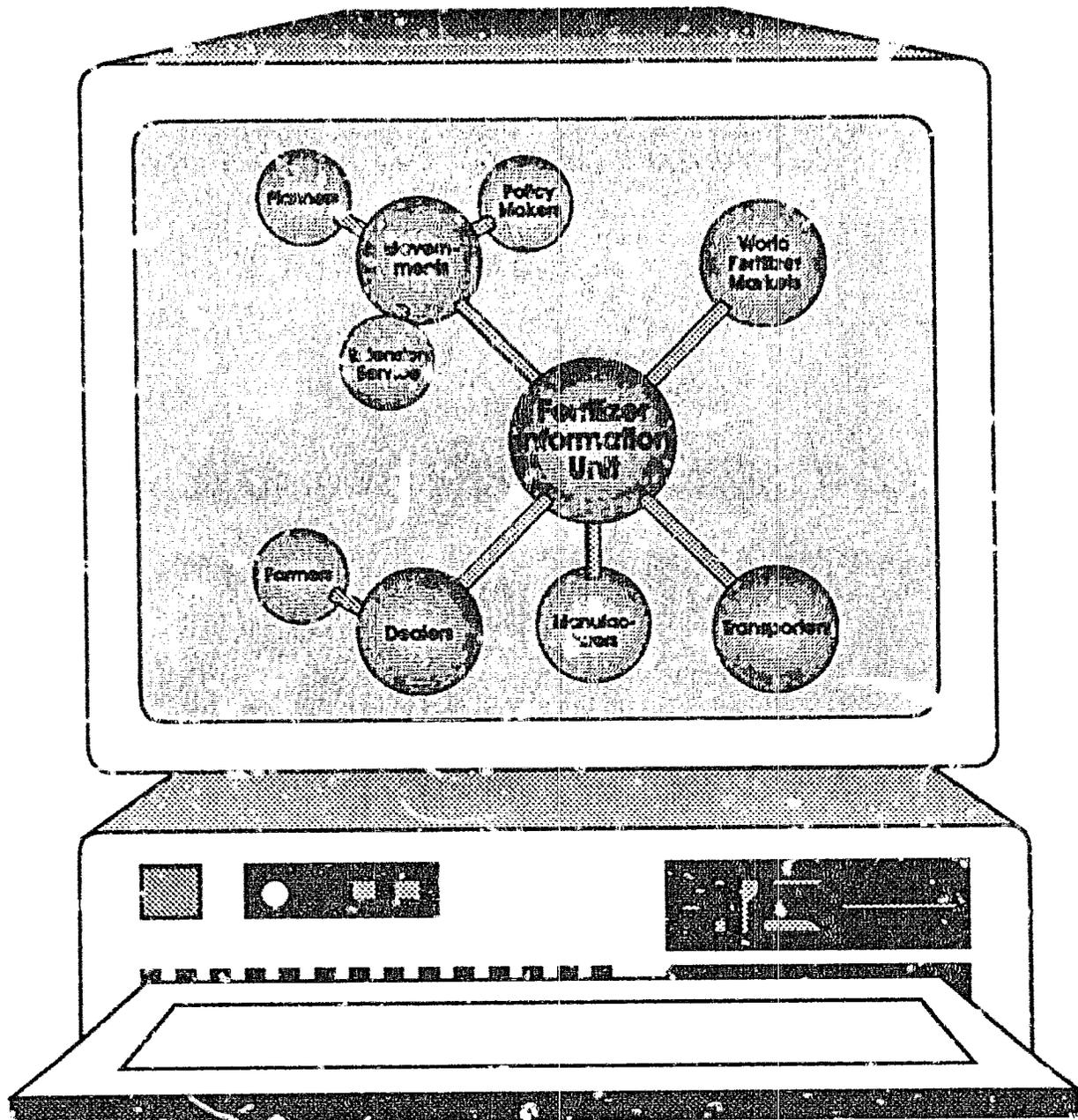


A Model for a Fertilizer Information Unit in Developing Countries



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Lewis B. Williams



IFDC

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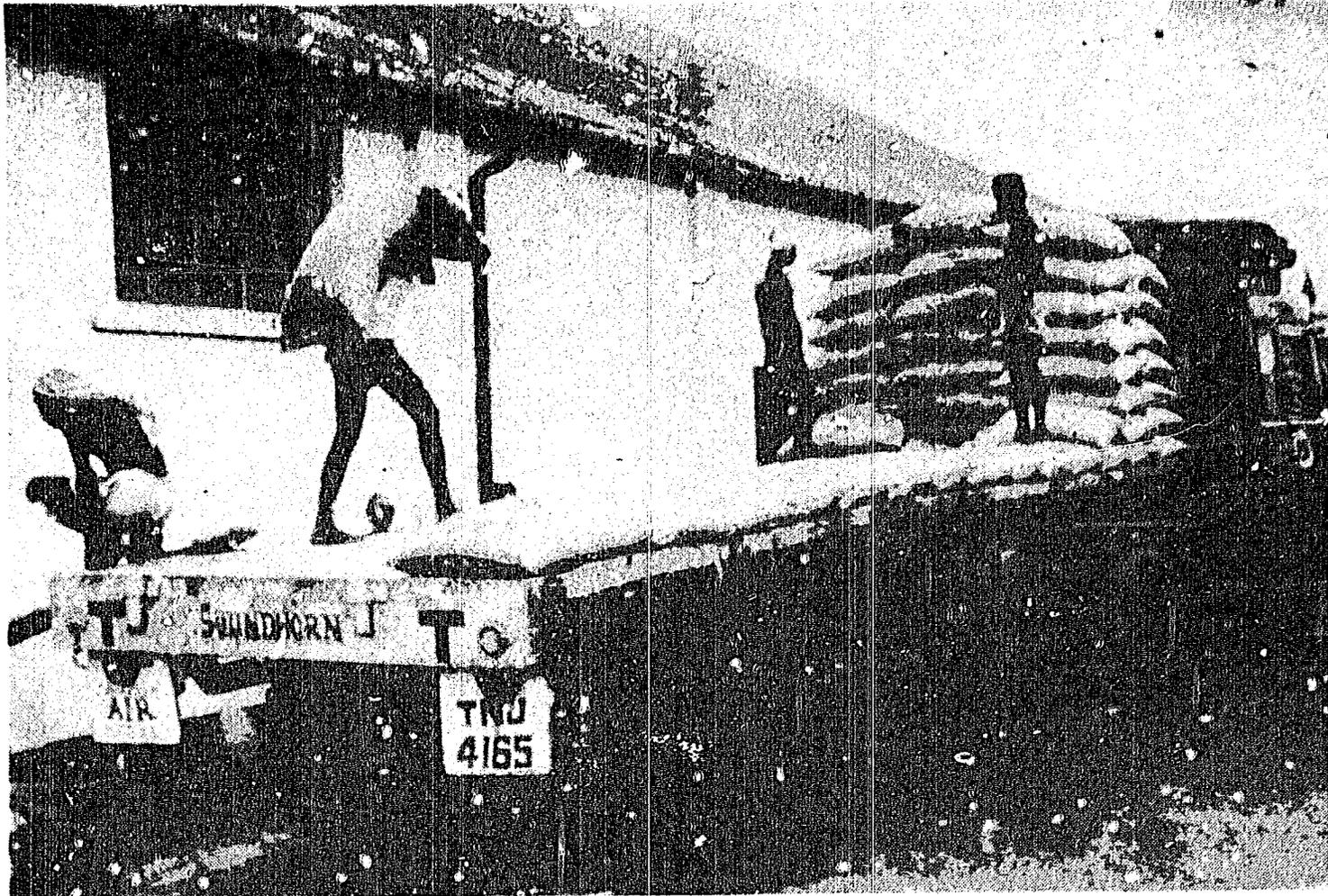
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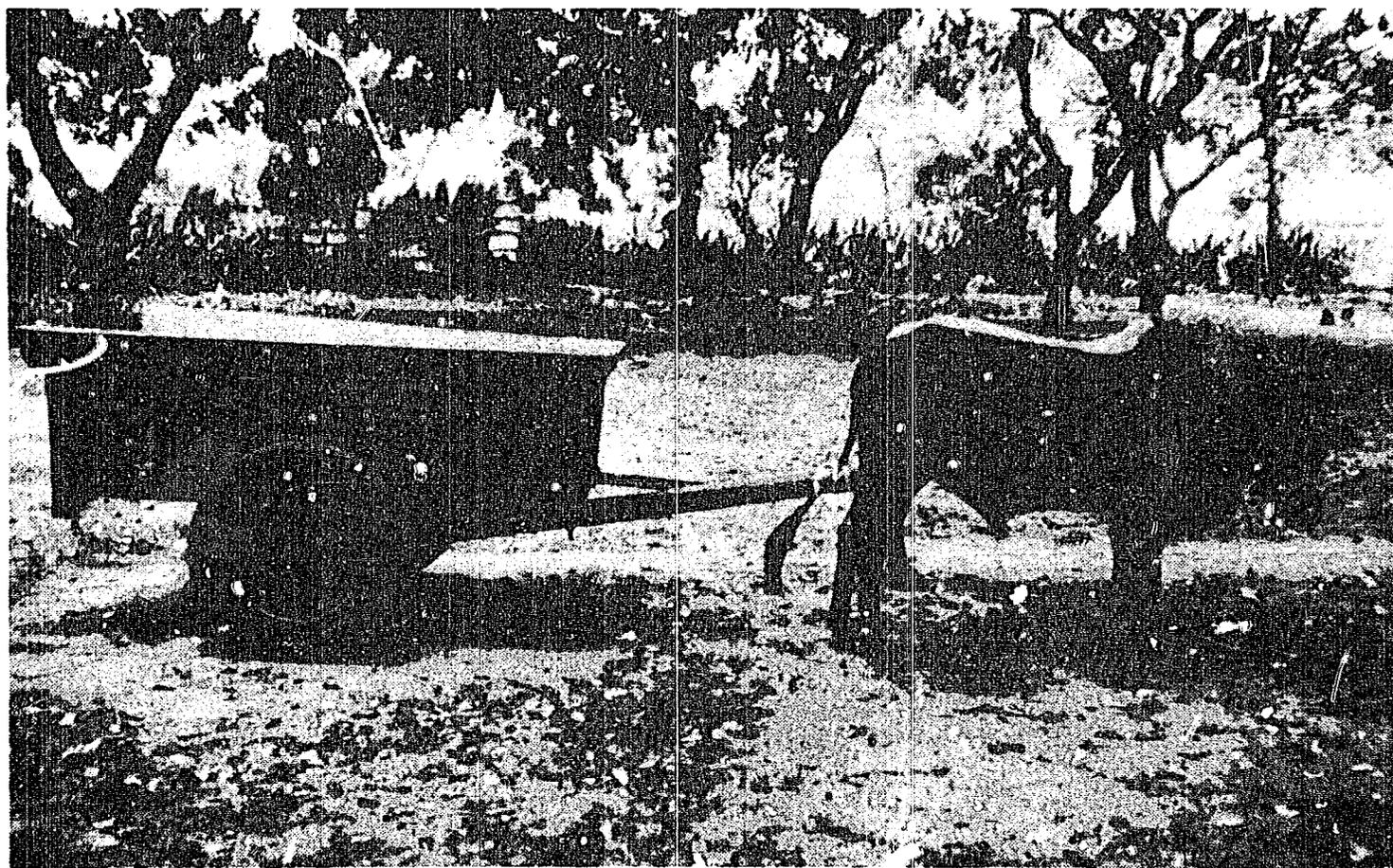
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Fertilizer to be transported to a retailer.



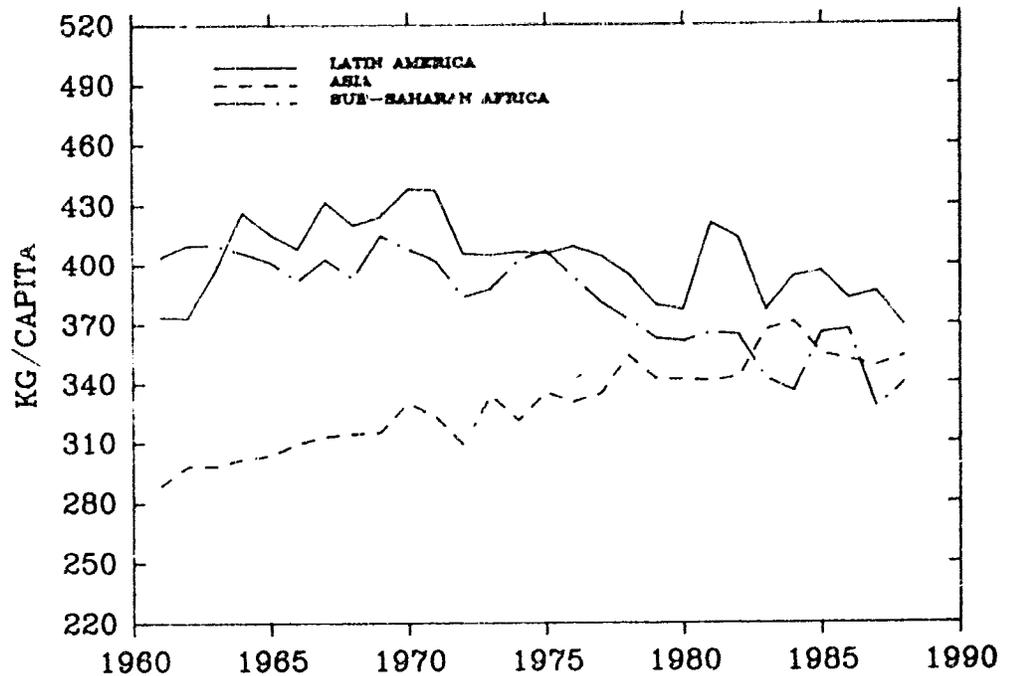
A farmer's transport waiting for a fertilizer supply.

The Need for a Fertilizer Information Unit in Developing Countries

The key ingredient in the operations of a successful fertilizer sector is accurate and timely information from which sound decisions can be made. A Fertilizer Information Unit (FIU) can provide the needed data and information. Sound operational decisions must be made to contend with controllable issues such as fertilizer products, prices, promotion, and distribution and also for the uncontrollable factors such as the economic, political and legal, and sociocultural environments. Both government and the fertilizer sector managers must have fertilizer data they can trust on which to base sound decisions. Basic information on fertilizer use by product, area, period of use, and crop is often not timely available in developing countries. Government policymakers themselves often make policies that hold back fertilizer use and thus have a negative effect. The purpose of a fertilizer sector is to supply the right quantity of the appropriate fertilizer to farmers on a timely basis and in the most cost effective manner. Constraints to the use of fertilizer have to be minimized or eliminated. Fertilizers, when used correctly, will increase crop production at a reduced cost per unit and contribute to the livelihood of the individual farmer and the overall economic growth of the agricultural community.

Government policymakers and fertilizer sector managers often contribute to constraints to agricultural production due to decisions made from inaccurate data. An FIU can provide trustworthy data and information.

FOOD PRODUCTION PER CAPITA 1960-1988



Source: *FAO Production Yearbook.*

Fertilizer use must increase if food production is to keep pace with population growth.

Food production per capita in many developing countries is declining. Population shifts to urban areas continue, leaving behind fewer farmers to produce more food for the city dwellers. In many developing countries, more fertilizer per hectare must be used judiciously if food production is to keep pace with both shifting and increasing populations. For example, in sub-Saharan Africa in 1990, only about 8 kg of nutrients per hectare is being used. The quantity of nutrients required to produce a specific yield has been established. Without the required nutrients, whether from existing soil sources, rainfall, organics, or commercial fertilizers, yields will suffer and plants can even die from starvation. Organic sources of plant nutrients are important and should be wisely used; however, it is virtually impossible for a nation to feed its people without an adequate and timely supply of fertilizers at the farmer level when needed. An efficient fertilizer sector will work through the existing situations and remove constraints to fertilizer supply and use.

To have a successful fertilizer sector that fulfills its mission, correct decisions must be made, and they can only be made by using good data and information. Intuitive management and simple guessing no longer have a place in modern fertilizer sector management.

Experiences in developing countries indicate that many government officials and fertilizer managers simply do not recognize the need for an FIU. The decisionmakers have never had a source of impeccable data and information and therefore do not fully appreciate the value of having such data available for use in making important decisions.

This situation is similar to that of the farmer who has spent years cultivating crops by hand and has never experienced the use of animal labor. He does not recognize the value of this type of labor. Once the farmer uses animal labor and it improves his economic situation, he will usually become dependent on this source of energy. There is a parallel for managers of a fertilizer sector. Once accurate and timely market information is available, they will become dependent on it and not revert to the guessing game.

There are many examples of previous fertilizer tenders for supplies being based on a best guess of needs rather than actual requirements. Tenders have resulted in fertilizer surpluses or shortages in many countries. For example, sometimes only 50% of the requirements were purchased. Other times, a 2-year supply accumulated before supply and demand were reconciled. It is more cost effective to import fertilizer than grain. Fertilizer consumption figures are unavailable or unknown. Often actual carryover stocks in inventory are not known. When this happens, management intuition is applied and whatever foreign exchange is available is used to tender quantities in roughly the same proportions as the past tenders. Government policymakers may even stipulate that cereal grains be imported rather than fertilizers, not knowing that it is more cost effective to import fertilizer than grain. Each ton of fertilizer imported

An effective fertilizer sector is one that is responsive to changing economic conditions, sensitive to social needs, and tailored to meet national goals.

Guessing about facts from which important decisions are to be made no longer has a role to play in modern day management.



Fertilizer moving to the farmer's field.

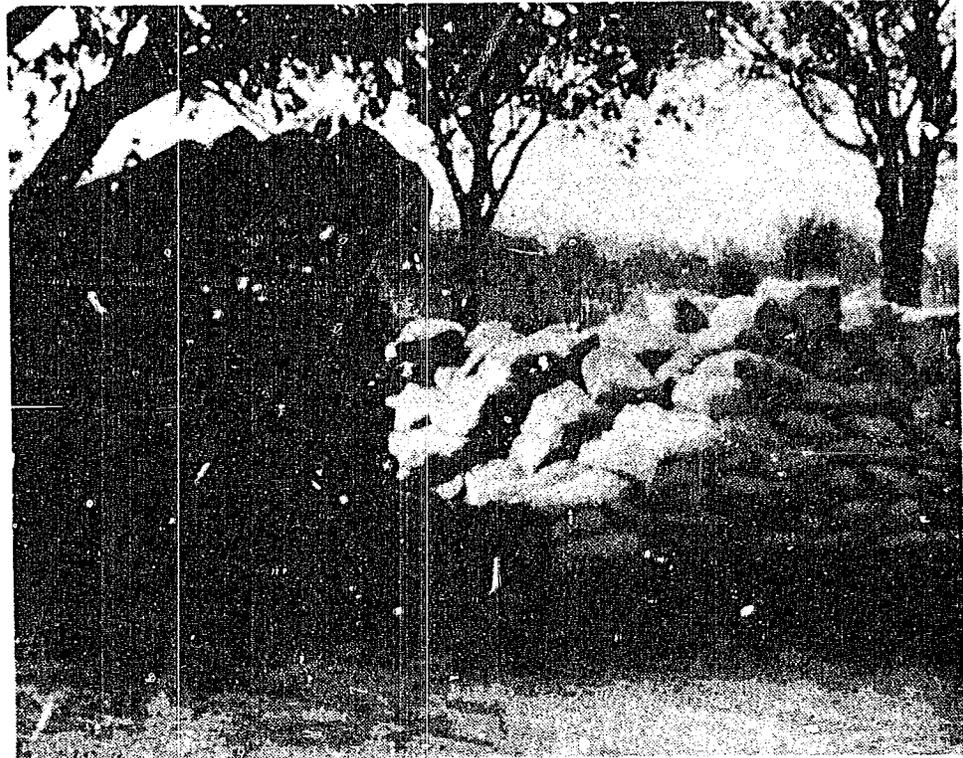
should produce 10-12 tons of grain. This increased grain production can provide a significant savings in freight cost alone. Once an FIU is established and starts to supply accurate fertilizer information, a demand for its services will be automatic. At this point, the FIU will easily prove its worth.

Role of an FIU

Purpose

The overall purpose of an FIU is to collect and maintain accurate data and information related to domestic and international fertilizer markets, analyze the data as they relate to national fertilizer policy, and convey the information to decisionmakers in government and fertilizer organizations on a timely basis.

An effective FIU is a means to an adequate supply of fertilizer and increased food production.



Temporary storage at a village retailer during the planting season.

Objectives

The specific objectives of an FIU are to:

1. Develop and maintain an accurate data base for fertilizer supply and demand on the domestic and international markets.
2. Provide government officials with accurate data and information on the national fertilizer market as required for decisions and policy issues.
3. Provide national fertilizer organizations (suppliers) and marketing channel members (distributors) timely and accurate data and information on the domestic and international markets as required for efficient management.
4. Assist national fertilizer organizations and distributors in the collection and analysis of fertilizer data.
5. Assist with and carry out surveys as required to accumulate accurate fertilizer data.
6. Analyze accumulated data and report data and information on a routine and special-case basis to government, national fertilizer organizations, distributors, and other members of the fertilizer sector.
7. Suggest means for monitoring increased fertilizer use and the impact on the environment and economy.
8. Suggest areas to government and members of the fertilizer industry where special attention is required.
9. Have one place to consolidate and maintain official fertilizer statistics.

The FIU objectives have a goal that is:

- Purposeful
- Realistic
- Reachable
- Challenging
- Specific

Sources of Information

An FIU will routinely collect, analyze, and disseminate fertilizer information. The flow of data and information through an FIU from sources to the users is diagrammed in Figure 1. An FIU will, to the extent possible, utilize the data collection capability of other organizations. An FIU can provide assistance with data collection, analysis, and training. Training can be in such areas as procedures, analysis, and reporting. Important sources of fertilizer data and information include international markets, national fertilizer organizations, marketing channels, government agencies, port authorities, manufacturers, importers, transporters, and farmers.

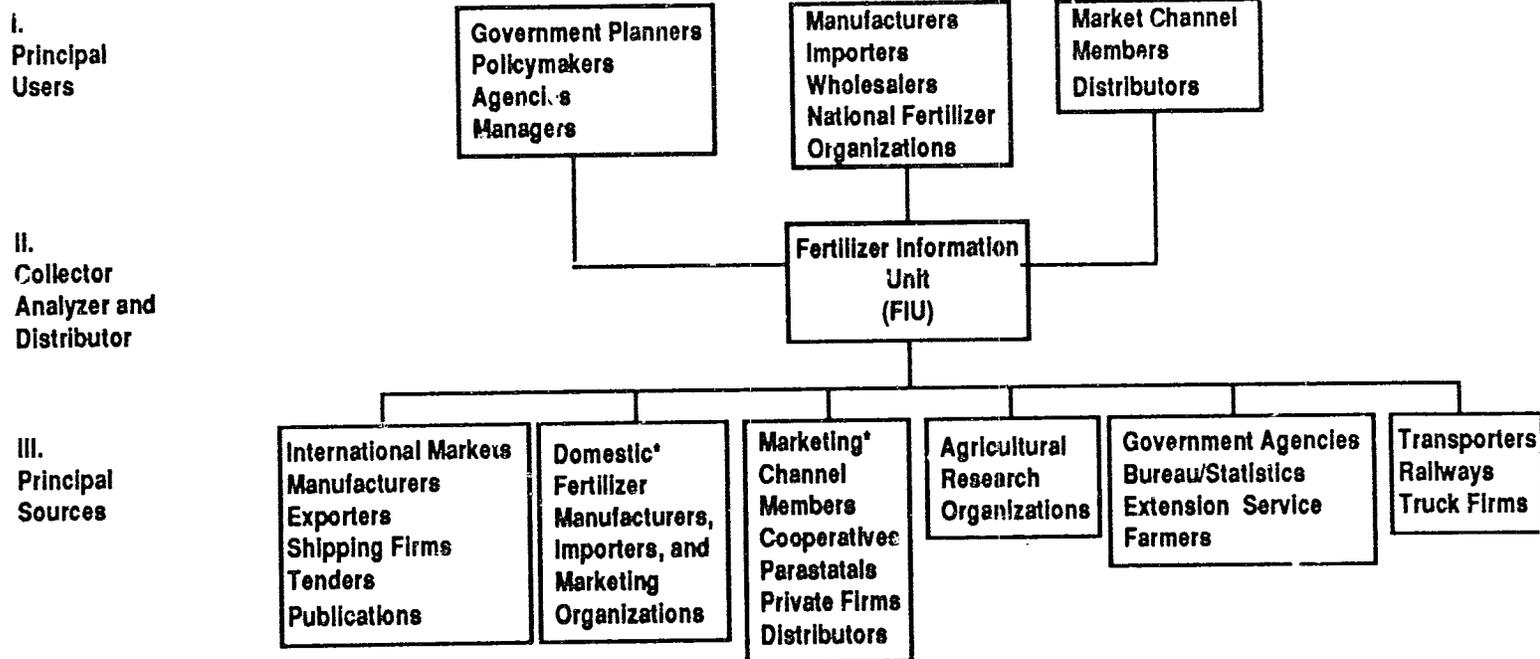


Figure 1. Sources of Fertilizer Data and Information Flow to Users.

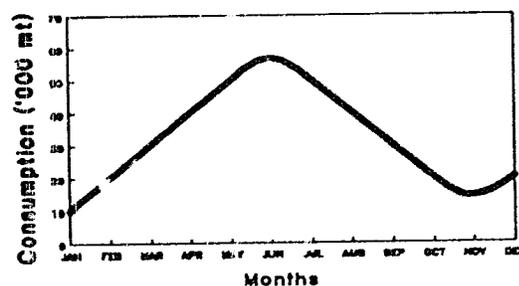
Key Reports

As the fertilizer sector grows and matures, the type and frequency of reports required by policymakers, fertilizer producers, and marketers will naturally change. Both primary and secondary data will be required to support the FIU information system. The secondary data can be obtained from such commercial marketing research organizations as British Sulphur, McGraw Hill, FERTECON, Maritime Research, Inc., etc., and will be used for international fertilizer data. Other sources could be government organizations, Bureau of Statistics, port authorities, farmer organizations, etc. Primary data will be limited to the domestic market and will be collected through surveys. In collecting primary data, the lowest practical geographical unit should be used. In most situations, the province or district will be the most practical; however, other and smaller units can be used. Initial data requirements needed to satisfy the FIU objectives are as follows.

1. Data and information requirements.	Timeframe
a. Domestic market information	
Fertilizer use by product type	Annual
Fertilizer use by province and district	Annual
Hectares of each crop grown	Annual
Fertilizer use by product type, crop, time periods, and province and district	Annual
Fertilizer product inventory levels by province	Annual
Fertilizer storage capacity by province and district	Annual
Freight rates	Semiannual
Number of retail outlets by type, province, and district	Annual
Fertilizer supply sources by province and type (i.e., donor, government, and commercial imports)	Annual

Tailor data and information to meet the specific needs of the user.

Graphs and charts are a good way to present data.



Women's role in food production is often not documented.

The number of hectares grown and the number fertilized are essential data.

Fertilizer marketing costs by marketing organizations	Annual
Fertilizer losses by marketing organization and by channel member	Annual
Fertilizer prices by product, by provinces, or districts	Annual
Farm-level crop prices	Annual
Fertilizer and crop price relationships	Annual

b. International market information

International fertilizer market for relevant products used in the domestic market	Monthly
World fertilizer supply-demand relationships	Ongoing
Freight rates for oceangoing cargos	Monthly
Technological developments relative to the domestic fertilizer market	Ongoing
Prices of comparable products in neighboring countries	Annual

Communication is the transfer of information via an understandable message from a sender to others.

Communication can be spoken, written, and nonverbal—select the most appropriate method to transfer data and information.

2. Analytical Reports

The FIU will be required to generate the following fertilizer situation reports.

Type	Frequency
a. Domestic supply	Semiannual
b. Stock levels by products, provinces, or districts	Monthly
c. Fertilizer sales by products	Semiannual
d. Fertilizer used by crops	Annual

e.	Fertilizer situation bulletin with: Status of Imports and production Distribution patterns Losses Constraints Prices	Monthly
f.	International market prices	Monthly
g.	International fertilizer market situation	Annual
h.	Farmer crop-fertilizer price relationship	Annual

Time of Establishment

It takes time to establish an FIU. Everything will not come together at once, nor will the unit immediately begin to operate efficiently. Some forward planning is necessary to prevent a loss of personnel time while waiting for equipment or for the next fertilizer season to commence.

The ideal time to start operation of an FIU is the beginning of the fertilizer year. The benefits of starting at the beginning of the fertilizer year include:

1. A clear demarcation of the end and beginning of a fertilizer year.
2. Initiation of the monitoring process that can begin slowly and intensify as the season gains momentum.
3. Availability of data for the previous fertilizer year.



Fertilizer being applied through irrigation water. The use of fertilizer must be profitable.

Take time to build an effective FIU. In most situations it will take 10 to 12 months to make an FIU operational.

The start of the fertilizer year will naturally vary from country to country. For some, the fertilizer year will coincide with the calendar year. For others, it may start in the last part of the calendar year, as in September, October, or November. In others, it may commence in the first part of the year, like February, March, or April. Under most situations in developing countries, it will take a minimum of 10 to 12 months to plan, staff, purchase and receive equipment and supplies, arrange for office space, and have the FIU ready to operate. The goal would be to shorten the time period required as much as possible. For example, the FIU should be started in March if the unit is to be ready for a fertilizer year that begins in January. Figure 2 illustrates the time to start building the FIU, depending upon the months required to have it operational.

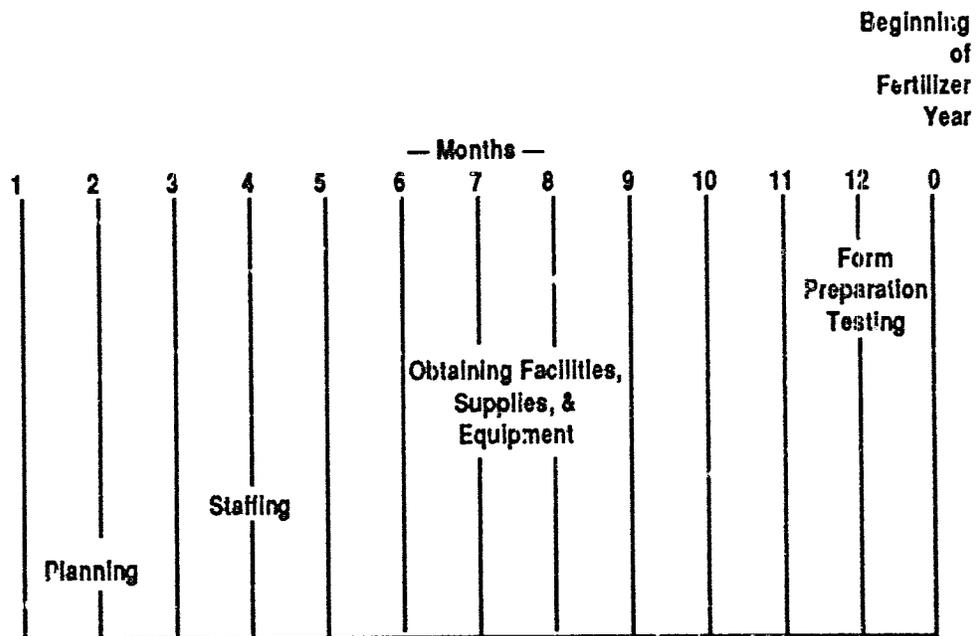


Figure 2. An Illustration of Time to Start Building an FIU Based on Months Required to Have It Operational.

Structure and Staffing

Organization

The organizational structure for the FIU should be a simple straight line based on operational procedures (Figure 3). One staff member will serve as the manager or coordinator but will also have program responsibilities. All staff will be workers. Clerks and secretaries will be responsible to the manager or to a senior staff member for specific job assignments. A huge staff with managers and assistants is not necessary in a normal FIU operation. Too many staff members can be a liability to an FIU.

Maintain a lean and productive staff. Overstaffing can cause as many problems as understaffing.

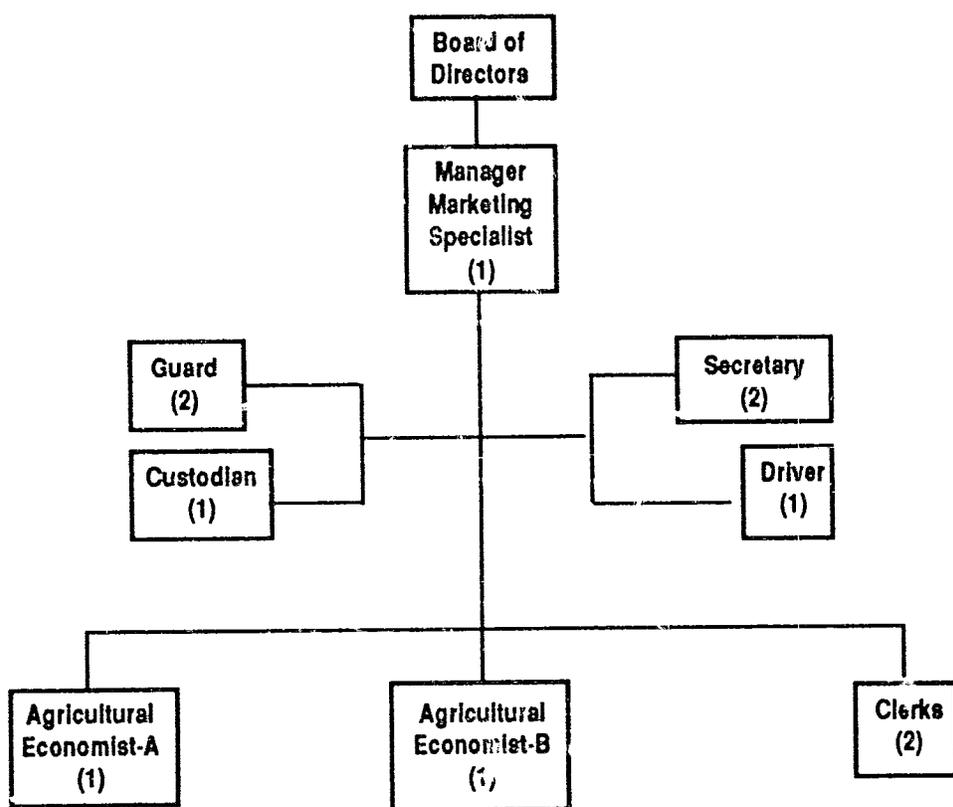


Figure 3. A Typical Organizational Structure for an FIU.

Under most situations, an initial staff of eleven (11) should be adequate to run the FIU. This includes three (3) senior technical staff and eight (8) support staff. The

number of staff members can be altered in the future after production time factors are established. Part-time employees and consultants can be employed to meet special needs, e.g., survey, special projects, etc.

Reporting

An individual with a fertilizer marketing background should be selected to serve as manager of the FIU. A person with a fertilizer marketing background will normally have a broader understanding of the role of an FIU. The other staff members will report directly to him or to other senior staff as assigned. He will divide responsibilities as indicated by job description and position titles. The manager is viewed as a coordinator of the team rather than a supervisor. The manager will report directly to the Chairman of the Board of Directors.

Positions

The success of the FIU will, to a large degree, depend upon the quality of staff selected to implement it. Only qualified staff members who are willing to perform their role and have a proven track record in their respective disciplines should be selected. The following qualifications and job descriptions will serve as a guideline for staff selection.

a. FIU Manager

Qualifications: A minimum of a B.S. degree in marketing or agricultural economics and preferably an advanced degree. Must have a minimum of 10-12 years' fertilizer marketing work experience. Should have experience in managing a marketing organization, be experienced in modern management techniques, and have good communication skills. Must be able to communicate in the local language.

Description of Duties: Responsible for planning and development of the FIU's operational guidelines and the unit's overall operational performance. Will be ultimately responsible for all data collection, analysis,

An FIU will only be as good as the people selected to represent it.

and timely preparation of the required market reports. He/she will also be responsible for negotiations and coordination with local consultants on the conduct of surveys and special studies. The FIU Manager will serve on the Board of Directors and will prepare an annual budget for approval by the Board. He/she will prepare an annual report and other reports required to indicate the progress of the FIU. The manager will also be responsible for soliciting donor funds.

Accountability: Reports to the Chairman of the Board of Directors.

b. **Agricultural Economist—A**

Qualifications: A minimum of a B.S. degree in agricultural economics. A graduate degree would be beneficial. Should have a minimum of 5 years of experience in data collection and analysis with 2 of those years in fertilizer data collection. A working knowledge of the domestic and international fertilizer market is required. Experience in the use of computerized spreadsheets (i.e., Lotus 1-2-3) is required. Must have good communication skills and be able to communicate in English and the international language used in business in the area.

Description of Duties: Will be primarily responsible for monitoring the international fertilizer markets. Will provide routine reports to clients on the international fertilizer market, including information on current prices and trends, ocean freight rates and trends, supply sources, and the world fertilizer supply and demand outlook. Will assist with collecting and analyzing domestic fertilizer data as needed.

Accountability: Reports to Manager of the FIU.

Job descriptions setting forth activities and reviews at end of the year to determine accomplishments are excellent management tools.

c. **Agricultural Economist—B**

Qualifications: Basically the same qualifications as stated for Agricultural Economist—A.

Description of Duties: Will be primarily responsible for monitoring the domestic fertilizer market. Will be responsible for the collection, analysis, and dissemination of domestic fertilizer market information including information on demand, procurement activities by local suppliers, import arrivals, domestic consumption patterns, retail fertilizer price and crop price analyses, fertilizer inventory positions, and domestic fertilizer marketing costs.

Accountability: Reports to the Manager of the FIU.

d. **Clerk (2)**

Qualifications: Must have a minimum of 2 years' work experience in tabulating survey information, census, or market research analysis or similar work. Experience in office procedures and the use of office equipment is essential. Academic qualifications include at least 2 years of college work or its equivalent.

Description of Duties: Will be responsible for entering data into computer. Will assist the senior staff members in tabulating, analyzing, and retrieving data. Will assist with filing data, which will arrive in the FIU from different sources.

Accountability: Will report to the Manager of the FIU directly and to the Economists for specific assignments.

e. **Secretaries (2)**

Qualifications: Must have a minimum of 3 years' office work experience. Must have word processing computer capability and the ability to use telex, fax, typewriter, and other office equipment. Must have a good knowledge of the local language and English and excel in communication skills.

Accountability: Will report directly to the Manager of the FIU or as assigned to the senior staff.

f. **Driver (1)**

Qualifications: Should have a minimum of 5 years' experience driving passenger cars. The track record should be relatively free of road accidents and mishaps. Must be able to pass seeing and hearing standards established for safe driving.

g. **Guards (3)**

A total of three (3) guards is recommended to allow for holidays, health, and leave. It may be possible to manage the security of the FIU with only two (2) guards, depending upon individual country requirements.

Qualifications: Should have a minimum of 3 years of security work experience, preferably on residences or office buildings. Should be of large stature. Must have a track record of successful security management without mishaps. Must be able to communicate in the local language and have a speaking knowledge of English, Spanish, French, or the international language used in the area.

h. **Custodian (1)**

Qualifications: Should have a minimum of 3 years' experience in cleaning and maintaining an office building or similar structure. Must be strong enough to perform the cleaning tasks. Must have a proven track record for protecting office supplies and equipment while carrying out custodial responsibilities.

Training

It may be necessary to provide some staff training in the beginning or at regularly scheduled intervals. There are two approaches for training that are appropriate.



A demonstration on fertilizer placement.

Training is the means of building an increased knowledge base and skills. The skills of every FIU employee should be developed to his or her maximum capability.

In the final analysis, it will be each country's own well-trained agricultural workforce that will improve its agricultural economy.

- c. An expert experienced in operating fertilizer information systems in developing countries can be brought in to conduct a short course designed especially for the FIU staff. The consultant expert should be able to provide training and also to advise on forms, reports, surveys, filing, analysis, and other operational procedures. (See technical assistance for details.)

- b. The second approach could be to send the FIU staff members for short course training on an as-need-be basis. There are several organizations that conduct suitable courses including universities and colleges, agricultural research organizations, and fertilizer companies. The following are some appropriate courses conducted by international and domestic organizations experienced in building and operating an FIU:
 - Fertilizer data collection.
 - Data analysis techniques.
 - Modern fertilizer marketing and management.
 - Report preparation.
 - Fertilizer sector development in tropical and sub-tropical countries.
 - Fertilizer procurement practices.
 - Use of computers and software packages for data storage and analysis.

Support Requirements

In order for an FIU to fulfill its intended role, support is needed in a number of areas including transport facilities, office equipment, published fertilizer marketing information, technical assistance, and institutional support. The following support requirements are suggested:

1. Vehicle—One vehicle is needed for official travel. The vehicle should not be used to collect staff and for domestic purposes on a scheduled basis. A vehicle that can travel rural roads in all weather is preferred.

2. Office equipment:
 - a. One telex machine.
 - b. One fax machine.
 - c. One photocopy machine.
 - d. Three desk-top computers (personal system series with a minimum of 640K of memory and 40 megabytes of storage capacity) with monochrome monitors and keyboards.
 - e. One high-speed wide-carriage printer (letter quality - Epson LQ 2500 or equivalent).
 - f. One uninterruptable power system (Topaz or equivalent).
 - g. Maintenance contracts on all equipment.
 - h. Software (i.e., Lotus 1-2-3, Wordstar, etc.)
 - i. Desk, chairs, tables, and other required office furniture.
 - j. Telephones.

3. Office supplies
Basic office supplies for the routine conduct of business (i.e., staplers, pencils, erasers, writing tablets, computer paper, computer diskettes, etc., as required).

4. Publications
 - a. *Green Markets*, McGraw-Hill Inc., telex MGH NY 62555. Published weekly. Provides information on world fertilizer market developments and international fertilizer market prices. Subscription price: about US \$880/year.
 - b. *Fertilizer Week*, The British Sulphur Corporation, telex 918918 SULFEX G. Published weekly. Provides information on world fertilizer market developments and international fertilizer market prices. Subscription price: about US \$1,300/year.
 - c. *Fertilizer International*, The British Sulphur Corporation. Published monthly. Provides information on current events in industry, capacity development, supply-demand outlook, etc. Subscription price: about US \$250/year.

Support for an FIU will be required from several organizations. A successful FIU brings together the forces of information for a powerful synergistic effect. It will help to create a new dimension for agricultural production.

Seek out and acquire the best sources of information required to meet the FIU needs.

- d. *Maritime Research Report*, Maritime Research Inc., 499 Ernston Road, Parlin, New York 08859 U.S.A. Published weekly. Provides information on general freight rate trends and charter fixtures. Subscription price: about US \$1,250/year.
- e. *Fertilizer Manual*, IFDC, P.O. Box 2040, Muscle Shoals, Alabama 35662. Reference book which provides detailed information on fertilizer-related issues. Cost: about US \$50.
- f. *World Directory of Fertilizer Producers*, The British Sulphur Corporation. Published at 5-year intervals. Provides information on fertilizer producers and traders worldwide. Cost: about US \$600.
- g. *Current World Fertilizer Situation and Outlook*, Food and Agriculture Organization of the United Nations (FAO), Rome, Italy. Published annually. Provides an overview of world fertilizer capacity developments and fertilizer supply and demand outlooks for the primary nutrients. Cost: free.
- h. Various publications available from IFDC including *Africa Fertilizer Review; Global Fertilizer Perspective, 1960-1995; International Fertilizer Market Information Sources; Africa, Asia, or Latin America Fertilizer Situation* available at a nominal fee.

5. Technical assistance

- a. Local support may be needed to supplement the core activities of the FIU in such areas as data base design, domestic fertilizer market surveys, etc. These services may be obtained from a university or college as well as various independent local consultants. A working relationship with the agricultural economics departments at the university or colleges is recommended. International organizations such as FAO, World Bank, and donors may assist with technical assistance if they are given a worthy proposal for consideration.
- b. An independent consulting organization should periodically review the performance of an FIU and make recommendations for improvements.

Expertise for special studies and situations can be employed from universities and the local workforce on a part-time basis as needed.

- c. During the startup period of an FIU, it is recommended that a technical advisor, experienced in the functions and management of fertilizer information organizations in developing countries, be assigned to the FIU for 12 months to assist with staff selection, developing operational guidelines, data collection and storage systems, analytical techniques, reporting, and staff training. This technical assistance can be continued on a one- to two-month basis at critical times during the first 3 years of operation.

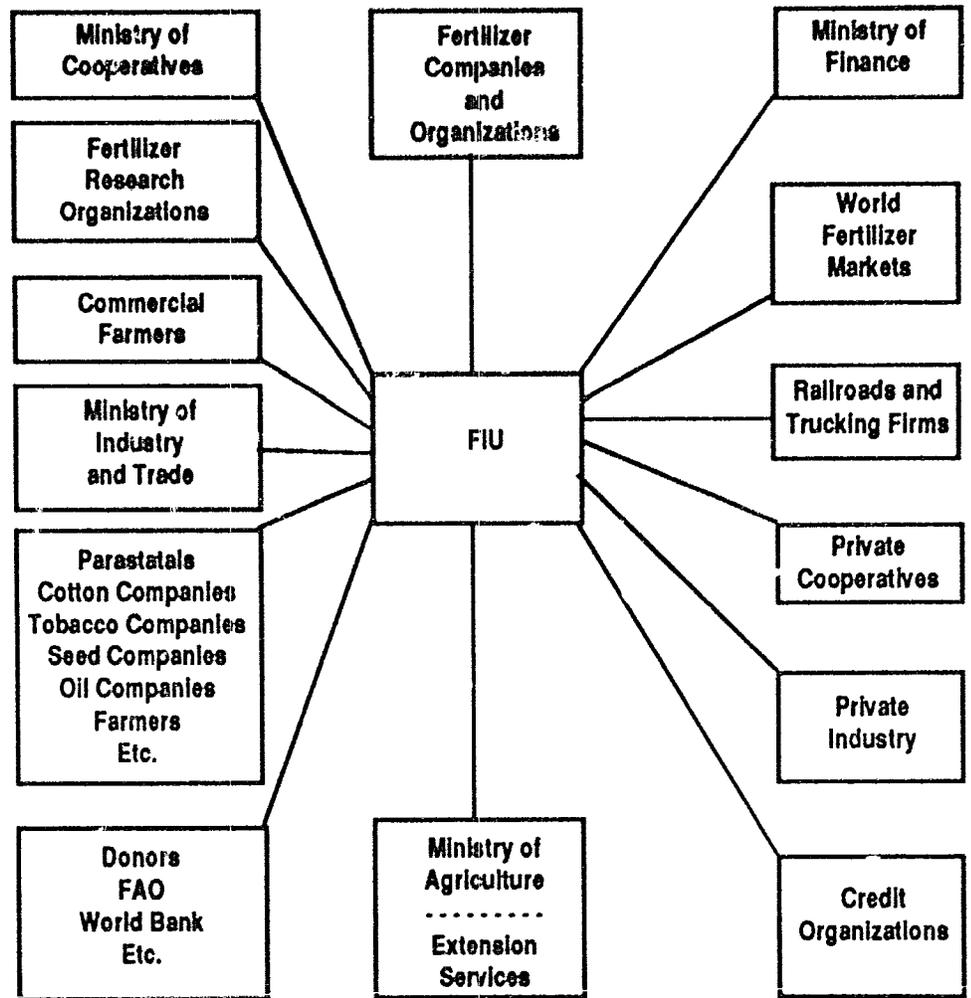
Institutional Linkage

For an FIU to achieve its objective, additional support and associated benefits will be required from institutions that can benefit from the services of the FIU in some way. The institutions that have an interest in agricultural development can support the FIU with technical services, funding, and public relations. The institutional linkage and support relationships are conceptualized in Figure 4. An FIU will depend heavily on support from those organizations as indicated. The type of support will depend upon the nature of the institution. An FIU will, in turn, provide beneficial data and information to those institutions for use in decisionmaking.

Location

In designing an FIU to meet the needs of developing countries for the short and long term, the most difficult part is not making decisions on its role, staffing, equipment needs, information sources, and budgets. The most difficult component to decide is always location. To whom should it report? Experiences in countries that have efficient fertilizer information systems bear out that attachment and location are important keys to a successful operation. Experience has also shown that if an FIU is buried in a ministry and given a low profile it will be poorly staffed and equipped, generally underutilized, and inefficient.

An FIU should have the freedom to serve all of the country's ministries and organizations that can benefit from its services.



An FIU should be able to collect data from all available sources.

Figure A. Illustration of Institutional Linkages Required to Support FIU Activities.

In making a decision on reporting linkages and the location of an FIU, one must constantly be aware that an FIU will collect data from all available sources as needed. The data and information generated will likewise be provided to all ministries and organizations that can benefit from it. Cutting across ministerial and organizational boundaries will often be necessary. For this reason, a certain amount of autonomy and authority to accompany the responsibility will be required. An FIU needs to be "housed" in such a way that support status and a free hand can be realized while carrying out its activities. To illustrate this

point, an example of possible use of fertilizer data and information by different ministries and organizations is cited.

Organization	Use of Data
Ministry of Agriculture	Planning, recommendations, crop prices, need for subsidies.
Ministry of Cooperatives	Voids in available supply, trends.
Ministry of Finance	Subsidy issues, foreign exchange requirements.
Ministry of Commerce and Industries	Use of indigenous agro-minerals, new fertilizer products, imports.
Ministry of Transportation	All transportation issues; e.g., tonnage, arrival date, etc.
National Commission for Planning	Planning, trends.
Extension Service	Educational programs and fertilizer use leaflets.
Commercial farmer organizations	Supply, new products.
Fertilizer companies and organizations	Retail voids, supply issues, trends.
Credit organizations	Credit needs of wholesalers, retailers, and farmers.
Railroads and trucking firms	Supply periods, trends in fertilizer types, packaging.



Data gathering at the farmer level.

The advantages of establishing an independent FIU with authority, responsibility, and accountability for its actions far outweigh those for locating it in a ministry.

Autonomy Concept

The advantages and disadvantages of locating an FIU in different ministries, cabinet offices, fertilizer organizations, cooperatives, and commercial farmer organizations have been studied and debated. At one time or another FIUs have been attached to most of these types of organizations. Most have failed due to vested interest and the lack of motivation and status. Most of the successful FIUs operating in the world today have a high degree of autonomy. The advantages of establishing an FIU as a free-standing, independent, and nonprofit organization far exceed those of locating it in any other organization. Some of the advantages associated with an independent location are as follows:

- a. Provides autonomy in operating.
- b. Provides a better means for cutting across organizational lines in data collection and information use.
- c. Basically eliminates the possibility of an organization dominating an FIU and the injection of vested interest.
- d. Provides more creditability to the data and information generated as being accurate and nonbiased.
- e. Significantly enhances the possibility of obtaining funding from donors.
- f. Can establish competitive salary schedules with private industry to attract capable personnel.
- g. Can employ and dismiss personnel and not be burdened with civil service standards.
- h. Provides a means for motivation and status building for the unit.
- i. Will not be a burden to government for staff, office space, and equipment because the FIU will be self-contained.

It is recommended that the FIU be a nonprofit organization, independent and with full autonomy for operating within its mandate as so stated in the objectives included in its charter. The FIU should be located near the capital city where a great deal of fertilizer data will be available and where a lot of the information generated will

be used. Hopefully, the capital city will also be near the major fertilizer operations. The charter for establishing the FIU will be granted by the government and should include authority to gather fertilizer data from all organizations connected with the fertilizer business.

Board of Directors

The FIU should have its own governing Board of Directors. A Board of up to nine members is recommended. The Board members will elect a Chairman from their rank. Board members are to be appointed for a 3-year term of office. Initially, the term of office should be staggered so that the rotational features can be incorporated. Board members may be appointed from the following organizations and for the indicated initial terms of office.

Organization	Initial Term of Office -----years-----
Fertilizer organization	3
Ministry of Agriculture	3
Ministry of Finance	2
Ministry of Cooperatives	2
Ministry of Commerce and Industry	2
Principle donor (ex-officio advisor)	2
Commercial farmers' organization	1
FIU	Permanent

The FIU Board of Directors will determine policy. The Managing Director selected by the Board is entrusted with the task of implementing the policy.

If there is more than one major fertilizer organization or company, the top two or three should be represented on the Board.

Duties of Directors

The Board of Directors determines the basic policies for the FIU operations. It approves all staff positions. It selects and hires the manager to whom it delegates the authority and responsibility for the administration of the FIU. The

manager reports to the Board of Directors through the Chairman and is accountable to it for the proper fulfillment of his responsibilities and the performance of assigned duties. The Board of Directors approves the annual budget, authorizes major expenditures, and keeps the donors informed on the progress of the institute. The members of the Board of Directors are appointed by the supporting organizations in accordance with the charter for the FIU. The FIU bylaws will stipulate the operational procedures to be followed.

The following are some of the specific duties and responsibilities of the Board:

1. Meet periodically as provided by the bylaws to review the results of the operations and to establish policies for execution by the manager.
2. Evaluate and authorize major expenditures where such authority has not been delegated.
3. Establish limits of authority for the manager and other management personnel.
4. Appoint a firm of certified public accountants to conduct an annual audit.
5. Continually appraise the effectiveness of the management team in carrying out the policies of the FIU.
6. Inform the supporting organizations periodically of the FIU's progress.
7. Solicit funds from donors to support the FIU operations.

Selecting Directors

In selecting a member for the Board of Directors, each organization should give consideration to the individual that can best guide the FIU and enable the sponsoring organization to benefit from the FIU. As examples, the

Ministry of Finance may wish to appoint a member from the Central Statistic Office (CSO) because it is involved in fertilizer statistics. By the same reasoning, the Ministry of Agriculture may wish to appoint a Board member that is knowledgeable about fertilizer planning or marketing. The Board member can provide a complementary benefit to the host organization and the FIU at the same time.

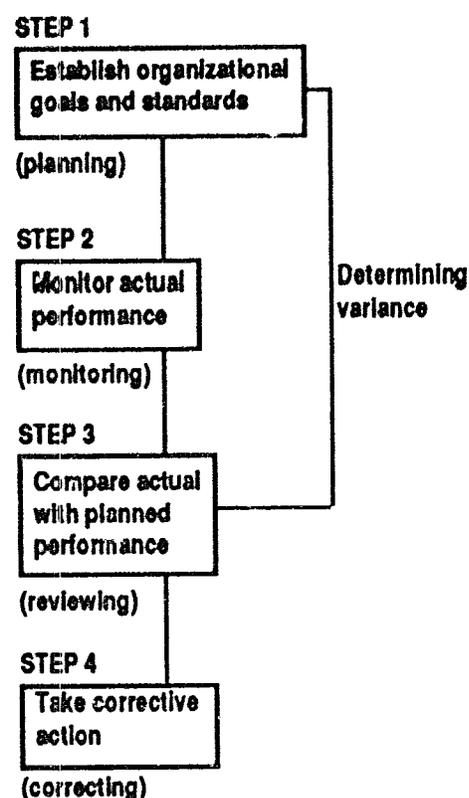
FIU Controls

There are three basic levels of controls that will prevent the FIU from becoming an unwieldy organization with overstaffing, venturing into activities beyond its mandate, and the mismanagement of funds. The first control is the charter for creating the FIU. The charter granted by the government gives the authority for creating the FIU and will indicate the business of the FIU. It will indicate location, powers, objectives, and the right to establish bylaws to govern the operations. Should the FIU divert from its mandate as cited in the charter, the government can recall the charter and stop operations. The subjects normally covered in a charter are presented in Appendix A.

The second level of control is the FIU Board of Directors. The Board has the responsibility for establishing operational procedures cited in the bylaws that coincide with objectives as stated in the charter. The bylaw is an adjunct to the charter and states the rules adopted by the FIU for governing its staff and the regulation of its activities. Activities normally covered in bylaws are given in Appendix B. The Manager of the FIU reports to the Chairman of the Board and follows a job description approved by the Board. By monitoring activities, as measured against an overall FIU workplan, the Board controls the center's activities.

The third level of control is the FIU Manager. Detailed job descriptions for each employee should be prepared. The job description states the areas of activities and gives the limits of responsibility and authority. A progress report will track the employee performance against stated objectives. The Manager directs the employee's activities.

Management will track FIU results.



The Government controls the FIU through the charter granted for its operation.

A detailed budget is necessary for a successful operation.

There is no reason to start an FIU if it cannot be continued and sustained for several years.

Budgets

For all practical purposes, it is impossible to produce a budget that will have application in all developing countries. There are too many variables to consider, especially concerning the domestic costs of salaries, buildings, equipment, etc. Another variable is the foreign exchange components. A hypothetical budget is, however, given in Table 1 for two reasons: (1) a detailed budget is essential in an efficient operation, and very often it is not adequately prepared; (2) a budget will be necessary for funding purposes. A budget will indicate the potential donors and the amount of commitment that will be required long term to keep the FIU operating efficiently. There is no reason to start an FIU if it cannot be sustained for several years. Generally, it takes a minimum of 3-5 years for an FIU to achieve its full impact. A commitment to long-term funding in the beginning is essential. The budget shown in Table 1 is only an illustration in U.S. dollars for items that should be included in a budget. A large portion of the budget as illustrated in U.S. dollars will normally be paid for in the local currency.

Funding

Funding for the FIU should be shared among the national organizations that will benefit from the services of the FIU. This will prevent dependence upon donors exclusively. Should donor funding be curtailed or eliminated in the future, the FIU would have a funding base and would thus avoid the extreme difficulties that could accompany a sudden loss of funds. Donors that might have an interest in helping to fund an FIU could be any of the donor countries, e.g., Japan, Germany, Netherlands, Norway, Finland, United Kingdom, United States, Italy, Canada, etc. Some of these countries have long-term commitments to agricultural development projects. Other potential donors would include the World Bank, FAO, IFAD, UNDP, and OPEC. A well-prepared project proposal is essential for presentation to these organizations.

Table 1. Illustration of a budget to establish and operate an FIU^a

Item	Year 1	Year 2 ^d
	----- (US \$) -----	
Staff:		
Manager ^c	17,000	21,300
Agricultural economist ^b	15,000	18,800
Economist ^b	15,000	18,800
Clerk (2) ^b	6,000	7,500
Secretaries (2) ^b	4,500	5,700
Driver/orderly	2,000	2,500
Technical advisor ^c	75,000	16,000
(i) Relocation	18,000	
(ii) Housing	25,000	
Equipment:		
Vehicle (2)	54,000	
Computers (3) IBM	20,000	
Computer software	1,500	
dBase/Lotus 1-2-3		
Photocopy machine	8,500	
Fax machine	3,000	
Telex	5,000	
Typewriters (2)	2,000	
Maintenance	1,000	2,000
Office facilities:		
Office rent	48,000	60,000
Utilities/telephone	2,000	2,500
Guards (3)	5,000	6,300
Other:		
Board meetings	1,500	2,000
Subscriptions	4,500	5,700
Office supplies	3,000	3,800
Vehicle operating cost	2,500	3,300
Miscellaneous	6,500	8,500
Maintenance office	1,500	2,000
TOTAL	347,000	357,600

a. Illustrated in US \$. Actual amounts required would depend on cost for individual countries.

b. Includes basic salary and benefits.

c. Includes salary and benefits. Consultant experienced in developing an FIU will be required only if the expertise is not available in the host country.

d. Increase based on approximately 20%-30% inflation.

Results

A timely supply of the appropriate fertilizers.



More food.



Appendix A

Items Normally Covered in an FIU Charter

A charter permitting the creation of an FIU can be general or specific. A general charter is normally supported with a by-law that details rules for governing the FIU. Most often, in a small operation with only a few employees, a detailed charter is all that is required. The charter should state that the FIU will have free access to data of relevant government agencies. Some of the items that should be included in a charter for an FIU operation are as follows:

1. Authority for establishing an FIU as granted by the government.
2. Articles:
 - a. Name of FIU.
 - b. Location.
 - c. Legal status.
 - d. Objectives.
 - e. Activities to be carried out.
 - f. Powers (consistent with laws and regulations of the country) to carry out activities.
 - g. Finance - sources.
 - h. Structure and governance.
 - i. Amendments (must be approved by government).
 - j. Relationship with other organizations.
 - k. Dissolution - how to dissolve should FIU cease to function.
3. Signature of government official granting charter.

Appendix B

Items Normally Specified in a Bylaw of an FIU

A bylaw is usually an adjunct to the charter granted by the government that permits the establishment of an FIU. The bylaw spells out in detail the rules for governing staff and activities of an FIU. The details will be specific to each individual FIU. The bylaw is established by the FIU Board of Directors. The following items should be included:

1. Title of FIU.
 - a. Definitions of terms.
2. Corporate seal.
3. Meetings of Board of Directors.
 - a. Notices.
 - b. Place.
 - c. Time.
 - d. Additional meetings.
 - e. Procedures at meetings.
 - f. Conflict of interest - vested interest to be declared and not voted in meetings.
 - g. Resignations.
4. Officers of the FIU.
 - a. Appointment of General Manager.
 - b. Selection of other staff.
 - c. Staff duties.
 - d. Vacancy.
5. Terms and conditions of employment.
 - a. Payment to Board and staff.
 - b. Accounting.
 - c. Disbursement of funds.
 - d. Contracts.
6. Audit.
 - a. Period of time.
 - b. Transmission.
7. Fiscal year.
 - a. Calendar.
 - b. Other.

8. Execution of documents.
 - a. Authority.
 - b. Procedures.
9. Bequests and donations.
 - a. Responsibility of acceptance.
 - b. Conditions of acceptance.
 - c. Contracts.
10. Amendments.
 - a. Notice of proposals.
 - b. Time requirements.
 - c. Board of Directors' approval.