

IFDC Pilot-Plant Research Units—

TWO ADDITIONAL PILOT PLANTS OPERATING

An ore-beneficiation pilot plant and a bulk-blend/granulation pilot plant have been completed, and startup occurred in September.

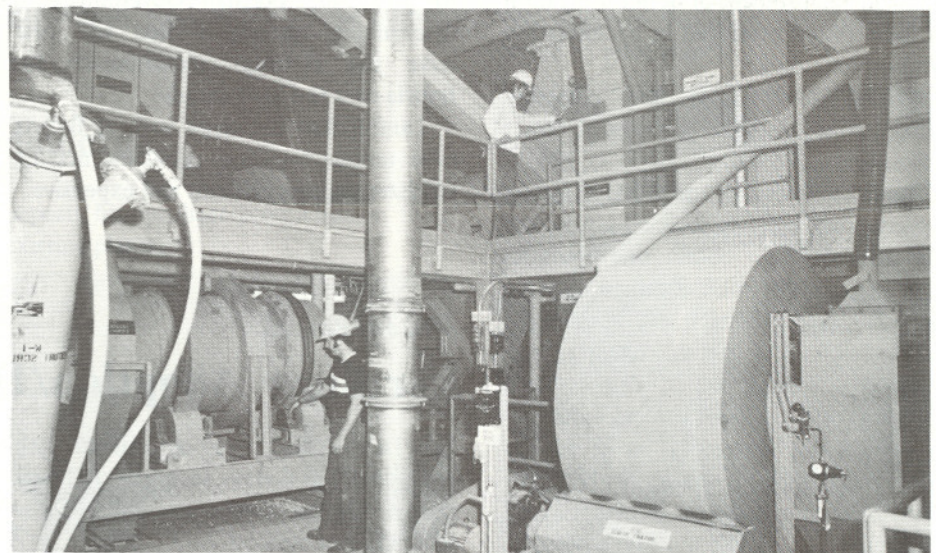
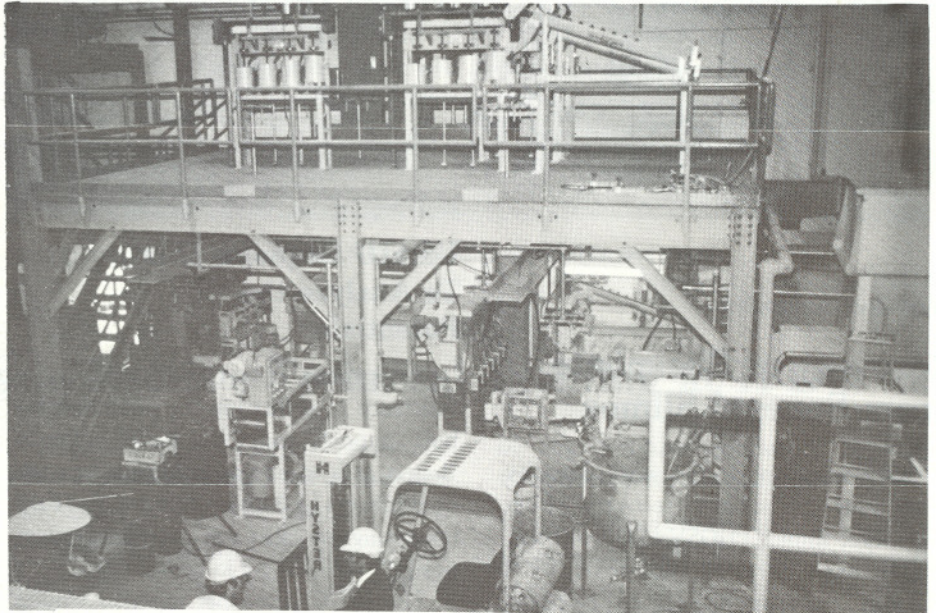
IFDC can now evaluate and demonstrate in-house various upgrading (beneficiation) techniques for a wide range of ores. Research can also be conducted on problem ores and economic data generated for further scaleup to assist the developing countries in better utilization of indigenous ore deposits.

The bulk-blend/granulation facility has the flexibility to produce a wide range of fertilizer types and to demonstrate a wide range of equipment operation. This facility is also designed for training in various stages of sophistication (from manual to automatic control) and to generate economic data for the construction of similar or scaled-up facilities in the developing countries. Although urea supergranules will be the initial product, the plant will be able to bulk blend, with and without micronutrients, and granulate using several types of equipment to make a wide range of NP, NPK, or other fertilizer grades. Granular products will emphasize the use of relatively large quantities of urea in the formulation as this is of significant importance in many developing countries of Asia, Latin America, and certain areas in Africa.

Rice Policy Study—

Collaborative Research Project With IRRI And IFPRI

IFDC and International Rice Research Institute (IRRI) are joining with International Food Policy Research Institute (IFPRI) in initiating a comprehensive study of rice production in southeast Asian countries.



IFDC's ore-beneficiation and bulk-blend/granulation pilot plants are now in operation.

IFPRI is taking the lead in overall policy. IRRI is assisting in evaluation of rice varieties and associated cultural practices, and IFDC is responsible for all policy related aspects of fertilizer to ensure that fertilizer is playing its proper

role and that its availability at reasonable prices is not a limiting factor.

Ford Foundation Helps Sponsor Workshop

The investigation of the potential improved efficiency obtainable through placement of urea as supergranules, coated supergranules, or liquid injections into rice paddies was the purpose of a workshop conducted by IFDC, through partial funding by the Ford Foundation from September 25 to October 27, 1978.

Because of its interest in expediting widescale research and demonstration within India, the Foundation (India office) cosponsored the 5-week workshop at IFDC Headquarters.

IFDC staff and eight Indian researchers reviewed agronomic research results on nitrogen losses from rice fields, discussed results from evaluations of

modified urea products and formulated well-designed plans for rapid and thorough evaluation of experimental modified urea products throughout India.

The placement approach is promising as trials in the greenhouse as well as early field trial results indicate increased uptake of as much as 100% over present practices and a significant reduction in N losses.

The IFDC pilot plant was commissioned in mid-September to begin production of 1-gram spherical supergranules of urea which will serve as a source of new fertilizer materials for the agronomic testing programs in India and other Asian countries.

Bulk Imports and Bulk Blending in Bolivia

USAID Requests IFDC To Analyze the Potentials

Responding to a USAID request for assistance in evaluating the potentials for bulk imports and for bulk blending in Bolivia as a means of reducing the costs of fertilizers to Bolivian farmers, an IFDC marketing specialist and an engineer spent nearly 2 weeks there in September.

The IFDC personnel initiated studies to assist the Bolivian Government in determining approaches that will best serve the fertilizer requirements for Bolivia over the next decade.

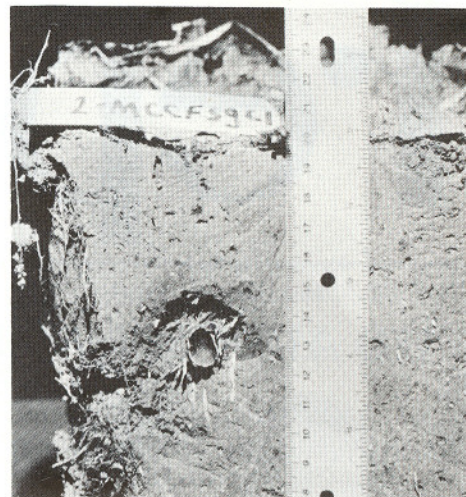
Land-locked countries such as Bolivia have unique logistical problems making fertilizer imports difficult and expensive.

India and Bangladesh—

Fertilizer Adoption/Demand Studies

IFDC has negotiated agreements with India and Bangladesh to conduct 2-year studies on the constraints to fertilizer adoption and demand.

The training of interviewers is underway, and field information on what factors cause some farmers to adopt fertilizers while others do not is being generated. Both countries recognize that certain areas of their countries and even farmers within these areas adopt the use of fertilizers more readily than others.



IFDC greenhouse trials show promising results of the placement of urea as coated supergranules.

Byproduct Utilization—

Recovery of Phosphate From Senegal Slimes

After reviewing initial work done by IFDC on phosphate recovery from byproduct slimes, PHOSVALOR of Paris, France, has contracted with IFDC for a 9-month research project to continue work on the problem of better utilization of these slimes produced in beneficiation of phosphate rock.

PHOSVALOR is a new company formed to address the problem of slimes utilization.

Taiba phosphate rock has become synonymous with high analyses in the world market. To obtain this premium high analysis, the rock as mined must be upgraded (beneficiated), and in so doing about half of the total phosphate is discarded as an extremely fine fraction known as slimes. These slimes contain up to 28% P_2O_5 on a dry basis and, in reality, are now presenting problems of disposal since about 100 million tons of this material has already accumulated. An additional 1 million tons of slimes is produced each year.

In laboratory tests at IFDC, a large percentage of this phosphate content discarded in the slimes has been recovered with encouragement that a marketable form of phosphate fertilizer can be produced.

Manufacture of High-Quality TSP—

Research Contract With MANAH

MANAH S/A Comercio E Industria of Sao Paulo has contracted IFDC to run laboratory and bench-scale tests to determine how best to utilize Brazilian rock in the manufacture of triple superphosphate of high quality.

MANAH officials realize that as new phosphate mines open in a country, the fertilizer industries must adjust their procedures and equipment to utilize these rocks. The Brazilian industry is undergoing such adjustments.

Also, certain farmers who have tried fertilizer have later abandoned its use even though it appears that cost/benefit returns are favorable.

Researchers are optimistic that restrictions to widespread fertilizer use can be identified and that policy adjustments can be made to encourage more farmers to try fertilizers and to continue to use fertilizers at nearer optimum levels. Small and disadvantaged farmers are special targets of this work.

Twenty-four Participants—

Second Annual Fertilizer Marketing and Distribution Course

A 6-week course on fertilizer marketing and distribution was conducted at IFDC from August 14 to September 22, 1978.

Twenty-four participants from the Philippines, Indonesia, Malaysia, India, Nepal, Bangladesh, Jordan, Ethiopia, Colombia, and the Dominican Republic were enrolled in the course. These participants represent both private- and public-sector fertilizer companies as well as government planning organizations and the FAO and USAID fertilizer programs.

The course is a combination of classroom instruction and visits to industry to demonstrate different techniques of transporting, handling, storing, and marketing of fertilizers. An important part of this annual course is the problem-solving approach where each participant is encouraged to identify and suggest a solution to some problem that is seen as

an obstruction to improved fertilizer distribution and marketing in his country or company.



Participants of the second annual fertilizer marketing and distribution course.

Brazil—

Nine CEFER Engineers to Receive Technical Training at IFDC

Beginning in October, nine engineers from the Centro de Estudos de Fertilizantes (CEFER), Sao Paulo, Brazil, will spend from 3 to 6 weeks at IFDC working directly with IFDC staff to gain further knowledge in their fields of specialization and in the use of specialized equipment.

Prior to this and under the sponsorship of CEFER, IFDC conducted an intensive shortcourse in fertilizer granulation for the Brazilian fertilizer industry in Sao Paulo, June 11-24, 1978. About 10 of CEFER's staff plus about 60 other participants representing a large portion

of the fertilizer producers in Brazil attended this shortcourse.

An IFDC engineer and a TVA engineer seconded to IFDC also gave direct assistance to six fertilizer industries in Sao Paulo and reviewed plans for CEFER's new facilities including the design and layout of pilot plants.

Expansion in Materials Handling—

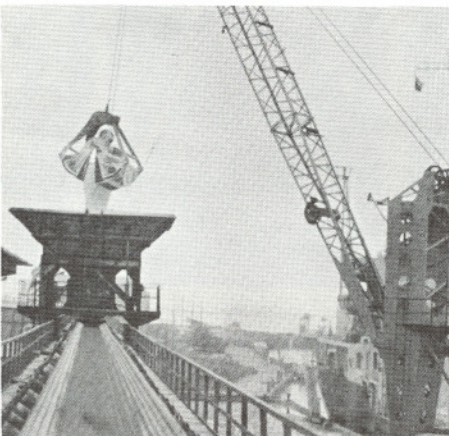
Continuing Assistance to Monmeros

In response to a request by Monmeros Colombo Venezolanos, S.A. (MONOMEROS) of Barranquilla, Colombia, an IFDC civil engineer provided technical assistance during May and June by advising on improvements and expansion of port and unloading facilities.

In addition to assistance onsite in Colombia, the IFDC engineer accompanied three Colombian engineers on visits to U.S. ports to view the operation and maintenance of these facilities and equipment.

MONOMEROS continues to call upon IFDC for assistance in the expansion and modernization of its fertilizer production and marketing facilities. They have also requested IFDC assistance in finding ways to utilize a local phosphate

deposit for fertilizer production in their existing plants.



IFDC provided technical assistance to MONOMEROS by advising on improvements and expansion of port and unloading facilities.

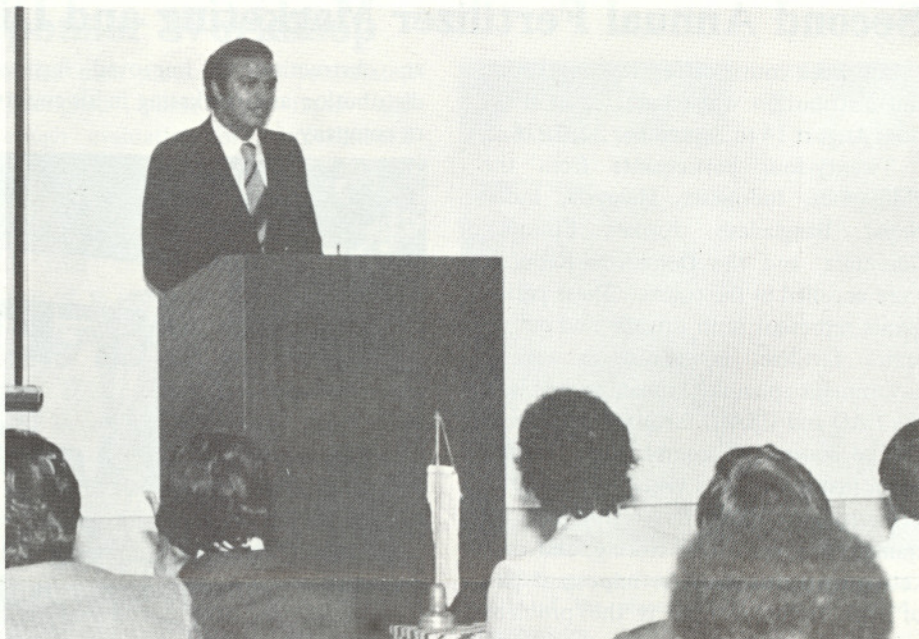


IFDC Engineering Research Coordinator, Jim Schultz, assisted in the fertilizer granulation shortcourse in Sao Paulo, Brazil.

Technical Assistance to CRA

During May an IFDC engineer and a TVA engineer seconded to IFDC assisted engineers of the Companhia Riograndense de Adubos (CRA) at Rio Grande, Brazil, in the successful startup, adjustments, and training of operators of a new energy-saving facility.

The new technology which CRA has installed employs TVA processes using both a preneutralizer and pipe-cross reactor and makes ammoniated phosphate fertilizers by direct reaction of ammonia and phosphoric acid while eliminating or greatly reducing the energy requirements for drying the product.



Dr. Ibrahim Shihata, Director-General of the OPEC Special Fund, reviewing IFDC facilities and its programs, September 21-22.

PUBLICATIONS AND REPRINTS AVAILABLE FROM IFDC

Reports

- "Granular Urea—Advantages and Processes," published by IFDC.
- "The Potential for Regional Cooperation in Fertilizer—A Methodology Study of the ASEAN Group," published by IFDC.
- "Supplying Fertilizers for Zaire's Agricultural Development," published by TVA.
- "West Africa Fertilizer Study (Volumes I-VII)," published by IFDC.
 - Volume I—Regional Overview
 - Volume II—Senegal
 - Volume III—Mali
 - Volume IV—Upper Volta
 - Volume V—Niger
 - Volume VI—Chad
 - Volume VII—Mauritania
- "Economic and Technical Aspects of Fertilizer Production and Use in West Africa," T. Zalla, R. B. Diamond, and M. S. Mudahar, IFDC/MSU Working Paper No. 22, 1977.
- "Ghana—Progress in Fertilizer Production, Marketing, Education," published by TVA.

- "Suggested Fertilizer-Related Policies for Governments & International Agencies," published by IFDC.
- "Progress Report, 1976-1977," published by IFDC.
- "The Bangladesh Fertilizer Sector, 1978," published by IFDC.

Papers and Reprints

- "Needed Information and Economic Analysis for Fertilizer Policy Formulation," M. S. Mudahar, Presented at FAO/FIAC Seminar on Fertilizer Pricing Policies and Subsidies, Bangkok, Thailand, 1978.
- "A Simple Chemical Method for Evaluating the Agronomic Potential of Granulated Phosphate Rock," S. H. Chien and L. L. Hammond, *Soil Science Society of America Journal*, Vol. 42, No. 3, May-June 1978.
- "Dissolution of Phosphate Rocks in Flooded Acid Soil," S. H. Chien, *Soil Science Society of America Journal*, Vol. 41, No. 6, Nov-Dec. 1977.
- "Interpretation of Bray I Extractable P from Acid Soil Treated with Phosphate Rocks," S. H. Chien, *Soil Science*, Vol. 126, No. 2, Aug. 1978.
- "Thermodynamic Considerations of the Solubility of Phosphate Rock," S. H. Chien, *Soil Science*, Vol. 123, No. 2, 1977.
- "Dissolution Rates of Phosphate Rocks," S. H. Chien, *Soil Science Society of America Journal*, Vol. 41, No. 3, May-June 1977.



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