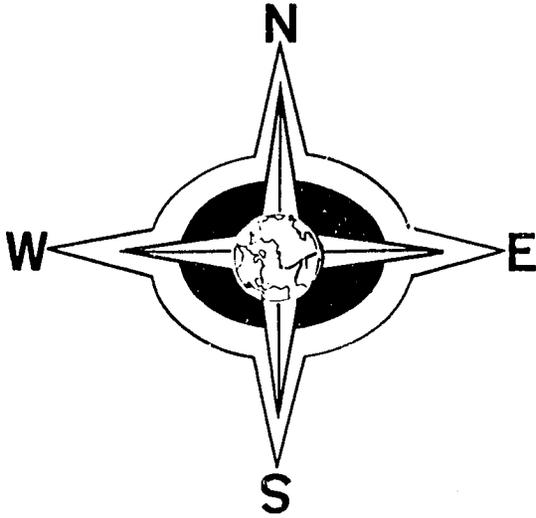


9310054

PN-AAS-857

IAN=40267



International Fertilizer Market Information Sources

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Abstract

Continuous monitoring and assessment of the international market conditions of key fertilizer products, raw materials, and intermediates are vitally important to the decisionmakers of fertilizer supply and marketing strategies in the developing countries.

To enable these countries to monitor and assess the international market conditions continuously, the decisionmakers need several types of information and must know where to locate such information. Furthermore, they must develop a mechanism for faster information access and must strengthen their information analysis capabilities.

This publication is an expanded and updated version of the publication issued in November 1980. It attempts to (1) identify the types of information that are considered essential for the decisionmakers and (2) highlight the published and unpublished information sources presently known to the author.

The information sources are discussed in four broad categories. The first category is the publications offered by commercial and noncommercial organizations for general public distribution. The second category is the computerized data services provided by commercial and noncommercial organizations on a subscription basis. The third category is the organizations with unpublished data files and reports that can be obtained on request. The fourth category is the international conferences and meetings regularly or occasionally held by commercial and noncommercial organizations. In this publication, a fairly comprehensive list of pertinent publications is presented. In addition, computerized data services are briefly described, and some examples of unpublished source organizations and international conferences and meetings are cited.

Acknowledgment

The author gratefully acknowledges the assistance of Betty J. Merritt, Mary S. Evers, and Jean S. Riley of the International Fertilizer Development Center (IFDC) Library and Shirley Nichols of the Tennessee Valley Authority (TVA) Technical Library in publication search and updating. He also wishes to express his appreciation to Travis P. Hignett (an IFDC consultant), the IFDC staff, and the TVA Marketing Research staff for some of the information.

Library of Congress Cataloging in Publication Data

Chuang, Yao H., 1931-
International fertilizer market information sources.

At head of title: IFDC.

"March 1984."

"Reference manual-R-4."

1. Fertilizer industry—Information services.

I. International Fertilizer Development Center.

HD9483.A2C48 1984 382'.4566862 84-9152
ISBN 0-88090-049-0

IFDC publications are listed in *Publications of the International Fertilizer Development Center*, General Publications IFDC-G-1, which is available free of charge.

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Layout by P. F. Sandlin
Cover by F. Rudolph

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Abbreviations Used in This Publication

Fertilizers and Chemical Formulas

AC	ammonium chloride
Al ₂ O ₃	aluminum oxide
AN	ammonium nitrate
AS	ammonium sulfate
ASN	ammonium sulfate nitrate
BPL	bone phosphate of lime
CAN	calcium ammonium nitrate
CC	calcium cyanamide
Cl	chlorine
CN	calcium nitrate
DAP	diammonium phosphate
Fe ₂ O ₃	ferric oxide
K ₂ O	potassium oxide
LNG	liquefied natural gas
LPG	liquefied petroleum gas
MAP	monoammonium phosphate
MgO	magnesium oxide
MOP	muriate of potash or potassium chloride
N	nitrogen
NH ₃	anhydrous ammonia
NOP	nitrate of potash or potassium nitrate
NP	compound fertilizer containing N and P ₂ O ₅
NPK	compound fertilizer containing three primary nutrients, N, P ₂ O ₅ , and K ₂ O
P ₂ O ₅	phosphorus pentoxide
SN	sodium nitrate
SOP	sulfate of potash or potassium sulfate
SSP	single superphosphate
TSP	triple superphosphate
15-15-15	a compound fertilizer grade containing 15% N, 15% P ₂ O ₅ , and 15% K ₂ O in the total product weight

Economic and Monetary

c.i.f.	cost, insurance, and freight
DWT	dead weight
f.o.b.	free on board
GDP	gross domestic product
GNP	gross national product
Rs	rupees
£	British pound
\$	United States dollar

Countries

U.K.	United Kingdom
U.S.	United States
U.S.A.	United States of America
U.S.S.R.	Union of Soviet Socialist Republics

Organizations

ABOCOL	Abonos Colombianos, S.A.
ACDI	Agricultural Cooperative Development International
ADAB	Australian Development Assistance Bureau
ADB	Asian Development Bank
ADIFAL	Asociación para el Desarrollo de la Industria de los Fertilizantes de América Latina, A.C.
AFCFP	Arab Federation of Chemical Fertilizer Producers
AfDB	African Development Bank
AGCD	Administration Générale de la Coopération au Développement
AIC	Agricultural and Industrial Chemicals, Inc.
AID	Agency for International Development
AIM	Asian Institute of Management
ALIA	América Latina Internacional Asociados, S.A.
AMSULEX	American Sulphur Export Company
ANDA	Associação Nacional para Difusão de Adubos
APC	Azote et Produits Chimiques SA
APPI	Asosiasi Produsen Pupuk Indonesia
ASPAC	Asian and Pacific Council for Food and Fertilizer Technology
AVRDC	Asian Vegetable Research and Development Center
BADEA	Banque Arabe pour le Développement Economique en Afrique
BRGM	Bureau de Recherches Géologiques et Minières
CFI	Canadian Fertilizer Institute
CGIAR	The Consultative Group for International Agricultural Research
CHEMEX	Chemical Exchange International
CIAT	Centro Internacional de Agricultura Tropical
CID	The Consortium for International Development
CIDA	Canadian International Development Agency
CIMMYT	Centro Internacional de Mejoramiento de Maíz y Trigo
CIP	Centro Internacional de la Papa
CLUSA	Cooperative League of the United States of America
COFAZ	Compagnie Française de l'Azote
COPEBRAS	Cia. Petroquímica Brasileira
CRC	Central Resources Corporation
CSIRO	Commonwealth Scientific and Industrial Research Organization
DANIDA	Danish International Development Agency
DSE	Deutsche Stiftung für Internationale Entwicklung
EMC	Entreprise Minière et Chimique
ENFRSA	Empresa Nacional de Fertilizantes, S.A.
ESCAP	Economic and Social Commission for Asia and the Pacific (United Nations)
ESPINDESA	Española de Investigación y Desarrollo S.A.
FADINAP	Fertilizer Advisory, Development, and Information Network for Asia and the Pacific
FAI	Fertiliser Association of India
FAO	Food and Agriculture Organization of the United Nations
FED	Fond Européen de Développement
FERTECON	Fertilizer Economic Studies, Ltd.
FERTICOL	Fertilizantes Colombianos, S.A.
FERTIMEX	Fertilizantes Mexicanos, S.A.
FERTISUL	Fertilizantes do Sul, S.A.
FERTRIN	Fertilizers of Trinidad and Tobago
FIAC/FAO	Fertilizer Industry Advisory Committee to FAO
GCBS	General Council of British Shipping
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit GmbH
IADB	Inter-American Development Bank
IADS	International Agricultural Development Service
IBPGR	International Board for Plant Genetic Resources
IBRD	International Bank for Reconstruction and Development

ICARDA	International Centre for Agricultural Research in the Dry Areas
ICEC	International Commodities Export Company
ICRISAT	International Crops Research for the Semi-Arid Tropics
IDA	International Development Association
IDRC	International Development Research Center
IFA	International Fertilizer Industry Association (originally International Superphosphate Manufacturers' Association and later International Phosphate Industry Association)
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFDC	International Fertilizer Development Center
IFFCO	Indian Farmers Fertiliser Cooperative, Ltd.
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Center for Africa
IMC	International Minerals and Chemical Corporation
IMF	International Monetary Fund
IMIC	International Marketing and Investment Corporation, S.A.
IMPHOS	Institut Mondial du Phosphate
INTERCHEM	International Chemical Company
INTERORE	International Ore and Fertilizer Corporation
IPI	International Potash Institute
IPOCHIM	Institute for Technological Engineering and Design for Chemical Industry
IRRI	International Rice Research Institute
ISNAR	International Service for National Agricultural Research
JAPCA	Japan Phosphatic and Compound Fertilizers Manufacturers' Association
JFI	Jordan Fertilizer Industry Company
JICA	Japan International Cooperative Agency
JPMC	Jordan Phosphate Mines Company
JUASECO	Japan Urea & Ammonium Sulphate Export Company
KFC	Korea Fertilizer Company
KFIA	Korean Fertilizer Industry Association
MARDATA	Maritime Data Network, Ltd.
MCV	Monómeros Colombo-Venezolanos, S.A.
MTC	Mitsui Toatsu Chemicals, Inc.
MUCIA	Midwest Universities Consortium for International Activities, Inc.
MULTIFERT	Empresa Multinacional Latinoamericana de Comercialización de Fertilizantes, S.A.
NFC	National Fertilizer Corporation of Pakistan, Ltd.
NFDC/TVA	National Fertilizer Development Center, Tennessee Valley Authority
NFSA	National Fertilizer Solutions Association
NPC	National Petrochemical Company
OCP	Office Chérifien des Phosphates
ODA	Overseas Development Administration
OECD	Organization for Economic Cooperation and Development
OECF	Overseas Economic Cooperation Fund
OPEC	Organization of Petroleum Exporting Countries
OPIC	Overseas Private Investment Corporation
PCS	Potash Corporation of Saskatchewan SLS, Ltd.
PEMEX	Petróleos Mexicanos, S.A.
PEQUIVEN	Petroquímica de Venezuela, S.A.
PETROFERTIL	Petrobras Fertilizantes, S.A.
PETROPERU	Petróleos del Perú
PHIBRO	Philipp Brothers, Inc.
PHOSCHEM	Phosphate Chemicals Export Association
PHOSROCK	Phosphate Rock Export Association
PPI	Potash and Phosphate Institute
QUIMIGAL	Química de Portugal, E.P.

SABIC	Saudi Basic Industries Corporation
SAEPA	Société Arabe des Engrais Phosphatés et Azotés
SAFCO	Saudi Arabian Fertilizer Company
SCPA	Société Commerciale des Potasses et de l'Azote
SECID	South-East Consortium for International Development
SIAPÉ	Société Industrielle d'Acide Phosphorique et d'Engrais
SIDA	Swedish International Development Authority
SIES	Société Industrielle d'Engrais au Senegal
SNEA[P]	Société Nationale Elf Aquitaine (Production)
SOQUIMICH	Sociedad Química y Minera de Chile, S.A.
STEC	Société Technique d'Entreprises
SUDIC	Sulphur Development Institute of Canada
TEC	Toyo Engineering Corporation
TFC	Taiwan Fertilizer Company
TFI	The Fertilizer Institute
TVA	Tennessee Valley Authority
UKF	Unie van Kunstmestfabrieken BV
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
USDA	United States Department of Agriculture
USDC	United States Department of Commerce
WARDA	West Africa Rice Development Association

Introduction

The ability to monitor the international market conditions of key fertilizer products, raw materials, and intermediates and to assess the situation a year or more in advance is vitally important to the decisionmakers of fertilizer supply and marketing strategies in the developing countries.

Lacking this ability, the countries that rely heavily on imports to meet requirements would find it difficult to acquire needed products to ensure an adequate supply, purchase with best possible timing and prices, or arrange for vessels for timely and economical delivery. Consequently, they would not be able to provide adequate and timely supplies of fertilizer to farmers or would have to incur unnecessarily large costs. Likewise, the countries that must augment their domestic market with export outlets in order to fully utilize production capacities of their own fertilizer plants would find it hard to capitalize on export opportunities

and lower costs of production per unit of product and thereby to strengthen the economic viability of their industry. By the same token, the countries that strive to develop their domestic production capabilities would have difficulties in optimizing the size and timing of their plant investment.

To enable these countries to monitor and assess the international market conditions continuously, the decisionmakers must know where to locate needed information, identify a mechanism for faster access, and strengthen their information analysis capabilities.

This publication attempts to (1) identify the types of information that are considered essential for the decisionmakers to make investment, procurement, or export decisions and (2) highlight the available published and unpublished information sources presently known to the author.

Information Needs

To assess the future international market conditions of key fertilizer products, raw materials, and intermediates, the decisionmakers must monitor what is happening to the production capacities and the supply and demand balances of these products and materials in the major exporting and importing countries and for the world. They also must know what is happening to the international price movements and ocean freight market for these products and materials. Additionally, they must be aware of what is happening to the annual rates of inflation in the major exporting countries. For most countries, ocean freight is a significant element of the total fertilizer acquisition cost from the international market. Freight cost savings, therefore, can be sizable if fertilizer procurement is properly planned and executed. The rates of inflation in the major exporting countries represent important factors to consider in assessing the international price outlook. Continuous escalation of inflation rates in the major exporting countries inevitably increases the international prices of fertilizer products and materials.

Products and Materials

The finished fertilizer products that are routinely traded regionally or worldwide include urea, ammonium sulfate (AS), ammonium nitrate (AN), calcium ammonium nitrate (CAN), triple superphosphate (TSP), diammonium phosphate (DAP), potassium chloride (commonly referred to as muriate of potash [MOP]), potassium sulfate or sulfate of potash (SOP), and some compound fertilizers such as 15-15-15. Key raw materials and intermediates which go into one or more of the said fertilizer products and which are internationally traded are phosphate rock, sulfur, natural gas, liquefied natural gas (LNG), naphtha, heavy fuel oil, liquefied petroleum gas (LPG), anhydrous ammonia (NH_3), sulfuric acid, and wet-process phosphoric acid. Natural gas, LNG, naphtha, heavy fuel oil, and LPG are important alternative feedstocks for NH_3 . NH_3 , in turn, is a basic ingredient for products such as urea, AS, AN, CAN, and DAP. Phosphate rock, sulfur, sul-

furic acid, and phosphoric acid are essential direct or indirect raw materials for phosphate products such as TSP and DAP.

Natural gas is a gaseous hydrocarbon, and LNG, LPG, naphtha, and heavy fuel oil are liquid hydrocarbons. LNG is the liquefied form of natural gas, naphtha and heavy fuel oil are refined products of crude oil, and LPG is mainly a mixture of propane and butane. Natural gas is traded internationally in a gaseous form via pipelines or in the form of LNG via special tankers. These hydrocarbons differ in relative value as the ammonia feedstock because they vary in heating value, viscosity, and composition (particularly with respect to the relative content of carbon, hydrogen, and sulfur). Even for the same kind of hydrocarbons, product quality varies from producing location to producing location, attributed mainly to the hydrocarbon source. Natural gas can be associated gas or nonassociated gas. Naphtha and fuel oil have many grades. The naphtha grade best suited for the ammonia feedstock is straight-run light naphtha. Almost any type of heavy fuel oil can be used as the ammonia feedstock. However, Bunker C grade is the commonly used grade.

Phosphate rock is traded internationally in several grades, each with a different percentage of bone phosphate of lime (BPL) or percentage of P_2O_5 content. Two main groups traded in the international market are 68%-70% BPL and 70%-72% BPL. Export prices are usually quoted publicly based on 68% BPL and 72% or 75% BPL.

Sulfur comes from different sources. It is found as elemental sulfur (also called brimstone), metal sulfides in coal and mineral ores (such as pyrites), sulfates, hydrogen sulfide in natural gas, and organic sulfur compounds in crude oil. It is also recovered at oil refineries and in many industrial processes using fuel oil. By far, the two major sources of elemental sulfur for the international market are Frasch sulfur directly extracted from mines and recovered sulfur from desulfurization of oil and gas. Sulfur is sold in dry bulk and in the liquid (molten) form. Dry bulk sulfur may be "formed" (slated, prilled, or granular), or it may be in random lump sizes ranging to powder.

Prices

Fertilizer products, raw materials, and intermediates are sold internationally on a contract or spot basis. Published prices serve only as an indicator of recently finalized deals in the international market. To interpret these published prices for specific use, a decisionmaker needs to take into account several factors. These factors include quantity and timing of purchase, basis for transaction (f.o.b., c.i.f., or landed), method of payment, and other terms and conditions of sale.

Ocean Freight

The ocean freight market is too complex to describe briefly. Nevertheless, there are basically two types of international shipping arrangements for fertilizer products and materials and, therefore, two types of ocean freight rates. For shipping arrangements, a shipper may contact a steamship company to haul its cargo from one port to another by a regularly scheduled liner on a given route, or it may charter a vessel from a shipowner directly or indirectly through a ship broker (or a chartering broker) for a particular voyage on a trip or time basis. In the case of the former, the shipper pays a freight rate called a "conference rate" or liner terms. In the case of the latter, the shipper pays a "trip charter" rate or a "time charter" rate.

Most fertilizer products and materials are moved by chartered vessels on a trip basis. This is especially true for dry bulk and liquid shipments. Shipments by regularly scheduled liners are made when a shipper either has only a small quantity of bagged fertilizer to ship or has a large volume of bagged materials to move regularly between the same two ports. In the latter situation, the shipper would try to negotiate with member lines of a freight conference to establish a conference rate lower than the charter rate. A freight conference is a group of two or more vessel-operating carriers that provide international liner services for the carriage of cargo on a particular route or routes within specified geographical limits and that have an agreement or arrangement to operate under uniform or common freight rates. There are numerous freight conferences in the world. The freight rates established by a conference are called conference rates. Almost all of the chartered shipments are arranged through ship brokers since shipowners reportedly charge the same charter rates to a shipper whether the vessels are chartered through the ship broker or not. Ship brokers normally charter the so-called tramp steamers. They are the vessels not making regular trips but taking cargo when and where it is offered and to any port. The charter rates for tramp steamers are usually cheaper.

Charter rates for dry cargo are normally established in London, and charter rates for tankers are normally fixed in New York.

Inflation

The rate of inflation in a country is indicated in various ways, depending on intended uses. For example, consumer price index, cost of living index, wholesale price indices for all

goods manufactured or for only a certain product group, and the deflator of gross national or domestic product have been used as indicators. For assessing international fertilizer price outlook, the use of wholesale price index, the deflator of gross domestic product (GDP), or other appropriate indices is recommended. The World Bank uses a weighted average international price index (based on selected base years) for estimating future international fertilizer prices. This index is derived from the c.i.f. indices of U.S. dollar prices of manufactured exports for all manufactured goods from industrialized countries to the developing countries.

Specific Data Suggested

The specific types of international market-related information for key fertilizer products, raw materials, intermediates, ocean freights, and rates of inflation that the decisionmakers should seek to access and monitor are listed as follows:

Phosphate Rock

1. Reserve size, annual production capacity, and percentage of BPL—world total and by major exporting country.
2. Annual export quantity by percentage of BPL (68%-80% BPL)—world total and by major exporting country.
3. Annual import quantity by percentage of BPL—world total and by major importing country.
4. Annual consumption by country for direct application and for all applications.
5. Weekly or monthly export prices from major exporting countries for 68%, 72%, and 75% BPL calcined and noncalcined.
6. Specifications (percentage of ferric oxide [Fe_2O_3], percentage of aluminum oxide [Al_2O_3], percentage of magnesium oxide [MgO], percentage of chlorine [Cl], moisture, and particle size).
7. Long-term contracts.

Sulfur

1. Annual production capacity and product source (Frasch sulfur, recovered sulfur)—world total and by major exporting country.
2. Annual export quantity—world total and by major exporting country.
3. Annual import quantity—world total and by major importing country.
4. Annual consumption—world total and by country.
5. Weekly or monthly export prices for dry bulk and for liquid—by major exporting country.
6. Specification (percentage of carbon and ash).
7. Long-term contracts.

Natural Gas

1. Reserve size, annual production capacity, heating value, and percentage composition (of sulfur and methane)—world total and by major exporting country.
2. Annual export quantity by pipeline—world total and by major exporting country.
3. Weekly or monthly pipeline export prices—by major exporting country (contract, spot).

4. Annual pipeline import quantity—by major importing country.
5. Long-term contracts.

Liquefied Natural Gas

1. Annual production capacity, heating value, and percentage composition (of sulfur and methane)—world total and by major exporting country.
2. Annual export quantity—world total and by major exporting country.
3. Annual import quantity—world total and by major importing country.
4. Annual consumption—world total and by country.
5. Weekly or monthly export price by major exporting country.
6. Long-term contracts.

Naphtha

1. Annual production capacity, heating value, and percentage composition (of carbon and sulfur)—world total and by major exporting country.
2. Annual export quantity—world total and by major exporting country.
3. Annual import quantity—world total and by major importing country.
4. Annual consumption—world total and by country.
5. Weekly or monthly export price by major exporting country (preferably based on light naphtha).

Fuel Oil

1. Annual production capacity, heating value, percentage composition (of carbon and sulfur), specific gravity, and viscosity—world total and by major exporting country.
2. Annual export quantity—world total and by major exporting country.
3. Annual import quantity—world total and by major importing country.
4. Annual consumption—world total and by country.
5. Weekly or monthly export price (based on Bunker C grade) by major exporting country.

Anhydrous Ammonia

1. Annual production capacity and production by feedstock—world total and by major exporting country.
2. Annual export quantity—world total and by major exporting country.
3. Annual import quantity—world total and by major importing country.
4. Annual consumption—world total and by country.
5. Weekly or monthly export price by major exporting country.
6. Availability of vessels (size and number).

Sulfuric Acid

1. Annual production capacity and production by product source (primary production, by product)—world total and by major exporting country.
2. Annual export quantity—world total and by major exporting country.

3. Annual import quantity—world total and by major importing country.
4. Annual consumption—world total and by country.
5. Weekly or monthly export price—by major exporting country (based on 98% acid).
6. Long-term contracts.
7. Availability of vessels (size and number).

Phosphoric Acid (Wet Process)

1. Annual production capacity and production—world total and by major exporting country.
2. Annual export quantity—world total and by major exporting country.
3. Annual import quantity—world total and by major importing country.
4. Annual consumption—world total and by country.
5. Weekly or monthly export price—by major exporting country (based on 52%-54% P₂O₅).
6. Long-term contracts.
7. Availability of vessels (size and number).

Finished Fertilizer Products¹

1. Annual production capacity and production—world total and by major exporting country.
2. Annual export quantity—world total and by major exporting country.
3. Annual import quantity—world total and by major importing country.
4. Annual consumption—world total and by country.
5. Weekly or monthly export prices—by major exporting country.
6. Year-end inventory—world total and by country.
7. Physical properties and chemical composition.

Ocean Freight Rates

1. Conference rates for key fertilizer products, intermediates, and raw materials between ports in geographical areas of interest.
2. Trip charter rates for key fertilizer products, intermediates, and raw materials between ports in geographical areas of interest.

Inflation Rates

1. Annual rates of inflation in the major exporting countries of key fertilizer products, intermediates, and raw materials.

1. Urea, AS, AN, CAN, DAP, TSP (granular and powdered), MOP (standard, coarse, and granular grades), SOP, NPK, and other NP fertilizers. AN can be loaded and unloaded only at a limited number of specified ports because of explosion hazards. Some NPK compositions are also restricted because of safety hazards (such as those which are subject to propagated thermal decomposition when ignited).

Information Sources

Published and unpublished sources of the suggested types of information are numerous and ever increasing. It is increasingly difficult for the decisionmakers to cope with and digest the mushrooming number of information sources. To the best of the author's knowledge, there has not been a single source that is capable of meeting all of the information needs of the decisionmakers. All of the known information sources vary in the types of information they provide, the amount of data history kept, and in the scope and continuity of product and country coverage.

Basically, there are four broad categories of information sources available. The first category is the publications offered by commercial and noncommercial organizations for general public distribution. The second category is the computerized data services provided by commercial and noncommercial organizations to any interested user on a subscription basis. The third category is the data files maintained and the reports regularly or occasionally prepared by commercial and noncommercial organizations for internal use or for restricted distribution. The reports prepared and the data maintained by these commercial and noncommercial organizations often can be made available to outsiders on request. The fourth category is the international conferences and meetings regularly or specially held by commercial and noncommercial organizations.

Publications include periodicals and special or occasional reports distributed with or without a fee. Periodicals may be daily newspapers or newsletters, weekly reports, monthly bulletins, quarterly journals, or annual publications. Some publications highlight only fertilizer market-related news such as capacity change, capacity expansion, production, trade, and price movement, whereas others may also report pertinent numerical data regularly or irregularly. Some organizations such as the British Sulphur Corporation, Ltd., issue more than one publication. Quite often, some publications do nothing more than present the same set of news and data with different twists. The information or data may be transformed, rearranged, aggregated, partitioned, or graphically presented in different ways. Data history may also vary in coverage.

The relatively better known organizations that have published international fertilizer market-related information regularly or irregularly for public use are the commercial management consulting and information service firms such as the British Sulphur Corporation, Ltd. (United Kingdom), McGraw-Hill, Inc. (United States), SRI International, Inc. (United States), Fertilizer Economic Studies, Ltd. (United Kingdom), and International Trade and Mining News (Japan); United Nations (U.N.) organizations such as the Food and Agriculture Organization (FAO), U.N. Industrial Development Organization (UNIDO), and Economic and Social Commission for Asia and the Pacific (ESCAP); national and international research and service organizations such as the Fertiliser Association of India (FAI) and the International Fertilizer Development Center (IFDC); international and regional development assistance organizations such as The World Bank and the Inter-American Development Bank (IADB); and national government agencies such as U.S. Department of Agriculture (USDA), U.S. Bureau of Mines, and the Tennessee Valley Authority (TVA).

Computerized data services are the services provided by those organizations that build and maintain specific data banks on a computer and offer the updated computer reports (on data or processed information) to subscribers via telex or mail or for instant direct access from allowed cities in a given country or around the world via a keyboard-type telecommunications terminal. Currently, only four organizations are known to be offering computerized data services on international fertilizer market-related information; they are Fertilizer Economic Studies, Ltd. (FERTECON), the British Sulphur Corporation, Ltd., TVA, and McGraw-Hill, Inc.

Manufacturers' associations and other organizations such as fertilizer manufacturers with global business activities, fertilizer traders and brokers, multilateral and bilateral international development assistance agencies, international engineering and construction contractors, international research and service organizations, and national government agencies often maintain data files and develop reports for internal use or for restricted or controlled distribution. These data files and reports can be quite useful to the decisionmakers of fertilizer supply and marketing strategies in the developing countries. Good examples of this are the monthly, quarterly, annual, and special reports prepared and distributed by a manufacturers' association, such as the International Fertilizer Industry Association (IFA), to its member companies or by a major international trader such as International Commodities Export Company (ICEC) to interested parties. The annual reports prepared by fertilizer manufacturers for stockholders or regulatory agencies are also good examples. However, to obtain information from the unpublished sources, one must identify and develop effective personal contact with the relevant individuals within the source organizations.

Papers presented and information exchanged among participants at the major fertilizer-related international conferences and meetings can provide valuable insights into the international fertilizer market. For some conferences and meetings, published proceedings are prepared and distributed to participants. Often, published proceedings may be made available to nonparticipants at cost.

Better-known organizations for sponsoring fertilizer-related conferences and meetings are the British Sulphur Corporation, Ltd., IFA, the Fertilizer Institute of the United States (TFI), UNIDO, and the Fertilizer Industry Advisory Committee to FAO (FIAC/FAO).

In the following section, sources of specific information are presented category by category:

A. Fertilizer Market News and Data

1. **Publication**—Relatively significant publications will be highlighted in more detail. For other pertinent publications, publication title, publisher name, and annual subscription cost, or cost per copy will be listed only. Significant publications will be presented in Appendix A and other pertinent publications in Appendix B. Only publications in English are presented.
2. **Computerized Data Services**—The four known organizations are FERTECON; the British Sulphur Corporation, Ltd.; TVA; and McGraw-Hill, Inc. Types of

service offered, the subscription costs, and the address for each of these organizations are briefly described as follows:

a. FERTECON

Type of Service—Four telex services and three quarterly report services. The telex services include the nitrogen telex, the phosphate telex, the potash telex, and the sulfur/sulfuric acid telex. The nitrogen telex, sent every week, covers key market developments and price trends in NH_3 , AS, AN, urea, and N compounds. The phosphate telex, sent every week, covers key market developments and price trends in phosphate fertilizers, raw materials, and intermediates. The potash telex, sent every 2 weeks, covers the key developments and trends in MOP and SOP. The sulfur/sulfuric acid telex, sent weekly, covers world sulfur and sulfuric acid developments. All telex services have "supplements" in between when merited. The quarterly report services include the *Sulphur Quarterly*, the *Phosphate Rock Quarterly*, and the *Phosphate Fertilizer and Phosphoric Acid Quarterly*. Each quarterly report provides a regular analysis of short- and medium-term price and supply/demand situations. It includes a review of developments in the previous quarter, an analysis of the prospects for the next 12-18 months, and a discussion of the long-term outlook.

Subscription Cost—£1,000/year for Europe and North America and £1,400/year elsewhere for each telex service including free subscription to the FERTECON monthly report. £1,000/year for each quarterly report service.

Address—Fertilizer Economic Studies, Ltd.
150 Buckingham Palace Road
London, SW1V 9TR
United Kingdom (UK)

b. British Sulphur Corporation, Ltd.

Type of Service—Telex services and report-by-mail services. Telex services are international fertilizer market prices and sulfur market news.

The international market price telexes provide details of up-to-the-minute price trends in spot and/or contract transactions for NH_3 , AS, urea, phosphoric acid, TSP, DAP, NPKs, potash, sulfur, and sulfuric acid. They give f.o.b. price ranges of main export suppliers for each product. The telexes are sent weekly for the first seven products and every 2 weeks for the last three products. The sulfur market news, telexed monthly, covers the latest developments in the sulfur/sulfuric acid market, including production, export, and stocks of the major suppliers, contract/spot sales and prices, and new supply/demand sources.

The report-by-mail services are plant lists, statistics, monthly newsletter on market trends, and quarterly reports on market developments.

For the plant lists service, three standard reports (reports A, B, and C) are optionally available and can be updated bimonthly, semiannually, or annually. Details of more than 8,000 plants of fertilizer

products, raw materials, and intermediates are on file covering 1970 to 1986 or 1990. Earlier data history is also available. Materials covered are NH_3 , nitric acid, phosphoric acid, recovered sulfur, sulfuric acid, elemental phosphorus, and finished fertilizers. Report A lists operator's name, location, capacity by year, the startup year, designer, construction contractor, process type, feedstock, and product end uses. Report B lists operator's name, location, capacity by year, and total capacities by country, region, and the world. Report C lists total capacity by year by country, region, and the world.

For the statistics service, several optional reports, by country, on production, consumption, imports by origin, and exports by destination are available. Products covered are AS, AN, CAN, ammonium sulfate nitrate (ASN), calcium nitrate (CN), sodium nitrate (SN), calcium cyanamide (CC), ammonium chloride (AC), urea, ammonia (anhydrous and aqua), nitrogen solutions, single superphosphate (SSP), TSP, DAP, basic slag, fused phosphates, ground phosphate rock, MOP, SOP, and nitrate of potash (NOP), potassium magnesium sulfate, crude potash salts, NPKs, phosphoric acid, phosphate rock, and all forms of sulfur. For finished products, supply/demand data are available from 1972/73² to the present and production and consumption data from 1955/56. Statistics for intermediates and raw materials are available from 1966. Two computer printouts are given in a year.

For the monthly newsletter on market trends, a monthly summary of developments in the fertilizer market with price news and informed comments for all the main fertilizer products, intermediates, and raw materials is given.

For the quarterly reports, the global supply and demand for a wide range of products are regularly reviewed. These quarterly reviews analyze salient developments in world production, consumption, and trade and include forecasts of supply, demand, and prices. The forecasts are updated once or twice a year. Regional forecasts of supply and demand identify the effects of recent events such as new capacity, plant closures, improvements in capacity utilization rates, and factors influencing consumption. The quarterly reports are available for a minimum of 1 year's subscription for phosphate rock, sulfur, potash, NH_3 , phosphoric acid, sulfuric acid, urea, and phosphate fertilizers.

Subscription Costs—For additional information on various data services and for subscription costs, an interested user should contact the British Sulphur Corporation, Ltd.

Address—Fertilizer Data Services
British Sulphur Corporation, Ltd.
Parnell House
25 Wilton Road
London, SW1V 1NH
United Kingdom

2. A reference to 2 consecutive years such as 1972/73 refers to 1 fertilizer year. All other references to years refer to calendar years.

c. TVA

Type of Service—Two fertilizer market-related data files on the General Electric time-sharing computer—the world fertilizer production capacity data file and the annual world fertilizer market statistics file. These data files, developed mainly for TVA's market development programs, are available for instant direct access by outsiders via a computer terminal. The files are accessible from 600 cities in the United States and over 90 cities in 22 other countries. The capacity data file covers data on current and future production facilities of fertilizer products, raw materials, and intermediates for 156 countries for 1967-85. It includes company name, plant location, products produced, contractor, process, feedstock, startup date (month and year), plant status, initial or ending year of production, and current and planned capacities. Products covered are NH_3 , AN, CAN, AS, nitrogen solutions, urea, nitric acid, CC, AC, phosphate rock, ammonium phosphate, nitric phosphate, SSP, TSP, basic slag, phosphoric acid (wet process and furnace), elemental phosphorus, superphosphoric acid (wet process and furnace), fused magnesium phosphate, MOP, SOP, NOP, sulfur, and sulfuric acid. The market statistics file contains annual data history of production, consumption, and trade of finished fertilizers (in nutrient tons) for 158 countries for 1962-82. Nitrogen products include AS, urea, AN, ASN, SN, CN, CC, ammonium phosphate, and other nitrogen and compound fertilizers. Phosphate products include SSP, TSP, basic slag, ammonium phosphate, and other phosphate and compound fertilizers. Potash products include SOP, MOP (over 45% K_2O and 20%-45% K_2O), crude salts to 20% K_2O , and other potash and compound fertilizers. Ground phosphate rock for direct application is not included.

To gain access to the TVA data files, a user must obtain a "user number" from the nearest General Electric office. Each file can be printed out only in standard formats unless a user programs the computer to do otherwise. Two optional standard formats for the capacity data file and three optional standard formats for the market statistics file are available.

Subscription Cost—TVA receives a royalty for file access and computer time used. The royalty helps to defray data and computer program storage costs but does not cover file maintenance or development costs. The cost of using the data file varies, depending on access location, report format, data amount extracted, and communication time with the computer. An interested user should contact the nearest General Electric office for more accurate information. To access the data files in the United States, a user pays \$100 to obtain a user number and a minimum charge of \$40/month whether a file is actually used or not. The user further pays TVA \$9.60 for accessing a file each time and pays General Electric for computer time used. Computer terminal rental depends on com-

munication speed and other features of a computer terminal. In the United States the monthly rental may be about \$100-\$350. There are other costs such as use of telephone lines and/or other telecommunication channels. The cost of data printout varies. For example, to print out capacity data for all products in a country like Indonesia for 1967-85, it would cost \$10-\$15 each time. To print out all market statistics for 1962-82 for a country, it would probably cost \$2 each time. For additional information an interested user should contact Marketing and Distribution Economics Section, Economics and Marketing Research Branch, National Fertilizer Development Center, Tennessee Valley Authority.

Address—Marketing and Distribution
Economics Section
Economics and Marketing Research
Branch
National Fertilizer Development
Center
Tennessee Valley Authority
Muscle Shoals, Alabama 35660
U.S.A.

d. McGraw-Hill, Inc.

Type of Service—A telex service (Green Markets News wire). The telex, sent every Thursday, covers a sample of U.S. domestic and international price quotes for fertilizer materials to appear in the upcoming issue of the weekly report, *Green Markets*. It also gives a brief summary of important news on all fertilizer materials.

Subscription Cost—For details, an interested user should contact McGraw-Hill, Inc.

Address—McGraw-Hill, Inc.
1221 Avenue of the Americas
New York, New York 10020
U.S.A.

3. Unpublished Sources

Sources for unpublished data or reports represent many types of organizations in public and private sectors. For convenience, these sources may be grouped into 12 types:

- a. Major international, regional, and national fertilizer manufacturers' associations.
- b. Major international trading and selling concerns.
- c. Major profit and nonprofit international management consulting and information services firms.
- d. Major fertilizer manufacturers.
- e. Major international engineering and construction contractors.
- f. Multilateral and regional development aid agencies.
- g. Bilateral development aid agencies.
- h. International agricultural research centers.
- i. United Nations and other public international development assistance organizations (other than development aid agencies).
- j. Major private, nonprofit, and autonomous development assistance institutions.

- k. National government agencies (other than development aid agencies).
- l. Other international development services organizations, including major national banks, colleges and universities, international training institutes, and voluntary organizations.

Example organizations within each of these types are given in Appendices C through N. Examples of fertilizer market-related reports or papers regularly or occasionally prepared for controlled or restricted distribution by some unpublished sources are listed in Appendix O.

4. International Conferences and Meetings—Better known international conferences and meetings on fertilizer market-related topics are as follows:

a. The British Sulphur Corporation—

The annual series of international conferences on various subjects in London, United Kingdom, or elsewhere.

Address: Parnell House, 25 Wilton Road, London SW1V 1NH, United Kingdom.

b. Fertiliser Association of India (FAI)—

The annual seminar in New Delhi, India. The 18th seminar, December 8-10, 1983.

Address: Near Jawaharlal Nehru University, New Delhi—110 067, India.

c. The Fertilizer Industry Round Table—

The annual meeting with published proceedings, usually in Washington, D.C.; Atlanta, Georgia; or Memphis, Tennessee, U.S.A. The 33rd annual meeting in Washington, D.C., October 24-27, 1983.

Address: Glen Arm, Maryland 21057, U.S.A.

d. The Fertilizer Institute (TFI)—

The annual world fertilizer conference with published proceedings. The 8th annual conference in New York, New York, U.S.A., September 18-20, 1983.

Address: 1015 18th Street, NW, Washington, D.C. 20036, U.S.A.

e. The Fertiliser Society—

Usually six to eight 1-day meetings a year in London, United Kingdom, by invitation only.

Address: Green House, 90-93, Cowcross Street, London EC1M 6BH, United Kingdom.

f. FIAC/FAO—

The annual general meeting plus technical meetings for different working groups. The annual general meeting in Rome, Italy in March each year.

Address: FAO, Via delle Terme di Caracalla, 1-00100 Rome, Italy.

g. International Fertilizer Industry Association (IFA)—

The annual international conference plus several technical meetings for members only. The 51st annual conference in Vienna, Austria, May 14-20, 1983.

Address: 28 rue Marbeuf, 75008 Paris, France.

h. National Fertilizer Development Center of the Tennessee Valley Authority (NFDC/TVA)—

The biannual demonstration on new developments in fertilizer technology in Muscle Shoals, Alabama, U.S.A., usually in early October. The 14th demonstration, October 5-6, 1983.

Address: Muscle Shoals, Alabama 35660, U.S.A.

i. United Nations Industrial Development Organization (UNIDO)—

Biannual conferences on issues of general interest in different world cities plus technical meetings on specific topics.

Address: Vienna International Centre, P.O. Box 300, A-1400, Vienna, Austria.

B. Ocean Freight Rates

1. Publications—The publications currently known to the author are as follows:

a. Fertilizer & Feed Charter Fixtures

H. J. Baker & Bro., Inc., 100 East 42nd Street, New York, New York 10017, U.S.A. Weekly.

Reports: Recent fixed charter rates for fertilizer products and materials.

Lists: Ports of origin and destination, vessel name, rate, tonnage, and loading and discharging terms.

b. Fertilizer Edition, International Trade & Mining News

International Trade & Mining News, Room C-1106, Casa-de-Aioi, No. 22-6, 2-Chome, Tsukuda, Chuo-Ku, Tokyo, Japan. Daily except for weekends, \$676/year for Japan, \$742/year elsewhere.

Lists: Ocean freight fixtures for fertilizers and nonfertilizers (grains, cement, etc.), showing origin/destination, tonnage, loading/unloading terms, and loading date.

c. Fertilizer International

The British Sulphur Corporation, Ltd., London, United Kingdom. Monthly, £69/year for United Kingdom and Eire, £78/year for Europe (air), \$156/year for the United States and Canada (air), and £81/year elsewhere (air). (Twice a month after June 1984.)

Reports: Recent freight fixtures for fertilizers and fertilizer raw materials, indicating product, cargo type (bulk, bagged), tonnage, loading port, destination, freight rate, loading and discharging terms, and loading date.

d. Green Markets

McGraw-Hill, Inc., Circulation Office, 1120 Vermont Avenue, NW, Washington, D.C. 20005, U.S.A. Weekly, \$557/year for the United States/Canada/Mexico, \$627/year elsewhere.

Lists: Recent shipping fixtures for fertilizers and fertilizer raw materials (lists almost regularly).

e. Nitrogen

The British Sulphur Corporation, Ltd., London, United Kingdom. Bimonthly, £115/year for United Kingdom and Eire, £127/year for Europe (air),

\$276/year for the United States and Canada (air), and £138/year elsewhere (air).

Lists: Tramp fixtures for cargoes of nitrogen fertilizers reported in 2 previous months. Items covered are similar to those in *Fertilizer International*.

f. Phosphorus and Potassium

The British Sulphur Corporation, Ltd., London, United Kingdom. Bimonthly, £115/year for United Kingdom and Eire, £127/year for Europe (air), \$276/year for the United States and Canada (air), and £138/year elsewhere (air).

Lists: Tramp fixtures for cargoes of phosphates and potash reported in 2 previous months.

g. Sulfur

The British Sulphur Corporation, Ltd., London, United Kingdom. Bimonthly, £115/year for United Kingdom and Eire, £127/year for Europe (air), \$276/year for the United States and Canada (air), and \$138/year elsewhere (air).

Lists: Tramp fixtures for cargoes of sulfur reported in 2 previous months.

h. Weekly Newsletter on Charter Fixtures

Maritime Research, Inc., 499 Ernston Road, Parlin, New Jersey 08859, U.S.A. Weekly.

Presents graphically: Weekly general freight index and time chart index.

Lists: Weekly charter fixtures reported in New York and London, showing ports of origin and destination, vessel name, tonnage, commodity, dates, terms, rates, and reported city (primarily for nonfertilizer commodities such as agricultural products and oil).

2. **Computerized Data Services**—Currently, only one organization is known by the author to be providing computerized data service on ocean freight rates. This organization is Maritime Data Network, Ltd. (MARDATA), headquartered in Stamford, Connecticut, U.S.A. It has sales offices and agents in New York, London, and Tokyo. MARDATA is a joint-venture company, formed to provide the world's most comprehensive data to the marine shipping industry. It combines the vast information resources of Lloyd's Register of Shipping (London) and Lloyd's London Press, Ltd., (London) with the data systems developed by Marine Management Systems, Inc., of Stamford, Connecticut.

Type of Service—MARDATA maintains a data bank on General Electric's time-sharing computer (MARK III®). This data bank currently consists of three files—charter fixture library, tanker casualty library, and ship library. The charter fixture library contains vessel name, dead weight (DWT), cargo, charterer, charter type (time, trip), period, load area, discharge area, rates, and dates. Time charter fixtures include period, time charter rate, performance requirements, and delivery and redelivery dates. The tanker casualty library contains the casualty history on all

liquid gas carriers, as well as all tankers and combination carriers over 6,000 DWT. The ship library contains ship name, owner, type of ship, DWT, gross tons, cargo cubic, dimensions, speed, ship builder, date delivered, class, and flag of registry.

Direct access to the data bank can be obtained instantly through a local telephone number and a small keyboard terminal in over 500 cities in North America, Europe, the Far East, and Australia or through any commercial telex machine available. It is not certain how many of the charter rates contained in the charter fixture library apply to fertilizers and fertilizer raw materials. The rate data are primarily from trade and ship brokers of the United States and London.

Subscription Cost—The annual subscription fee for access to the charter fixture library is \$1,000. In addition, General Electric bills the actual computer usage cost to the user each time the data file is accessed. MARDATA also charges some computer usage cost to the user. Computer usage cost varies. For example, it may cost \$1-\$2 to search for a particular charter rate on a particular trade route as of yesterday. However, it may cost \$10 to search for the rate-route information for the last 6 months. A terminal may be rented for as little as \$100/month or purchased for \$1,000. The amount of telephone bills depends on whether special or ordinary telephone lines are used. The yearly total cost to access and use the charter fixture library varies from user to user. However, for most users, a minimum budget of \$2,500/year may be needed.

Address—Maritime Data Network, Ltd.
105 Hamilton Avenue
Stamford, Connecticut 06902
U.S.A.

3. **Unpublished Sources**—The best sources for charter rates are chartering brokers or the freight department of fertilizer traders/brokers. For conference rates, the best source is regular conference lines or steamship companies. Conference rates may also be available from a governmental maritime agency with which all steamship companies doing business with that country must register. Some examples of unpublished information sources are as follows:

a. Chartering (or Ship) Brokers

Solemare
117 Notara Street
Piraeus
Greece

Anglo-Eastern Shipping Company, Ltd.
Dominion Centre
20th Floor
43 Queen's Road East
Hong Kong

Joachim Grieg & Company
Bergen
Norway

Singapore Ship Brokers
17th Floor, Room 1724
International Plaza
Anson Road
Singapore

King & Sons (Pty), Ltd.
P.O. Box 1
475 Smith Street
Durban 4000
South Africa

E. A. Gibson
Shipbrokers, Ltd.
P.O. Box 278
Audrey House
16-20 Ely Place
London EC1 HP
United Kingdom

Howard Houlder & Partners, Ltd.
17 St. Helen's Place
London EC3
United Kingdom

International Navigation Services, Ltd.
Ripple Road, Pooles Lane
Dagenham, Essex, England
United Kingdom

Matheson Shipping Services, Ltd.
130/135 Minories
London EC3N 1NS
United Kingdom

PRA Chartering, Ltd.
68 Chandos Place, Strand
London, WC2N 4HL
United Kingdom

Somarco London, Ltd.
18 Bedford Row
London WC1R 4EB
United Kingdom

A. L. Burbank & Company, Ltd.
Suite 2811, 1 World Trade Center
New York, New York 10048
U.S.A.

Charrier, McAteer & Fetting, Inc.
1776 K Street, NW
Washington, D.C. 20006
U.S.A.

Drybulk Chartering, Inc.
17 Battery Place
New York, New York 10004
U.S.A.

E. Molstad & Company, Inc.
919 Third Avenue
New York, New York 10022
U.S.A.

Fillette, Green & Company of Tampa
316 Madison Street
Tampa, Florida 33602
U.S.A.

Simpson, Spence & Young
71 Broadway
New York, New York 10006
U.S.A.

Stolt-Nielsen Chartering, Inc.
1 Greenwich Plaza
Greenwich, Connecticut 06836
U.S.A.

Unisphere Chartering Corporation
50 E. 42nd Street
New York, New York 10036
U.S.A.

Universal Shipping Company, Inc.
1911 N. Fort Myer Drive
Arlington, Virginia 22209
U.S.A.

b. Fertilizer Traders and Brokers

Canpotex, Ltd.
P.O. Box 233
Commercial Court Postal Station
Toronto, Ontario M5L 1E8
Canada

Cansulex, Ltd.
2500-1066 W. Hastings Street
Vancouver, B.C. V6E 3XL
Canada

H. J. Baker & Bros., Inc.
100 East 42nd Street
New York, New York 10017
U.S.A.

International Commodities Export Company
717 Westchester Avenue
White Plains, New York 10604
U.S.A.

International Ore & Fertilizer Corporation
1230 Avenue of the Americas
New York, New York 10020
U.S.A.

Mitsui & Company (U.S.A.), Inc.
200 Park Avenue
New York, New York 10017
U.S.A.

Roymar Shipping & Trading, Inc.
355 Lexington Avenue
New York, New York 10017
U.S.A.

Woodward & Dickerson, Inc.
Woodward House
917 Haveford House
Bryn Mawr, Pennsylvania 19010
U.S.A.

c. Steamship Companies or Conference Lines

Gazocean
21 Avenue George V.
75008 Paris
France

Worms Service Maritime Transit
77 R. Jules Siegfried
Le Havre
France

Sar ko Steamship Company, Ltd.
12-1 Yurakucho, 1-Chome
Chiyoda-Ku, Tokyo
Japan

Malaysian International Shipping Corporation,
Bhd.
2nd Floor, Wisma Misc, No. 2
Jalan Conlay, P.O. Box 371
Kuala Lumpur 01-02
Malaysia

Caribbean Sulphur Shipping Company of Liberia,
Ltd.
Niza No. 12, piso 4º
Mexico 6, D.F.
Mexico

IMIC SA
5 Chemin de Roverez
Ch-1012 Lausanne-Chailly
Switzerland

Sulphur Handels-und Vertriebs AG
6300 Zug/Schweiz Grienbachstrasse 17
Zürich
Switzerland

Gotaas Larsen, Inc.
1114 Avenue of the Americas
New York, New York 10036
U.S.A.

Marine Transport Lines, Inc.
5 Hanover Square
New York, New York 10004
U.S.A.

Moore-McCormack Lines, Inc.
2 Broadway
New York, New York 10004
U.S.A.

Odfiell Westfal Larsen Tankers, Inc.
375 Park Avenue
New York, New York 10022
U.S.A.

Pan Ocean Anco Tankers, Inc.
535 Fifth Avenue
New York, New York 10017
U.S.A.

Seaboard Shipping Company, Ltd.
779 Route 17
North Mahwah, New Jersey 07430
U.S.A.

Stolt-Nielsen, Inc.
1 Greenwich Plaza
Greenwich, Connecticut 06836
U.S.A.

Worms Permal Shipping, Inc.
50 Broadway
New York, New York 10004
U.S.A.

Specific conference lines that ship bagged fertilizers (especially those to west Africa). Some examples of U.S. and non-U.S. flag lines (from U.S. Atlantic and Gulf Coast to Africa) are North American-West Africa Line, Black Star Line, Torm Line, Lignes Centrafricaines, Delta Line, Liberia Line, Mid-Africa Line, CMZ Line, and West Wind Africa Line.

d. National government agencies

Federal Maritime Commission
Office of Tariff
1100 L Street, NW
Washington, D.C. 20573
U.S.A.

e. Trade associations

International Fertilizer Industry Association, Ltd.
(IFA)
28 rue Marbeuf, 75008
Paris
France

Transportation Institute
923 15th Street, NW
Washington, D.C. 20005
U.S.A.

Reports prepared regularly or occasionally by the Logistics Subcommittee of the Raw Materials Committee of IFA for member companies, for example, are:

Ocean Trade and Transportation of Fertilizer Raw Materials,
September, 1976;

Present Trends in Freight Rates and in Port Handling for Bulk Commodities, December 1979;

List of Tankers Suitable for Transportation of Superphosphoric Acid and/or Phosphoric Acid, September 1981;

List of Maritime Terminals for Phosphoric Acid, August 1978;

List of Maritime Terminals for Sulphuric Acid, April 1979;

List of Maritime Terminals for Anhydrous Ammonia (3rd edition), January 1983

f. Shipping consultants and information services firms—

Container and Cargo Services International, Inc.
Filellinon Street, 5-7,
Piraeus 9
Greece

Benn Publications, Ltd.
25 New Street Square
London EC4A 3JA
United Kingdom

General Council of British Shipping (GCBS)
30 St. Mary Avenue
London EC3
United Kingdom

H. P. Drewry, Ltd.
34 Brook Street
London W1Y 2LL
United Kingdom

C. Inflation Rates

1. **Publications**—The following publications contain one or more indicators for the annual rates of inflation in different countries:

International Financial Statistics

International Monetary Fund (IMF), 700 19th Street, NW, Washington, D.C. 20431, U.S.A.

Monthly, \$37.50/year for academic institutions, \$75/year for nonacademic institutions in the United States (surface) and \$155/year outside the United States.

Reports by country: Consumer price index and wholesale price index.

Statistical Yearbook

Department of International Economic & Social Affairs, Statistical Office, United Nations.

Attention: United Nations Publishing Service, P.O. Box 433, Murry Hill Station, New York, New York 10016, U.S.A. Annual, \$60/copy (clothbound), \$41/copy (paperbound).

Lists by country: Consumer price index and wholesale price index for 1957 to date (1970 = 100).

World Development Report

The World Bank, 1818 H Street, NW, Washington, D.C. 20433, U.S.A. Annual (since 1978), free.

Lists by country: Average annual percentage rate of inflation for 1960-70 and 1970-80. This rate is the implicit GDP deflator which is calculated by dividing for each year of the period in question the value of GDP in current market prices by the value of GDP in constant market prices, both in national currency.

2. **Computerized Data Services**—Currently, only two major commercial information service firms in the United States are known by the author to have on-line data services. These are Business International Corporation and Data Resources Corporation.

a. Business International Corporation

Type of Service—Business International maintains a data bank (BI-DATA) on a General Electric time-sharing computer (MARK III®). This data bank contains about 300 economic indicators on 131 countries year by year from 1960 to date. Consumer price index and wholesale price index are included. Besides data history, the data bank also contains a set of annual forecasts, including con-

sumer price index for 35 key market countries. Annual forecasts are updated quarterly. The data bank can be accessed on line via a computer terminal from accessible cities in the world. Most of the data maintained in the data bank are from the International Monetary Fund.

Subscription Cost—The annual cost of subscription to the entire data bank and four quarterly reports of annual forecasts is \$3,000. However, for instant direct access (or on-line access) to the data bank, there are additional costs, including a one-time charge of \$100 to obtain a user number from General Electric, a \$3 fixed charge per access to each economic indicator, and the actual computer time used. Total computer usage cost varies according to both time connected to the computer and the complexity of computer programs used to extract desired data. The on-line access to the data bank is also available through the vendors, I. P. Sharp Associates (a Canadian company with offices in Europe and Asia) and Dialog Information Services (a U.S. company). For additional information, interested users should contact Business International or its vendors:

Address—On-Line Services

Business International Corporation
1 Dag Hammarskjold Plaza
New York, New York 10017
U.S.A.

Dialog Information Services
Customer Services Department
3460 Hill View
Palo Alto, California 94304
U.S.A.

I. P. Sharp Associates
Marketing Department
1200 First Federal Plaza
Rochester, New York 14614
U.S.A.

b. Data Resources Corporation

Type of Service—Data Resources currently maintains one of the largest data banks in the world, containing data history of consumer price index, wholesale price index, GNP deflator, and other economic and industry data for the United States. This firm maintains its data bank on a Burroughs 5500 time-sharing computer for instant direct access via a computer terminal. The firm provides not only historical data but also projections of U.S. price indices and GNP deflator 5-10 years into the future.

Subscription Cost—An interested user should contact Data Resources Corporation for details.

Address—Data Resources Corporation
29 Hartwell Avenue
Lexington, Massachusetts 02173
U.S.A.

3. Unpublished Sources

International Monetary Fund
700 19th Street, NW
Washington, D.C. 20431 U.S.A.

The World Bank
1818 H Street, NW
Washington, D.C. 20433
U.S.A.

Concluding Remarks

Relevant, accurate, and updated information on international market conditions for key fertilizer products, raw materials, and intermediates is essential for the decisionmakers of fertilizer supply and marketing strategies in the developing countries. This is especially obvious in light of the fast-changing and increasingly competitive world market. To acquire such information in a timely manner, the decisionmakers must know where and how to best locate it within the means available.

The information sources presented in this publication are by no means exhaustive. For some types of data, there may be better sources. Accordingly, the decisionmakers need to locate as many other sources as possible and evaluate their usefulness.

If the information sources continue to proliferate, it will become even more difficult for the decisionmakers to follow

and digest. The decisionmakers will undoubtedly have to eliminate those sources that are not considered essential. Furthermore, whenever and wherever possible, they should use some sort of computer-aided system to help document, update, and reference the sources more effectively. It would definitely be very helpful if there were a single information service organization that would develop a comprehensive computer-based system to document and update fertilizer market-related information sources and provide information worldwide easily and rapidly. Development of such a system, however, requires very much time, money, and effort. For the system to be viable, it would require continuous availability of financial and human resources, skills and dedication of persons involved, the cooperation of information sources, and frequent use of the system by the decisionmakers.

Appendix A

International Fertilizer Market-Related Publications (Publications of Relative Significance)

1. World Directory of Fertilizer Manufacturers

The British Sulphur Corporation, Ltd., London, United Kingdom. Irregular (Fifth Edition, 1981), £75/copy for United Kingdom, \$200/copy elsewhere.

Lists by country: Company, with general description; plant locations; manufacturing facilities; fertilizer products produced; expansions planned; and company structure.

2. World Directory of Fertilizer Products

The British Sulphur Corporation, Ltd., London, United Kingdom. Irregular (Fifth edition, 1981), £55/copy for United Kingdom, \$150/copy elsewhere.

Lists: Producers by country, products produced, nutrient content, commercial name, physical form, major international trading organizations; export suppliers of fertilizer intermediates and products; and national purchasing organizations by country.

Products covered: Sulfuric acid, phosphoric acid, NH₃, AS, AN, urea, nitrogen solutions, CC, SSP, TSP, MAP, DAP, basic slag, NOP, and NPK.

3. World Fertilizer Atlas

The British Sulphur Corporation, Ltd., London, United Kingdom. Irregular (Seventh edition, January 1983).

Lists by country: Company, with plant locations; products produced; current plant capacities; projects/expansions; production, imports, exports, and consumption of N, P₂O₅, and K₂O; principal crops, crop areas, and crop production; key socioeconomic data of the country.

4. Fertilizer International

The British Sulphur Corporation, Ltd., London, United Kingdom. Monthly (since 1969), £69/year for United Kingdom and Eire, £78/year for Europe (air), \$156/year for the United States and Canada (air), £81/year elsewhere (air). A topical newspaper. (Twice a month after June 1984.)

Highlights: Current events on industry, capacity, supply, demand, trade for fertilizers and fertilizer raw materials.

Regularly features: Current market and price situations for nitrogen, phosphate, potash, sulfur; graphs of monthly international price trends for NH₃, urea, phosphoric acid, AS, TSP, DAP, MOP, and 15-15-15, for the most recent year; tenders; plant and project news; and recent charter freight rates for fertilizers and fertilizer materials.

5. FERTECON Monthly Report

Fertilizer Economic Studies, Ltd., London, United Kingdom. Monthly, £185/year (air).

Highlights: Current market situation on nitrogen, phosphates, potash, compounds, phosphate rock, phosphoric acid, sulfur, and NH₃.

Regularly features: Current international contract and/or spot prices for dry and liquid sulfur, DAP, TSP, phosphoric acid, phosphate rock (68%, 70%, and 72% BPL), MOP, SOP, NH₃, urea, AS, and 15-15-15.

6. Green Markets

McGraw-Hill, Inc., Washington, D.C., U.S.A. (Circulation Department). Weekly (since 1977); \$557/year for the United States, Canada, and Mexico (air); \$677/year elsewhere (air).

Highlights: United States and international fertilizer market and industry news.

Regularly features: Current U.S. domestic and international spot prices for fertilizers and fertilizer raw materials, including NH₃, AS, urea, phosphate rock (68% and 75% BPL), TSP, DAP, and phosphoric acid; granular, coarse, and standard MOP; SOP; dry bulk and liquid sulfur; U.S. import and export prices for fertilizers and fertilizer raw materials, 2 months old. Charter freight rates are reported irregularly.

7. Green Markets Fertilizer Price Handbook, 1983

McGraw Hill, Inc., Washington, D.C., U.S.A., (Circulation Department). Annual (since 1979), \$97 for the United States, \$107 elsewhere (air).

Lists: Weekly prices for 1982/83 and monthly prices for 1982/83. Regionalized listings for key U.S. and international markets.

Materials included: NH₃, urea, AN, AS, nitrogen solutions, TSP, MAP, DAP, phosphoric acid, phosphate rock, MOP, SOP; 1981/82 for sulfur only.

8. Nitrogen

The British Sulphur Corporation, Ltd., London, United Kingdom. Bimonthly (since 1962), £115/year for United Kingdom and Eire, £127/year for Europe (air), \$276/year for the United States and Canada (air), £138/year elsewhere (air).

Highlights: World nitrogen fertilizer market trends, export prices, plant and project news, feedstock news, shipping and transportation, country situation, special topics on world supply and technology, company news.

Regularly features: Charter freight rates for nitrogen fertilizers.

9. Phosphorus and Potassium

The British Sulphur Corporation, Ltd., London, United Kingdom. Bimonthly (since 1962), £115/year for United

Kingdom and Eire, £127/year for Europe (air), \$276/year for the United States and Canada (air), £138/year elsewhere (air).

Highlights: World phosphate and potash fertilizer market trends, export prices, plant and project news, shipping and transportation, country situation, special topics on technology and world supply, company news.

Regularly features: Charter freight rates for phosphates and potash.

10. Sulphur

The British Sulphur Corporation, Ltd., London, United Kingdom. Bimonthly (since 1962), £115/year for United Kingdom and Eire, £127/year for Europe (air), \$276/year for the United States and Canada (air), \$138/year elsewhere (air).

Highlights: World sulfur market, export prices, plant and project news, shipping and transportation, special topics on sulfur and sulfuric acid, company news.

Regularly features: Charter freight rates for dry bulk sulfur.

11. Fertilizer Edition, International Trade and Mining News

International Trade and Mining News, Tokyo, Japan. Daily except for weekends, \$676/year for Japan, \$742/year elsewhere (air).

Highlights: Domestic and international fertilizer trade, shipping and supply news. Reports charter freight fixtures regularly but mostly for agricultural commodities.

12. Current World Fertilizer Situation and Outlook, 1981/82-1987/88

Commission on Fertilizers, Food and Agriculture Organization, United Nations, Via delle Terme di Caracalla, 1-00100, Rome, Italy. Annual (September 1983), free

A background document by the FAO/UNIDO/World Bank working group on fertilizers for the annual commission meeting.

Contains: Analysis of world production, consumption, and trade of nitrogen, phosphate, and potash; international prices of main fertilizer materials; short- and long-term outlook for supply/demand balance.

Regularly features: Graphs of monthly export prices of urea, TSP, DAP, MOP, 1965 to date; consumption, production of N, P₂O₅, K₂O, and growth rates for developed, developing, centrally planned economies and world total; imports and exports by country grouping and world total for selected years; production and consumption of major countries for selected years; nitrogen, phosphate, and potash capacity and supply/demand balance by world region for current and future years (nutrient tons).

13. Fertilizer Reference Manual

The Fertilizer Institute, 1015 18th Street, NW, Washington, D.C. 20036, U.S.A. Annual (Volume 4, June 1982), \$10/copy anywhere.

Reports: U.S. production capacity (1970-83), operating rates (1971-81), and production (1965-81) by fertilizer product; U.S. production of sulfur and sulfur-containing raw materials; product inventory (1970-81); U.S. fertilizer imports and exports for fertilizers and fertilizer raw materials (1970-81); duties on fertilizer and fertilizer materials (1982).

14. European Chemical News

IPC Industrial Press, Ltd., Quadrant House, The Quadrant Sutton, Surrey SM2 5AS, United Kingdom. Weekly, £66/year for the United Kingdom, \$205.40/year for the United States (air), £79/year elsewhere (sea).

Highlights: Chemical industry including fertilizer industry, prices, and new capacity project news.

Regularly reports: Current European contract and spot prices and U.S. prices for NH₃ and naphtha.

15. World Fertilizer News Summary

The British Sulphur Corporation Ltd., London, United Kingdom. Monthly (since January 1981), £70/year for United Kingdom and Europe, £85/year elsewhere.

Highlights: Salient fertilizer industry news as reported in the world commercial and technical press.

16. Fertilizer Products—World Statistics

The British Sulphur Corporation Ltd., London, United Kingdom. Annual (June 1983), £100/copy for United Kingdom, \$170/copy elsewhere (discounted prices for subscribers to other British Sulphur periodicals—£75/copy for United Kingdom, \$130/copy elsewhere).

Regularly features: World production, consumption, and trade statistics for finished fertilizers by region and for major countries.

Products covered: Urea, AS, AN, SSP, TSP, MAP/DAP, MOP, SOP, compound fertilizers.

17. Fertilizer Raw Materials and Intermediates—World Statistics

The British Sulphur Corporation, Ltd., London, United Kingdom. Annual (December 1983), £100/copy for United Kingdom, \$170/copy elsewhere (discounted prices for subscribers to other British Sulphur periodicals—£75/copy for United Kingdom, \$130/copy elsewhere).

Regularly features: World production, consumption, and trade statistics for fertilizer raw materials and intermediates by region and for major countries.

Products covered: Sulfur (all forms), sulfuric acid, phosphoric acid, phosphate rock, ammonia, potash.

18. Fertilizer Market Bulletin

The FMB Consultants, Ltd., 12/14 Hill Rise, Richmond, Surrey, TW10 6UA, United Kingdom. Weekly (since January 1982), £370/year (air).

Highlights: Current market situation on nitrogen, phosphates, compounds, ammonia, phosphoric acid, sulfuric acid, sulfur, and potash.

Regularly features: International price guide for fertilizer products and materials.

19. FAO Fertilizer Yearbook

Food and Agriculture Organization of the United Nations, Rome, Italy. Annual (Volume 31, 1981), \$24.50/copy.

Reports: Annual production, consumption, exports, imports of nitrogen, phosphate, and potash fertilizers by country and by economic class of the countries; fertilizer consumption per hectare of agricultural area and per capita by country by year; contributions of economic classes and regions to world production, consumption, and trade; estimated production of technical-grade potash; potash re-exports in the form of compound fertilizers; fertilizer consumption ratio, production, imports, and exports of phosphate rock by country; new production capacity and trade for ammonia and wet-process phosphoric acid by country and region; farmers by country; fertilizer prices paid by farmers and fertilizer subsidies received by farmers (nutrient tons) by country by year; exchange rate by country by year.

20. FAO Monthly Bulletin of Statistics

Food and Agriculture Organization of the United Nations, Rome, Italy. Monthly, \$15/year anywhere.

Occasionally reports: Monthly prices paid by farmers for fertilizers in various countries.

21. World Fertilizer Progress Into the 1980s

International Fertilizer Development Center, Muscle Shoals, Alabama, U.S.A. Special (December 1981), \$4/copy for United States, \$7.50/copy elsewhere.

Analyzes: The 1970s in perspective; major trends in the fertilizer sector; world fertilizer outlook, 1980/81-1985/86.

22. World Fertilizer Situation and Outlook, 1978-85

International Fertilizer Development Center, P.O. Box 2040, Muscle Shoals, Alabama 35662, U.S.A. Irregular (March 1979), \$4/copy for United States, \$7.50/copy elsewhere. A cooperative project between IFDC and TVA.

Analyzes: World NH_3 capacity, world nitrogen fertilizer production and consumption, world and regional nitrogen supply/demand balances; world phosphate production and consumption, world and regional phosphate supply/demand balances; world potash capacity, production, and consumption, and world and regional potash supply/demand balances.

Contains: Historical data on capacity, production, and consumption of N, P_2O_5 , and K_2O by world region, 1967-77; export prices of DAP, MOP, and urea, 1968-78; U.S. indices of farm-level fertilizer and crop prices, 1965-78 (graphs).

23. Fertilizer Outlook and Situation

U.S. Department of Agriculture, Economic Research Service, National Economics Division, 14th Street and Independence Avenue, SW, Washington, D.C. 20250, U.S.A. Annual (December 1982), \$4/copy.

U.S. fertilizer outlook for 1982/83; review of 1981/82 U.S. trade, prices, and use; world fertilizer review and prospects; world supply-demand forecast to 1986/87.

24. Potash Sales by North American Producers

Potash and Phosphate Institute, Atlanta, Georgia, U.S.A. Updated monthly, free.

Annual and quarterly domestic and export sales of standard, coarse, and granular MOP and SOP for all purposes by U.S. and Canadian producers.

25. U.S. Potash Imports by State for Muriate, Sulfate, and Total Potash

Potash and Phosphate Institute, Atlanta, Georgia, U.S.A. Updated monthly, free.

Annual and quarterly potash import by country of origin in product and nutrient tons.

26. Export Sales of Standard, Coarse, Granular, and Soluble Muriate and Sulfates of North American Producers

Potash and Phosphate Institute, Atlanta, Georgia, U.S.A. Updated monthly, free.

Annual export sale for agricultural purposes by buying country.

27. Potash Production, Inventory, Disappearance of Sales by North American Producers

Potash and Phosphate Institute, Atlanta, Georgia, U.S.A. Updated monthly, free.

Annual and quarterly data by U.S. and Canadian producers by grade.

28. Chemical Marketing Reporter

Schnell Publishing Co., 100 Church Street, New York, New York 10007, U.S.A. Weekly (since 1871), \$55/year for the United States, \$130/year for Europe (air), \$215/year for Japan (air), \$80/year elsewhere (air).

Highlights: Domestic and international chemicals and fertilizer market and industry news.

Regularly features: Prices of chemicals including fertilizers and fertilizer materials.

29. Process Economics International

Chemecon Publishing, Ltd., Parnell House, 25 Wilton Road, London SW1V 1NH, United Kingdom. Quarterly, £48/year for the United Kingdom, £52/year for Europe (air), £56/year elsewhere (air).

International price of naphtha, NH_3 , natural gas, nitric acid, crude oil, phosphate rock, phosphoric acid, sulfur, and sulfuric acid.

30. Chemical Economics Handbook

SRI International, Inc., Chemical Industries Division, 333 Ravenswood Avenue, Menlo Park, California 94025, U.S.A. Periodically updated. \$14,000 for a complete set, first year; \$9,700/year for renewal, loose leaf. Available only to subscribers.

Ammonium nitrate—(last update, January 1976). Capacity, production, and consumption by country.

Ammonium sulfate—(last update, December 1976). Production and capacity by country and region.

Anhydrous ammonia—(last update, April 1977). Production and capacity by country; international prices; U.S. production by feedstock and process; U.S. export-import.

Calcium phosphate—(last update, January 1983). Capacity and production by country.

MAP-DAP—(last update, January 1983). Capacity and production by country; U.S. exports-imports by country.

Natural gas—(last update, March 1979). World reserves by region and by country in billion cubic feet and percent of world trade; world production in billion cubic feet.

Phosphate rock—(last update, March 1980). Phosphate fertilizer demand by region; capacity and production by country; export-import by region and by country with country of destination.

Phosphoric acid—(last update, January 1983). World production by source; capacity by country (lists companies and locations); imports by major country; U.S. exports by country of destination.

Potassium chloride—(last update, August 1976). Capacity and production by country; U.S. exports-imports; exports by country.

Potassium sulfate—(last update, November 1976). Capacity and production by country.

Sulfur—(last update, February 1983). Production by country; capacity by producer, location, date on stream, and process. Canadian producers of sulfur from sources other than natural gas or petroleum; Canadian production, sales, imports, exports, year-end stocks, apparent consumption and unit sales value; list of Mexican producers and capacities; list of Japanese producers of recovered sulfur and capacities; production from ores; imports, exports, and domestic demand; and consumption by major use.

Triple superphosphate—(last update, January 1983). Capacity and production by country and region; U.S. exports-imports by country.

Urea—(last update, March 1976). Production, capacity, and consumption by country and region; U.S. exports-imports by country.

31. Statistical Supplement

The British Sulphur Corporation, Ltd., London, United Kingdom. Semiannual, free to annual subscribers of regular British Sulphur journals.

Regularly features: Summary data on annual world production, consumption, and trade of sulfur, sulfuric acid, phosphate rock, and nitrogenous, phosphatic, and potassic fertilizers by region and country for 3 previous years.

Appendix B

International Fertilizer Market-Related Publications (Other Pertinent Publications)

- 1. World Survey of Potash Resources**
The British Sulphur Corporation, Ltd., London, United Kingdom (3rd edition, 1979). £110/copy for United Kingdom, \$275/copy elsewhere.
- 2. World Survey of Phosphate Deposits**
The British Sulphur Corporation, Ltd., London, United Kingdom (4th edition, 1980). £185/copy for United Kingdom, \$450/copy elsewhere.
- 3. World Sulphuric Acid Atlas**
The British Sulphur Corporation, Ltd., London, United Kingdom (3rd edition, 1980). £70/copy for United Kingdom, \$190/copy elsewhere.
- 4. Ammonium Phosphates—An Outline of the Industry**
The British Sulphur Corporation, Ltd., London, United Kingdom, 1978. \$190/copy.
- 5. Urea Survey: World Analysis and Prospects, 1983-93**
The British Sulphur Corporation, Ltd., London, United Kingdom. £100/copy for United Kingdom, \$190/copy elsewhere.
- 6. Fertilizer Manual**
International Fertilizer Development Center, Muscle Shoals, Alabama, U.S.A., and United Nations Industrial Development Organization, Vienna, Austria, 1979. \$25/copy for United States, \$35 elsewhere.
- 7. Manufacturing Chemist**
The International News Weekly, Morgan Grampian (Process Press), Ltd., 30 Calderwood Street, Woolwich, London SE18 6QH, United Kingdom. £30/year for United Kingdom and Eire, \$110/year for the United States, Canada, and Latin America, \$75/year elsewhere.
- 8. International Petroleum Encyclopedia**
Pennwell Publishing Company, 1421 South Sheridan Road, P.O. Box 1260, Tulsa, Oklahoma 74101, U.S.A., 1983. \$62.50/copy.
- 9. Minerals Yearbook**
Vol. II (1982) and Vol. III (1981), U.S. Bureau of Mines, Office of Technical Information, 2401 E Street, NW, Washington, D.C. 20241, U.S.A. \$14/copy for Vol. II, \$22/copy for Vol. III.
- 10. Mineral Industry Surveys**
U.S. Bureau of Mines, Washington, D.C., U.S.A. Monthly, free.
- 11. Industrial Minerals**
Metal Bulletin Journals, Ltd., Park House, 3 Park Terrace, Worcester Park, Surrey, KT4 7HY, United Kingdom.
Monthly, £60/year (surface mail), airmail rates vary by destination.
- 12. Industrial Minerals and Rocks**
American Institute of Mining, Metallurgical, and Petroleum Engineers, 345 East 47th Street, New York, New York 10017, U.S.A., 1975. \$22.50/copy.
- 13. Oil and Gas Journal**
Pennwell Publishing Company, Tulsa, Oklahoma, U.S.A. \$31/year for United States, \$34/year for Canada and Latin America, \$58/year elsewhere.
- 14. Crude Petroleum and Natural Gas Production**
Department of Statistics, Ottawa, Ontario, Canada. Monthly, \$3.30/copy.
- 15. Platt's Oilgram Price Report**
Newsletter Publications Center, McGraw-Hill, Inc., 43rd Floor, 1221 Avenue of the Americas, New York, New York 10020, U.S.A. Daily, \$827/year for the United States, \$937/year elsewhere.
- 16. Milling**
Turret Press, Ltd., 886 High Road, Finchley, London, N129SB, United Kingdom.
£40.60/year for United Kingdom and Eire, £46.60/year (surface) or £59/year (air) elsewhere.
- 17. Chemical and Engineering News**
American Chemical Society, 1155 16th Street, SW, Washington, D.C. 20036, U.S.A. Weekly, \$35/year for United States, \$59/year elsewhere.
- 18. Fertilizer Statistics**
The Fertiliser Association of India, Near Jawaharlal Nehru University, New Delhi-110 067, India. Annual, Rs 35/copy, 1981/82.
- 19. Fertiliser News**
The Fertiliser Association of India, New Delhi, India. Monthly, Rs 45/year anywhere.
- 20. Agro-Chemicals (Fertilizers and Agro-Pesticides)**
News in Brief, Agricultural Requisites Scheme for Asia and the Pacific/Fertilizer Advisory, Development, and Information Network for Asia and the Pacific (ARSAP/FADINAP), Agriculture Division, Economic and Social Commission for Asia and the Pacific, United Nations Building, Rajadamnern Avenue, Bangkok, Thailand. Monthly, free.
- 21. Phosphate Rock Capacities and Reserves**
Commission on Fertilizers, Food and Agriculture Organization of the United Nations, Rome, Italy, September 1979.

- 22. Fertilizer Trends, 1982**
National Fertilizer Development Center, Tennessee Valley Authority, Muscle Shoals, Alabama, U.S.A. Free (every 2 years).
- 23. 1982 Fertilizer Summary Data**
National Fertilizer Development Center, Tennessee Valley Authority, Muscle Shoals, Alabama, U.S.A. Free (every 2 years).
- 24. Fertilizer Progress**
The Fertilizer Institute, Washington, D.C., U.S.A. Bimonthly, \$20/year for the United States, Canada, and Mexico, \$40/year elsewhere by air.
- 25. U.S. Exports, Commodity by Country**
U.S. Department of Commerce, Trade Information Office, Foreign Trade Division, Bureau of the Census, 14th Street Between Constitution Avenue and E Street, NW, Washington, D.C. 20233, U.S.A. Monthly, \$100/year for the United States, plus \$25 for foreign mailing.
- 26. U.S. General Imports, Schedule A - Commodity by Country**
U.S. Department of Commerce, Trade Information Office, Foreign Trade Division, Bureau of the Census, Washington, D.C., U.S.A. Monthly, \$80/year for the United States, plus \$20 for foreign mailing.
- 27. Current Industrial Reports - Inorganic Chemicals**
U.S. Department of Commerce, Bureau of the Census, Washington, D.C., U.S.A. Monthly, \$4/year.
- 28. Current Industrial Reports - Inorganic Fertilizer Materials and Related Products**
U.S. Department of Commerce, Bureau of the Census, Washington, D.C., U.S.A. Monthly, \$3.25/year.
- 29. Fertiliser Marketing News**
Fertiliser Association of India, New Delhi, India. Monthly, Rs 15/year anywhere.
- 30. Energy Data Reports**
U.S. Department of Energy, Energy Information Administration, 1000 Independence Avenue, SW, Washington, D.C. 20461, U.S.A.
Report A - Liquefied Petroleum. Annual.
Report B - Natural and Synthetic Gas. Monthly.
Report C - U.S. Imports and Exports of Natural Gas. Annual.
Report D - World Natural Gas. Annual.
Report E - Crude Petroleum, Petroleum Products, Natural Gas Liquids. Annual.
Report F - Petroleum Refineries in the United States and U.S. territories. Annual.
Report G - Sales of Fuel Oil and Kerosene. Annual.
Contact publisher for subscription costs.
- 31. Commercial Fertilizer Consumption for Year Ending June 30**
U.S. Department of Agriculture, Statistical Reporting Service, 14th Street and Independence Avenue, SW, Washington, D.C. 20250, U.S.A. Annual (1982), \$2/copy. Details of fertilizer consumption in the United States by products and states.
- 32. Energy and Fertilizer: Policy Implications and Options for Developing Countries**
international Fertilizer Development Center, Muscle Shoals, Alabama, U.S.A. Special (1982), \$15 for United States, \$20 elsewhere.
- 33. Farm Chemicals**
Meister Publishing Company, 37841 Euclid Avenue, Willoughby, Ohio 44094, U.S.A. Monthly, \$16/year for United States, \$20 elsewhere.
- 34. Phosphoric Acid—Outline of the Industry**
The British Sulphur Corporation Ltd., London, United Kingdom, February 1980. £115/copy for United Kingdom, \$290/copy elsewhere.
- 35. Mineral Resources of the Arab Countries**
Chemecon Publishing Ltd., Parnell House, 25 Wilton Road, London SW1V 1NH, United Kingdom. £45/copy for United Kingdom, £50/copy elsewhere.
- 36. Journal of Technology and Development**
Arab Federation of Chemical Fertilizer Producers (AFCFP), P.O. Box 23696, Safat, Kuwait. Quarterly (since January 1982). 10 KD/year for member companies, 14 KD for nonmember companies.
- 37. The U.S.S.R. Fertilizer Industry, 1970-2000**
Fertilizer Economic Studies, Ltd., London, United Kingdom, 1983. £1,500/copy plus four quarterly supplements.
- 38. The FERTECON Annual Sulphur Report—The Sulphur Industry to 1990**
Fertilizer Economic Studies, Ltd., London, United Kingdom, November 1982. £4,000/copy.
- 39. Impact of New Sources of Ammonia on World Supply/Demand**
The British Sulphur Corporation, Ltd., London, United Kingdom, October 1980. £3,800/copy.
- 40. The Development of Trade in Ammonia**
The British Sulphur Corporation, Ltd., London, United Kingdom, August 1980. £425/copy.
- 41. Minerals and Materials**
U.S. Bureau of Mines, Washington, D.C., U.S.A. A bimonthly survey, free.
- 42. World Phosphates**
Agricultural Chemical Business Studies, Chemical Industries Division, SRI International, 333 Ravenswood Avenue, Menlo Park, California 94025, U.S.A. Special (1983), \$33,000/copy if ordered on or before February 28, 1982, and \$40,000/copy thereafter. A joint study by SRI International, Zellars-Williams, Inc., Florida, U.S.A., and Fertilizer Economic Studies, Ltd. of London, United Kingdom.

43. Fertilizer Nitrogen

The British Sulphur Corporation Ltd., London, United Kingdom. Proceedings of the British Sulphur Corporation's 4th International Conference on Fertilizer Technology in London (January 1981). £180/copy for United Kingdom and \$450/copy elsewhere.

44. Phosphate Outlook—Near-Term and Through 2000

Zellars-Williams, Inc., 4222 South Florida Avenue, Lakeland, Florida 33803, U.S.A., October 1982. A paper presented by James M. Williams at the 1982 annual meeting of the Fertilizer Industry Round Table in Atlanta, Georgia, U.S.A.

45. Outlook for Nitrogen

Agrico Chemical Company, P.O. Box 3166, Tulsa, Oklahoma 74101, U.S.A., October 1982. A paper presented by E. B. Graves at the 1982 annual meeting of the Fertilizer Industry Round Table in Atlanta, Georgia, U.S.A.

46. The Outlook for Potash

International Minerals and Chemical Corporation, 2315 Sanders Road, Northbrook, Illinois 60062, U.S.A., October 1982. A paper presented by Deneb Telek at the 1982 annual meeting of the Fertilizer Industry Round Table in Atlanta, Georgia, U.S.A.

47. Nitrogen Outlook

Canadian Fertilizer Institute, Suite 602, 350 Sparks Street, Ottawa, Ontario K1R 7S8, Canada, November 1981. A paper presented by J. W. Brown at the 1981 annual meeting of the Fertilizer Industry Round Table in Washington, D.C.

48. Potash—World Supply and Demand

Potash Corporation of Saskatchewan SLS, Ltd. (PCS), 410 22nd Street East, Saskatoon, Saskatchewan, Canada, November 1981. A paper presented by Douglas E. Logsdail at the 1981 annual meeting of the Fertilizer Industry Round Table in Washington, D.C.

49. Sulphur Status Report

Fertilizer Technical Research, The Sulphur Institute, 1725 K Street, NW, Washington, D.C. 20006, U.S.A., November 1981. A paper presented by D. W. Bixby at the 1981 annual meeting of the Fertilizer Industry Round Table in Washington, D.C.

50. Free World Sulphur Supply and Demand Outlook into the Early 1990s

Manderson Associates, Inc., Winter Park, Florida 32789, U.S.A., May 1981. A paper presented at the 1981 International Conference on Sulphur in Calgary, Alberta, Canada, May 25-28, 1981, sponsored by Sulphur Development Institute of Canada (SUDIC), the Government of Alberta and The British Sulphur Corporation, Ltd.

51. Fertilizer Markets: U.S. Overview

SRI International, Menlo Park, California, U.S.A., April 1981. \$2,000/copy.

52. Phosphate Chemicals

SRI International, Menlo Park, California, U.S.A., January 1983. \$5,000/copy for fertilizer phosphates and \$5,000/copy for industrial phosphates.

53. Phosphate Rock

SRI International, Menlo Park, California, U.S.A., March 1980. \$3,000/copy.

54. Chemical Week

McGraw-Hill, Inc., 1221 Avenue of the Americas, New York, New York, 10020, U.S.A. Weekly, \$35/year for the United States, \$47/year for Canada.

55. United States Phosphate Industry and World Commerce

Phosphate Rock Export Association (PHOSROCK), 1311 North West Shore Boulevard, Suite 301, Tampa, Florida 33607, U.S.A. A paper presented by W. J. Turberville, Jr., at the annual meeting of the Society of Mining Engineers in Atlanta, Georgia, U.S.A., March 1983.

56. Phosphate Rock, 1970-1995

Fertilizer Economic Studies, Ltd., London, United Kingdom. 1983 update, £3,500/copy anywhere.

57. Bulk Blending in Western Europe

Fertilizer Economic Studies, Ltd., London, United Kingdom. 1983, £500/copy anywhere.

58. U.S. Ammonia Outlook and Global Overview to 2,000

Fertilizer Economic Studies, Ltd., London, United Kingdom, and the Pace Company, P.O. Box 53473, Houston, Texas 77052, U.S.A., September 1983. A collaborated study. \$6,500/copy anywhere.

Appendix C

Major International, Regional, and National Fertilizer Manufacturers' Associations

1. International Fertilizer Industry Association, Ltd. (IFA), 28 rue Marbeuf, 75008 Paris, France (originally International Superphosphate Manufacturers' Association and later International Phosphate Industry Association).
2. International Potash Institute (IPI), Postfach 41, CH-3048 Worblaufen-Bern, Switzerland.
3. Potash and Phosphate Institute (PPI), 2801 Buford Hwy., NE, Suite 401, Atlanta, Georgia 30329, U.S.A.
4. Arab Federation of Chemical Fertilizer Producers (AFCFP), P.O. Box 23696, Safat, Kuwait.
5. Asociación para el Desarrollo de la Industria de los Fertilizantes de América Latina, A.C. (ADIFAL), Amatlán No. 61, Col. Condesa, México 11, D.F., México.
6. Institut Mondial du Phosphate (IMPHOS), Route d'El Jadida, Casablanca (02), Morocco.
7. The Fertilizer Institute (TFI), 1015 18th Street, NW, Washington, D.C. 20036, U.S.A.
8. The Sulphur Institute, 1725 K Street, NW, Washington, D.C. 20006, U.S.A.
9. Associação Nacional para Difusão de Adubos (ANDA), Al. Gabriel Monteiro da Silva, 1834, São Paulo, Brazil.
10. Canadian Fertilizer Institute (CFI), Suite 602, 350 Sparks Street, Ottawa, Ontario K1R 7S8, Canada.
11. Fertiliser Association of India (FAI), Near Jawaharlal Nehru University, New Delhi-110 067, India.
12. Associasi Produsen Pupuk Indonesia (APPI), c/o P.T. Pupuk Kujang, Jalan K. H. Wahib Hoysim 59, Jakarta, Indonesia.
13. Agrohemija, Obilicev Venac 4, P.O. Box 35, Belgrade, Yugoslavia.
14. Fertilizer Society of South Africa, 217 Pretorius Street, P.O. Box 1821, Pretoria 0001, South Africa.
15. Fertilizer Manufacturers' Association, Greenhill House, 90-93 Cowcross Street, London, United Kingdom.
16. National Fertilizer Solutions Association (NFSA), 8823 North Industrial Road, Peoria, Illinois 61615, U.S.A.
17. Japan Phosphatic and Compound Fertilizers Manufacturers' Association (JAPCA), 3,3-Chome, Muromachi, Nihonbashi, Chuo-Ku, Tokyo, Japan.
18. Korean Fertilizer Industrial Association (KFIA), 68 Geunjidong, Jongrogu, Seoul, Republic of Korea.

Appendix D

Major International Trading and Selling Concerns

North America

1. Brimstone Export, Ltd., INA Building, 161 Eglinton Avenue East, Toronto, Ontario, M4P 1J5, Canada.
2. Canpotex, Ltd., P.O. Box 233, Commercial Court Postal Station, Toronto, Ontario, M5L 1E8, Canada.
3. Cansulex, Ltd., 2500-1066 West Hastings Street, Vancouver, B.C., V6E 3XL, Canada.
4. International Sulphur Company, Ltd., 2523 Norgen Tower, 715 5th Avenue, SW, Alberta, T2P 0N2, Canada.
5. Kaihan International, Inc., 11 Progress Avenue, Unit 12, Toronto, Ontario, M1P 4S7, Canada.
6. Agricultural and Industrial Chemicals, Inc. (AIC), 655 5th Avenue, New York, New York 10022, U.S.A.
7. American Sulphur Export Company (AMSULEX), c/o Duval Sales Corporation, Houston, Texas 77001, U.S.A.
8. Amoco International Sales Company, 200 Randolph Drive, P.O. Box 8368, Chicago, Illinois 60601, U.S.A.
9. BCM International, Inc., P.O. Box 17866, 5384 Poplar Avenue, Memphis, Tennessee 38119, U.S.A.
10. Canamex Commodity Corporation, 517 Washington Street, San Francisco, California 94111, U.S.A.
11. Cargill, Inc., Box 9300, Cargill Building, Minneapolis, Minnesota 55440, U.S.A.
12. Central Resources Corporation (CRC), 919 3rd Avenue, New York, New York 10022, U.S.A.
13. Chemical Exchange International (CHEMEX), Whiting Plaza, Suite 404, 102 West Whiting Street, P.O. Box 414, Tampa, Florida 33601, U.S.A.
14. Duval Sales Corporation, P.O. Box 2967, Houston, Texas 77001, U.S.A.

15. H. J. Baker and Bros., Inc., 100 East 42nd Street, New York, New York 10017, U.S.A.
16. International Chemical Company (INTERCHEM), 1887 East 71st Street, Tulsa, Oklahoma 74136, U.S.A.
17. International Commodities Export Company (ICEC), 717 Westchester Avenue, White Plains, New York 10604, U.S.A.
18. International Ore and Fertilizer Corporation (INTERORE), 1230 Avenue of the Americas, New York, New York 10020, U.S.A.
19. Kaiser Trading Company, 300 Lakeside Drive, Oakland, California 94643, U.S.A.
20. Mitsubishi International Corporation (Fertilizer and Agri-Chem Division), 520 Madison Avenue, New York, New York 10022, U.S.A.
21. Mitsui and Company (U.S.A.), Inc., 200 Park Avenue, New York, New York 10017, U.S.A.
22. Philipp Brothers (PHIBRO), 1221 Avenue of the Americas, New York, New York 10020, U.S.A.
23. Phosphate Chemicals Export Association (PHOSCHEM), 8410 W. Bryn Mawr Avenue, Chicago, Illinois 60631, U.S.A.
24. Phosphate Rock Export Association (PHOSROCK), 1311 North West Shore Boulevard, Suite 301, Tampa, Florida 33607, U.S.A.
25. Roymar Shipping and Trading, Inc., 355 Lexington Avenue, New York, New York 10017, U.S.A.
26. Thyssen, Inc., 1114 Avenue of the Americas, Grace Plaza, New York, New York 10036, U.S.A.
27. Transammonia, Inc., 410 Park Avenue, New York, New York 10022, U.S.A.
28. Transcontinental Fertilizer Company, 1339 Chestnut Street, 6th Floor, Philadelphia, Pennsylvania 19107, U.S.A.
29. Trans Meridian, Inc., Transamerica Pyramid, 43rd Floor, San Francisco, California 94111, U.S.A.
30. Windmill Fertilizer America, Inc., 1270 Avenue of the Americas, Suite 1900, New York, New York 10020, U.S.A.
31. Woodward and Dickerson, Inc., Woodward House, 937 Haveford House, Bryn Mawr, Pennsylvania 19010, U.S.A.
6. Coutinho, Caro and Company, 10 Steindamm, P.O. Box 101140, D-2000 Hamburg 1, Federal Republic of Germany.
7. Fritz Hamm GmbH, Tersteegenstrasse 61-63, 400 Düsseldorf 30, Federal Republic of Germany.
8. Karl O. Helm AG, Nordkanalstrasse 28, D-2000 Hamburg 1, Federal Republic of Germany.
9. Klöckner and Company (Chemical Department), P.O. Box 100105, D-4100 Duisburg 1, Federal Republic of Germany.
10. Metallgesellschaft AG, Reuterweg 14, Postfach 3724, 6000 Frankfurt-am-Main 1, Federal Republic of Germany.
11. Unitrade, Vincenz-Statz-Str. 7, D-5000 Köln 41, Federal Republic of Germany.
12. Comagri SA, 9 rue de Teheran, 75008 Paris, France.
13. Complexport, 58 Avenue Kieber, 75116 Paris, France.
14. Gazocéan, 21 Avenue George V, 75008 Paris, France.
15. Windmill International SA, 27 rue de Chateaubriand, Paris 75008, France.
16. Asoma Fertilizers SRL, via F. di Savoia 8, Rome 00196, Italy.
17. Vittorio Cauvin SpA, 31/17 via XX Settembre, 16148 Genova, Italy.
18. Interphos Luxembourg Sarl, 27 rue IP Brasseur, Luxembourg, GD de Luxembourg.
19. Cargill/Tradax, Coenhavenweg 2, Amsterdam, Netherlands.
20. Handelsvereniging Tradax BV, Coenhavenweg 2, Amsterdam, Netherlands.
21. Melchemie BV, Steenstraat 44-46, P.O. Box 143, Arnhem, Netherlands.
22. Boliden Kemi AB, Box 902, 251 09 Helsingborg, Sweden.
23. Bolisse AG, Grienbachstrasse 17, 6300 Zürich, Switzerland.
24. Hibag Fertilizer AG, Gartenstrasse 19, CH-8002, Zürich, Switzerland.
25. International Marketing and Investment Corporation SA (IMIC SA), 5 Chemin de Rovereaz, CH-1012 Lausanne-Chailly, Switzerland.
26. Nitrex AG, 33 Bleicherweg, CH-8027 Zurich, Switzerland.
27. Sulphur Handels-und Vertriebs AG, Grienbachstrasse 17-CH-6300 Zürich, Switzerland.
28. Diamond Fertilizer and Chemical Company, Ltd., Kempson House, 35-37, Camomile Street, London EC3A 7AD, United Kingdom.
29. Fertitrade, Ltd., 13 Hill Street, London W1X 7FB, United Kingdom.
30. Gill and Duffus Chemicals, Ltd., 201 Borough High Street, London SE1 1HW, United Kingdom.

Western Europe

1. Kali-Export GmbH, P.O. Box 8, A-1153 Wien, Austria.
2. Essochem Belgium, 363 Melchelsesteenweg, 1950 Kraaienh, Belgium.
3. Ferchimex AG, Roosevelt Building, Anneessensstraat 1, B-2000, Antwerp, Belgium.
4. Fertico, 375, Avenue Louise, 1050 Brussels, Belgium.
5. Unifert International SA, 44 Avenue des Arts, B-1040 Brussels, Belgium.

31. Marc Rich and Company, Ltd., 49 Wigmore Street, London W1H 9LE, United Kingdom.
32. Raphaely Trading (UK), Ltd., (Fertilizer and Chemical Division), Salisbury House, London Wall, London EC2M 5QH, United Kingdom.
33. Shell International Chemical Company, Ltd., Shell Centre, London SE1 7PG, United Kingdom.

Eastern Europe

1. Chimimport, 2 Stefan Karadja Street, Sofia, Bulgaria.
2. Chemapol Company Ltd., ul Dr. Ul. Clementisa 10, Bratislava, Czechoslovakia.
3. Bergbauhandel GmbH, 108 Berlin, Otto-Nuschke-Strasse 55, Postfach 1207, German Democratic Republic.
4. Chenolimpex, P.O. Box 121, 1805 Budapest, Deak Ference u 7-9, Hungary.
5. S. Ciech, Imports and Exports of Chemicals, Ltd., Ul. Jasna 12, P.O. Box 271, 00-950, Warszawa, Poland.
6. Danubiana Company, 202A Splajul Independentei, Bucharest, Romania.
7. V/O Soyuzpromexport, Moscow 12-1200, Smolenskaja-Sennaja 32134, U.S.S.R.
8. V/O Suyuzkhimexport, Moscow 12-1200, Smolenskaja-Sennaja 32134, U.S.S.R.
9. Agrohemiya, Obilicer Venac 4, P.O. Box 35, Belgrade, Yugoslavia.
10. INA, P.O. Box 333, 41000 Zagreb, Yugoslavia.

Asia/Oceania

1. Courtis Enterprises Company, Ltd., 7, Queen Auralia Street, Nicosia, Cyprus.
2. P.T. Masyarakat Tani Mulia, Jl Veteran 1/29, Jakarta-Pusat, Indonesia.
3. Korea Keumsusan Trading Corporation, Pyong Yang, Democratic People's Republic of Korea.
4. C. Itoh and Company, Ltd., 68 Kitaykutaramachi, 4-Chome, Higashi-Ku, P.O. Box 117, Osaka 541, Japan.
5. Dai Nippon Kali Kaisha, Ltd., Hibiya Building, 8-1 Yurakucho, 1-Chome, Chiyoda-Ku, Tokyo 100, Japan.
6. Japan Urea and Ammonium Sulphate Export Company, Ltd. (JUASECO), Hokkai Building, 13-3, 1-Chome, Nihonbashi, Chuo-Ku, Tokyo 103, Japan.
7. Japan Sulphur Export Company, Ltd., Tsutumi Building, 1-13-12 Shinbashi, Minato-Ku, Tokyo 105, Japan.
8. Kanematsu-Gosho, Ltd., Kanematsu-Gosho Building, 5 Takaracho, 2-Chome, Chuo-Ku, CPO Box 141, Tokyo 104, Japan.
9. Marubeni Corporation, 1-4-2 Otemachi, Chiyoda-Ku, CPO Box 595, Tokyo 100, Japan.

10. Mitsubishi Corporation (Fertilizer Department), 3-1 Marunouchi, 2-Chome, Chiyoda-Ku, Tokyo 100, Japan.
11. Mitsui and Company, Ltd., 2-1 Otemachi, 1-Chome, Chiyoda-Ku, CPO Box 822, Tokyo 105, Japan.
12. Nichimen Company, Ltd., 2-15 Nakanoshina, Kita-Ku, P.O. Box Osaka Central 18, Osaka 530, Japan.
13. Nissho-Iwai Company, Ltd., 3-30 Imbashi, Higashi-Ku, Osaka 451, Japan.
14. Okura Trading Company Ltd., Okura Shoji Building, 3-6 Ginza, Chuo-Ku, Tokyo 104, Japan.
15. Sumitomo Shoji Kaisha, Ltd. (Fertilizer Department), 2-2 Hitotsubashi, 1-Chome, Chiyoda-Ku, CPO Box 1524, Tokyo 100-91, Japan.
16. Comptoir Agricole du Levant, P.O. Box 11-0182, Beirut, Lebanon.
17. Guthrie Kimia Sdn. Bhd., 21 Jalan Gelenggang, Damansara Heights, P.O. Box 2486 GPO, Kuala Lumpur 01-02, Malaysia.
18. Daewoo Industrial Company, Ltd., 541, 5-Ga Nam Dae Moon Ro, Jung-Ku, Seoul, CPO Box 2810, Republic of Korea.
19. Hyosung Corporation, 21, Seosomun-dong, Chung-Ku, Seoul, CPO Box 1851, Republic of Korea.
20. Hyundai Corporation, 485-1 Sinsa-Dong, Kangham-Ku, Seoul, Republic of Korea.
21. Korea Fertilizer Company, Ltd., 24-1, 2-KA, Cheo-Dong, Chung-Ku, Seoul, Republic of Korea.
22. Samsung Moolsan Company, Ltd., Samsung Main Building, CPO Box 1144, Seoul, Republic of Korea.
23. Ssangyong Corporation, 24-1, 2KA Zuh-Dong, Jung-Ku, Seoul, Republic of Korea.
24. Bian Heng and Company (Malaya) Sdn. Bhd., Far Eastern Bank Building, 156, Cecil Street, Singapore.

Latin America

1. Transquímica Internacional, Av. Paulista, 453-2º, Caixa Postal 7681, São Paulo SP, CEP 01311, Brazil.
2. Exportadora e Importadora México SA de CV, Insurgentes Sur No. 819-70 piso, México 18 D.F., México.
3. Empresa Multinacional Latinoamericana de Comercialización de Fertilizantes, S.A. (MULTIFERT), Apartado 6-4594, El Dorado, Panamá.
4. América Latina Internacional Asociados, S.A. (ALIA), Misiones 1475-piso 1-Escr 1, Casilla Postal 1602, Montevideo, Uruguay.

Africa

1. Ethiopia Amalgamated Ltd., Addis Ababa, Ethiopia.
2. Office Chérifien des Phosphates (OCP), 305, Avenue Mohammed V, Rabat, Morocco (also 19, rue Hamelin-75116 Paris, France).

Appendix E

Major Profit and Nonprofit International Management Consulting and Information Services Firms

1. Agrar-und Hydrotechnik GmbH, Muysenallee 66-68, Postfach 100132, 4300 Essen 1, Federal Republic of Germany.
2. International Trade and Mining News, Room No. C-1106, Casa de Aioi, No. 22-6, 2-Chome, Tsukuda, Chuo-Ku, Tokyo, Japan.
3. Unico International Corporation, Konishi Building, 2-2, 2-Chome, Honcho, Nihonbashi, Chuo-Ku, Tokyo, Japan.
4. British Sulphur Corporation Ltd., Parnell House, 25 Wilton Road, London SW1V 1NH, United Kingdom.
5. Fertilizer Economic Studies Ltd., 150 Buckingham Palace Road, London SW1V 9TR, United Kingdom.
6. Arthur D. Little, Inc., 35 Acorn Park, Cambridge, Massachusetts 02140, U.S.A.
7. Business International Corporation, One Dag Hammarskjold Plaza, New York, New York 10017, U.S.A.
8. Chem Systems, Inc., 14925 Memorial Drive, Suite 210, Houston, Texas 77079, U.S.A.
9. Data Resources Corporation, 29 Hartwell Avenue, Lexington, Massachusetts 02173, U.S.A.
10. International Agricultural Development Service (IADS), Rosslyn Plaza, 1611 N. Kent Street, Arlington, Virginia 22209, U.S.A.
11. McGraw-Hill, Inc. (Green Markets), 457 National Press Building, Washington, D.C. 20045, U.S.A.
12. Predicasts, Inc., 200 University Circle Research Center, 11011 Cedar Avenue, Cleveland, Ohio 44106, U.S.A.
13. SRI International, Inc., 333 Ravenswood Avenue, Menlo Park, California 94025, U.S.A.

Appendix F

Major Fertilizer Manufacturers

North America

1. Cominco Ltd., 200 Granville Square, Vancouver, British Columbia, V6C 2R2, Canada.
2. Esso Chemical Canada, 2300 Yonge Street, Toronto, Ontario, MDW 1K3, Canada.
3. Kalium Chemicals, 400 Bank of Canada Building, Regina, Saskatchewan S4P 0M9, Canada.
4. Potash Corporation of Saskatchewan Ltd., 410 22nd Street East, Saskatoon, Saskatchewan S7K 5T7, Canada.
5. Shell Canada Resources Ltd., 2523 Norcen Tower, 715 5th Avenue SW, Calgary, Alberta T2P 0N2, Canada.
6. Sherriot Gordon Mines Ltd., 1313 TD Tower, Edmonton Centre, Edmonton, Alberta T5J 2T1, Canada.
7. Simplot Chemical Company Ltd., P.O. Box 940, Brandon, Manitoba R7A 6A1, Canada.
8. Western Cooperative Fertilizers Ltd., P.O. Box 2500, 11111 Barlow Trail SE, Calgary 2, Alberta T2P 2N1, Canada.
9. Agrico Chemicals Company, P.O. Box 3166, One William Center, Tulsa, Oklahoma 74101, U.S.A.
10. Air Products & Chemicals, Inc. (Industrial Chemicals Division), P.O. Box 467, Pensacola, Florida 32592, U.S.A.
11. Allied Chemical Corporation (Agricultural Division), Morristown, New Jersey 07960, U.S.A.
12. Amax Chemical Corporation, 402 S. Kentucky Avenue, Suite 600, Lakeland, Florida 33801, U.S.A.
13. American Cyanamid Company, One Cyanamid Plaza, Wayne, New Jersey 07470, U.S.A.
14. Beker Industries Corporation, 124 W. Putnam Avenue, Greenwich, Connecticut 06630, U.S.A.
15. Borden Chemical Company, 180 E. Broad Street, Columbus, Ohio 43215, U.S.A.
16. CF Industries, Inc., Salem Lake Drive, Long Grove, Illinois 60047, U.S.A.
17. Chevron Chemical Company, 575 Market Street, San Francisco, California 94105, U.S.A.
18. Estech General Chemicals Corporation, 30 N. LaSalle Street, 42nd Floor, Chicago, Illinois 60602, U.S.A.
19. Farmland Industries, Inc., Box 7305, Kansas City, Missouri 64116, U.S.A.
20. First Mississippi Corporation, P.O. Box 1249, Jackson, Mississippi 39205, U.S.A.
21. Freeport Chemical Company, 161 E. 42nd Street, New York, New York 10017, U.S.A.

22. Gardinier, Inc., U.S. 41 South, P.O. Box 3269, Tampa, Florida 33601, U.S.A.
23. International Minerals & Chemical Corporation (IMC), 2315 Sanders Road, Northbrook, Illinois 60062, U.S.A.
24. Kaiser Aluminum & Chemical Corporation, 300 Lakeside Drive, Oakland, California 94643, U.S.A.
25. Kerr-McGee Chemical Corporation, Kerr-McGee Center, Oklahoma City, Oklahoma 73125, U.S.A.
26. Mississippi Chemical Corporation, Box 388, Yazoo City, Mississippi 39194, U.S.A.
27. Mobil Chemical Company (Phosphorus Division), Box 26683, Richmond, Virginia 23261, U.S.A.
28. Monsanto Company, 800 N. Lindbergh Boulevard, St. Louis, Missouri 63166, U.S.A.
29. Occidental Petroleum (Agricultural Products Group), P.O. Box 1185, 2000 South Post Oak Road, Houston, Texas 77056, U.S.A.
30. Phillips Chemical Company (Division of Phillips Petroleum), Bartlesville, Oklahoma 74004, U.S.A.
31. Potash Company of America, Division of Ideal Basic Industries, 630 Fifth Avenue, Suite 2645, New York, New York 10111, U.S.A.
32. Royster Company, Drawer 1940, Norfolk, Virginia 23501, U.S.A.
33. Shell Chemical Company, 1 Shell Plaza, Houston, Texas 77001, U.S.A.
34. Stauffer Chemical Company, 636 California Street, San Francisco, California 94108, U.S.A.
35. Terra Chemicals International, Inc., P.O. Box 1828, Sioux City, Iowa 51102, U.S.A.
36. Texasgulf Chemicals Company, P.O. Box 3021, Glenwood at Glen Eden, Raleigh, North Carolina 27622, U.S.A.
37. Union Chemicals Division, Union Oil Company of California, 461 S. Boylston Street, Los Angeles, California 90060, U.S.A.
38. USS Agri-Chemicals (Division of U.S. Steel Corporation), Box 1685, 233 Peachtree Street, NE, Atlanta, Georgia 30301, U.S.A.
39. W. R. Grace & Company (Agricultural Chemicals Group), Box 277, Memphis, Tennessee 38101, U.S.A.
4. Superfos A/S, Postboks 39, Frydenlundsvej 30, DK-2950 Vedbaek, Denmark.
5. BASF Aktiengesellschaft, Carl-Bosch-Strasse 38, D-6700 Ludwigshafen, Federal Republic of Germany.
6. Chemische Werke Hüls AG, Postfach 1320, 4370 Marl 1, Federal Republic of Germany.
7. Hoechst AG, Postfach 80 03 20, D-6230 Frankfurt-am-Main 80, Federal Republic of Germany.
8. Kali-Chemie AG, Hans-Bockler-Allee 20, Hannover 1, Federal Republic of Germany.
9. Kali und Salz AG, Postfach 10 20 29, Friedrich-Ebert Strasse 160, D-3500 Kassel 1, Federal Republic of Germany.
10. Kemira Oy, P.O. Box 330, Malminkatu 30, 00100 Helsinki 10, Finland.
11. Azote et Produits Chimiques SA (APC), 143 Route d'Espagne, 31053 Toulouse, Cedex 03, France.
12. Compagnie Française de l'Azote (COFAZ), 4 Avenue Velasquez, B.P. 198-08, 75361 Paris, Cedex 08, France.
13. Entreprise Minière et Chimiques (EMC), 62 rue Jeanne d'Arc, 75646 Paris. Cedex 13, France.
14. Gardinier SA, 5 rue du Commandant Pilot, F-92523 Neuilly-sur-Seine, France.
15. Société Chimique de la Grande Paroisse, 9 Avenue Robert Schuman, 75007 Paris, Cedex 07, France.
16. Société Commerciale des Potasses et de l'Azote (SCPA), 68053 Mulhouse Cedex-BP1170, France.
17. Société Nationale Elf Aquitaine (Production) (SNEA[P]), Tour Aquitainela Defense, No. 4, 92080 Paris, France.
18. The Hellenic Chemical Products & Fertilizers Company Ltd., 20 Amalias Avenue, Athens 118, Greece.
19. ANIC SpA, Castella Postale 3587, 20097 S. Donato Milanese, 20100 Milano, Italy.
20. Fertimont SpA (Montedison Fertilizzanti), Piazza della Repubblica, 14/46, 20124 Milano, Italy.
21. Unie van Kunstmestfabrieken BV (UKF), Postbus 45, Maliebaan 81, Utrecht, Netherlands.
22. Windmill Holland BV, P.O. Box 58, Maassluisdijk, Vlaardingén, Netherlands.
23. Zuid-Chemie BV, Postbus 70, Westkade 38A, Sas van Ghent, Netherlands.
24. Norsk Hydro A/S, Bygdøy allé 2, Oslo 2, Norway.
25. Química de Portugal, E.P. (QUIMIGAL), Avenida Infante Santo 2, 1399 Lisboa Codex, Portugal.
26. Empresa Nacional de Fertilizantes, S.A. (ENFERSA), Prim 12, Madrid 4, Spain.
27. SA Cros (Fertilizer Department), Paseo de Gracia 56, Barcelona 7, Spain.
28. Supra AB, Storgatan 24, Box 516, S-26124 Landskrona, Sweden.

Western Europe

1. Chemie Linz AG, Postfach 296, St. Peter-Strasse 25, A-4020 Linz, Austria.
2. Nederlandse Stikstof Maatschappij NV (Compagnie Néerlandaise de l'Azote SA), 149 Avenue Louise, B-1050, Brussels, Belgium.
3. Société Industrielle de Prayon SA, rue Joseph Wauters, B-4130 Engis, Belgium.

29. Chemische Fabrik Uetikon, CH8707 Uetikon am Zurichsee, Switzerland.
30. Albright & Wilson Ltd., Glaston Park, Glaston, Oakham, Leics, LE15 9BX, United Kingdom.
31. Imperial Chemical Industries Ltd., P.O. Box No. 1, Billingham, Cleveland TS23 1LB, United Kingdom.

Eastern Europe

1. Albania—All inquiries about fertilizer plants should go through Chamber of Commerce, Tirana, People's Republic of Albania.
2. Azototorov Zavod (Nitrogen Fertilizer Works), Stara Zagora, Bulgaria.
3. Chemical Combine for Mineral Fertilizers, Poveyanovo, Devnya, Bulgaria.
4. State Chemical Combine, Dimitrovgrad, Bulgaria.
5. Dulso Sala np, Sala, OKR Galanta, Czechoslovakia.
6. Severoceske Chemicke Zavody np (North Bohemian Works), Lovosice, Czechoslovakia.
7. Düngemittelkombinat VEB, Stickstoffwerk Piesteritz, Strasse der Neuer, 4602 Wittenburg Lutherstadt Piesteritz, German Democratic Republic.
8. VEB Kombinat Kali, Postfach 29, 54 Sondershausen, German Democratic Republic.
9. Pét Nitrogénművek (Pét Nitrogen Works), 8105 Várpalota, Postafiók 50, Hungary.
10. Pulawskie Przedsiębiorstwo Budownictwa, Przemysłowe "Pulawi," Ul. Sieroszewkiego, Pulawi, Poland.
11. Wloclawek, Ul. Smolna 7, Wloclawek, Poland.
12. Zaklady Azotowe Kędzierzyn, Woj. Katowice, Poland.
13. Romania—All inquiries about fertilizer plants should go through the International Trading Company, Danubiana.
14. Byeloruskali Combine, Near Soligorsk, Minsk Oblast, Byelorussia, U.S.S.R. (a major potash plant in the U.S.S.R.).
15. Cherkassy Chemical Combine, Cherkassy, Cherkassy Oblast, Ukraine, U.S.S.R. (the largest nitrogen plant in the U.S.S.R.).
16. Hemijska Industrija "Pancevo," Spoljnostarcevadka 72, 26000 Pancevo, Yugoslavia.
17. INA Tvornica Dusinacnih Gnojiva, Aleja Borisa Kidrica, 41820 Kutina, Yugoslavia.
18. "Zorka" Hemijska Industrija, Beogradski Put, 15000 Sabac, Serbia, Yugoslavia.

Asia/Oceania

1. Australian Fertilizer Ltd., 213 Miller Street, North Sydney, New South Wales 2060, Australia.
2. Consolidated Fertilizers Ltd., Gibson Island, Hemmant, Brisbane, Morningside, Queensland 4170, Australia.

3. Fertilizer Corporation of India Ltd., Madhuban, 55 Nehru Place, New Delhi 110019, India.
4. Indian Farmers Fertiliser Cooperative Ltd. (IFFCO), 36 Nehru Place, New Delhi 110019, India.
5. Madras Fertilizers Ltd., Manali, Madras 600068, India.
6. Rashtriya Chemicals & Fertilizers Ltd., Administrative Building, Chembur, Bombay 400 074, India.
7. Southern Petrochemical Industries Corporation Ltd., 97 Mount Road, Guindy, Madras 600-032, India.
8. P.T. Pupuk Sriwidjaja Ltd. (P.T. PUSRI), Letn, Jend. S. Parman 104, P.O. Box 2371, Jakarta, Indonesia.
9. National Petrochemical Company (NPC), Boulevard Karimkhan Zand, P.O. Box 2895, Tehran, Iran.
10. State Enterprise of Fertilizers, P.O. Box 74, Basra, Iraq.
11. State Organization for Minerals, P.O. Box 2330, Alwiya, Baghdad, Iraq.
12. Dead Sea Works Ltd., P.O. Box 75, Beer-Sheva 84100, Israel.
13. Israel Chemical Ltd., 123 Hahashmonain Street, P.O. Box 7164, Tel Aviv, Israel.
14. Central Glass Company Ltd., Kowa-Hitotsubashi Building, 7-1 Kanda-Nishikicho, 3-Chome, Chiyoda-Ku, Tokyo 101, Japan.
15. Mitsubishi Chemical Industries Ltd., 52 Marunouchi, 2-Chome, Chiyoda-Ku, Tokyo 100, Japan.
16. Mitsui Toatsu Chemical, Inc., 2-5 Kasumigaseki, Chiyoda-Ku, Tokyo 100, Japan.
17. Nissan Chemical Industries Ltd., Kowa-Hitotsubashi Building, 7-1 Kanda-Nishikicho, Chiyoda-Ku, Tokyo 101, Japan.
18. Sumitomo Chemical Company Ltd., New Sumitomo Building, 15, 5-Chome, Kitahama, Higashi-Ku, Osaka 541, Japan.
19. Ube Industries Ltd., 7-2 Kasumigaseki, 3-Chome, Chiyoda-Ku, Tokyo 100, Japan.
20. Zen-Noh, 1-Chome, Otemachi, Chiyoda-Ku, Tokyo, Japan.
21. Jordan Fertilizer Industry Company Ltd. (JFI), P. O. Box 5142, Amman, Jordan.
22. Jordan Phosphate Mines Company (JPMC), P.O. Box 30, Amman, Jordan.
23. Kuwait National Petroleum Company, KSC, P.O. Box 70, Safat, Kuwait.
24. Petrochemical Corporation of New Zealand Ltd., P.O. Box 5082, Petrocorp House, 86 Lambton Quay, Wellington, New Zealand.
25. National Fertilizer Corporation of Pakistan Ltd. (NFC), P.O. Box 1730, Lahore, Pakistan.
26. Qatar Fertilizer Company (SAQ), P.O. Box 10001, Umm Said, Qatar.

27. Taiwan Fertilizer Company Ltd. (TFC), 230, Section 4, Chung Hsiao East Road, Taipei, Taiwan, Republic of China.
28. Chinhae Chemical Company Ltd., 65-228 3 Ka Hangang-Ro, Youngsan-Ku, Seoul, Republic of Korea.
29. Korea Fertilizer Company Ltd. (KFC), 190 Yeo Chun Dong, Ulsan, Republic of Korea.
30. Namhae Chemical Corporation, 60-1 3KA, Chung-Mu-Ro, Jung-Ku, Seoul, Republic of Korea.
31. Yong Nam Chemical Company, C.P.O. Box 2220, 1-124 Yoido-Dong, Youngdungpo-Ku, Seoul, Republic of Korea.
32. Saudi Arabian Fertilizer Company (SAFCO), P.O. Box 553, Dammam, Saudi Arabia.
33. Saudi Basic Industries Corporation (SABIC), Box 5101, Riyadh, Saudi Arabia.
34. Azot Sanayii TAS, PK550, Ankara, Turkey.
35. Gübre Fabrikalari TAS, Büyükdere Caddesi No. 101, Mecidiyeköy, Istanbul, Turkey.
9. Monómeros Colombo-Venezolanos, S.A. (MCV), Calle 37, No. 8-43, piso 6, Apartado Aéreo 17972, Bogotá, Colombia.
10. Fertilizantes Mexicanos, S.A. (FERTIMEX), Calle de la Morena 804, México 12, DF, México.
11. Petróleos Mexicanos, S.A. (PEMEX), Avenida Marina Nacional 329, México 17, DF, México.
12. Petróleos del Perú (PETROPERU), Casilla 3126-1081, Paseo de la República 3361, Lima 27, Perú.
13. Petroquímica de Venezuela, S.A. (PEQUIVEN), P.O. Box 2056, Avenida Principal de las Mercedes, Edif. Aco, Caracas 1010-A, Venezuela.
14. Fertilizers of Trinidad and Tobago (FERTRIN), 11 Maraval Road, Port of Spain, Trinidad, West Indies.

Latin America

1. Petrosur, S.A., Reconquista 468, Buenos Aires 1003, Argentina.
2. Cia. Petroquímica Brasileira, S.A. (COPEBRAS), Caixa Postal 6420, Av. Brig. Luis Antonio, 1343-4° Andar, 01317 São Paulo, Brazil.
3. Fertilizantes do Sul, S.A. (FERTISUL), Caixa Postal 534, Rua Aquidaban 692, Rio Grande, Rio Grande do Sul, Brazil.
4. Petrobras Fertilizantes, S.A. (PETROFERTIL); Praça Mahatma Gandhi, 14-10°-14° Andar, Rio de Janeiro, CEP 20031, Brazil.
5. Ultrafertil, S.A.—Industria e Comercio de Fertilizantes, Av. Brigadeiro Luiz Antonio 1343-10°, São Paulo, Brazil.
6. Sociedad Química y Minera de Chile, S.A. (SOQUIMICH), Olivares 1229, 6° piso, Santiago, Chile.
7. Abonos Colombianos, S.A. (ABOCOL), Carrera 7, No. 31-10, piso 18, Bogotá, Colombia.
8. Fertilizantes Colombianos, S.A. (FERTICOL), Apartado Aéreo 42, Barrancabermeja, Colombia.

Africa

1. SONATRACH, 46 Boulevard, Mohamed V. Alger, Algeria.
2. Abu Qir Fertilizers & Chemical Industries Company, 95 Corniche Street, Appt. 508, Alexandria, Egypt.
3. Office Chérifien des Phosphates (OCP), 305, Avenue Mohammed V, Rabat, Morocco.
4. AECI Ltd., P.O. Box 1122, Johannesburg 2000, Republic of South Africa.
5. Omnia Fertilizers Ltd., P.O. Box 5966, 6th Floor, Omnia Centre, Corner of Frederick and von Brandis Streets, Johannesburg 2000, Republic of South Africa.
6. Triomf Fertilizer (Pty.) Ltd., Triomf House, Stanley Avenue, P.O. Box 31755, Braamfontein Werp, Republic of South Africa.
7. Société Industrielle d'Engrais au Senegal (SIES), B.P. No. 3377, 3 Avenue Carde, Dakar, Senegal.
8. Société Arabe des Engrais Phosphatés et Azotés (SAEPA), 7 rue du Royaume d'Arabie Saoudite, Tunis, Tunisia.
9. Société Industrielle d'Acide Phosphorique et d'Engrais (SIAPE), 7 rue du Royaume d'Arabie Saoudite, Tunis, Tunisia.

Appendix G

Major International Engineering and Construction Contractors

North America

1. Badger Company, Inc. (Gulf Design Division), 1401 North Westshore Boulevard, Tampa, Florida 33607, U.S.A.
2. Bechtel Corporation, 50 Beale Street, San Francisco, California 94119, U.S.A.
3. C. F. Braun and Company, 1600 S. Fremont Avenue, Alhambra, California 91802, U.S.A.
4. C-E Lummus, 1515 Broad Street, Bloomfield, New Jersey 07003, U.S.A.
5. C & I Girdler, Inc., 1721 S. 7th Street, Louisville, Kentucky 40232, U.S.A.
6. Dave McKee Corporation, P.O. Drawer 5000, 4715 S. Florida Avenue, Lakeland, Florida 33803, U.S.A.
7. The D. M. Weatherly Company, 1800 Peachtree Road, NW, Atlanta, Georgia 30309, U.S.A.
8. Foster Wheeler Corporation, 110 South Orange Avenue, Livingston, New Jersey 07039, U.S.A.
9. James Chemical Engineering, 779 North Street, Greenwich, Connecticut 06830, U.S.A.
10. Jacob Engineering Company (Dorrco Fertilizers Plants Division), P.O. Box 2008, Highway 98 at State Road 540, Lakeland, Florida 33803, U.S.A.
11. Pullman Kellogg, Three Greenway Plaza East, Houston, Texas 77046, U.S.A.
12. Singmaster and Breyer, Inc., 219 E. 42nd Street, New York, New York 10017, U.S.A.

Western Europe

1. Vöest-Alpine AG, Postfach 2, A-4010, Werksgelände, Linz, Austria.
2. N-Ren International SA, Chateau de Peutie, 40 Vijfhoekstraat, 1801 Peutie, Belgium.
3. SA Coppée-Rust NV, Avenue Louise 251, Box 16, B-1050 Brussels, Belgium.
4. Société de Prayon SA, 16 Grand-rue, B-4940, Forêt-Trooz, Belgium.
5. Haldor Topsøe A/S, P.O. Box 213, Nymøllevej 55, DK-2800 Lyngby, Denmark.
6. Heurtey Industries, 30 rue Cuersant, Paris 17, France.
7. Krebs and Cie, 61 rue Pouchet, F-75017 Paris, France.
8. PEC-Engineering, 62 rue Jeanne d'Arc, F-75646 Paris, France.
9. Société Technique d'Entreprises Chimiques (STEC), 192 Grand-Rue, 92310 Sevres, France.
10. Snamprogetti SpA, Casella Postale 4169, I-20100 Milano, Italy.
11. Tecnimont (Engineering Division of Montedison SpA), Casella Postale 3268, I-20124 Milano, Italy.

12. Stamicarbon BV, P.O. Box 10, 6160 MC Geleen, Netherlands.
13. Lurgi Gesellschaften, Postfach 111231, D-6000 Frankfurt am Main II, Federal Republic of Germany.
14. Uhde GmbH, Postfach 262, Deggingstrasse 10-12, 4600 Dortmund 1, Federal Republic of Germany.
15. Española de Investigación y Desarrollo S.A. (ESPINDESA), Rodríguez San Pedro, 2, Madrid-15, Spain.
16. Davy Powergas Ltd., 8 Baker Street, London W1M 11DA, United Kingdom.
17. Humphreys and Glasgow Ltd., 22 Carlisle Place, Longon SW1P 1JA, United Kingdom.
18. Scientific Design Company, Ltd., Bush House, Aldwych, London WC2B 40B, United Kingdom.
19. Sim-Chem Ltd., P.O. Box 17, Cheadle Hulme, Cheadle, Cheshire SK8 5BR, United Kingdom.
20. Sirycon Ltd., Regal House, London Road, Twickenham, Middlesex TW1 3QJ, United Kingdom.

Asia/Oceania

1. Fertilizers (Planning and Development) India Ltd., CIFT Building, P.O. Sindri, Dhanbad, Bihar PIN 828122, India.
2. Chiyoda Chemical Engineering and Construction Company Ltd., Hibiya Kokusai Building, 2-3 Uchisaiwaicho, 2-Chome, Chiyoda-Ku, Tokyo 100, Japan.
3. Hitachi Shipbuilding and Engineering Company Ltd., Palaceside Building, 1-1 Hitotsubashi, 1-Chome, Chiyoda-Ku, Tokyo 100, Japan.
4. Mitsui Toatsu Chemicals, Inc. (MTC), 2-5, Kasumigaseki, 3-Chome, Chiyoda-Ku, Tokyo, Japan.
5. Nissan Engineering Ltd., 5-2-8 Toshima, Kita-Ku, Tokyo 114, Japan.
6. Toyo Engineering Corporation (TEC), Kasumigaseki Building, 2-5, 3-Chome, Kasumigaseki, Chiyoda-Ku, Tokyo, Japan.
7. Ube Industries Ltd., 7-2, Kasumigaseki, 3-Chome, Chiyoda-Ku, Tokyo, Japan.

Latin America

1. Panamerican Consulting International Ltd., P.O. Box F-2665, Freeport, Grand Bahama, Bahamas.
2. Inter-Uhde Engenharia Química Ltda., Edifício Andraus, Rua Pedro Americo, 32-33 Andar, CEP 01045, São Paulo, Brazil.

Eastern Europe

1. VEB Chemieanlagenbau-und Montagekombinat Leipzig, Georgiring 1-3, 701 Leipzig, German Democratic Republic.
2. Polimex-Cekop Ltd., Czackiego 7/9, Warsaw, Poland.
3. Institute for Technological Engineering and Design for Chemical Industry (IPROCHIM), 19-21 Mihail Eminescu Street, 71144 Bucharest, Romania.

Appendix H

Multilateral and Regional Development Aid Agencies

1. African Development Bank (AfDB), BP 1387, Abidjan (01), Ivory Coast.
2. Arab Fund for Economic and Social Development, P.O. Box 21923, Sufat, Kuwait.
3. Asian Development Bank (ADB), P.O. Box 789, 2330 Roxas Boulevard, Pasay City, Metro Manila 2800, Philippines.
4. Banque Arabe pour le Développement Economique en Afrique (BADEA), P.O. Box 2640, Abd el Rahman el Mehdi Avenue, Khartoum, Sudan.
5. Fond Européen de Développement (FED), 200 rue de la Loi, Berlemont, 1040 Brussels, Belgium.
6. Food and Agriculture Organization of the United Nations (FAO), Via delle Terme di Caracalla, 1-00100 Rome, Italy.
7. Instituto Interamericano de Cooperación para la Agricultura de la OEA (Inter-American Institute for Cooperation on Agriculture of the Organization for American States) Apartado 55-2200 Coronado, San José, Costa Rica.
8. Inter-American Development Bank (IADB), 808 17th Street, NW, Washington, D.C. 20577, U.S.A.
9. International Bank for Reconstruction and Development (IBRD), 1818 H Street, NW, Washington, D.C. 20433, U.S.A.
10. International Development Association (IDA), 1818 H Street, NW, Washington, D.C. 20433, U.S.A.
11. International Finance Corporation (IFC), 1818 H Street, NW, Washington, D.C. 20433, U.S.A.
12. International Fund for Agricultural Development (IFAD), Via del Serafico 107, 1-00142 Rome, Italy.
13. International Monetary Fund (IMF), 700 Nineteenth Street, NW, Washington, D.C. 30431, U.S.A.
14. The OPEC Fund for International Development, P.O. Box 995, 1011 Vienna 1, Austria.
15. United Nations Development Programme (UNDP), One United Nations Plaza, New York, New York 10017, U.S.A.
16. United Nations Industrial Development Organization (UNIDO), Vienna International Centre, P.O. Box 300, A-1400, Vienna, Austria.

Appendix I

Bilateral Development Aid Agencies

1. Administration Générale de la Coopération au Développement (AGCD), "A.G." Building, 5, Place du Champ de Mars 5, Boite 58, 1050-Brussels, Belgium.
2. Agency for International Development (AID), Main State Building, Washington, D.C. 20523, U.S.A.
3. Australian Development Assistance Bureau (ADAB), P.O. Box 887, Canberra City, A.C.T. 2602, Australia.
4. Canadian International Development Agency (CIDA), 122 Bank Street, Ottawa K1A 0G4, Canada.
5. Danish International Development Agency (DANIDA), Asiatisk Plads 2, DK-1448, Copenhagen, Denmark.
6. Departementet for Utviklingshjelp, P.O. Box 8114, Oslo-Dept., Oslo 1, Norway.
7. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (German Agency for Technical Cooperation), Postfach 5180, D-6236 Eschborn 1, Federal Republic of Germany.
8. Development Cooperation Division, Department of Foreign Affairs, 80 Street, Stephen's Green, Dublin 2, Ireland.
9. External Aid Division, Ministry of Foreign Affairs, Private Bag, Wellington, New Zealand.
10. Japan International Cooperation Agency (JICA), P.O. Box 216, Mitsui Building, 2-1 Nishi Shinjuku, Shinjuku-Ku, Tokyo, Japan.
11. Kuwait Fund for Development, P.O. Box 2921, Safat, Kuwait.
12. Ministère de la Coopération, 20, rue Monsieur - 75007, Paris France.
13. Ministry for Development Cooperation, Muzenstraat 30, 2511 VW, The Hague, Netherlands.
14. Overseas Development Administration (ODA), Eland House, Stag Place, London SW1E 5DH, United Kingdom
15. Overseas Economic Cooperation Fund of Japan (OECF), Lino Building, 2-1-1 Uchisaiwaicho, 2-Chome, Chiyodaku, Tokyo 100, Japan.
16. Saudi Fund for Development, P.O. Box 1887, Riyadh, Saudi Arabia.
17. Swedish International Development Authority (SIDA), Bigger Jarisgatan 61, Stockholm, Sweden.
18. Swiss Development Cooperation, Eigerstrasse 73, 3003 Berne, Switzerland.

Appendix J

International Agricultural Research Centers

1. Asian Vegetable Research and Development Center (AVRDC), P.O. Box 42, Shanhua, Tainan Prefecture, Taiwan 741, Republic of China.
2. Centro Internacional de Agricultura Tropical (CIAT), Apartado Aéreo 6713, Cali, Colombia.
3. Centro Internacional de Mejoramiento de Maíz y Trigo (CIMMYT), Londres 40, México 6, DF, México.
4. Centro Internacional de la Papa (CIP), Apartado 5969, Lima, Perú.
5. International Board for Plant Genetic Resources (IBPGR), Via delle Terme di Caracalla 00100, Rome, Italy.
6. International Centre for Agricultural Research in the Dry Areas (ICARDA), P.O. Box 5466, Aleppo, Syria.
7. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru P.O. Pin 502324, Andhra Pradesh, India.
8. International Fertilizer Development Center (IFDC), P.O. Box 2040, Muscle Shoals, Alabama 35662, U.S.A.
9. International Food Policy Research Institute (IFPRI), 1776 Massachusetts Avenue, NW, Washington, D.C. 20036, U.S.A.
10. International Institute of Tropical Agriculture (IITA), P.O. Box 5320, Ibadan, Nigeria.
11. International Livestock Center for Africa (ILCA), P.O. Box 5689, Addis Ababa, Ethiopia.
12. International Rice Research Institute (IRRI), P.O. Box 933, Manila, Philippines.
13. International Service for National Agricultural Research (ISNAR), P.O. Box 93375, 2509 AJ The Hague, Netherlands.
14. West Africa Rice Development Association (WARDA), E. J. Roye Memorial Building, P.O. Box 1019, Monrovia, Liberia.

Except for IFDC and AVRDC, all centers are supported by the Consultative Group for International Agricultural Research (CGIAR). IFDC and AVRDC are affiliated with CGIAR only.

Appendix K

United Nations and Other Public International Development Assistance Organizations (Other than Development Aid Agencies)

1. Fertilizer Advisory, Development, and Information Network for Asia and the Pacific (FADINAP) Agricultural Division, Economic and Social Commission for Asia and the Pacific (ESCAP), United Nations Building, Rajadamnern Avenue, Bangkok 2, Thailand.
2. Organization for Economic Cooperation and Development (OECD), 2 rue Andre Pascal, F75775 Paris CEDEX 16, France.

Appendix L

Major Private, Nonprofit, and Autonomous Development Assistance Institutions

1. Ford Foundation, 320 East 43rd Street, New York, New York 10017, U.S.A.
2. Deutsche Stiftung für Internationale Entwicklung (DSE), Postfach 1205 18, Endenicherstr. 41, D-5300 Bonn 12, Federal Republic of Germany.
3. International Development Research Centre (IDRC), Box 8500, Ottawa K1G 3H9, Canada.
4. W. F. Kellogg Foundation, 400 North Avenue, Battle Creek, Michigan 49016, U.S.A.
5. Rockefeller Foundation, 1133 Avenue of the Americas, New York, New York 10036, U.S.A.

Appendix M

National Government Agencies (Other than Development Aid Agencies)

1. Bureau de Recherches Géologiques et Minières (BRGM), B.P. 6009, 45060 Orléans, France.
2. Commonwealth Scientific and Industrial Research Organization (CSIRO), P.O. Box 225, Dickson, A.C.T. 2602, Australia.
3. Institut für Landwirtschaftliche Marktforschung, 3301 Braunschweig, Bundesallee 50, Federal Republic of Germany.
4. Institute of Geological Sciences, Minerals Strategy and Economic Research Unit, Exhibition Road, South Kensington, London SW7 2DE, United Kingdom.
5. National Fertilizer Development Center (NFDC), Tennessee Valley Authority (TVA), Muscle Shoals, Alabama 35660, U.S.A.
6. Overseas Private Investment Corporation (OPIC), 1129 Twentieth Street, NW, Washington, D.C. 20527, U.S.A.
7. Trade Information Office, Foreign Trade Division, Bureau of the Census, United States Department of Commerce (USDC), Fourteenth Street Between Constitution Avenue and E Street, NW, Washington, D.C. 20230, U.S.A.
8. United States Bureau of Mines, Office of Technical Information, Department of Interior, 2401 E Street, NW, Washington, D.C. 20241, U.S.A.
9. United States Department of Agriculture (USDA), Fourteenth Street and Independence Avenue, SW, Washington, D.C. 20250, U.S.A.
10. United States Department of Energy, James Forrestal Building, 1000 Independence Avenue, SW, Washington, D.C. 20585, U.S.A.
11. United States Geological Survey, National Center, 12201 Sunrise Valley Drive, Reston, Virginia 22092, U.S.A.
12. United States International Trade Commission, 701 E Street, NW, Washington, D.C. 20436, U.S.A.

Appendix N

Other International Development Services Organizations

1. Agricultural Cooperative Development International (ACDI), 1012 14th Street, NW, Washington, D.C. 20005, U.S.A.
2. ASEAN Agricultural Development Planning Centre, Kasetsart University Campus, Phaholyothin Road, Bangkok, Bangkok 9, Thailand.
3. Asian Institute of Management (AIM), MCC P.O. Box 898, Makati, Metro Manila, Philippines.
4. Asian Productivity Organization, Aoyama Dai-Ichi Mansions, 4-14 Akasaka 8-Chome, Minato-Ku, Tokyo 107, Japan.
5. The Consortium for International Development (CID), c/o University of Arizona, Tucson, Arizona 85721, U.S.A. (The consortium of 11 colleges and universities in the western and southwestern United States.)
6. Cooperative League of the United States of America (CLUSA), 1828 L Street, NW, Washington, D.C. 20036, U.S.A.
7. East-West Center, University of Hawaii, 1777 East-West Road, Honolulu, Hawaii 96848, U.S.A.
8. Export-Import Bank of the United States, 811 Vermont Avenue, NW, Washington, D.C. 20571, U.S.A.
9. Food and Fertilizer Technology Center, Asian and Pacific Council (ASPAC), P.O. Box 22-149, Taipei, Taiwan, Republic of China.
10. Food Research Institute, Stanford University, Stanford, California 94305, U.S.A.
11. Major banks of industrialized countries.
12. Midwest Universities Consortium for International Activities, Inc. (MUCIA) The Ohio State University, 134 Derby Hall, 154 North Oval Mall, Columbus, Ohio 43210, U.S.A.
13. National Academy of Sciences, 2101 Constitution Avenue, Washington, D.C. 20418, U.S.A.
14. Société Nationale des Etudes de Développement Afrique, Dakar, Senegal.
15. The South-East Consortium for International Development (SECID), 400 Eastowne Drive, Suite 207, Chapel Hill, North Carolina 27514, U.S.A.
16. Volunteer Development Corporation, 1629 K Street, NW, Washington, D.C. 20006, U.S.A.

Appendix O

Fertilizer Market-Related Reports or Papers (For Controlled or Restricted Distribution)

The Fertilizer Institute

1015 18th Street, NW
Washington, D.C. 20036
U.S.A.

1. "Fertilizer Flash" (a newsletter on U.S. fertilizer production, inventories, and domestic disappearance).
2. "Fertilizer Index" (a monthly survey of U.S. fertilizer production, inventories, and domestic disappearance).

International Commodities Export Company

717 Westchester Avenue
White Plains, New York 10604
U.S.A.

"Market Report" (weekly).

International Fertilizer Development Center

P.O. Box 2040
Muscle Shoals, Alabama 35662
U.S.A.

1. "Fertilizer Situation for Africa" (updated semiannually).
2. "Fertilizer Situation for Asia" (updated semiannually).
3. "Fertilizer Situation for Latin America" (updated semiannually).
4. "Fertilizer Situation in Developed Countries" (updated semiannually).
5. "Graphs of Weekly International Spot Prices for Selected Fertilizer Products, Intermediates, and Raw Materials" (updated monthly).

International Fertilizer Industry Association

28 rue Marbeuf 75008
Paris, France

1. "Ammonia Capacities," July 1982.
2. "Ammonia Statistics," annual (1982).
3. "The Fertilizer and Raw Materials Supply/Demand Situation," May 1983.
4. "Fertilizer Consumption Statistics," annual (1981/82).
5. "Fertilizer Indicators," August 1982.
6. "Fertilizer Industry Situation in Different Regions of the World," December 1981.
7. "Forecasts of Phosphate Fertilizers and Phosphoric Acid Consumption," 1981.
8. "Forecasts of Fertilizer Consumption," 1982.
9. "Gas and Ammonia," February 1981.
10. "Liquid Fertilizers in the United States," February 1982.

11. "Outlook for Potash Supply and Demand," September 23, 1981.
12. "Outlook for Supply and Demand of Phosphate Rock, Sulphur, and Ammonia," May 11, 1982.
13. "Outlook for World Fertilizer Consumption—Phosphoric Acid Supply and Demand Situation," May 11, 1982.
14. "Phosphate Fertilizer Statistics," annual (1981/82).
15. "Phosphate Rock Statistics," annual (1982).
16. "The Phosphate Rock, Sulphur, Ammonia, Phosphoric Acid, and Phosphate Fertilizer Supply/Demand Situation," May 11, 1982.
17. "Phosphoric Acid Plants—1983 Survey," annual.
18. "Potash Statistics," annual (1981).
19. "Processed Phosphates and Urea Trade," January-June 1982 and July 1981-June 1982.
20. "The Prospects for Single Superphosphate, 1980-1990," June 1982.
21. "Quarterly Phosphate Rock Statistics," January-March 1983.
22. "Quarterly Sulphur Statistics," January-March 1983.
23. "Sulphur and Gas," October 1981.
24. "Sulphur and Sulphuric Acid Statistics," preliminary, annual (1982).
25. "Survey of Phosphate Fertilizers and Phosphoric Acid for Fertilizer Use," 1982.

International Ore & Fertilizer Corporation

1230 Avenue of the Americas
New York, New York 10020
U.S.A.

"Fertilizer Market Report" (bimonthly).

National Fertilizer Solutions Association

8823 N. Industrial Road Peoria, Illinois 61615 U.S.A.

"Solutions," a Journal of the Fluid Fertilizer Industry, 7 times/year.

The World Bank

1818 H Street, NW
Washington, D.C. 20433
U.S.A.

1. "Price Prospects for Major Primary Commodities: Food Products and Fertilizers," Volume II, annual (July 1982).
2. "World Phosphate Survey," September 1979.
3. "World Potash Survey," September 1978.