of the differences between various types. They could anticipate deleterious effects when planting fertilizers are used instead of top-dressing types. The farmers are also aware of specific types of fertilizer meant for particular crops such as for tea, coffee, maize, wheat, potatoes etc, which are supplied under various crop programmes.

### 5. Impact on Distribution Outside Major Market Centres

The major market centres can be defined as the main towns or districts headquarters served by rail or good roads, and usually located in the major farming areas such as Nairobi, Nakuru, Embu, Meru, Eldoret, Kitale, Kisumu, Kisii, Nanyuki, Kakamega etc, etc. Most fertilizer distributors are located in one or more of these centres. Outside these centres, there are rural trading centres or markets. Smallholder farmers are closer to these rural trading centres and rely on stockists (retailers) located there for the supply of goods including fertilizers and other agricultural inputs.

It is evident that the number of retailers (stockists) in the rural trading centres who stock fertilizers has increased markedly in the last 5 years and particularly in the last 3 years. Whereas most of the rural trading centres had none or only one fertilizer stockist five years ago, it was found that many of them now have at least 2

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stockists and most have 3 to 4 stockists. These numbers do not include the "seasonal" stockists who could not be counted during the field visits which were conducted during the fertilizer off-season. This increase in the number of stockists can be attributed to the remarkable increase in the number of fertilizer distributors, all over the country, and their increased willingness and ability to distribute fertilizers through stockists. For example KGGCU reported that it had increased its fertilizer/seed stockists from 2000 to 2500 in the last 5 years. Mea Limited has 35 new stockists while Safina Limited who had no stockist 5 years ago now has 25 stockists. Limuru Posho Mills who had no stockist 5 years ago is now distributing fertilizers through 25 stockists.

The increased willingness and ability on the part of distributors to appoint or use stockists to distribute fertilizers is a result of increased supply of fertilizers with better margins now compared to 5 years ago.

This finding i.e. that the number of stockists in the rural trading centres has increased markedly is consistent with the finding that the distance travelled by farmers to buy their fertilizers has decreased over the last 5 years as stated in B1 of this chapter. Whereas the majority of rural smallholders had to travel to the major market centres to purchase their fertilizers, they are now in a position to obtain it from the stockist at the rural trading centre nearer his village. This has contributed to increased smallholder farmer use and reduced the cost of obtaining it.

It was also found that the co-operative societies, who act as stockists have increased their involvement in fertilizer distribution as the Unions to which they are affiliated are now importing fertilizers. The Co-operative societies are located mostly in the rural trading centres.

In summary, fertilizer is now more available in the main market centres and the surrounding rural trading centres such as Bahati, Dundori, Sotik, Keroka, Cheranganyi, Webuye, Moi's Bridge, Moiben, Kiambu, Lugori, Runyenjes, Ruiru, etc, etc. Availability in these areas has significantly increased in the last 5 years due to increased participation of the private sector in distribution of fertilizers, a policy change promoted by USAID.

### 6. Impact on Distributors to Invest in Distribution Facilities and Services

The facilities required for efficient distribution and effective marketing of fertilizers include wholesale/retail shops, warehouses, vehicles. Essential services in fertilizer distribution include advisory services on use of fertilizers given by trained sales and extension staff.

The majority of distributors interviewed (90%) are operating a distribution network which consists of one or more of the following: branches, sub-branches, sales depots, stockists, and co-operative

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societies. Only 50 per cent of these distributors operate branches, (wholesale/retail shops) and sub-branches. Another 50 percent operate their distribution through stockists and societies located in rural trading centres.

Most distributors (58%) have changed their distribution network in the last 5 years. Of these 82 percent have increased their network while 18 per cent have reduced it. The increase could be attributed to increased involvement of the private sector in fertilizer marketing and also better margins to distributors and retailers/stockists. It could also be attributed to increased use for fertilizers by smallholders as a result of increased supply and availability. The reasons given for reducing distribution network was increased competition. Closure of branches which appeared to be reduction in network resulted into increased use of stockists:

The majority of distributors have not increased their distribution capacity in the last 5 years. While 47.5 per cent have not done any investment at all in the distribution capacity, 9.5 per cent of them have reduced it. Again the reason for reduction is given as increased competition (4.8 per cent of the distributors who had reduced their capacity). Thus only 43 per cent of the distributors have invested in additional capacity such as vehicles and warehouses. This additional capacity is mainly located in the major market centres and storage at stockist level is still a problem.

Many of the distributors who have emerged over the last 5 years see no need in investing in their own vehicles and warehouses. They argue that warehouses and vehicles can be easily hired.

It is worth noting that KGGCU has opened 9 new branches since 1984. Mea Limited, the second largest distributor had 4 fully fledged branches in 1986 but has since closed 2 of these branches. Only 3 distributors in the country i.e. KGGCU, Mea Limited and Safina Limited operate distribution network with branches. KGGCU has 55 branches, Mea has 3 and Safina Limited has 5.

The majority of distributors (95%) stated they were providing essential advisory services to the farmers. Only 76 per cent were providing such services 5 years ago. The type of services provided are advice on fertilizer use (70%), soil analysis (9.5%) and field visits by only 10% of the distributors. No distributor issues leaflets on fertilizer use to farmers. Only 2 distributors, Mea Limited and Orbit Chemicals Limited are operating soil analysis laboratories.

A significant change which has taken place is the emergence of new and therefore remarkable increase in the number of fertilizer distributors all over the country. There are at least 34 genuine fertilizer distributors (including Co-operative Unions) today compared to only 10 years ago. Most of these new distributors are located in major market centres and have no branches. The majority of these (85%) focus their activities in their locality. This

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increase in the number of distributors is directly attributed to the policy of opening the market and increased participation by the private sector. As a result, fertilizer is more available in wider geographic areas of the country as pointed out in part 1 of this chapter.

Although the majority of distributors (90.5%) say they plan to invest in distribution infrastructure in future, there is no evidence of existence of concrete plans.

Almost all the distributors (95%) have invested in other agricultural inputs such as seeds, agrochemicals, feeds and animal health products. The sale of these or other inputs have increased over the last 5 years. They also supply these to the stockists outside the major market centres who in turn supply them to the smallholder.

In summary, there has been some investment in distribution network and services. The investment has been in the new fertilizer and agro-inputs business which have come up all over the country in the last 5 years. This is a result of the policy of opening up the market promoted by USAID. It is clear that with reduced government controls on imports and prices, the level of investment in distribution facilities and services would be higher.

### 7. Impact on wholesale and retail prices.

There is evidence of an increase in the number of stockists selling fertilizers in the areas outside the main marketing centres. There are now 3-4 fertilizer stockists in the small rural centres where there was only one or none 5 years ago. About 35% of the 69 stockists interviewed said that the profitability of fertilizer was higher than that of other products, and 30% said such profitability had improved in the last 5 years. Such increased profitability was reported especially by stockists operating in the small trading centres for which the maximum retail prices are not declared and who charge the fertilizer transport cost separately so that they can recoup their costs while still keeping within the price ceiling. Increased profitability has enabled the existing stockists to stock more fertilizer and attracted new stockists to sell fertilizer.

About 43% of the 21 importers/distributors interviewed said it was presently easier to give discounts compared to 5 years ago. Forty eight percent find it more possible to sell at less than the Maximum Retail Prices (MRP), and 57% find the relative profitability of fertilizer to have increased in the last 5 years. The reasons for these include better effective profit margins especially for donor fertilizer, direct allocations from Treasury, and increased competition. About 53% of the importers/distributors have used the increased profitability to expand their distribution network through appointment of new stockists and opening-up of new branches/sub-branches.

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However, only 12.3% of the 227 farmers interviewed paid less than the MRP. Most of these were largescale farmers who are able to negotiate quantity discounts from the distributors and members of cooperative societies. (The majority of the farmers did not know what the MRP's for different fertilizers were).

The pricing structure does not incorporate distinct wholesale and retail margins (the proposed price revision, however, includes these) and the importers/distributor appear to pass-on margins to stockists only when circumstances allow it, such as when the effective margins are reasonable and fertilizer supplies are adequate. The effective margins enjoyed by the importers/distributors depend on the avenue through which they obtain their supplies; namely, 1) commercial importation, with margins varying from firm to firm depending on their actual C & F costs relative to the average C & F used in computing the MRPs, 2) the GoK supplies under the USAID/GoK system of payment which guarantees 15-17% margins and 6 months interest-free credit, and 3) the GoK supplies under the GoK/KGGCU system of payment which guarantees KGGCU 10% margin and unlimited interest-free credit but which other importers/distributors have no access to.

There is evidence of fertilizer price competition in some parts of the country. In Eldoret, for example, one of the distributors (Eldoret Packers) sold 50Kg bags to distributors at KShs. 280.00 per bag and to farmers at KShs. 282.00 per bag. The MRP was KShs. 295.70 in Eldoret. In Kitale, distributors compare prices of their competitors on a daily basis, and reduce their prices by a shilling in order to attract customers. Distributors sold to farmers at discounts as much as KShs. 15.00 below the MRP, and most of the stockists in Kitale displayed their prices to attract more customers.

The fixing of prices administratively affects importers/distributors negatively by 1) making it difficult for some of them to import commercially (for two consecutive years, commercial importers did not import due to late price announcements), 2) creating low profit margins (14.3%) and 3) precipitating losses especially when prices are revised downwards before previous stocks are completely sold (14%).

In summary, there has been evidence of increased relative profitability of fertilizers, increased scope for importers/distributors to give discounts, and increased scope for price competition in the last 5 years. The effect on commercial importers to import due to prices is outlined in the next section.

### 8. Impact on Importers to Import correct and sufficient quantities of fertilizers at the right time and at competitive prices

The ability of importers to import the correct fertilizers in sufficient quantities at the right time and at competitive prices depends on the following factors in Kenya:-

- a) timely allocation of fertilizer import quotas by the Government.

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- b) quantities and types allocated.
- c) timely issuing of import licences and foreign exchange licences.
- d) knowledge of the world fertilizer market situation and good import and distribution planning.
- e) timely announcement of local selling prices with adequate and acceptable margins.

The observed impact is as follows:

i) Allocations:

- Allocations have become timely. This was not the case 5 years ago when there were considerable delays in releasing the allocations. The Government has been announcing allocations between April and June of each year to facilitate timely importations. This timely announcement of allocations is a result of USAID conditionally that the Government will process applications for commercial imports by July 15 of each year beginning in 1985.
- The quantity and types of fertilizers allocated have increased and 91 per cent of the importers reported that quantities allocated as a percentage of their requests for allocations has increased. Whilst 5 years ago allocations for commercial imports were as low as 200 metric tons, the minimum quantity allocated is 1000 metric tons. KGGCU and Co-operative Unions obtain the quantities and types of fertilizers they request for allocation. The private sector importers do not necessarily obtain the quantities and types they request. However this may be due to the fact that private sector importers tend to exaggerate their requirements for importation in the realisation that allocations may be done without due regard to the quantities requested.

ii) Issuing of Import Licences and Foreign Exchange

- Importers still experience serious delays in issuance of import licences and foreign exchange allocation licences. Evidence was offered to demonstrate that several importers including Co-operative Unions who had received allocations in time failed to import fertilizers for their customers due to delays in processing of import licences in 1987. By the time the licences were issued, the price levels in the world market had increased dramatically.

iii) Knowledge of the World Market Situation and Planning

- About 92% of the importers stated they were better able to plan their importers compared to 5 years ago. Only 50% thought they could plan well 5 years ago. The main reasons for this enhanced ability are:

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- as a result of better knowledge of the world fertilizer market situation through more contact with suppliers and training as reported by 33% of the distributors.
- having more qualified personnel..

The above could be largely attributed to the training programs which USAID have provided. In July 1986 USAID sponsored 6 Kenyans from the private sector and one from co-operative Unions to a Fertilizer Marketing Course conducted by International Fertilizer Development Centre (IFDC) in Nairobi. Another 3 Kenyans from the private sector involved in fertilizer marketing, are currently attending a similar course in the United States.

#### iv) Procurement Procedures and Methods

- In the past, fertilizer imports were purchased through private negotiations between buyers and sellers or through agency agreements. The prices were not therefore necessarily competitive. The last 5 years has seen a remarkable change in the method of procurement as more and more importers have emerged as a result of donor pressure to increase the supply of fertilizers in Kenya. Due to increased competition, procurement of commercial fertilizer imports is done through widely published tenders in order to achieve competitive prices. A recent tender issued by KGGCU for example, attracted over 29 bids from international fertilizer suppliers. This has resulted in importers importing at more competitive world market prices now as opposed to 5 years ago. Also, the introduction of the BIP pricing system has contributed to more competitive prices since the importers know that they have to purchase at prices as close as possible to BIP C&F price on which the Government bases the local selling price calculations.

Generally, it can be stated that importers in Kenya are willing to import the correct and sufficient quantities of fertilizers when the allocations are timely and the retail prices are right. This was clearly demonstrated in 1985/86 when out of 35 importers allocated 210,528 metric tons of fertilizer 29 or 83% actually imported 190,283 metric tons representing 91% of the commercial allocations that year.

In the last two years however, although the allocations have been released in time, the performance of importers has deteriorated largely because the approved selling prices were announced late, and by the time they were announced, the prices were not commensurate with the world market prices. Importers have reacted as follows depending on the market or type of customers they are serving:

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1. Importers serving mainly the Estates and Plantations

These have imported after entering special agreements with their customers who have been prepared to accept prices above controlled prices.

2. Co-Operative Unions and KGGCU

Have refrained from importing unless the selling prices were acceptable to them.

3. Private Sector Importers for Smallholders

Have refrained from importing fertilizers unless and until approved selling prices were acceptable to them. In these circumstances only large farmers and estates have been able to get fertilizers. Smallholder farmers had to access to fertilizers, as none was imported.

The performance of importers in the last two years illustrates the above reactions. In 1986/87 and in 1987/88 the allocations were announced in time. In 1986/87 the government reduced selling prices while the world market prices were on the upward trend. In this year only 49 per cent of the importers allocated fertilizer import quotas imported 44% of 325,519 metric tons allocated to them. Fertilizer year 1987/88 was even worse. The prices were revised upwards, but the increase were not commensurate with the increases in the world market prices. In this year only 11 importers (26%) out of 42 importers imported 83,908 metric tons of the 242,382 metric tons allocated to commercial importers. Except in the case of KGGCU, most of the imports in these two years were for Estates and Plantations on special agreements with importers who cater for them. Table 8 below illustrates the performance of commercial importers in the last 3 years.

Table 2.15: Performance of Commercial Fertilizer Importers in Kenya

| Y E A R | NO. OF COMPANIES ALLOCATED | NO. OF COMPANIES IMPORTED | % IMPORTED | TOTAL ALLOCATION M/TONS | IMPORTED M/TONS | % IMPORTED |
|---------|----------------------------|---------------------------|------------|-------------------------|-----------------|------------|
| 1985/86 | 35                         | 29                        | 83%        | 210,528                 | 190,282         | 91%        |
| 1986/87 | 53                         | 26                        | 49%        | 325,529                 | 142,849         | 44%        |
| 1987/88 | 42                         | 11                        | 26%        | 242,382                 | 83,908          | 35%        |

SOURCE: Ministry of Agriculture, Nairobi

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In summary, importers have not been able to import sufficient quantities on time due to late announcement of prices. GOK involvement in determining and announcing Maximum Retail prices has been the main obstacle to increasing supplies of fertilizers. Even though the Government sets targets for annual increased levels of fertilizer increasing the number of imports and the amounts allocated to import, these targets are not realized because of pricing constraints.

However, when importers do import, they have done so at more competitive world market prices, which have benefited farmers in Kenya, due to the introduction of the BIP pricing system, better knowledge of the world market situation, and their application of marketing skills and better planning capability resulting from training.

### 9. Impact on the GOK to develop and implement improved and useful policies and procedures.

Discussion with government officials indicated that in the last 5 years, there has been a gradual departure from the more theoretical estimation of national fertilizer requirements to assessments based on projected utilization in the main farming areas of the country. The estimates are then counter-checked with projections made by the importers/distributors and large end-users. This exercise has led to improved estimates of national fertilizer requirements and annual targetted increases in fertilizer availability. Improvements in this regard resulted from training and experience gained by government personnel employed in the Fertilizer Inputs Section.

All firms allocated fertilizer are required to make periodic returns of their sales and stock levels. This requirement is enforced rigidly and forms part of the basis of further fertilizer allocations. Further, the Central Bank of Kenya recently established a fertilizer register into which details of fertilizer import allocations are entered and monitored up to payment. This complements the Fertilizer Input Sections' efforts to monitor fertilizer importations, stocks, sales and prices.

In 1986, the Kenya National Fertilizer Association was registered with open membership to all fertilizer dealers in the country. It has an initial membership of 5 firms, and has already had fruitful interaction with the GOK. Recently, a steering committee on movement of urgent public traffic (including fertilizer), chaired by the Office of the President and with the participation of Kenya Ports Authority and Kenya Railways, was formed.

Members of the Fertilizer Committee have gained considerable experience and knowledge as a result of their involvement in the sector. The Fertilizer Inputs Sections' staff have also gained experience on the data requirements for monitoring the sector and preparing the fertilizer annual plan. Participation by relevant government officers and private sector personnel in USAID - sponsored

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Fertilizer Development Policy Workshops and Marketing Training Programs, and involvement of local Kenyan Consultants and consulting firms in fertilizer related assignments, have increased local expertise to articulate fertilizer policies.

The GoK Fertilizer Policy Paper and Sessional Paper Number 1 of 1986 draws heavily from recommendations by experts, and government officers talked to in the course of this assignment expressed a desire to discuss and react to the draft findings so that they can keep informed.

Discussions with members of the Fertilizer Committee indicated that government officers understand the intricacies of the fertilizer sector very well. Most of their knowledge was acquired in the last few years as a result of continued involvement in the sector. These officers addressed frontier issues such as the desirability of establishing a fertilizer terminal with private sector participation and manufacturing low grade fertilizer from locally available resource/rock with impressive ease and competence.

The GoK's Sessional Paper Number 1 of 1986, the National Policy on Fertilizer Pricing and Marketing, and discussions with government officers indicate that there is a clear perception by the GoK of the country's fertilizer needs and necessary policy direction. Additionally, there are numerous policy and procedural changes implemented by GoK since 1983 to improve fertilizer availability and use.

Overall, the indications are that the GoK's capacity to develop and implement improved and useful policies and procedures has improved significantly since 1983. This has resulted from improved ability to assess national fertilizer needs, improved monitoring of fertilizer allocations, establishment and/or promotion of support institutions, improved availability of local expertise to articulate fertilizer policy issues, and increased willingness by the GoK to consider for implementation recommendations by experts. The GoK is clearly better able to assume a more appropriate role to implement the recommendations of its Fertilizer Policy Paper, and to make sure that proper policies and procedures are implemented to make fertilizer more available and to promote its use.

### 10. Impact on the GoK to improve planning.

Indications observed in Section 9 above show clearly that the GoK's capacity to improve fertilizer planning has improved since 1983. In particular, there has been improved ability to assess the country's fertilizer needs through improved methods, improved capacity to monitor fertilizer allocations, expansion of support institutions and development and implementation of appropriate policy and procedural changes in the last 5 years.

11. Impact on donors to finance fertilizer imports and foster marketing development through their programs.

The number of fertilizer donors and quantities of donor fertilizer imported to Kenya have been increasing. Italy joined in 1985/86 and the Federal Republic of Germany recently resumed fertilizer assistance to Kenya after a break of some years. Recently, Finland commissioned a study to strengthen its involvement in the sector. Donor fertilizer increased from 25,148 tonnes in 1983 to 142,315 tonnes in 1987. Donor involvement in the fertilizer sector has, therefore, been increasing. Currently, there are 11 fertilizer donors to Kenya. These are Norway, Denmark, Sweden, Finland, Netherlands, Japan, Italy, West Germany, F.A.O., the World Bank and USAID.

USAID was the first donor to promote increased fertilizer availability and use in Kenya through the relaxation of restrictive fertilizer marketing policies such as the sole agency agreement with KGGCU, and the development of a commercial marketing system. Since then, most donors have utilized their fertilizer programs to foster some sort of market development (see Chapter III Section 4). The impact of this trend has been better donor coordination and a likelihood to support the GoK's efforts at sector reforms outlined in the fertilizer policy paper.

A number of donors leave it to the GoK to decide on fertilizer types most desirable for Kenya, and there is a general agreement among donors that fertilizer assistance should have balance of payments support as its primary objective. Donors are interested in understanding and streamlining the mechanisms for providing fertilizer assistance in forms other than in-kind.

Negotiations between the GoK and donors are evidently more timely, which permits better forward planning by the GoK. The GoK and donors are agreed on the framework expressed in the fertilizer policy paper, and some donors have agreed on the amounts of fertilizer to be supplied annually over a 5 year period, reducing the time taken in seasonal negotiations and further enabling improved forward planning.

The evidence shows increased willingness by donors to import fertilizer types beneficial to Kenya. The GoK decides on types and quantities to request, and some donors have shown considerable flexibility in terms of sources of their aid imports. In 1987/88, for example, NGRAD supplied fertilizer from Romania.

More donors are presently willing to import/distribute aid fertilizer in accordance with GoK/USAID procedures. For example, Japan and Netherlands have agreed to have some of their fertilizer distributed through tender. Italy and W. Germany leave it to the GoK to decide on appropriate methods of disposal which has been essentially the USAID introduced system. There is evidence of increased donor support for the efforts by USAID to promote liberalisation of fertilizer marketing and all the seven interviewed donors expressed a commitment to support the GoK in attaining its development objectives in regard to fertilizer marketing.

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Differences in the systems of disposing aid fertilizer have been reduced in the last 5 years, during which some donors became more supportive of programs promoted by GOK/USAID. GOK and donors agree that the development of improved systems of fertilizer pricing is one of the most urgent needs of the sector.

On balance, the evidence shows that the impact on donors to finance fertilizer imports and foster marketing development through their programs has been positive. This is indicated by increased donor participation in the sector, increased willingness to import fertilizer types with greatest developmental impact, increased willingness by donors to rationalise between aid-in-kind and other types of fertilizer assistance, increased donor-interest in fertilizer marketing, more timely negotiations between GOK and donors, and increased willingness by donors to import/distribute fertilizer in accordance with GOK/USAID procedures.

12. Impact of donor fertilizer on commercial fertilizer.

Donor fertilizer is of great benefit to the agricultural sector in Kenya. However, it could hamper the development of a fertilizer marketing system. The practise of supplying donor fertilizer as aid-in-kind residualises commercial fertilizer importation and necessitates very delicate planning and management of fertilizer supplies to reduce the possibility of either over importation or under importation, and to ensure that government fertilizer is sold.

There is evidence that the GOK's fertilizer management and planning has improved as a result of policy and procedural changes promoted by USAID as part of its Fertilizer Marketing Development Program, and as indicated in Sub-sections 9 to 10 of this section. Such improvement is likely to have reduced the negative imports of donor fertilizer on commercial fertilizer.

However, the GOK's management and planning of fertilizer supplies, however good, cannot guarantee private sector distributors adequate fertilizer supplies to enable them to make plans for investment in their distribution networks. Under the circumstances, distributors have no control on what is available for sale, because supplies depend on commercial import allocations and allocations of government fertilizer. The distributors are unable to know what quantities of fertilizer they will distribute in the future and are, therefore, unable to make long term investment plans. A strategy for further reduction of this negative impact of donor fertilizer on the development of fertilizer marketing is proposed in Chapter IV.

C. ANALYSIS OF IMPACTS

1. Linkages of impacts to policy and procedural changes.

This section relates the observed impacts to policy and procedural changes. Some of the impacts can be easily linked to policy and procedural changes that have been promoted but others

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are more complex being intertwined with long-term and on-going programmes of GoK and other organizations.

Following the cancellation of the GoK exclusive agency with the KFA/KGGCU, a competitive marketing system began taking shape, and this has led to some favourable consequences for the farmers. The number of fertilizer distributors and stockists has increased as pointed out in the previous chapter. According to the impacts indicators specified above, this has led to improved availability and use of fertilizer in the country. An increased number of distributors have participated in the distribution of GoK/aid fertilizer from one in 1983 to over 80 now. Increased numbers of distributors also have been allocated commercial fertilizer import quotas which have helped to increase the supply of fertilizer. Some end users, particularly small-holder Cooperative Unions, have also benefited through direct allocations.

An indication of increased competition in marketing of fertilizers can be dramatised by the call for protection against competitors by traditional distributors in Kitale. By 1988, five extra distributors had emerged compared to only four about 5 years ago. These distributors were competing with each other for customers by reducing their prices and expanding their distribution networks through stockists. Farmers benefited from reduced fertilizers prices and lower costs to obtain their supplies. Investments in new distribution outlets has not been as high as could be expected as explained above. Certain uncertainties still persist particularly with respect to allocation and pricing. Moreover, in the short-run opening up of the market has tended to dampen investments among the established distributors, as discussed in Section III B Section 5.

One of the goals of USAID programme has been to increase fertilizer use and availability in Kenya particularly by smallholders and in areas outside the major markets. As discussed above our study has established increased availability and use among farmers. This is attributed to policy and procedural changes promoted by the USAID, the GoK and other donors as discussed in Section III A, above.

An integrated retail marketing system is emerging but it needs continued support in order to entrench it. Allocations to end users, of their proven requirements particularly the KTDA and Cooperative Unions, has been one method to increase overall supply of fertilizer and guarantee that at least a small segment of the fertilizer users are assured of supplies. In the long-run an integrated market system will emerge and be rationalised to ensure that end users would no longer need to import fertilizers. Instead, specialized importer/distributors will emerge and will adequately supply both large-scale and smallholder farmers. The cost of supplying both subsectors will be met by the market. Allocation of required quantities will be done by the market, in accordance to the government policy paper.

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The GoK has also improved its capacity in planning and management of the fertilizer sector. This is in accordance with policy and procedural changes promoted by the USAID and other donors. Some of these changes include the establishment of a fertilizer committee, establishment of a fertilizer monitoring unit, development of fertilizer import plan, review and revision of the fertilizer pricing structure and the formulation of a policy paper. An inputs section has been established in the Development Planning Division (DPD) of the Ministry of Agriculture and has also been working closely with the Farm Management Division. The latter has field officers who have assisted in the establishment of demand levels of fertilizer at the farm levels. The inputs section has led to an improved annual fertilizer plan as par conditionality of the USAID. The recent changes in the Ministry of Agriculture procedures has led to more accurate estimates of fertilizer demand requirements. The Government has also established a fertilizer committee to deal with fertilizer matters including technical and policy matters. The committee has enhanced GoK's ability to deal with policy matters on the fertilizer sector, in line with USAID condition. The committee has supervised the implementation of Private Sector fertilizer policies in line with USAID/GOK Agricultural Development Programme Loan Agreement. It has also developed a fertilizer import plan, specifying types, quantities and timing of fertilizer imports. The committee has also attempted to address the issue of performance by importer/distributors. It has accepted good performance as a criterion for allocation of import quotas. At least 80% of the import quotas are to be restricted to genuine and proven importer/distributors while the other 20% will be open to new entrants.

The government has managed to announce commercial fertilizer import allocations in good times. This is due to policy and procedural changes promoted by USAID; the GoK and other donors as discussed earlier. The GoK has not been able to provide a flexible pricing system. Retail prices have not been revised in good time. Consequently commercial imports were just about one-third of expected levels in the 1987/88 season. The same could hold true of the 1988/89 season but is definite for the short rains because nobody is importing. Government fully appreciates the constraints created by the current pricing system and accepts the need to revise prices at least twice a year. In the short-run it has not been possible to implement new pricing procedures because of complex bureaucratic procedures. Some ground-work has already been laid to this end and the policy paper calls for this to be implemented. The need to provide adequate margins is also fully appreciated. The establishment of wholesale and retail margins with adequate incentives for retailers to establish retail market services has not been done.

The GoK has promoted appropriate and affordable fertilizer packages for smallholders. Standard 10kg and 25kg packages have been introduced. The GoK pricing policy has permitted the extra

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costs to be passed to the users in line with USAID conditionality. The 10 and 25kg bags reduce the cash outlay by small-holders and hence improved affordability. The 10kg pack is especially popular in Central and Eastern provinces and the importance of horticulture particularly vegetable, tomatoes etc. which are grown in small plots. The popularity of the 50kg bags was found to be overwhelming in Rift Valley and Western areas of the country where maize and wheat are very important. It was also very popular among the coffee and tea growers of Central Kenya. The issue of appropriateness of bag size need further investigation. In some of the areas of study the small bags were a very recent introduction.

The GoK has also managed timely negotiations with donors to assure timely arrivals. This stems from greater awareness of need in timeliness on the GoK part, and pressure of donors, commercial sector and the farming community. The payment system for donor fertilizer has been rationalized with distributors paying in cash or bank guarantees NTE 180 days. This has led to greater accountability on the part of distributors. In addition, an improved timing and amount of funds has been realized.

A Kenya National Fertilizer Association (KNFA) has been established as per agreement. It has not been as active as the Kenya Agrochemical Distributors Associations (KADA). KADA and KNFA can keep up the pressure on the GoK to implement useful policies for the development of the private sector. The two organisations can support and lobby for the implementation of the fertilizer policy paper thus helping to support increased availability and use of fertilizer. In addition, KADA and KNFA will bring issues to the GoK as elaborated below.

The government extension programmes dominate information sources about fertilizer use by farmers. Under the Training and Visit (T and V) extension system the GoK has been promoting better fertilizer use among farmers. This has particularly been the case with maize. Other special extension programmes dealing with specific crops exist such as the Kenya Tea Development Authority (KTDA) for tea, Kenya Breweries Ltd, for barley, East African Industries for sunflower and rape seed, and British American Tobacco (BAT) for tobacco. MoA extension service in many instances issue blanket recommendations which do not take into account for specific environmental requirements. The USAID conditions had called for the development, production and dissemination of information leaflets on fertilizer use. So far the leaflets have been developed but production and distribution is awaited. Extension efforts through the distributors may have had even greater impact if this had been done.

The impacts which we have discussed above are largely beneficial for farmers and importers/distributors. They are soundly based in trying to promote greater fertilizer use by farmers which is in line with Government policy papers (Sessional Paper No. 4 of 1981 and No. 1 of 1986, and the Development Plan 1984/88).

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Fertilizer Market Development is also crucial because in the long-run one could anticipate reduced aid fertilizer. In such a situation the country would have to resort aid to greater reliance on the commercial sector which needs to be carefully nurtured. The GoK has produced a balanced fertilizer policy paper which provides a sound foundation to continue the reform process. Most of the objectives of the paper are in line with USAID objectives and goals as elaborated below.

The negative effects as seen by participants in the sector include the observation by importer/distributors that further opening up of the fertilizer market will reduce incentives for further investments. Simply put, the quantities handled could become very small and hence marginal to their lines of business. The importer distributors are unhappy with allocations to brief-case distributors, who in turn want to sell back to them for the quick back. The appropriate number of genuine importer distributors which the Kenyan fertilizer market can support will be determined overtime through a rationalization process. In the meantime it will be important to maintain a new system of free entry and exit until the appropriate equilibrium is established.

Another potentially negative factor is related to the popularity of DAP. The indiscriminate use of acidifying fertilizer such as DAP on soils which are already acidic could lead to a growing acidity of the soils and possible crop failure. The same is also true of the use of basic fertilizers on basic soils. As stated earlier, blanket recommendations on fertilizer use are given by extension. To overcome this problem, the USAID could liaise with the National Agricultural Laboratories which has been undertaking a comprehensive fertilizer research. In the long run what is needed is expanded soil analysis facilities in the country.

The GoK appreciates policy dialogue and is also happy with the progress being made in establishing a sound fertilizer marketing system. There appears to be some misgivings among government officials of donor involvement in what are considered administrative matters of the GoK. Some USAID conditionality is too specific and some of it deal with low level decisions and is too short-term. Some of the conventions and conditionality provide very fine administrative details including specifying specific dates within a calendar year, administrative procedures and new institutions such as KADA. Rather, USAID should concern itself more with policy matters, objectives and overall goals. A medium to long run period of three to five years would be more appropriate than a short run period in this sector.

2. Progress made towards meeting the objectives of the USAID Fertilizer Marketing Development Program.

The objectives of the Fertilizer Marketing Development Program signify actions which had to be completed in the short term (1984-88) in order for the goals, which are long term, to have a chance of being achieved. Although the purpose of this study is

not specifically to evaluate the Program, an assessment of progress made towards achieving the objectives and goals is an important measurement of impact. As stated in the Background Section of this report (Chapter II), an efficient commercial agricultural input marketing system is one element needed to expand agricultural production. This section and the next highlight USAID's impact in contributing to sustainable agricultural production.

- a. Expanding the involvement of the private sector in fertilizer distribution in Kenya.

In terms of numbers, the Program has resulted in wider private-sector participation in fertilizer distribution. There are currently about 45 firms dealing in fertilizer, almost 10 times what there was in 1983 when the program began. Some of the firms may not be bonafide, but most of them are and have consistently tendered for the distribution of government fertilizers. These firms have developed expertise in marketing systems development and promotion of fertilizer use. Such expertise is gained from hands-on experience and training. The KNFA and KADA have become a forum for these firms to discuss improved marketing with the government.

Increased private-sector involvement has led to wider geographical distribution of fertilizers and has created a competitive climate. In addition, it has increased accessibility to fertilizers by farmers, and can supplement centrally - provided extension services.

- b. Improved GOK capacity to collect and analyse fertilizer sector data for better planning and decision making.

Significant progress has been made towards improving GOK's capacity to collect and analyse fertilizer sector data. This has resulted from 1). increased expertise by government personnel in the Fertilizer Inputs Unit, 2). Government officers continued involvement in the fertilizer sector as a result of their membership in the Fertilizer Committee, 3). interaction between the GOK, donors and the private sector and 4). increased availability of local consultants capable of articulating fertilizer policy issues.

This increased capacity will enable the GOK to better define and carry out its role in the future development of fertilizer marketing, to monitor the impact of local and international changes on fertilizer marketing and make necessary adjustments to improve fertilizer availability and use in the country.

- c. Encouraging agricultural input distributors to invest in retail marketing.

There is some progress towards achieving this objective as evidenced by increased participation by the main distributors in fertilizer retailing. However, such progress appears to have been hampered by what the established firms see as 'unfair

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competition' arising from the involvement of a larger number of private sector firms including traders, some of whom are seen not to be seriously interested in making fertilizer distribution one of their main lines of business. This has created some uncertainty in fertilizer marketing especially for the more established firms who seem to have decided to wait until the dust settles before they can make major investment decision. There is some apprehension that if the process of expanding private-sector participation continues, the quantity of fertilizer going through each firm may be too little to justify investments in retail marketing by individual firms.

There seems to be, therefore, a short-term conflict between expanding private-sector participation and encouraging established firms to invest in retail marketing services. Progress toward distributor investment is also hampered by inadequate profit margins and uncertainty of allocations. The lack of significant progress toward this objective is not, however, a major hinderance to developing an efficient retail marketing system. The expansion of private sector participation and increased fertilizer availability in the country have led to expanded fertilizer retailing. There is, however, tremendous scope for firms to invest in retail marketing services.

- d. Increasing farmers' awareness of the value and proper use of fertilizer.

Farmers' awareness of the use of fertilizers has increased since 1983. About 40% of those interviewed said they had received extension advice, and 5% of those not using fertilizer 5 years ago who are currently using fertilizer said they were not aware of the benefits then. This increase in farmers' awareness resulted from the Training and Visit extension program supported by the World Bank. The fertilizer information leaflets promoted as part of the USAID Fertilizer Marketing Development Program have not yet taken-off, and farmers' awareness of the benefits and proper use of fertilizers would have increased more if the leaflets had been distributed. However, farmers are definitely more aware of the benefits to fertilizer use and its proper application. There is demand for the expansion of fertilizer marketing development.

- e) Increasing the overall supply of fertilizer in the country.

The supply of fertilizers in Kenya has increased from 206,424 tonnes in 1984/85 to 225,265 tonnes in 1987/88 (Chapter II, Table 2). This has resulted from increased donor importation, which increased from about 73,000 tonnes in 1984/85 to about 174,000 tonnes in 1987/88 (Chapter II, Table 3), higher incidence of allocations of Cooperative Unions to their proven allocations, as well as increased carry-over stocks. Increased fertilizer supply resulted in increased fertilizer availability to, and use by smallholder farmers.

There has been expanded donor-participation in fertilizer importation and the community is generally committed to increased donor-fertilizer importation into Kenya. In addition, the private sector importers appear willing and able to import fertilizer commercially provided they receive allocation on time and prices are right and timely. Overall, the increasing trend in fertilizer supply in the country appears sustainable.

In summary, there has been expanded private sector involvement in the fertilizer sector in Kenya, improved GOK capacity to collect and analyse fertilizer sector data for better planning and decision making, increased fertilizer retailing, increased farmers' awareness of the benefits and proper use of fertilizers, and increased overall supply of fertilizer in the country. The objective of the USAID Fertilizer Marketing-Development Program have therefore, been broadly achieved. There is, however, need for further attention to be given to encouraging distributors to invest in retail marketing services and increasing farmers awareness of benefits and proper use of fertilizers.

3. Progress towards meeting the goals of the USAID Fertilizer Marketing Development Program.
  - a) Putting the foundation of a Commercial Marketing System in place.

Some progress has been made towards this, as evidenced by the existence of expanded private-sector participation in the marketing of fertilizer. There is, however, need to create an enabling environment for the firms to consolidate their involvement in the sector. In particular, there is need to give further incentives for the private sector firms to invest in retail marketing and services. Such factors as uncertainty of supply and prices, which result from the GOK's involvement, make private sector firms hesitant to expand and invest in retail marketing. These factors and the nature of GOK's future involvement need to be rationalised.

While the USAID Fertilizer Marketing Development Program has helped establish some foundation for a commercial fertilizer marketing system, the program has been operating for too short a time for the solidification of such a foundation.

- b) Assist the GOK to develop and carry-out a national policy on fertilizer marketing.

Recently, the GOK released the National Policy on Fertilizer Pricing and Marketing Paper. This paper contains proposals that reflect the current thinking by the main participants in the fertilizer sector; namely, the GOK, the donor community and, to some extent, the private sector. The major recommendations include improved methods of estimating national fertilizer requirements, removal from the allocation system of certain types of fertilizers, rationalisation of fertilizer assistance, performance bonding to ensure that commercial-fertilizer

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importers carry out their role, improved pricing of both commercial and donor fertilizer including provision for adequate margins, and increased monitoring of fertilizer prices especially in areas outside the main marketing centres. The recommendations support improved fertilizer marketing by showing the GOK's commitment to the commercial sector, a relaxation of the administrative procedures and schedules, and a reduction in the GOK's involvement in the sector.

The Policy Paper clearly indicates the GOK's desire to promote the development of fertilizer marketing and to increase fertilizer availability and use. The recommendations have yet to be fully implemented, and the USAID and other donors need to support the main thrust of the policy paper and assist the GOK to carry-out the recommendations.

- c) Increasing Fertilizer Availability and use in areas outside the major marketing centres.

Most of the rural trading centres in the main farming areas of the country now have 3-4 fertilizer stockists, compared to one or none 5 years ago. The wider network has resulted from increased fertilizer supply in the country. About half of the fertilizer distributors increased their distribution network while 43% expanded their distribution capacity to better handle increased quantity of fertilizer. About 55% of the farmers have increased their fertilizer use since 1983 and new farmers have joined the ranks of fertilizer users. This has resulted from increased availability and accessibility of fertilizers especially by the smallholder farmers as well as increased farmers' awareness of the benefits and proper use of fertilizers.

The indication is that there has been increased fertilizer availability and use in areas outside the major marketing centres. Fertilizer availability can be increased further by incorporating adequate retail margins in the fertilizer-price ceilings. Fertilizer use can be further increased by providing enhanced extension to farmers and by promoting price competition through decontrolling of prices in the remote areas.

- d) Helping the GOK to better define and carry-out its role in making sure that fertilizer is available to farmers as when needed.

Significant progress has been made towards helping the GOK to better define and carry out its role in the fertilizer sector. This has been achieved mainly through policy and procedural changes implemented since 1983. The establishment of the Fertilizer Committee, the Fertilizer Inputs Units and other support institutions and the GOK Policy on Fertilizer Pricing and Marketing are significant manifestations of that process. The GOK has a clear perception of its role in the sector, but will need to keep on re-defining such role because the sector is dynamic.

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In summary, significant progress has been made towards achieving the goals of the USAID Fertilizer Marketing Development Program. Specifically, fertilizer availability and use in areas outside the main marketing centres has increased, the GOK has developed a national policy on fertilizer marketing and is better able to define and carry out its role in the fertilizer sector, and the foundation of a commercial marketing system is taking form.

The goals of the USAID Fertilizer Marketing Development Program are long term and needs enough time for full realisation. The next chapter outlines why and how USAID should continue its assistance in promoting the development of fertilizer marketing in Kenya.

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### CHAPTER III

#### The Strategy for Future USAID Programs aimed at Continued Improvement of Fertilizer Marketing, Availability and Use in Kenya

##### A. The need for continued USAID involvement

##### 1. The extent to which a viable commercial marketing system is in place.

The functions and needs for a commercial fertilizer marketing system in Kenya have been explained in previous chapters. As pointed out in Chapter III, a viable commercial fertilizer marketing system is emerging in Kenya. There is now a widespread coverage by private sector firms in fertilizer marketing. Many of these firms are expanding their primary and secondary distribution networks. As a result, there is increased availability and use of fertilizer, especially at the costly and often ignored smallholder sector, as well improved awareness of the benefits of fertilizer use. The GoK has also begun to liberalize the sector to enable a commercial system to operate. GoK mistrust of the private sector in fertilizer marketing has begun to soften as can be seen from the goals expressed in the Fertilizer Policy Paper.

However, the marketing system is infantile and requires continued support. The private sector firms require time to develop sufficient confidence in the GoK's efforts to promote the sector and for the marketing system to consolidate itself. Likewise, the GoK needs continued support to satisfy itself that this strategic input can be marketed fairly and efficiently by the private sector to the benefit of the smallholder farmers. The country is far from having the same fertilizer marketing structure back in place which was in existence prior to 1974, but there have been significant beneficial policy changes implemented since 1984 which if continued with the same momentum, will result in a fully self-sustaining commercial marketing system.

##### 2. Remaining Constraints

Aid fertilizer is appreciated by the GoK, the private sector and the farmers, and contributes significantly to agricultural production in Kenya. However, the practice by the donor community to supply fertilizer assistance as aid-in-kind necessitates GoK involvement to plan and manage the sector. This requires that national fertilizer requirements for each season are estimated, donor intentions are established and the balance of national fertilizer requirements not met though donor financing is allocated annually to private sector firms who would have made requests, for commercial importation. Thus the presence of aid fertilizer denies the private sector the

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decisions on how much of what types of fertilizers to import, since firms can only import their allocated types and quantities. As a result, the firms are uncertain about their fertilizer supplies, which vary from year to year and are often inadequate. Private sector firms are unable, therefore, to make the necessary investment plans for their distribution networks. Therefore, there is need to provide fertilizer in forms that minimize the Gok's involvement, and make it possible for the private sector to make most of the major decisions associated with type and quantities of fertilizers imported into Kenya, and which encourage private sector investment in fertilizer distribution. Section B of this chapter presents a detailed proposal on how fertilizer assistance should be modified to reduce the necessity for the Gok involvement and to enhance and assist private sector involvement in the development.

The decision to liberalize fertilizer marketing is sound. Such liberalisation has led to fertilizer allocations to end-users including Cooperative Unions. Allocations to end-users other than Cooperative have, however, taken away the profitable largescale sector from the private distributors and left them with the less profitable smallholder sector only. The fertilizer market outside the largescale sector is limited and costly, and cannot alone support a meaningfully large private fertilizer sector. While the market will rationalise itself as it develops, allocations should, in the meantime, be encouraged to private sector firms and Cooperative Unions only.

All fertilizer sold in Kenya is subject to price control to protect the farmers from possible exploitation by the private sector. The establishment of meaningful price ceiling reflecting the international fertilizer prices and incorporating domestic costs appears onerous, especially because of difficulties associated with obtaining adequate and upto date international C & F data. The Fertilizer Input Section, which has the responsibility of assembling such data, and which has been in existence for only 2 years, does not appear to have either established reliable information sources or gained the requisite experience. As a result, prices are not revised in time for private sector firms given import allocations to import on time.

For two consecutive years, commercial importers did not import because the prices were announced late. In the current season (1988/89) although the import allocations were announced at the beginning of July, the prices had not been released by mid-September and the commercial firms had therefore not decided whether or not to import. When the prices are finally announced, the importers compare the expected profit margins from commercial imports with those from government (aid) fertilizers. If the margins from government fertilizer appear more attractive, firms do not import even when they are not

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assured of allocations of government fertilizer. This complicates planning and managing the sector. Eventually, all fertilizer price controls should be removed. In the meantime, prices of fertilizer types in import schedule A which are subject to allocations should be announced immediately after the import allocations so that importers can make their import plans.

When the profit margins are small and fertilizer supplies are limited, the major distributors are unwilling and unable to pass any margins to their stockist. This makes it difficult for the stockists to operate on a continuing basis. This problem will be solved as the market develops and prices are gradually freed. In the meantime, however, the price ceilings should incorporate adequate wholesale and retail margins and adequate fertilizer supplies should be ensured.

The Fertilizer Inputs Section does not seem to be either fully integrated into the civil service or adequately provided for to guarantee staff tenure and continuity. The Section is expected to play a major role in monitoring the sector as the fertilizer market develops. It is, however, presently weak and its future uncertain. It requires strengthening.

Lack of credit is a problem at all levels of the sector. Although some new distributors, benefiting from changes in the last 4 years, have provided fertilizer to their creditworthy stockists, more than 60% of the stockists did not receive any credit, and the terms were hard for those who did. The major problem is maintaining credit as one of their urgent needs. The credit issue demands a study to explore the extent of the problem and the potential effectiveness of different systems of providing fertilizer credit especially to the rural stockists and smallholder farmers.

There has been an increase in the availability and use of high-concentrate fertilizers such as DAP over the last 5 years. This has brought into focus the need for improved soil management practices to reduce the likelihood of soil destruction and reduction in crop yields through increased soil acidity. There is need for more localised and regular soil testing to monitor changes in acidity levels to reduce the potentially negative effects of enhanced fertilizer use.

### 3. Desirability and/or Scope for Continued USAID Involvement in Fertilizer Marketing in Kenya.

#### a. Validity of Current Goals and Objectives.

All the goals and objectives of the USAID Fertilizer Marketing Development Program remain valid. Significant progress has been made towards their achievement, but a lot of scope still remains. USAID has so far provided much needed leadership in initiating and promoting the reform process necessary for the

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eventual full development of fertilizer marketing in Kenya. The GoK fully appreciates USAID's efforts towards this end, and most of the other donors are gradually supporting the GoK towards this. USAID's continued leadership will be crucial in ensuring that fertilizer marketing in Kenya remains on a firm foundation.

b. Areas needing continued, refined or expanded attention.

The donor community needs to review the nature of its fertilizer assistance to Kenya, so that such assistance promotes the development of fertilizer marketing by passing on the major decision, such as types and quantities of fertilizer to import, to the private sector and help reduce the GoK's involvement to monitoring of quality and prices only. Fertilizer assistance in the form of Balance of Payment Support would satisfy this requirement, subject to developing conditions to ensure that the private sector fully utilizes the facility.

Prices should be gradually liberalised. In the short-run however, the Maximum Retail Prices should be announced on time, and should incorporate sufficient margins to give distributors and stockists a sound commercial justification for continued involvement in the sector. The costs of supplying fertilizers to farmers in areas outside the main trading centres vary considerably. There is no proper basis for setting up price ceilings in such areas. In the short-run, there should be no price controls in areas outside the main trading centres, which would be controlled indirectly through the price ceilings in the nearest trading centres. The prices outside the main centres should be completely freed to promote further competition at the grass roots, and to reduce the cost of fertilizers to the smallholder farmers. In the long-run, prices should be liberalised completely.

Opening up the Fertilizer Market has resulted in wider private sector participation. The focus should, however, be shifted from further expansion to strengthening of the firms that have so far shown interest in continued involvement in the sector. The aim should be to promote 25-30 indigenous private sector firms, supported by a wide network of stockists, consistently involved in fertilizer marketing and with the necessary investments in distribution facilities and services. There are currently too many firms receiving allocations.

The GoK will need to reduce its involvement in the sector as the fertilizer market develops. Simultaneously, the Fertilizer Inputs Section will require strengthening and better access to data to better carry out its role. The Section is expected to undertake enhanced monitoring of quality and prices as the

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market develops. There is need for both the GoK and the donor community to appreciate the need for, and to ensure, the Fertilizer Inputs Sections' continuity.

c. Indications from GoK, other donors and private sector for continued USAID - involvement in the sector.

Kenya has Balance of Payments problems which are not likely to disappear in the foreseeable future. It will continue to welcome any assistance that will help improve the balance of payments position. The GOK seeks to maximise foreign exchange and tries to maintain a mutually acceptable relationship with all its donors including a willingness to discuss matters on which it may hold a different opinion from the donors. Our interview with Government Officials indicated that the GOK fully appreciates USAID's efforts to promote fertilizer marketing in Kenya, and is satisfied with achievements made so far. There is no doubt that the GOK welcomes continued involvement by USAID, subject to the modalities of such involvement being worked out and clearly understood by the two parties.

There are differences in donor objectives and conditions of assistance to Kenya. The donor community is, however, generally supportive of the GOK's efforts to develop the country. A majority of the donors have shown willingness to support policy and procedural changes promoted by GOK/USAID to develop fertilizer marketing. Some have followed USAID's example and have developed some interest in fertilizer marketing. The evidence is that donors appreciate USAID's leadership in this area, and they would continue their involvement in the sector.

The farmers have benefitted significantly from USAID's fertilizer marketing development program and are satisfied with USAID's DAP. The main distributors are concerned with "unfair competition" from firms receiving allocations who are no genuine distributors which has resulted from the program, but the private sector has, on balance, benefitted and would not mind continued involvement in the sector provided the modalities are streamlined to reduce some of the possible negative impacts of such involvement.

4. Future Role of the donors

This study included interviews with donors who provide aid fertilizer to Kenya including the Netherlands, Finland, Sweden, Norway, Italy, West Germany, and the World Bank. The interview sought to establish the perception of donors on fertilizer marketing development and to identify any strategies and programmes which they may have.

The World Bank and the Netherlands have interests similar to those of the USAID and could be expected to support somewhat the position of the USAID on market development. The GoK formulation of the fertilizer policy paper and its

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under the Agricultural Program. Just like the USAID, the World Bank is interested in issues relating to pricing of fertilizer (including the timing of price announcements), government planning pertaining to fertilizer, the timing of fertilizer imports and the implementation of the fertilizer policy as elaborated in the government paper. Although the Bank does not provide aid fertilizer in kind it is an important donor which is likely to maintain the pressure to see that appropriate policies in the fertilizer sector are implemented in the future.

The Dutch have recognized the negative role of aid-in-kind in relation to the development of viable commercial fertilizer marketing. Several studies on the fertilizer sector have been undertaken under Dutch sponsorship and funding. Some of their recommendations have been incorporated in the GOK fertilizer policy paper while others are similar to some of the conditionalities of the USAID Agricultural Development Programme.

The Dutch have agreed to provide part of their fertilizer aid as foreign exchange for Balance of payments support, rather than continue providing all of it as commodity aid. If the system works well there could be a total shift or changeover to balance of payment support. Thus the Dutch, and the World Bank are strong allies of the USAID in promoting fertilizer market development, balance of payments support rather than aid-in-kind, and in the overall liberalisation of the fertilizer market.

Other donors who could be persuaded to back the USAID and the World Bank are West Germany and Finland. The Germans are currently satisfied to leave major decisions pertaining to the fertilizer sector to the GOK. They would however, be happy to provide foreign exchange for the purchase of fertilizer under balance of payments support. They also indicated that they would be comfortable to co-ordinate their programme with those of other donors.

The Finns have also supplied aid fertilizer. At the time of our interview, they had just completed a study on the fertilizer sector which addressed such issues as pricing and fertilizer stock policy. Many of the recommendations from their study are similar to the positions advanced by the Dutch and American conditionalities. These included the need for a more flexible pricing system with the eventual possibility of a liberalized system, supply of fertilizer in smaller bags of 10 - 25kg and increased support services including soil analysis, credit and extension. In addition, they recommend that the allocation system should ensure that only serious distributors obtain import quotas.

Other donors such as the Norwegians (NORAD), the Italians and Swedish (SIDA), while providing aid fertilizer in kind, did not concern themselves with fertilizer market development. The Norwegians have a completely untied system of providing aid fertilizer. The Swedish, like other Nordic donors, emphasize that their assistance should go to small-scale farmers and hence prefer a distribution system through cooperatives and parastatals which serve smallholders. Their concern is more with the ability and efficiency of these organs in delivery of fertilizer. The Japanese also provide aid fertilizer which tends to cause special pricing problems because of its high cost.

Aid fertilizer is popular with donors and is likely to continue. Also given balance of payments problems, Kenya is likely to continue to seek more assistance. Donor co-ordination is, and will continue to be, an important issue if donors are to assist the GoK to implement fertilizer policy as planned. Increased supply of fertilizer from both aid and commercial sources will play an important role in market development on the lines suggested by the USAID and the GoK. This is the only way of maintaining the pressure and momentum towards an improved market system.

##### 5. Future Role of the GoK

Fertilizer is viewed by Government officials as a strategic commodity and this is used to justify government involvement in the sector. Government involvement in fertilizer business in the future is however circumscribed by the new policy paper. According to the fertilizer policy paper, the short term and medium term objective is to ensure that fertilizer is always available to the farmer at the right time. In the short term government will continue to be involved in pricing, allocation of commercial imports and working towards a more liberal marketing system as spelled out in the policy paper.

In the areas of pricing the short-run issue is to up-date the pricing formula, improve the accuracy of the estimates of benchmark (C & F) price and to ensure adequate margins in the MRP for distribution in the rural areas. In addition, the frequency in the revision of prices will be increased to reflect changes in international prices. In relation to allocation, the GoK hopes to establish criteria for qualification of allocation in order to ensure that quotas are adequately large to permit economic procurement. The GoK will require performance bonding to ensure realistic application and also separate long and short rains allocations.

In the long-run, Government role in the fertilizer business will be restricted to monitoring and ensuring the importation of appropriate quantities of the right types of fertilizer. Fertilizer marketing will be liberalized and the donor, will supply fertilizer funding of foreign exchange as part of balance of payments support in order to enable the government to reduce its direct involvement in allocations and policy.

6. Future Role of the Private Sector

Kenya has a fairly well developed private sector. The Government of Kenya has recognised that the private sector has a crucial role to play in development.

Kenya has in the past, had a history of a successful intergrated fertilizer marketing system in which the private sector was a major player. Although that marketing system went into disarray its foundations were not totally dismantled. It is generally felt that the private sector has not only a crucial role in rebuilding this system but also sustaining it. The future role of the private sector can therefore be stated as follows:

- a) to initiate dialogue with the Government officials in order to facilitate exchange of views and ideas on matters affecting fertilizer marketing system development. This can be achieved through increased activity of the Kenya National Fertilizer Association and KADA which should serve as lobbying and public relations bodies for the private sector.
- b) to carry out effective planning, decision making and efficient implementation of such plans and decisions at company or organization level.
- c) develop the distribution facilities and services by investing in the expansion of distribution networks at wholesale and retail levels, provision of essential advisory services to the farmers on fertilizer use to ensure that fertilizer is available to the farmers at the right time and it is correctly used.
- d) promotion of fertilizer use through field demonstrations and advertising.
- e) support research on fertilizer use development through financial contributions and collaboration with research institutions.
- f) through efficient and effective importation and distribution of fertilizers in the transition period, establish credibility in the private sector and allay the fears that reduced Government involvement and controls in the fertilizer marketing system would result in non-availability of this strategic commodity - fertilizer.
- g) facilitate the implementation of the Government fertilizer policy paper.

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B. STRATEGY FOR FUTURE USAID INVOLVEMENT

1. Elements and Focus of the Current USAID Program

At the inception of the USAID program, the fertilizer situation was considerably different from what it is now. Availability was a pressing concern then, and little work had been done on the sector, particularly with respect to pricing and marketing.

The program, being confronted with this situation, was directed at the time, towards addressing the causes of the availability constraints that could be tackled, and show improvements, in the short-term. Thus, the first focus was on promoting changes, some administrative, in the GOK management of fertilizer that affected pricing and marketing.

Having taken steps aimed at improving the climate for fertilizer marketing, the program next focused on marketing development. In negotiating with the GOK the opening of distribution of its aid supplies to all distributors (rather than only the KGGCU), it achieved the first reform in the process of marketing liberalization. The original system was a constraint to the development of primary and secondary distribution in the country, and particularly the growth of retail networks.

Thus the focus of the program changed over the period of its existence, and three elements can be identified, in the order they were addressed:

- improvement of GOK management
- development of marketing
- improvement of farmers knowledge

The focus of the program has thus progressively evolved from one promoting improved GOK fertilizer management to one promoting institutional development and structural adjustment. This trend needs to be continued.

The recent issuing of the GOK Fertilizer Policy Paper has now provided the necessary foundation to continue with the reform process. The USAID program can now be further fine-tuned so that it can more closely adhere to the requirements of the stated GOK goals.

The Key Obstacle

The liberalization of fertilizer marketing the country is impeded by the current practice of donors to supply fertilizer aid-in-kind. This practice has prompted GOK intervention because, to avoid excessive importation (particularly in times of foreign exchange constraints), the GOK regulates commercial imports in accordance with aid supplies (which may vary greatly). The relationship is best described by the following equation:

$$\text{IMPORT REQUIREMENT} = \text{AID SUPPLIES} + \text{COMMERCIAL IMPORTS}$$

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Because of the need to maximize the use of available external funds, commercial imports are managed so that they supply only the balance of requirements. The mechanism by which imports are managed is the allocation system under which importers are allocated import quotas.

A second GOK tool which directly influences commercial imports is the setting of Maximum Retail Prices (MRP). If the prices set by GOK provide suitable margins and announced on time, importers will import, if no, they will not.

### GOK Fertilizer Policy

The GOK Policy Paper for fertilizer Pricing and Marketing states:

"(j) in the long term, fertilizer importation should be liberalized, with the role of the GOK limited to monitoring the types and quantities imported;" (p. 7)

To achieve this long term goal will require sequential implementation of the following:

1. Rationalization of fertilizer aid.
2. Relaxation of import controls.
3. Decontrol of prices.

Given, the political sensitivity of fertilizer, the implementation of such policy is very delicate and the manner in which it is carried out is crucial. Dismantlement needs to be carried out at a pace that will not disrupt either the agricultural sector or the supply sector.

Thus the GOK has embarked on a strategy of selective relaxation of controls to be implemented over the medium term.

Under this strategy, the GOK does not intend to relax import controls on all fertilizer types immediately, as this would be likely to disrupt the affected sectors of the economy. Rather, it intends to relax controls selectively and gradually. The most politically sensitive fertilizer types, such as those used to grow the staple diet, maize, by small farmers, will be decontrolled last.

The system adopted by the GOK to implement this strategy is to identify suitable fertilizer types and remove them from the allocation system. The removal is to be undertaken progressively, at a politically and economically acceptable pace, which will also allow monitoring the resultant effects closely.

To implement this system, the GOK has created two fertilizer import schedules: Schedule A and Schedule B. Importation of fertilizer types in Schedule A will continue to be controlled by the allocation system, while fertilizers in Schedule B will not.

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The rationale for strategy adjustment

The GOK liberalization strategy can only be applied for fertilizer types which are not being supplied as aid-in-kind by donors. Yet, since the GOK needs to maximize the aid available, it is reluctant to place any constraints on donors. Since fertilizer is a crucial aid commodity, reducing this assistance is not a viable solution.

The GOK Fertilizer Policy Paper further states:

"(k) in the long term, donors should be requested to supply fertilizer aid in the form of concessional funding for importation rather than as aid in kind." (p. 7)

Thus the key to further reform is to phase out aid-in-kind at an appropriate pace, without reducing the amount of aid that can be absorbed, by:

1. Defining a number (progressively increasing) of fertilizer types that cannot be supplied as aid-in-kind (a number are not being supplied anyway).
2. Phasing out aid-in-kind for the remaining types.

To implement the second action, some of funds available for fertilizer aid will need to be utilized under a different disbursement system, namely by providing funds for the import of fertilizer by the commercial sector. This will allow donors to maintain the assistance at current level (or even increase it), while phasing out aid-in-kind.

In essence this will entail reverting closer to normal commodity import practice, and will therefore require some donors to moderate the conditions attached to this assistance (eg that the fertilizer be aimed at specific market niches such as small farmers).

The inception of such a system will require the active cooperation of donors and, because of the different policies of donors, will have to be arrived at through coordination and bilateral negotiations.

As the USAID program has been supplying fertilizer aid-in-kind, it also needs to be reformulated in order to conform to the change advocated. The strategy of the program will thus need to be redefined and an appropriate disbursement system developed and adopted.

The chain of events envisaged and an indicative timetable are shown in the following Table 4.1.

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Table 3.1: Timetable of Events

| Events   | Timetable  |
|--|--|
| 1. USAID opens up distribution of aid supplies   | - Achieved.  |
| 2. GOK issues policy paper on selective progressive deregulation   | - Achieved.  |
| 3. Donors agree not to supply some types as aid-in-kind<br><br>and<br><br>DONORS progressively shift out of aid-in-kind for the remaining types. | - Before 1989/90 season.<br><br><br>  - Start 1989/90 season.    |
| 4. GOK progressively removes types agreed by donors from allocation system.  | - Started in 1988/89 - non-maize types completed within 4 years. |
| 5. GOK progressively removes or reduces price control on types no longer in allocation system  | - Started in 1988/89 - non-maize types completed within 6 years. |
| 6. Eventually no types are supplied as aid-in-kind and all types are freed from controls.  | - ?  |

2. Recommended Future Strategy

Whereas the aims and objective of the USAID program remain valid, the developments outlined above have made it necessary to adjust some elements of its strategy to attain these aims and objectives. Specifically, the strategy needs to incorporate the phasing out of aid-in-kind, to enable the GOK to attain its stated long term goal of liberalizing fertilizer marketing.

To phase out aid in kind without reducing the assistance to the fertilizer sector, will require the development of a new disbursement system that will make funds available for the importation of fertilizer by the commercial sector. This new system will exist side by side with the old system while the former is being phased out. To avoid dislocations, the shift needs to be gradual.

Such an adjustment will return more control on fertilizer marketing to the commercial sector and gradually diminish official involvement. Decisions such as fertilizer type, bulk or bagged, allocation, etc, will return to the commercial importer.

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As official involvement in marketing diminishes, the need for specific condition in the yearly fertilizer agreements will be progressively eliminated, and dialogue with GOK focused on policy issues.

While the long term approach is being implemented, there may be need to promote progress in:

- a). Donor Coordination. The support of donors is determinant in the eventual elimination of aid-in-kind which is the precondition to the liberalization of marketing and therefore essential for progress in reform.
- b). Liberalization of fertilizer types. Progress in shifting types from Schedule A to B by the MOA is crucial if the momentum of reform is to be maintained.
- c). Deregulation of prices outside schedule centres. Since full deregulation of prices may take some time, progress in the implementation of the GOK Sessional Paper No. 1 will be important. In section 5.53 the sessional paper states:  
  
"2. Control prices for fertilizer will be set for a limited number of distribution centres only and retailers will be permitted to set their own prices. This will encourage local dealers to move fertilizer into more remote locations while assuring farmers the opportunity of purchasing at controlled prices in the major centres."
- d). The Development of Distributors. The activities already undertaken by USAID in the institutional development of fertilizer distributors need to be continued and widened.
- e). THE DEVELOPMENT OF THE INPUT SECTION OF THE MOA. Since its formation, the Section has not developed as fast as was expected. A firmer commitment to its development is vital to provide the GOK with the data it needs to refine its fertilizer planning.

Although the GOK strategy will boost development of fertilizer marketing at all levels, it may take some time before it leads to goals of the USAID program. To accelerate this development may require additional short-term involvement in institutional development.

Whereas the GOK strategy will progressively decrease direct GOK involvement in the sector, it will increase the need for monitoring. In this respect, some assistance from the program may be needed to support the development of fertilizer information systems within the GOK and the monitoring of the fertilizer situation. In particular, progress in data gathering and processing by the Input Section of the MOA needs to be encouraged.

USAID monitoring of its supplies has proved very useful in the past, and, therefore, ought to be continued as the information acquired is important in streamlining the disbursement.

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More emphasis could be given to the dissemination of information to farmers to increase fertilizer knowledge, and in promoting the provision of services by distributors to farmers.

### Program adjustments

The advocated change in strategy will necessitate some adjustments to the program on such aspects as:

- Time-frame to achieve goals.
- Flexibility to allow the program to respond to changes as they occur.
- Donor coordination.
- Flexibility in disbursement between aid-in-kind and fertilizer import support (funding for commercial imports).
- The adoption of a disbursement system for fertilizer import support.

Program Time-Frame. The program's time-frame is a very important parameter. Fertilizer developing countries has not only economic but social and political implications as well. The time-frame for a program aimed at liberalizing fertilizer marketing and eliminating direct government involvement needs to take this into consideration. A program with too short a time-frame may achieve the goals but disrupt the market. Successful and sustainable change can only be achieved if all the factors are taken into account. Hence the need to phase out of aid-in-kind at a suitable pace. The time required for phase out will vary from type to type, with the maize types being phased out last. The time-frame to phase out DAP aid-in-kind is likely to exceed four years.

Program Flexibility. As changes occur in the sector, the focus of the program may need to be redirected (as happened in the current program). Therefore flexibility will continue to be an important factor of the program.

Donor Coordination. Aid fertilizer is a popular form of assistance. Many donors are involved. The efforts of one donor in the reform process may provide the needed stimulus but may be counteracted by the impositions of other donors. For this reason, the cooperation of donors is essential in rationalizing the aid to enable attainment of the GOK goals. To accelerate the reform process donor coordinations needs to be given due consideration in any future program.

Flexibility in disbursement. As the mode of disbursement is being shifted to fertilizer import support (funding for commercial imports), the amount that commercial importers will be willing to absorb may be lower than the amount made available, as it will depend on a number of factors such as stocks, demand, domestic prices, etc. which vary from year to year. To ensure that all available funds are utilized, will require flexibility in disbursement so that unused funds as a last resort for aid-in-kind.

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System design. The design of the system will be crucial. It will have to take into considerations the needs, rules, and regulations of the donor, the GOK, and the marketing system in the country. A poorly designed system may adversely affect the reform process. The system will probably follow the following broad lines. Initially the total amount available for fertilizer aid will be split between an amount for the supply of aid-in-kind, and an amount to made available for funding commercial fertilizer importation. The arrangements for the supply of aid-in-kind will have to be updated to iron out any problems identified in the current system. The funding component will require drawing up guidelines for users of the facility. Prospective users will be invited to apply for use of the facility. To minimize official involvement, the ground work for user selection should be carried out by independent consultants (or banks) and a list of eligible applicants submitted to a bilateral committee for final selection. Special consideration will have to be applied for the amount repayable to GOK for imports since domestic prices are controlled by GOK and USAID regulations require the use of US vessels. Provisions will also have to made in the event that the total amount allocated for CIP is undersubscribed. In this case the flexibility element will become crucial in allowing the GOK to utilize the total amount available by, if necessary, increasing the proportion to be imported as aid-in-kind.

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ANNEX I

Scope of Work

A contractor shall address each of the following issues:

- A. Describe all changes in public and private sector policies and actions since 1983 which have affected or were intended to affect fertilizer imports, prices, availability, and use in Kenya. Consult government officials, the private sector and donors.
- B. Identify the factors, both external and internal to Kenya, which have influenced these changes.
- C. Assess the relative permanence of these changes and the desirability of keeping them in place over the short run (1-3 years) and long run (3-6 years). Identify the potential factors which could or should modify them.
- D. Determine the impact that these changes have had on the attitude and actions of GoK policy makers, private sector importers/distributors, and donors to pursue continued changes within their control to influence improved fertilizer use and distribution in Kenya.
- E. Identify the changes which have had a positive impact on increasing fertilizer use and distribution, and provide recommendations on how donors could help support or modify these changes, or discourage the continuation of harmful policies and actions.
- F. Analyze the impact of the changes identified in part A above. (Quantify the impact where possible. Anecdotal information is encouraged). Specifically:
  1. The effects on the supply sector.
    - a) Describe the recently instituted incentives for private sector importers and distributors to invest in retail marketing facilities and analyze their responses.
    - b) Different importers cater for different market sectors. For example, farmer cooperatives cater for their farmer members, some importers are strictly wholesalers, some importers are direct end-users such as estates, and some importers are also retailers who cater to individual large and smallholder farmers. What have been the responses of the different categories of importers regarding their decisions to import fertilizer in sufficient quantities, of the right type, at the right time, and at competitive prices?

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- c) Determine the effect on donors' decisions to provide fertilizer as aid, i.e. are donors increasing or decreasing their fertilizer aid levels in response to policy and administrative changes, and what are their intentions for continued involvement in this sector? What has been the response of the public and private sectors in Kenya to increased or decreased aid levels? Is donor fertilizer aid harmful and how can it be better integrated with commercial importers?
  - d) Determine the effect on the willingness of retailers and distributors to sell fertilizer at below the maximum retail price ceiling, and to provide differential prices for different types of buyers, i.e. single bag buyers, large quantity buyers, rural stockists, cooperatives, etc.
  - e) Determine the impact on encouraging distributors to modify their marketing strategy to address the specific needs of smallholders.
2. The effects on the availability.
- a) Determine the effect on the geographical distribution of fertilizer to areas outside major market centres.
  - b) Indicate the extent to which there has been price competition at the wholesale and retail levels as a result of increased numbers of importers and distributors, and quantities imported.
  - c) Indicate the extent to which retailers have benefited from pricing policy changes and passed these benefits on to consumers. Identify the extent to which various types of consumers (estates, large-holder/smallholder individual farmers, members of cooperatives, etc) have benefited from price competition.
  - d) Determine the changes in access by smallholder farmers to fertilizer in the required quantities, of the preferred type, at the proper time, and at competitive prices.
3. GOK response.
- a) Describe the financial and administrative costs to the GOK and the impact on overall agricultural production from GOK involvement in the fertilizer price and allocation process. In view of this, describe the Government's attitude toward its continued involvement in the planning and administration of fertilizer. What is the attitude of the GOK to donor involvement in this sector?

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- b) Determine if the developments and policy changes discussed above have been influenced by efforts of the donors and the GOK to introduce meaningful reforms which encourage expanded fertilizer distribution and increased use, or if they occurred accidentally. (Would these changes have been implemented by the GOK without outside influence?)
  - c) Assess the GOK's capability to monitor the implications of recent public and private sector policy changes and actions, and to make the necessary adjustments.
4. The effects on consumption.
- a) With increased availability of fertilizer, determine the relative percentage increase in the use of fertilizer by smallholder farmers, large estates, and large scale individual farmers.
  - b) Determine the extent to which fertilizer use by smallholder farmers has increased, and from what developments can this increase be attributed to.
  - c) Indicate the changes in farmer's understanding of the technical and economic benefits to fertilizer use, and changes in the methods and rates of application. Indicate what the changes are attributable to. Give particular reference to smallholder farmers.
  - d) Identify the primary, and secondary crops on which fertilizer is used. For each crop determine whether it is for sale, domestic consumption or both purposes and whether the crop is under the control of a male or female household member.
  - e) Identify key factors which limit increased use of fertilizer in the smallholder sector, taking into account economic profiles of current users, gender differences and farmers' perceptions.
- G. Based on information gathered above, what is the outlook for the fertilizer sector in the next 10 years? Are the current policies and programs, and planned changes likely to make an impact on improved fertilizer use and distribution? Indicate the GOK policy and administrative changes, private sector actions, and donor programs which should be encouraged to improve the distribution and use of fertilizer in Kenya. Identify the appropriate roles for the GOK, private sector, and donors. Develop a plan and time frame to carry out the recommended changes and actions to achieve the goals of the USAID Fertilizer Market Development Program, i.e. to have in place a retail marketing system driven by the private sector in which commercial marketing of fertilizers organisations determine the types, quantities, and timing of fertilizer

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imports, the areas for distribution, provide promotion and extension services, and competitively set the selling prices of fertilizer in Kenya; and the government's role is limited to monitoring for quality control, collection and analysis of fertilizer statistics for better planning, and assuring policies are in place to promote price competition. Address the question of how long A.I.D. and other donors should continue to provide fertilizer as balance of payment support to Kenya, and condition policy change through fertilizer imports.

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ANNEX II

1) LIST OF PEOPLE AND ORGANISATIONS CONTACTED:

Government/Parastatal Personnel

|                    |  |
|--------------------|--|
| Mr. A.J. Kinyua    | Chief Traffic Manager<br>Kenya Railways, Nairobi.                        |
| Mr. C.K. Mwaniki   | Deputy Director<br>Directorate of Internal Trade<br>Ministry of Commerce |
| Mr. Donald Kimutai | Director, Budgetary Supply<br>Ministry of Finance                        |
| Mr. Edward Bwisa   | Senior Economist,<br>Office of the President                             |
| Mr. John Karanja   | Development Planning Division<br>Ministry of Agriculture.                |

Importers/Distributors

|                  |   |
|------------------|---|
| Mr. J.B. Muya    | Director, Safina Enterprises  |
| Shabudin Samnani | Director Wulji Mulji<br>Uchumi House, Nairobi                             |
| Mukund M. Patel  | Director, Devji Mehji<br>Nairobi  |
| Dick Kamau       | Managing Director<br>Fags Ltd, Nakuru                                     |
| Musa Chebon      | Manager,<br>Nandi District<br>Cooperative Union, Kapsabet.                |
| Mr. J. Khan      | Commtrade Agencies Ltd, Nakuru  |
| Mr. Kioko        | Fertilizer Manager<br>Machakos, District Cooperative Union<br>Machakos.   |
| Mr. J. Ndigwa    | Stores and Supplies<br>Manager, Embu District Cooperative<br>Union, Embu. |
| Mrs. S. Nyangi   | Assistant General Manager<br>Meru Central Farmers Union, Meru.            |

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|                     |   |
|---------------------|---|
| Mr. A. Parlikar     | Orbit Chemicals, Nairobi  |
| Mr. Abdi Awale      | Limuru Posho Mill, Limuru   |
| Mr. F. N. Munyi     | Stores Supervisor/Merchandise<br>Manager<br>Kirinyaga District Cooperative<br>Union, Kerugoya |
| Mr. P. K. A. Sogomo | Kenya Grain Growers<br>Cooperative Union, Nakuru  |
| Mr. J. K. Senteu    | Commercial Manager,<br>MEA Ltd, Nakuru  |
| A. M. Gadher        | Gadher Enterprises Ltd,<br>Kitale   |
| Ben Gatheca         | Managing Director,<br>Benchem Company Ltd, Kitale   |
| Amin Jiwa Munir     | Saboti Stores, Kitale.  |
| Joshuah Onderi      | Merchandise Manager,<br>Kisii Farmers Cooperative Union,<br>Kisii                             |
| Obadiah Njihia      | Merchandise Manager<br>Murang'a District Cooperative Union                                    |
| J. M. Githinji      | Ag. Merchandise Manager<br>Nyeri District Cooperative Union                                   |

Donors

|                      |  |
|----------------------|--|
| Mr. Fakhruddin Ahmed | Chief, Agriculture Operations,<br>World Bank Regional Mission for<br>Eastern and Southern Africa |
| Mr. Jan Maas         | Second Secretary,<br>Royal Netherlands Embassy   |
| Dr. Heikki Haili     | First Secretary,<br>Development Co-operation,<br>Embassy of Finland.                             |
| Dr. Bengt Svensson   | Economist, Swedish Embassy,<br>Development Cooperation Office                                    |

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Development Cooperation Office,  
Embassy of the Federal Republic of Germany

Fertilizer Sector Specialist,  
NORAD

Fertilizer Sector Specialist,  
Italian Embassy.

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ANNEX III

FARMERS' QUESTIONNAIRE

All responses will be treated in strict confidence.

Date of interview .....

Name of interviewer .....

1. Name of respondent .....

2. District .....

3. Division .....

4. Location .....

5. Village .....

6. Position of respondent in the firm

Proprietor .....

Wife of proprietor .....

Manager .....

Other (specify) .....

7. What is the size of the farm? .....acres

8. What major crops did you grow on your farm in the last season?

| <u>Crop</u> | <u>Acreage</u> |
|-------------|----------------|
| .....       | .....          |
| .....       | .....          |
| .....       | .....          |
| .....       | .....          |
| .....       | .....          |

9. Did you use fertilizer in the last season? Yes/No

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10. If no, do you regularly not use fertilizer? Yes/No

11. If you don't use fertilizer regularly, why don't you?

Unaware of benefits .....

Can't always afford .....

Fertilizer not always available .....

Use farm yard manure (FYM) .....

Other (specify) .....

12. If you do use fertilizer, could you kindly provide the following details of your fertilizer use in the last season?

| <u>Fertilizer</u> |                 | <u>Crop</u> | <u>Acreage</u> | <u>Activity</u> |                     |
|-------------------|-----------------|-------------|----------------|-----------------|---------------------|
| <u>Type</u>       | <u>Quantity</u> |             |                | <u>Planting</u> | <u>Top Dressing</u> |
| .....             | .....           | .....       | .....          | .....           | .....               |
| .....             | .....           | .....       | .....          | .....           | .....               |
| .....             | .....           | .....       | .....          | .....           | .....               |
| .....             | .....           | .....       | .....          | .....           | .....               |

13. Why do you use the fertilizer types indicated above?

Received extension .....

Prices favourable .....

Fertilizer types available .....

Other (Specify) .....

14. If you used DAP in the last season, was it the one with the hand clasp? Yes/No

.....

15. Who applies the fertilizer on the farm? Husband/Wife/other

.....

16. Who decides on the fertilizer types to buy? Husband/Wife/other

.....

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17. How has your fertilizer use per acre been changing in the last five years?

Has been increasing .....

Has remained the same .....

Has been decreasing .....

Never used fertilizer 5 years ago .....

18. If you never used fertilizer 5 years ago, could you explain why?

Had to travel too far to buy it .....

Fertilizer not available at right time .....

Did not have money to buy .....

Fertilizer prices too high .....

Used FYM .....

Fertilizer bag size was inappropriate .....

Was not aware of the benefits of using fert. ....

Other (specify) .....

18. If your fertilizer use has been increasing, could you explain why?

More aware of benefits of using fertilizer .....

Fertilizer more readily available in an appropriate location .....

Can get right fertilizer types at the right time .....

Reduced use of FYM .....

More appropriate bag size .....

Farm needs increased fertilization .....

Have better credit facilities .....

Are better able to buy .....

Prices increasingly more reasonable .....

Other (specify) .....

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- 20. Has your use of the DAP with a hand clasp been increasing or decreasing? Increasing/Decreasing
- 21. If increasing, could you please tell us by how much your use increased in the last 5 years? .....
- 22. If decreased, could you explain why? .....
- 23. Did you change your choice of fertilizer for different cropping activities in the last 5 years? Yes/No
- 24. If yes, could you please give the following details?

| <u>Last Season</u> |                   |                 | <u>Before the change</u> |                   |                 |
|--------------------|-------------------|-----------------|--------------------------|-------------------|-----------------|
| <u>Crop</u>        | <u>Fert. type</u> | <u>Activity</u> | <u>Crop</u>              | <u>Fert. type</u> | <u>Activity</u> |
| .....              | .....             | .....           | .....                    | .....             | .....           |
| .....              | .....             | .....           | .....                    | .....             | .....           |
| .....              | .....             | .....           | .....                    | .....             | .....           |
| .....              | .....             | .....           | .....                    | .....             | .....           |

- 25. Why did you change the fertilizer types?
  - Could not get preferred types last season .....
  - Could not get preferred types before the change .....
  - Knowledge of fertilizer types has increased .....
  - Other (specify) .....
- 26. Where do you/could you buy fertilizer today?
  - Name of place .....
  - Type of dealer(s) .....
- 27. How far is it from your farm? .....kms
- 28. Has there been any change in the place or type of dealer where you buy/would buy fertilizers in the last 5 years? Yes/No

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29. If yes, could you please explain the change?

Nearer ..... (Give distance) .....

Further ..... (Give distance) .....

Change of type of dealer ..... (Explain) .....  
.....

30. Has the change influenced your fertilizer use? Yes/No

31. How do you transport fertilizer from place of purchase to your farm?

Own transport .....

Delivered by dealer .....

Public transport .....

Other (specify) .....

32. How many fertilizer dealers are there in the centre from where you buy your supplies?

.....

33. What types are they?

.....

Branches of main distributor .....

Stockists/agents of main distributor .....

Retailers .....

Open air vendors .....

Other (specify) .....

34. How many sell the DAP with a hand clasp? .....

35. Are their prices less than the controlled prices? Yes/No

36. In general, would you say that the availability of fertilizers, particularly DAP, has been increasing in the place from where you buy fertilizer in the last 5 years? Yes/No

37. Did you use as much fertilizer in the last season as you would have liked? Yes/No

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38. If no, could you please explain why?

- Prices too high .....
- Did not have enough money .....
- Right types not available at right time .....
- Not well prepared for the season .....
- Unanticipated change in prices .....
- Curtailement of credit lines .....
- Other (specify) .....

39. How does the timeliness of fertilizer availability particularly DAP, currently compare with 5 years ago?

- Increasingly more timely .....
- Increasingly less timely .....
- Hasn't changed .....

40. Were you able to purchase fertilizer types of your choice in the last season? Yes/NO

41. Were you, in any case, better able to purchase the fertilizer types of your choice in the last season compared to 5 years ago? Yes/No

42. What sizes of fertilizer bags do you prefer and why?

- 2kg .....
- 10kg .....
- 25kg .....
- 50 .....
- Loose .....
- Other (specify) .....
- Indifferent .....

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- 43. Were you able to obtain the right fertilizer bags in the last season? Yes/No
- 44. Were you, in any case, more able to obtain the fertilizer bags of your choice in the last season compared to 5 years ago? Yes/No
- 45. Is there any difference between types of fertilizers used for different cropping activities? Yes/No/Don't know
- 46. If yes, what happens if you use planting types of fertilizers for top dressing?
  - Reduction in yield .....
  - Destruction of crop .....
  - Destruction of soil .....
  - Reduction of future yields .....
  - Other (Specify) .....
  - Don't know .....
- 47. How did you gain this information and where do you usually go for fertilizer information?
  - From fertilizer dealers .....
  - From Ministry of Agriculture .....
  - From local leaders .....
  - From neighbour(s) .....
  - Other (specify) .....
- 48. If from fertilizer dealers, would you say that these are educating farmers now more than 5 years ago? Yes/No
- 49. Has your fertilizer knowledge increased in the last 5 years? Yes/No
- 50. Has your fertilizer use increased your yields? Yes/No
- 51. If yes, by how much? .....

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52. Would you say that your general farm practices have improved in the last 5 years? Yes/No

53. What do you think about the DAP with a hand clasp? .....

.....  
.....

54. What would you like done so that can increase your fertilizer use?

.....  
.....  
.....

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9. Could you please explain the qualifications for the above?

| <u>Type</u> | <u>Qualifications</u> |
|-------------|-----------------------|
| .....       | .....                 |
| .....       | .....                 |
| .....       | .....                 |
| .....       | .....                 |
| .....       | .....                 |

10. Do you focus on any particular part of the country? Yes/No

11. If yes, could you explain why?

- Not served by other distribution .....
- Greater use and demand of fertilizer relative to other parts of the country .....
- Historical .....
- Others (specify) .....

12. Have there been any changes in your distribution network in the last 5 years? Yes/No

13. If yes, did you reduce or expand your network? Reduced/Expanded

14. If you reduced your network, could you please explain why?

- Not allocated enough fertilizer .....
- Shifted to other lines of business .....
- Too much competition .....
- Lack of demand on fertilizer .....
- Heavy overheads .....
- Others (specify) .....

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15. If you expanded, could you provide us with the following information?

- Branches .....
- Sub-branches/depots .....
- Sub-agents/stockists/dealers .....
- Societies .....
- Others (specify) .....

16. Why did you expand? .....

17. What type of distribution capacity/facilities do you have?

- Lorries: Number ..... Total tonnage .....
- Pick Ups Number ..... Total tonnage .....
- Warehouse Number ..... Total tonnage .....
- Location ..... .....
- ..... .....
- ..... .....

18. Has your distribution capacity/facilities increased/remained the same/decreased in the last 5 years?

19. If decreased, could you please explain why? .....

20. If increased, could you kindly provide the following information:

|            |         | <u>From</u> | <u>To</u> |
|------------|---------|-------------|-----------|
| Lorries:   | Number  | .....       | .....     |
|            | Tonnage | .....       | .....     |
| Pick Ups   | Number  | .....       | .....     |
|            | Tonnage | .....       | .....     |
| Warehouses | Number  | .....       | .....     |
|            | Tonnage | .....       | .....     |

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21. Why did you increase your capacity? .....
- .....
22. What factors made it possible for you to increase your capacity?
- .....
23. Do you have any future plans for changing your distribution capacity? Yes/No
24. If no, why not? .....
- .....
25. If yes, what kind of plans do you have? .....
- .....
26. Do you operate a separate marketing department? Yes/No
27. If yes, how decentralised is it?
- Main office only .....
- Branch level .....
- Sub-branch .....
- Others (specify) .....
28. Have you reorganised your marketing department in the last 5 years? Yes/No
29. If yes, what kind of reorganisation?
- Increased marketing team .....
- Decentralised further .....
- Others (specify) .....
30. Why did you make such reorganisation and what factors permitted it?
- .....
- .....
31. Do you provide any advisory services to farmers? Yes/No

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32. If no, why not?

Too expensive .....

Competitors don't .....

Others (specify) .....

33. If yes, what kind of services?

Advice on fertilizer use .....

Soil analysis .....

Demonstration plots .....

Field visits .....

Others (specify) .....

34. Did you provide such service(s) 5 years ago? Yes/No

35. If no, what motivated you to start providing such services and what factors permitted it?

.....

.....

36. What kinds of discounts, if any, did you give to your agent/stockists/members?

|             | <u>Fertilizer type</u> | <u>Discounts</u> |
|-------------|------------------------|------------------|
| Main agent: | DAP                    | .....            |
|             | CAN                    | .....            |
|             | 20:20:0                | .....            |
|             | 20:20:10               | .....            |
| Agents      | CAN                    | .....            |
|             | DAP                    | .....            |
|             | 20:20:0                | .....            |
|             | 20:20:10               | .....            |

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|                     |          |       |
|---------------------|----------|-------|
| Sub-agents          | DAP      | ..... |
|                     | CAN      | ..... |
|                     | 20:20:0  | ..... |
|                     | 20:20:10 | ..... |
| Stockists/Societies | DAP      | ..... |
|                     | CAN      | ..... |
|                     | 20:20:0  | ..... |
|                     | 20:20:10 | ..... |
| Members/Farmers     | DAP      | ..... |
|                     | CAN      | ..... |
|                     | 20:20:0  | ..... |
|                     | 20:20:10 | ..... |

- 37. Do you find it harder/easier to give discounts than 5 years ago?  
Harder/Easier
- 38. If harder, why? .....
- 39. If easier, why? .....
- 40. Have you ever retailed your fertilizers at less than the stipulated  
Maximum Revised Prices? Yes/No
- 41. If yes, under what conditions? .....
- 42. Do you find it now more possible to sell at less than MRP compared  
to 5 years ago? Yes/No
- 43. Do you ever sell fertilizer in bags smaller than 50kgs? Yes/No

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44. If yes, which packages sell fastest?

- 2kg .....
- 10kg .....
- 15kg .....
- 25kg .....
- Loose .....

45. How does the profitability of the small bags compare with that of the 50kgs?

- More profitable .....
- Same profitability .....
- Less profitable .....

46. Has the relative profitability of the small bags changed in the last 5 years? Yes/No

47. If yes, explain the nature of such changes. Relative profitability increased ..... decreased .....

48. Have the retail prices become more or less certain in the last 5 years?

49. How much of what types of fertilizer did you request for import allocation, and how much were you allocated for the 1988/89 season?

| <u>Fertilizer types</u> | <u>Request (tonnes)</u> | <u>Allocation (Tonnes)</u> |
|-------------------------|-------------------------|----------------------------|
| .....                   | .....                   | .....                      |
| .....                   | .....                   | .....                      |
| .....                   | .....                   | .....                      |
| .....                   | .....                   | .....                      |

(Please attach list if space is not enough)

50. How much of what types of fertilizers were you allocated from the Treasury?

| <u>Fertilizer types</u> | <u>Request (tonnes)</u> | <u>Allocation (Tonnes)</u> |
|-------------------------|-------------------------|----------------------------|
| .....                   | .....                   | .....                      |
| .....                   | .....                   | .....                      |
| .....                   | .....                   | .....                      |

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- 51. Has the percentage of allocation to requests changed in the last 5 years? Yes/No
- 52. If yes, has it increased or decreased? Increased/Decreased
- 53. Do you sell other types of agricultural inputs? Yes/No
- 54. If yes, are you selling more of such inputs now than 5 years ago? Yes/No
- 55. Did you request for an extension of your fertilizer import licence any time in the last 5 years? Yes/No
- 56. If yes, could you please explain the circumstances? .....
- 57. Has the likelihood of requesting for such extension increased or decreased? Increased/Decreased
- 58. Was you import allocation for the 1988/89 season timely? Yes/No
- 59. If no, when did you get the allocation and when would you have preferred to get it?  
Date allocated ..... Date preferred .....
- 60. Has the timeliness of allocation improved or become worse in the last 5 years? Improved/become worse
- 61. When did your fertilizer shipments for the last season arrive at Mombasa?  

| <u>Shipment (fertilizer types)</u> | <u>Date of arrival</u> |
|------------------------------------|------------------------|
| .....                              | .....                  |
| .....                              | .....                  |
| .....                              | .....                  |
| .....                              | .....                  |
- 62. Was that timely? Yes/No
- 63. If no, what caused the delay?
- 64. Has the timeliness of your shipments improved or worsened in the last 5 years? Improved/Worsened
- 65. If it has improved, could you please explain?  
.....  
.....

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66. What have you done to reduce the landed cost of your fertilizer imports?

Pooled allocations with others .....

Shop around for competitive sources .....

Not done anything .....

Others (specify) .....

67. Were you able to meet your fertilizer import financial commitments, in the last season? Yes/No

68. If no, could you please explain? .....

.....

69. How would you rate your ability now to meet your fertilizer import bills compared to 5 years ago?

Better able .....

About as able .....

Not as able .....

70. If not as able, could you please explain?

.....

.....

71. How would you rate your ability to plan your fertilizer imports now compared to 5 years ago?

Better .....

Same .....

Worse .....

72. If your ability is worse/better, could you please explain? .....

.....

73. Did you distribute aid fertilizer in the last season? Yes/No

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74. If yes, what type of fertilizer and from which source?

| <u>Fertilizer type</u> | <u>Source</u> |
|------------------------|---------------|
| .....                  | .....         |
| .....                  | .....         |
| .....                  | .....         |
| .....                  | .....         |
| .....                  | .....         |

75. How do you rate the relative profitability of aid fertilizer compared to commercial fertilizer?

- Better .....
- Same .....
- Poorer .....

76. Are you in contact with Kenya's fertilizer donors? Yes/No

77. If yes, could you please give us details of recent contacts?

| <u>Donor</u> | <u>Date of visit</u> | <u>Purpose of visit</u> |
|--------------|----------------------|-------------------------|
| .....        | .....                | .....                   |
| .....        | .....                | .....                   |
| .....        | .....                | .....                   |
| .....        | .....                | .....                   |

78. Has such contact increased or decreased in the last 5 years?  
Increased/decreased/remained the same

79. What do your customers think about USAID DAP? .....

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80. How do the margins and relative profitability of USAID DAP compare with those for other aid and commercially imported DAP?

|        | <u>Other aid</u> | <u>Commercial import</u> |
|--------|------------------|--------------------------|
| Better | .....            | .....                    |
| Same   | .....            | .....                    |
| Worse  | .....            | .....                    |

81. What are the advantages/disadvantages of the USAID DAP allocation systems and price procedures?

| <u>Advantages</u> | <u>Disadvantages</u> |
|-------------------|----------------------|
| .....             | .....                |
| .....             | .....                |
| .....             | .....                |
| .....             | .....                |

82. How have Government fertilizers in general affected you, if at all?  
.....  
.....

83. Has such effect changed in the last 5 years? Yes/No

84. If yes, could you please explain? .....  
.....

85. How has the pricing of fertilizers affected you, if at all?  
.....  
.....

86. Has such effect changed in the last 5 years, and how? .....  
.....

87. How would you prefer your fertilizer aid?  
aid in kind .....  
foreign exchange assistance .....

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88. Who are your main customers? .....

89. What, in your opinion, are the major problems facing fertilizer importers/distributors like you?

.....  
.....  
.....

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ANNEX V

STOCKISTS'/RETAILERS' QUESTIONNAIRE

All responses will be treated in strict confidence.

Date of interview .....

Name of interviewer .....

1. Name of respondent .....

2. Name of store .....

3. Name of Centre .....

4. Location .....

5. Division .....

6. District .....

7. For how long have you sold fertilizer? ..... years

8. If less than 5 years, could you explain why you decided to deal in fertilizer?

.....  
.....  
.....

9. Who is/are your supplier(s)?

1. ....

2. ....

3. ....

4. ....

10. Do you stock on exclusive agency basis? Yes/No

11. If yes, could you please explain the terms?

.....  
.....  
.....

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12. Do you receive any credit from your fertilizer supplier(s)? Yes/No

13. If yes, could you please explain the terms?

.....  
.....  
.....

14. How far is/are your fertilizer supplier(s)? .....km

15. Has there been any change in that distance in the last 5 years?  
Yes/No

16. If yes could you please explain the nature of such a change?

.....  
.....  
.....

17. How do you transport your fertilizer supplied from place of purchase?

.....  
.....

18. How much do you pay for such transport? Kshs ..... per bag/tonne

19. Which types of fertilizer did you stock in the last season?

.....  
.....  
.....  
.....

20. Why did you stock the types given above?

.....  
.....

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21. Which sizes of fertilizer packages did you stock in the last season?

2kg .....

10kg .....

25kg .....

50 .....

Loose .....

22. Which of the above packages was most popular with your customers?

.....

23. Why do you think this was so?

.....

.....

24. What price did you charge for different types of packages?

| <u>Fertilizer type</u> | <u>Type of package</u> | <u>Buying Price</u> | <u>Selling Price</u> |
|------------------------|------------------------|---------------------|----------------------|
| .....                  | .....                  | .....               | .....                |
| .....                  | .....                  | .....               | .....                |
| .....                  | .....                  | .....               | .....                |
| .....                  | .....                  | .....               | .....                |
| .....                  | .....                  | .....               | .....                |

25. What other products do you stock in your shop?

.....

.....

26. How does the profitability of fertilizer generally compare with that of other types of products which you stock?

Higher .....

About the same .....

Lower .....

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27. How has that relative profitability changed in the last 5 years?  
Increased .....  
Remained the same .....  
Can't remember .....
28. Did you sell as much fertilizer in the last season as you would have liked? Yes/No
29. If no could you please explain? .....  
.....  
.....
30. Were you able to obtain fertilizer from your source(s) of supply at the right time in the last season? Yes/No
31. If no, could you please explain? .....  
.....  
.....
32. How did your fertilizer sales in the last season compare with 5 years ago?  
More .....  
About the same .....  
Less .....  
Can't remember .....
33. If less, why was it? .....  
.....  
.....
34. Do your customers always know the types of fertilizer they need? Yes/No/I don't know.
35. Are you able to distinguish between fertilizer types meant for different cropping activities? Yes/No
36. If yes, could you explain how you acquired that knowledge?  
.....  
.....

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- 37. Would you say that your knowledge of fertilizer has increased in the last 5 years? Yes/No
- 38. If yes, could you please explain how you gained the extra knowledge?  
.....  
.....
- 39. Do you stock other agricultural inputs? Yes/No
- 40. If yes, when did you start stocking other inputs? .....
- 41. Would you say that you now stock more of such inputs than before? Yes/No
- 42. If you don't stock other agricultural inputs, could you explain why?  
.....  
.....
- 43. How many other fertilizer stockists are there in this centre?  
.....
- 44. Do you sell USAID fertilizer? Yes/No
- 45. If yes, what do your customers say about it?  
.....  
.....
- 46. What would you like done so that fertilizer dealers like you sell more fertilizer?  
.....  
.....  
.....

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ANNEX VI

Statistical Data

Table 1. Purchased Agricultural Inputs, 1982-86

| MATERIAL INPUTS               | KShs/million |              |               |               |               |
|-------------------------------|--------------|--------------|---------------|---------------|---------------|
|                               | 1982         | 1983         | 1984          | 1985          | 1986          |
| Fertilizers .. .. .           | 14.68        | 14.34        | 21.12         | 32.94         | 34.08         |
| Other agricultural Chemicals  | 12.27        | 12.76        | 12.06         | 18.36         | 21.93         |
| Livestock Drugs & Medicines   | 5.80         | 5.33         | 8.87          | 9.68          | 10.33         |
| Fuel and Power .. .. .        | 15.26        | 16.63        | 18.17         | 19.88         | 22.59         |
| Bags .. .. .                  | 5.85         | 6.36         | 9.32          | 8.61          | 12.26         |
| Manufactured Feeds .. .. .    | 10.33        | 9.78         | 17.98         | 17.70         | 18.89         |
| Purchased Feeds .. .. .       | 4.46         | 6.14         | 17.59         | 15.77         | 23.73         |
| Other Material Inputs .. .. . | 4.66         | 5.08         | 6.64          | 5.47          | 6.91          |
| <b>Total .. .. .</b>          | <b>73.51</b> | <b>76.42</b> | <b>111.75</b> | <b>128.41</b> | <b>150.72</b> |

\* Provisional

Source: Economic Survey 1987, p110 Table 8.7

Table 2. Estimates of Marginal Returns to Fertilizer Use Per Shilling Used for Fertilizer Application on Major Crops: 1980-1981 - 1983/84

|           | 1980/81 | 1981/82 | 1982/83 | 1983/84 |
|-----------|---------|---------|---------|---------|
| Coffee    | 7.2     | 7.0     | 9.4     | -       |
| Tea       | 7.0     | 4.9     | 7.5     | 13.7    |
| Maize     | 2.5     | 3.0     | 3.6     | 3.0     |
| Wheat     | 4.0     | 3.7     | 4.5     | 4.3     |
| Sugarcane | 0.8     | 0.7     | 0.9     | 1.7     |
| Sunflower | 1.6     | 1.7     | 3.4     | 3.0     |
| Barley    | 2.8     | 2.6     | 2.8     | 2.6     |

Source: Ministry of Agriculture, 1987

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STOCKISTS' RESPONSES

Table 3 SEX OF RESPONDENT

|        | Absolute Frequency | Relative Frequency |
|--------|--------------------|--------------------|
| Male   | 61                 | 88.4               |
| Female | 8                  | 11.6               |
| Total  | 69                 | 100.00             |

Table 4 DURATION OF FERTILIZER INVOLVEMENT

| (Yrs) | Absolute Frequency | Cumulative Relative Frequency |
|-------|--------------------|-------------------------------|
| 3     | 24                 | 34.8                          |
| 5     | 38                 | 55.1                          |
| 10    | 56                 | 81.2                          |
| 15    | 64                 | 92.8                          |
| 30    | 69                 | 100.00                        |

Table 5 REASONS FOR BECOMING A FERTILIZER DEALER IN THE LAST 5 YEARS

|                                   | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|-----------------------------------|--------------------|--------------------|--------------------|
| Request by farmers                | 18                 | 26.1               | 69.2               |
| Help farmers to obtain fertilizer | 6                  | 8.7                | 23.1               |
| Other                             | 2                  | 2.8                | 7.6                |
| Earlier than 5 years              | 43                 | 62.3               | -                  |
| TOTAL                             | 69                 |                    | 100.00             |

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Table 6 . SUPPLIERS OF FERTILIZERS TO STOCKISTS

|               | Absolute<br>Frequency | Relative<br>Frequency |
|---------------|-----------------------|-----------------------|
| KGGCU         | 54                    | 51.9                  |
| MEA LTD.      | 15                    | 14.4                  |
| Coop. Unions  | 7                     | 6.7                   |
| Farm Chem     | 2                     | 1.9                   |
| Safina Ltd.   | 4                     | 3.8                   |
| Turbo Highway | 3                     | 2.9                   |
| Other firms   | 18                    | 17.3                  |
| Treasury      | 1                     | 1.0                   |
| <b>Total</b>  | <b>104</b>            | <b>100.0</b>          |

Table 7 EXTENTION OF CREDIT FROM SUPPLIERS TO STOCKISTS

|                      | Absolute<br>Frequency | Relative<br>Frequency | Adjusted<br>Frequency |
|----------------------|-----------------------|-----------------------|-----------------------|
| Receiving credit     | 22                    | 31.9                  | 33.8                  |
| Not receiving credit | 43                    | 62.3                  | 66.2                  |
| Not applicable       | 4                     | 5.8                   | -                     |
| <b>Total</b>         | <b>69</b>             | <b>100.0</b>          | <b>100.0</b>          |

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Table 8. MEANS USED BY STOCKISTS TO TRANSPORT FERTILIZER

|                      | Absolute<br>Frequency | Relative<br>Frequency |
|----------------------|-----------------------|-----------------------|
| Own transport        | 30                    | 43.5                  |
| Hired transport      | 9                     | 13.0                  |
| Public transport     | 24                    | 34.8                  |
| Delivery by Supplier | 5                     | 7.2                   |
| Other                | 1                     | 1.5                   |
| Total                | 69                    | 100.00                |

Table 9. FERTILIZER PACKAGE MOST POPULAR WITH FARMERS

|           | Absolute<br>Frequency | Relative<br>Frequency | Adjusted<br>Frequency |
|-----------|-----------------------|-----------------------|-----------------------|
| All       | 6                     | 8.7                   | 9.1                   |
| 10Kgs     | 17                    | 24.6                  | 25.8                  |
| 25Kgs     | 9                     | 13.0                  | 13.6                  |
| 50Kgs     | 28                    | 40.6                  | 42.4                  |
| Loose     | 6                     | 8.7                   | 9.1                   |
| No answer | 3                     | 4.3                   | -                     |
| Total     | 69                    | 100.0                 | 100.0                 |

Table 10. OTHER PRODUCTS STOCKED

|                           | Absolute<br>Frequency | Relative<br>Frequency |
|---------------------------|-----------------------|-----------------------|
| Animal Feeds              | 9                     | 13                    |
| Household items           | 21                    | 30.4                  |
| Hardwares                 | 7                     | 10.1                  |
| Other agricultural inputs | 24                    | 34.8                  |
| Others                    | 8                     | 11.6                  |
| Total                     | 69                    | 100.0                 |

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Table 11 CHANGES IN RELATIVE PROFITABILITY OF FERTILIZER IN THE LAST 5 YEARS

|                   | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|-------------------|--------------------|--------------------|--------------------|
| Increased         | 21                 | 30.4               | 43.8               |
| Remained the same | 15                 | 21.7               | 31.2               |
| Declined          | 21                 | 17.4               | 25.0               |
| No answer         | 21                 | 30.4               | -                  |
| Total             | 69                 | 100.0              | 100.0              |

Table 12 SALES OF FERTILIZER COMPARED WITH 5 YEARS AGO

|                | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|----------------|--------------------|--------------------|--------------------|
| More           | 34                 | 49.3               | 55.7               |
| About the same | 12                 | 17.4               | 19.7               |
| Less           | 15                 | 21.7               | 24.6               |
| Didn't sell    | 8                  | 11.6               | -                  |
| Total          | 69                 | 100.0              | 100.0              |

Table 13 CHANNELS OF ACQUIRING INFORMATION ON FERTILIZERS

|  | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|--|--------------------|--------------------|--------------------|
| Agricultural extention officers & seminars | 32                 | 46.4               | 5.08               |
| Experience                                 | 18                 | 26.1               | 28.6               |
| Fertilizer Distributors                    | 7                  | 10.1               | 11.1               |
| Other                                      | 6                  | 8.7                | 9.5                |
| No answer                                  | 5                  | 8.7                | -                  |
| Total                                      | 69                 | 100.0              | 100.0              |

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Table 14 CHANGE IN STOCKISTS FERTILIZER KNOWLEDGE IN THE LAST 5 YEARS

|               | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|---------------|--------------------|--------------------|--------------------|
| Increased     | 56                 | 81.2               | 86.2               |
| Not increased | 9                  | 13.0               | 13.8               |
| No answer     | 4                  | 5.8                | -                  |
| Total         | 69                 | 100.0              | 100.0              |

Table 15 INCIDENCE OF SALES OF USAID FERTILIZER BY STOCKISTS

|             | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|-------------|--------------------|--------------------|--------------------|
| Selling     | 52                 | 75.4               | 76.5               |
| Not selling | 16                 | 23.2               | 23.5               |
| No answer   | 1                  | 1.4                | -                  |
| Total       | 69                 | 100.0              | 100.0              |

Table 16 WHAT THE STOCKISTS WOULD LIKE DONE SO THAT THEY CAN SERVE FARMERS BETTER

|                                    | Absolute Frequency | Relative Frequency |
|------------------------------------|--------------------|--------------------|
| Pay attention to prices            | 40                 | 31.3               |
| Improve/assist in transportation   | 12                 | 9.4                |
| Improve buying terms/Better credit | 35                 | 27.3               |
| Educate farmers                    | 14                 | 10.9               |
| Increase number of distributors    | 14                 | 10.9               |
| Keep adequate fert. stocks         | 13                 | 10.2               |
| Total                              | 128                | 100.0              |

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Table 17. Estimates of Fertilizer Use By Crop and Farm Size  
1985/86 (M tonnes)

|                   | Estates       | Large<br>Farms | Smallholders   | Total          |
|-------------------|---------------|----------------|----------------|----------------|
| Coffee            | 31,950        | 0              | 29,100         | 61,050         |
| Maize             | 1,500         | 23,550         | 21,450         | 46,500         |
| Tea               | 26,850        | 0              | 15,000         | 41,850         |
| Sugar             | 19,050        | 0              | 20,700         | 39,750         |
| Wheat             | 1,500         | 16,500         | 0              | 18,000         |
| Barley            | 0             | 7,050          | 0              | 7,050          |
| Other Hort. Crops | 3,000         | 0              | 1,800          | 4,800          |
| Tobacco           | 0             | 0              | 3,800          | 3,810          |
| Potatoes          | 0             | 0              | 3,750          | 3,750          |
| Rice              | 0             | 0              | 3,750          | 3,750          |
| Sunflower & Rape  | 0             | 2,685          | 0              | 2,685          |
| Pineapples        | 3,000         | 0              | 2,400          | 2,400          |
| Irrigated Crops   |               |                |                |                |
| <b>Total</b>      | <b>86,850</b> | <b>47,785</b>  | <b>101,760</b> | <b>238,995</b> |
| <b>Percentage</b> | <b>36</b>     | <b>21</b>      | <b>43</b>      | <b>100</b>     |

Source: Ministry of Agriculture, 1987

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Table 18 TYPE OF IMPORTER/DISTRIBUTOR

|                   | Absolute<br>Frequency | Relative<br>Frequency |
|-------------------|-----------------------|-----------------------|
| Cooperative Union | 7                     | 33.3                  |
| Others            | 14                    | 66.7                  |
| <b>Total</b>      | <b>21</b>             | <b>100.0</b>          |

Table 19 DISTRIBUTION NETWORK

| No. of<br>Outlets | Absolute<br>Frequency | Relative<br>Frequency<br>(%) |
|-------------------|-----------------------|------------------------------|
| - 5               | 9                     | 43                           |
| - 10              | 5                     | 24                           |
| - 20              | 3                     | 14                           |

Table 20 QUALIFICATION FOR INCLUSION IN THE DISTRIBUTION NETWORK

|                         | Absolute<br>Frequency | Relative<br>Frequency<br>(%) |
|-------------------------|-----------------------|------------------------------|
| Affiliation to Union    | 7                     | 35                           |
| Ability to sell         | 5                     | 25                           |
| Financial credibility*  | 4                     | 20                           |
| Availability of capital | 1                     | 5                            |
| Others                  | 3                     | 15                           |
| <b>Total</b>            | <b>20</b>             | <b>100.0</b>                 |

\* This linked together with credit worthiness and credit facilities.

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Table 21 TOTAL WAREHOUSE CAPACITY IN TONNES

| Tonnage      | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|--------------|--------------------|--------------------|--------------------|
| 100 - 250    | 5                  | 24.0               | 26.3               |
| 251 - 500    | 2                  | 9.5                | 10.5               |
| 501 - 1000   | 4                  | 19.0               | 21.1               |
| 1001 - 2000  | 0                  | 0                  | 0                  |
| 2001 - 5000  | 4                  | 19.0               | 21.1               |
| — - 5001     | 4                  | 19.0               | 21.1               |
| No response  | 2                  | 9.5                | -                  |
| <b>Total</b> | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 22 CHANGE IN DISTRIBUTION CAPABILITY IN LAST 5 YEARS

|                   | Absolute Frequency | Relative Frequency |
|-------------------|--------------------|--------------------|
| Increased         | 10                 | 47.6               |
| Remained the same | 7                  | 33.3               |
| Decreased         | 4                  | 19.0               |
| <b>Total</b>      | <b>21</b>          | <b>100.0</b>       |

Table 23 WHY INCREASED CAPACITY

| Reason                          | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|---------------------------------|--------------------|--------------------|--------------------|
| Increased Fertilizer Demand     | 3                  | 14.3               | 30.0               |
| Expectation of increased Demand | 1                  | 4.8                | 10.0               |
| To improve efficiency           | 2                  | 9.5                | 20.0               |
| Other                           | 5                  | 23.8               | 50.0               |
| Not applicable                  | 11                 | 52.4               | -                  |
| <b>Total</b>                    | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

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Table 24 FACTORS WHICH PERMITTED INCREASED CAPACITY

| Factor                     | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|----------------------------|--------------------|--------------------|--------------------|
| Increased demand           | 3                  | 14.3               | 25.0               |
| Increased Coffee Planting  | 1                  | 4.8                | 8.3                |
| Increased Development      | 1                  | 4.8                | 8.3                |
| Coop. Bank Finance         | 1                  | 4.8                | 8.3                |
| USAID Fertilizer           | 1                  | 4.8                | 8.3                |
| Coop. Unions Funds         | 1                  | 4.8                | 8.3                |
| Improved Capital to Invest | 1                  | 4.8                | 8.3                |
| Improved Price Margins     | 1                  | 4.8                | 8.3                |
| To diversify               | 1                  | 4.8                | 8.3                |
| Other                      | 1                  | 4.8                | 8.3                |
| Not applicable             | 9                  | 42.9               | -                  |
| <b>Total</b>               | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 25 DO YOU FOCUS ON PARTICULAR PARTS OF THE COUNTRY

|              | Absolute Frequency | Relative Frequency |
|--------------|--------------------|--------------------|
| Yes          | 18                 | 85.7               |
| No           | 3                  | 14.3               |
| <b>Total</b> | <b>21</b>          | <b>100.0</b>       |

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Table 26 REASONS FOR FOCUSING ON A PARTICULAR PART OF THE COUNTRY

|                                  | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|----------------------------------|--------------------|--------------------|--------------------|
| Greater Fertilizer use           | 6                  | 28.6               | 35.3               |
| Not served by other distributors | 2                  | 9.5                | 11.8               |
| Historical                       | 1                  | 4.8                | 5.9                |
| Localised Markets                | 1                  | 4.8                | 5.9                |
| Operation confined to district   | 1                  | 4.8                | 5.9                |
| Other                            | 6                  | 28.6               | 35.3               |
| Not applicable                   | 4                  | 19.0               | -                  |
| <b>Total</b>                     | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 27 CHANGE IN DISTRIBUTION NETWORK IN THE LAST 5 YEARS

|                | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|----------------|--------------------|--------------------|--------------------|
| Yes            | 11                 | 52.4               | 57.9               |
| No             | 8                  | 38.1               | 42.1               |
| Not applicable | 2                  | 9.5                | -                  |
| <b>Total</b>   | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 28 TYPE OF CHANGE OF DISTRIBUTION NETWORK

|                | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|----------------|--------------------|--------------------|--------------------|
| Expanded       | 9                  | 42.9               | 81.8               |
| Reduced        | 2                  | 9.5                | 18.2               |
| Not applicable | 10                 | 47.6               | -                  |
| <b>Total</b>   | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

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Table 29 TYPE OF EXPANSION

|                      | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|----------------------|--------------------|--------------------|--------------------|
| Branches             | 2                  | 9.5                | 16.7               |
| Sub-branches/Agents  | 2                  | 9.5                | 16.7               |
| Sub-agents/Stockists | 5                  | 23.8               | 41.6               |
| Societies            | 3                  | 14.3               | 25.0               |
| Not applicable       | 9                  | 42.9               | -                  |
| <b>Total</b>         | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 30 REASONS FOR DECREASING DISTRIBUTION CAPACITY

|                        | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|------------------------|--------------------|--------------------|--------------------|
| Problems renting space | 1                  | 4.8                | 33.3               |
| Competition            | 1                  | 4.8                | 33.3               |
| Branch closed          | 1                  | 4.8                | 33.3               |
| Not applicable         | 18                 | 85.7               | -                  |
| <b>Total</b>           | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 31 FUTURE PLANS TO CHANGE DISTRIBUTION NETWORK

|              | Absolute Frequency | Relative Frequency |
|--------------|--------------------|--------------------|
| Yes          | 19                 | 90.5               |
| No           | 2                  | 9.5                |
| <b>Total</b> | <b>21</b>          | <b>100.0</b>       |

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Table 32 REASONS FOR NOT HAVING PLANNED CHANGES IN CAPACITY

| Reasons                   | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|---------------------------|--------------------|--------------------|--------------------|
| Unfair competition        | 1                  | 4.8                | 50.0               |
| Present capacity adequate | 1                  | 4.8                | 50.0               |
| Not applicable            | 19                 | 90.5               | -                  |
| <b>Total</b>              | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 33 OPERATIONS OF SEPARATE MARKETING DEPARTMENT

|              | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|--------------|--------------------|--------------------|--------------------|
| Yes          | 6                  | 28.6               | 31.6               |
| No           | 13                 | 61.9               | 68.4               |
| No response  | 2                  | 9.5                | -                  |
| <b>Total</b> | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 34 DEGREE OF DE-CENTRALIZATION OF MARKETING DEPARTMENT

|              | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|--------------|--------------------|--------------------|--------------------|
| Branch level | 3                  | 14.3               | 75                 |
| Other        | 1                  | 4.8                | 25                 |
| None         | 17                 | 80.4               | -                  |
| <b>Total</b> | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

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Table 35 RE-ORGANISATION FOR MARKETING DEPARTMENT LAST 5 YEARS

|                | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|----------------|--------------------|--------------------|--------------------|
| Yes            | 6                  | 28.6               | 46.2               |
| No             | 7                  | 33.3               | 53.8               |
| Not applicable | 8                  | 38.1               | -                  |
| <b>Total</b>   | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 36 NATURE OF REORGANIZATION OF MARKETING DEPARTMENT

|                              | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|------------------------------|--------------------|--------------------|--------------------|
| Intensification of marketing | 5                  | 23.8               | 83.3               |
| Reduction of staff           | 1                  | 4.8                | 16.7               |
| Not applicable               | 15                 | 71.4               | -                  |
| <b>Total</b>                 | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 37 REASONS FOR REORGANIZATION OF MARKETING DEPARTMENT

|                       | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|-----------------------|--------------------|--------------------|--------------------|
| More business         | 2                  | 9.5                | 33.3               |
| Reach more farmers    | 1                  | 4.8                | 16.7               |
| Improve effectiveness | 1                  | 4.8                | 16.7               |
| Other                 | 2                  | 9.6                | 33.3               |
| Not applicable        | 15                 | 7.4                | -                  |
| <b>Total</b>          | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

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Table 38 UNDER WHAT CONDITIONS HAVE YOU SOLD FERTILIZERS AT LESS THAN MAXIMUM RETAIL PRICES

|                          | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|--------------------------|--------------------|--------------------|--------------------|
| Due to competition       | 3                  | 14.3               | 16.7               |
| Quantity discounts       | 2                  | 9.5                | 11.1               |
| To large cash buyers     | 2                  | 9.5                | 11.1               |
| When cost is low         | 2                  | 9.5                | 11.1               |
| To Cooperative Societies | 2                  | 9.5                | 11.1               |
| Others                   | 7                  | 33.3               | 38.9               |
| Not applicable           | 3                  | 14.3               | -                  |
| <b>Total</b>             | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 39 FERTILIZER TYPES ALLOCATED FROM TREASURY DURING LAST SEASON

| Fertilizer Type | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|-----------------|--------------------|--------------------|--------------------|
| DAP             | 12                 | 57.0               | 85.7               |
| CAN             | 1                  | 4.8                | 7.1                |
| ASN             | 1                  | 4.8                | 7.1                |
| None            | 7                  | 33.3               | -                  |
| <b>Total</b>    | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

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Table 40 EFFECTS OF PRICE CONTROLS ON IMPORTERS/DISTRIBUTORS

|                           | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|---------------------------|--------------------|--------------------|--------------------|
| Unable to import          | 5                  | 23.8               | 26.3               |
| Loss due to prime decline | 3                  | 14.3               | 15.8               |
| Low profit margins        | 3                  | 14.3               | 15.8               |
| Others                    | 8                  | 38.1               | 42.1               |
| No response               | 2                  | 9.5                | -                  |
| <b>Total</b>              | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 41 ISSUES OF CONCERN TO THE IMPORTERS/DISTRIBUTORS

|                              | Absolute Frequency | Relative Frequency |
|------------------------------|--------------------|--------------------|
| Pricing                      | 6                  | 28.6               |
| Timeliness of supply         | 4                  | 19.0               |
| Import Licensing procedures  | 2                  | 9.5                |
| Liquidity/Financial problems | 2                  | 9.5                |
| Inadequate stocks            | 2                  | 9.5                |
| Foreign Exchange Rates       | 1                  | 4.8                |
| Competition                  | 2                  | 9.5                |
| Others                       | 2                  | 9.5                |
| <b>Total</b>                 | <b>21</b>          | <b>100.0</b>       |

Table 42 PROVISION OF SERVICES TO FARMERS

|               | Absolute Frequency | Relative Frequency |
|---------------|--------------------|--------------------|
| Providing     | 20                 | 95.2               |
| Not providing | 1                  | 4.8                |
| <b>Total</b>  | <b>21</b>          | <b>100.0</b>       |

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Table 43 KINDS OF SERVICES TO FARMERS

|                          | Absolute<br>Frequency | Relative<br>Frequency |
|--------------------------|-----------------------|-----------------------|
| Advice on fertilizer use | 14                    | 66.7                  |
| Soil Analysis            | 4                     | 19.0                  |
| Field visits             | 2                     | 9.5                   |
| No answer                | 1                     | 4.8                   |
| <b>Total</b>             | <b>21</b>             | <b>100.0</b>          |

Table 44 ABILITY TO GIVE DISCOUNTS PRESENTLY COMPARED WITH FIVE YEARS AGO

|              | Absolute<br>Frequency | Relative<br>Frequency | Adjusted<br>Frequency |
|--------------|-----------------------|-----------------------|-----------------------|
| Harder       | 6                     | 28.6                  | 40.0                  |
| Easier       | 9                     | 42.9                  | 60.0                  |
| No answer    | 6                     | 28.6                  | -                     |
| <b>Total</b> | <b>21</b>             | <b>100.0</b>          | <b>100.0</b>          |

Table 45 REASONS FOR IMPROVED ABILITY TO GIVE DISCOUNTS

|                               | Absolute<br>Frequency | Relative<br>Frequency | Adjusted<br>Frequency |
|-------------------------------|-----------------------|-----------------------|-----------------------|
| Better margins/terms          | 5                     | 23.8                  | 55.6                  |
| Competition                   | 2                     | 9.5                   | 22.2                  |
| Direct allocation by Treasury | 1                     | 4.8                   | 11.1                  |
| Other                         | 1                     | 4.8                   | 11.1                  |
| Not applicable                | 12                    | 57.1                  | -                     |
| <b>Total</b>                  | <b>21</b>             | <b>100.0</b>          | <b>100.0</b>          |

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Table 46 RELATIVE PROFITABILITY OF SMALL BAGS COMPARED WITH THE 50 KG BAG

|                     | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|---------------------|--------------------|--------------------|--------------------|
| More profitable     | 12                 | 57.1               | 75.0               |
| Equal profitability | 2                  | 9.5                | 12.5               |
| Less profitable     | 2                  | 9.5                | 12.5               |
| Not applicable      | 5                  | 23.5               | -                  |
| <b>Total</b>        | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 47 CHANGES IN REALIZATION OF REPORTS FOR IMPORT ALLOCATION IN THE LAST 5 YEARS

|               | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|---------------|--------------------|--------------------|--------------------|
| Increased     | 11                 | 52.4               | 91.7               |
| Decreased     | 1                  | 4.8                | 8.3                |
| Non Importers | 9                  | 42.9               | -                  |
| <b>Total</b>  | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 48 TIMELINESS OF IMPORT ALLOCATIONS IN THE 1988-89 FERTILIZER YEAR

|               | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|---------------|--------------------|--------------------|--------------------|
| Timely        | 11                 | 52.4               | 91.7               |
| Not timely    | 1                  | 4.8                | 8.3                |
| Non Importers | 9                  | 42.9               | -                  |
| <b>Total</b>  | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

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Table 49 METHODS USED BY COMMERCIAL FERTILIZER IMPORTERS TO REDUCE LANDED COSTS

|                                  | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|----------------------------------|--------------------|--------------------|--------------------|
| Pooling of importation           | 4                  | 19.0               | 28.6               |
| Shopping for competitive sources | 5                  | 23.8               | 35.7               |
| Other                            | 2                  | 9.6                | 14.3               |
| Not done anything                | 3                  | 14.3               | 21.4               |
| Non Importer                     | 7                  | 33.3               | -                  |
| <b>Total</b>                     | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

Table 50 PROFITABILITY OF DONOR FERTILIZER COMPARED TO COMMERCIALLY IMPORTED FERTILIZER

|                 | Absolute Frequency | Relative Frequency | Adjusted Frequency |
|-----------------|--------------------|--------------------|--------------------|
| Better          | 12                 | 57.1               | 70.6               |
| Same            | 3                  | 14.3               | 17.6               |
| Poorer          | 2                  | 9.5                | 11.8               |
| Non distributor | 4                  | 19.0               | -                  |
| <b>Total</b>    | <b>21</b>          | <b>100.0</b>       | <b>100.0</b>       |

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Table 51 WHAT THE FERTILIZER DEALERS THINK ABOUT USAID DAP

|                                     | Absolute<br>Frequency | Relative<br>Frequency | Adjusted<br>Frequency |
|-------------------------------------|-----------------------|-----------------------|-----------------------|
| Liked much                          | 9                     | 42.9                  | 52.9                  |
| Preferred by<br>smallholder farmers | 2                     | 9.5                   | 11.8                  |
| It is the best                      | 4                     | 19.0                  | 23.5                  |
| Sells easily                        | 1                     | 4.8                   | 5.9                   |
| Other                               | 1                     | 4.8                   | 5.9                   |
| Non Distributor                     | 4                     | 19.0                  | -                     |
| <hr/> Total                         | <hr/> 21              | <hr/> 100.0           | <hr/> 100.0           |

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Table 52: Commercial and Aid Fertilizer Imports by Types, 1985/86 and 1986/87 (M Tonnes)

| FERTILIZER                | 1985/86        |                |                | 1986/87       |                |                |
|---------------------------|----------------|----------------|----------------|---------------|----------------|----------------|
|                           | Aid            | Commercial     | Total          | Aid           | Commercial     | Total          |
| DAP                       | 28,500         | 39,038         | 67,538         | 20,000        | 45,300         | 65,300         |
| MAP                       | 5,000          | 3,500          | 8,500          | -             | 1,000          | 1,000          |
| TSP                       | -              | 15,900         | 15,900         | -             | 8,000          | 8,000          |
| NPK 20:20:0               | 38,349         | 7,000          | 45,349         | -             | 3,000          | 18,000         |
| SSP                       | -              | 7,000          | 7,000          | -             | 4,000          | 4,000          |
| SA                        | -              | 12,794         | 12,794         | -             | 4,000          | 4,000          |
| CAN                       | 20,000         | 20,000         | 40,000         | 25,000        | 23,000         | 48,000         |
| ASN                       | -              | 11,200         | 11,200         | 7,000         | 1,400          | 8,400          |
| UREA                      | 16,600         | 22,500         | 38,500         | -             | 8,750          | 8,750          |
| NPK25:5+5+5% <sub>s</sub> | 13,000         | 31,000         | 44,000         | 5,000         | 31,175         | 36,175         |
| NPK 20:10:10              | 21,000         | 19,500         | 40,000         | 10,000        | 14,000         | 24,000         |
| NPK 17:17:17              | 3,440          | 3,000          | 6,440          | -             | 4,500          | 4,500          |
| NPK 15:15:15              | -              | 200            | 200            | -             | -              | -              |
| NPK 15:15:6+4             | -              | -              | -              | -             | 1,500          | 1,500          |
| NPK 6:18:20+4             | -              | 2,000          | 2,000          | -             | 1,000          | 1,000          |
| SOP                       | -              | 2,000          | 2,000          | -             | 40             | 40             |
| MOP                       | -              | 2,100          | 2,100          | -             | 1,000          | 1,000          |
| OTHERS                    | -              | 2,420          | 2,420          | -             | 184            | 184            |
| <b>TOTAL</b>              | <b>145,289</b> | <b>199,852</b> | <b>345,121</b> | <b>82,000</b> | <b>151,849</b> | <b>233,849</b> |

Source: Ministry of Agriculture, 1987

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Table 53 Fertilizer Use in Kenya, 1980/81 - 1986/87 (Metric Tonnes)

| Year    | Stocks Brought Forward | Plus Imports | Total Tonnage Available | Less Stocks Carried | Estimated Tonnage Used | % Increase (Decrease) |
|---------|------------------------|--------------|-------------------------|---------------------|------------------------|-----------------------|
| 1980/81 | 40,170                 | 129,672      | 169,842                 | 40,701              | 129,141                | -                     |
| 1981/82 | 40,701                 | 206,667      | 247,368                 | 110,936             | 136,432                | +5.6                  |
| 1982/83 | 110,936                | 129,551      | 240,493                 | 97,708              | 142,785                | +4.6                  |
| 1983/84 | 97,708                 | 120,000      | 219,708                 | 19,248              | 198,460                | +39                   |
| 1984/85 | 19,248                 | 184,374      | 203,622                 | 28,294              | 175,328                | -11.7                 |
| 1985/86 | 28,294                 | 345,141      | 373,435                 | 101,795             | 271,640                | +55                   |
| 1986/87 | 101,795                | 230,125      | 331,920                 | 104,793             | 227,127                | -16                   |

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ANNEX VII

LIST OF MEMBERS OF KENYA FERTILIZER ASSOCIATION

- |   |   |
|---|---|
| 1. Kenya Farmers' Association (Co-Op) (KFA) | Importer/Distributor                                    |
| 2. Mackenzie Kenya Limited                  | Distributor   |
| 3. Windmill East Africa Limited             | Importer/Subsidiary of Overseas Manufacturer            |
| 4. Sapa Chemical Industries Limited         | Importer/Distributor                                    |
| 5. Montedison East Africa Limited           | Importer/Representative of Overseas Manufacturer        |
| 6. Hoecsht East Africa Limited              | Importer/Representative office of Overseas manufacturer |
| 7. Basf East Africa Limited                 | Representative of Overseas manufacturer                 |
| 8. Intag Limited                            | Importer/Distributor                                    |
| 9. Twiga Chemical Industries Limited        | Importer/Distributor                                    |