

# Partners in Agroeconomic Development

By Douglas N. Ross

*A Research Report from The Conference Board's  
Division of Public Affairs Research  
Walter A. Hamilton, Vice President*

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## Foreword

THIS REPORT IS the result of a sequence of events that began at The Conference Board early in 1974. The impetus originated in the deliberations of the Senior Executives Council. *Food and Population: The Next Crisis* was a Board research report made available prior to the 1974 World Food Conference in Rome. It addressed the prospects for a world food crisis and actions then under way to deal with its various aspects.

In 1975 The Conference Board, generously assisted by The Leland Fikes Foundation and with the cooperation of the Planned Parenthood Association of Northeast Texas and the Population Crisis Committee, held a conference on *The Challenge of Overpopulation and Food Shortages*. The conference closely examined the role of the private sector—nonprofit and profit making—in world development.

This report examines the role of agribusiness in less-developed countries. It focuses

particularly on innovative efforts now under way that address the food problem in a systemic context. It is not an exhaustive survey of the wide range of agribusiness or other related efforts in the developing world.

We are especially appreciative of the assistance provided by Dr. Terrance Hanold, former President and Chairman of the Executive Committee, Pillsbury Company; Dr. Eric Marler, International Business Machines Corporation; Dr. Nevin Scrimshaw, Department of Nutrition, Massachusetts Institute of Technology; and Mr. Walter Simons, Deputy-Director, Industry Cooperative Programme of the Food and Agriculture Organization.

This report was written by Dr. Douglas N. Ross of the Board's Public Affairs Research Division.

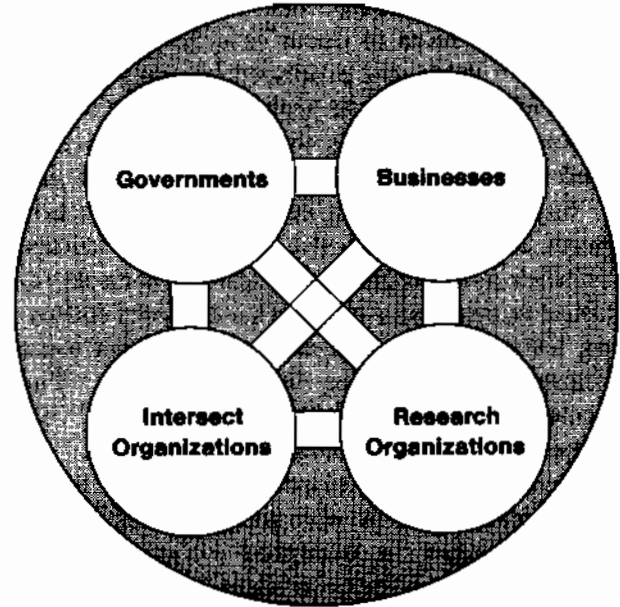
KENNETH A. RANDALL  
*President*

## Chapter 1

# The Problem and Its Context: Food and the Development Process

ACCORDING TO AN earlier Conference Board study, the world's food problem may be more a matter of distributional inequity than scarcity of resource supply.<sup>1</sup> However, the problem of feeding people is only one of many interconnected human welfare problems. As the solution of any one of them has a great deal to do with the solution of the others, they must, in fact, be solved together. It is this reality that makes the food problem appear intractable when considered by itself. This may be seen in the "links" between the sectors (or the "channels" between organizational roles). It is not only nearly impossible to isolate the "food" problem, it is also highly unlikely that any single sector can, by itself, "solve" it.

The mobilization and orchestration of complementary efforts of government, business and intersect organizations is the main task if global development is to occur. The title of this report, *Partners in Agro-economic Development*, has been unabashedly borrowed from Nobel-laureate Lester B. Pearson's book, *Partners in Development: Report of the Commission on International Development*, published in 1969. That work was a study of the consequences of 20 years of development assistance, together with recommendations for future policy directions. The present inquiry has found business executives echoing a number of the recommendations made there—such as the need for developing countries to preserve the greatest possible stability in their laws and regulations affecting foreign investment, and the need for organizations with links to private sectors in both developed and developing countries to act as agents for



project identification and investment promotion.

The present study identifies the private sector as a key, but complementary, component in the development process. More particularly, the study elaborates upon the necessary systemic approach of agribusiness companies to problems of food system productivity. The term "agro-economic" is in the title to stress the need for a balanced agricultural and industrial approach to development. During the course of this study, 75 persons were interviewed (73 men and 2 women). They represented 52 organizations in four institutional categories—14 academic and research, 24 business, 8 government, and 6 intersect organizations.<sup>2</sup>

<sup>1</sup> Douglas N. Ross, *Food and Population: The Next Crisis*. The Conference Board, Report No. 639, 1974.

<sup>2</sup> The list of participating organizations is found on page 59. Their cooperation is gratefully acknowledged.

The world's food problem is a congeries of perplexing issues. A change in one condition may cause changes in other conditions, which may or may not offset the original change. Each of the many analyses of the food problem may be "valid" as a part of the whole, yet "invalid" if, by itself, it purports to explain the problem. Similarly, the complex nature of the food issue means that many coordinated actions will have to occur in order to effect a change in the result produced by the system.

To illustrate, in the wake of the 1965-1966 famine, small farmers in India were encouraged to adopt high-yielding grain varieties and to buy fertilizer. This resulted in production increases. However, the absence of storage facilities and adequate marketing channels resulted in unusually great price declines following harvest time, and thus the farmers were unable to repay the fertilizer loans. The farmer's reluctance to "listen to experts" becomes more understandable.

Development—a process of creating material surplus—can involve many institutions in many changes in accepted ways of doing things. Agribusiness executives have expressed views on their role in this process. In general, while they tend to see the food problem as a whole series of links in a chain, what is "affectable" by them leads them away from "macro" solutions and toward "micro" actions. It has been theorized by Nobel-laureate Gunnar Myrdal that progress in development can be measured against a set of conditions that include some of the parts of a social system. These are elaborated on in the remainder of this chapter.<sup>3</sup>

<sup>3</sup> Gunnar Myrdal, *Asian Drama: An Inquiry Into the Poverty of Nations*, Volume III (New York: Pantheon, 1968), pp. 1843-1941.

See also Fernando Monckeberg, *Checkmate to Underdevelopment*. Washington, D.C.: Embassy of Chile, 1976. Monckeberg describes a different vicious circle. In his view, advanced societies create an environment for the growth of a suitable elite and, in fact, development is based upon them. In undeveloped societies, the elite "are pulled down to mediocrity . . . the competition is not so keen . . . and . . . the very backwardness of the society impedes their development."

## Output and Incomes

Traditional agriculture responds first to the needs of the family, then markets the surplus through the usual channel—a big public market. Production increases can easily overload this older channel. Agribusiness executives emphasize the need for a more reliable farm-to-consumer distribution system that minimizes waste.

Poor productivity has both domestic and international ramifications. At home it can result in a stagnant economy and a very concentrated, unequal pattern of income distribution. Internationally, to become more equal in an economic sense, nations must make their productivities more equal. Economic inequality cannot be separated from productivity because it is the difference in rates of productivity that has caused the inequality.<sup>4</sup>

## Conditions of Production

A second general characteristic of an LDC agricultural system, according to Myrdal, is that the techniques of production are primitive and the use of capital is minimal.

Infrastructure—which is social capital in the form of roads, railways, ports and power plants—may be inadequate. An agribusiness development project may thus involve substantial capital input in infrastructure, with only a relatively small input going into the actual agricultural project.

The "appropriate" technology varies between countries and industries. There is a very fine line between tailoring existing processes and products to an LDC market and being accused of providing "second-rate" or "yesterday's" technology. To illustrate, in Ralston Purina's computer-programmed nutritional formulation of products, there is a broad range of raw materials that can possibly be used to produce a product of given quality (in nutrition and cost terms). A challenge to a technical service fee (one-half of one percent

<sup>4</sup> Nick Eberstadt, "Myths About Starvation," *The New York Review of Books*, February 19, 1976.

of the selling price) by an LDC government was met by bringing a special technical team from that country to the St. Louis computer facility. There it was demonstrated that in terms of the local scale of production (20 products produced and marketed, not 350 as in the United States) and in terms of their raw material resources, the product being sold was in fact "best" for them. There is a real dichotomy between a desire on the one hand to be sure of the newest technology and the need, on the other hand, to choose the "best" alternative for the circumstances. In less-developed countries, that means to be labor intensive rather than capital intensive.

### Levels of Living

Quantitative and qualitative deficiencies in living standards are manifest in insufficient food intake, poor housing conditions, inadequate hygiene and medical care, and insufficient vocational and professional training facilities.

The health-disease pattern of a society reflects its standard of living and its way of life. A high fertility level (typical of most developing countries) is an important factor in both the pattern of disease and the pattern of poverty. High fertility levels affect the age structure of the population as well as have an impact on health, in part because less nutrition and care are available to each successive child.

In the developing world, the most widespread group of diseases are those whose transmission cycle depends upon contamination by human wastes (water, sanitation, garbage disposal)—such as typhoid, dysentery, cholera, polio and hepatitis. Many worm diseases are also waste linked—tapeworms, hookworms and schistosomiasis. Diarrheal disease in children in the under-five-years-of-age group accounted for more than 25 percent of the deaths in Brazil and over 40 percent in rural El Salvador. Worm infestation rates for children age six are greater than 90 percent in Bangladesh, Sri Lanka, and Venezuela. A recent World Bank study of construction labor-

ers in West Java, Indonesia found an 85 percent infestation level.<sup>5</sup>

Thus an important part of efforts to reduce the food crisis lies outside the agribusiness arena. Medical science and country health programs are at least as important to "closing the gap" as is agribusiness. While it is an obvious waste if rodents eat crops in storage, it is just as much a waste for ingested food to be eaten by parasites within the body, or by fever, or for enteric disease to impair intestinal absorption. All of these increase the demand for calories.

Typically, host-country governments welcome investment and the employment it brings to their people, but are most interested in the programs for training workers and management. This is recognized as a long, slow process as it involves safety, food purity, and sanitation standards. Kraftco, for example, encountered a local practice of dumping industrial and human wastes directly into a stream behind the plant. This was "disallowed by our engineers and treatment facilities were installed."

In the absence of thorough local consultation, the corporation's role in training can be far more extensive than anticipated. It may involve training for every task—floor sweepers, very simple maintenance, and "taking two days to teach someone to use his left foot rather than his right on a simple machine."

Food is an aspect of the cultural pattern. While some products may be regarded more as status symbols than as food by LDC consumers, the users must still understand how the product fits their nutritional pattern. A senior executive noted: "Nestle, for example, produces high-quality powdered milk. But it needs good water, sterilized bottles, refrigeration . . . or it leads to diarrhea and gastroenterological problems . . . the major nutritional problem is bad water." The extent of corporate responsibility for the nonadulteration of its products is a much debated topic.

<sup>5</sup> Michael J. Sharpston, "Health and the Human Environment," *Finance and Development*, March, 1976.

## Attitudes toward Life and Work

Attitudes of people affect the development process: work discipline; ambition and readiness for change; respect for manual work; standards of personal hygiene; and, of particular importance, the practice of deliberate and sustained birth control.

A main brake on the development process—and a main challenge to the food supply system—is the rate of population increase in the developing countries. In 1950, North America and Latin America had about the same population. If both had grown at Latin America's three percent rate, North America would have no exportable food surpluses.

Yet in the developing countries, there is a "logic" to a high birth rate. Under "have-not" country conditions of low productivity per worker, and under conditions where labor rather than capital is the primary factor in determining total output, growth in the economy needs growth in the labor force. Thus an increasing population is a rational choice in the absence of institutional changes.<sup>6</sup> However, educational opportunities, training and jobs for women would make it in the interest of the poor to lower their own birth rates.<sup>7</sup>

Since World War II, according to the Economic Research Service of the USDA, per capita food production has increased about five times more rapidly in the "have" than in the "have-not" countries. During this same period, the "poor" world's population has increased twice as rapidly as that of the "rich." Nutritional improvement affects the process

<sup>6</sup> See the essays of Simon Kuznets on *Population, Capital and Growth*. New York: Norton, 1974.

<sup>7</sup> See Irene Tinker and Michele Bo Bramgen (eds.), *Women and World Development*. Washington, D.C.: Overseas Development Council, 1976. Two themes are developed: (1) women have important public and private roles in the development process; and (2) modernization often lowers rather than raises the status of women in a society. Yet, development has brought such pressure on the family that nearly one household in three is now headed by a woman.

of family formation by reducing the rate of infant and child mortality. AS LDC parents realize that more children will survive, they increase the spacing of their children.<sup>8</sup>

Currently, there is some debate among population experts over the validity of population projections that are based on incomplete data.<sup>9</sup> Countries with good vital statistics report a moderating birth rate. However, this leaves out some populous less-developed countries, or one-half the world's population. While experts from U.S. AID claim the 1975 population growth rate to be less than 1.9 percent, United Nations Secretariat's 1975 estimates are higher, at 2.0 percent.

The continuing increase in the total population may be due primarily to longer life—a falling death rate—and may be a one-time occurrence that will probably taper off at some biological limit.

## Institutions

Some of the many institutional structures that Myrdal lists as affecting economic advance are low standards of efficiency and integrity in public administration; undeveloped enterprise, trade and credit sectors; rigid inegalitarian social stratification; and rigid inefficient land tenure and taxation systems.

Inefficient and devious public administration is an example of the chain reaction by which institutional structures affect corporate reactions and these, in turn, affect economic advance. A senior agribusiness executive

<sup>8</sup> In a recent study by Abdel R. Omran, *Egypt: Population, Problems and Prospects* (Chapel Hill: University of North Carolina Press, 1973), it was found that: "Those with no experience of child death reproduced to a number that exceed their expectations—perhaps to safeguard against expected loss. Women with experience of child death continued to reproduce until they achieved a comparable margin, but at a higher level." Cited in S.J. Burkins and S. Yusuf, "Population: Exploring the Food-fertility Link," *Finance and Development*, December, 1975.

<sup>9</sup> Special Report: *Questioning the Source*. Washington, D.C.: The Environmental Fund, May, 1976.



notes his company's working rule with respect to host-government officials:

"They set the rules . . . don't get involved because their tendency is to overreact to foreigners in their countries. There are some things you can't do anything about—a company can help with food, but not challenge the survival of the people in power."

Another executive, noting the prevalence of "double standards" for local companies and multinationals, emphasizes the importance for the highly visible multinational to "do business honestly, which means you keep your books and pay your taxes honestly. The company employs agents to get things through customs. So long as their fees are comparable to those of other agents and can be openly put on the books, then the practice will continue."<sup>10</sup>

Many companies are finding that there are real problems when corruption is a way of life. According to one executive in an Asian country: "We're bogged down. Some Ministers seem to be in business not to solve problems but to 'study' further. For example, there was a student uprising in favor of refusing foreign aid because a [European cabinet] Minister had said: 'Cut out the corruption and graft and you'll get aid.' The response was to ask the European Minister to go home."<sup>11</sup>

## Policies

Policies may induce change and can be coordinated with actions that encourage development. In setting (or failing to set) policy

<sup>10</sup> For further elaboration, see: James Basche, *Unusual Foreign Payments*. The Conference Board, Report No. 682, 1975.

<sup>11</sup> Derek Davies, "Bureaucratic Bottleneck in Indonesia," *Far Eastern Economic Review*, May 28, 1976. "Businessmen—local and foreign—are becoming increasingly frustrated by Jakarta's bureaucracy. The maze of often conflicting rules and regulations and the Indonesian propensity to centralize everything means lengthy delays and more under-the-table payments. . . ."

guidelines, government influences the type and direction of development efforts (see Chapter 4).

Nature, however, complicates any policy on food production and availability. The need is for a food security system as an emergency buffer, and a reserve system for stabilizing inordinate commodity price fluctuations.

Climate changes illustrate the impact of weather on policy. As temperatures drop, the number of people sustainable by arable land decreases. Recent cooling trends have shortened the growing season in Britain by nine days since 1940.<sup>12</sup> Europe now supports three persons per hectare. An average temperature drop of three degrees would result in only two persons being supported. Should the climate return to the "Little Ice Age" of 1600 to 1850, India could support only three-fourths of its present population; Russia would lose Kazakhstan as a vital grain-producing state; and Canadian grain export capacity would be reduced by 75 percent.

A recent Central Intelligence Agency (CIA) study noted an emerging consensus among climatologists: A global climate change is indeed taking place; a reversion to more favorable conditions will not soon occur; and increased variability in climatic conditions affecting crops is highly probable.<sup>13</sup>

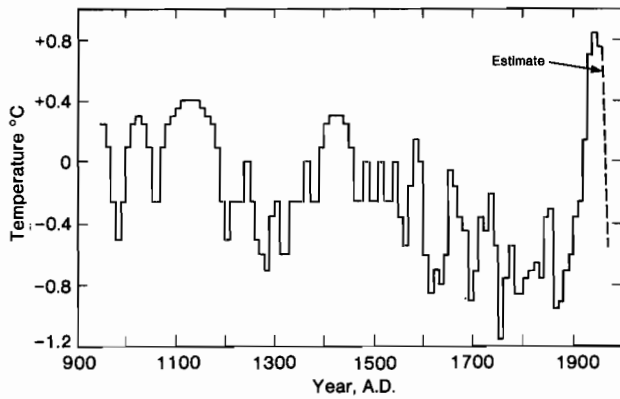
Even the best agricultural practices are not enough when the weather fails. One expert, Professor Reid Byson of the University of Wisconsin, has concluded that the regions surrounding the North Atlantic may have recently experienced the best growing weather of the past 1000 years (see Chart 1).<sup>14</sup>

<sup>12</sup> Lester Brown, Patricia McGrath, Bruce Stokes, "Twenty-two Dimensions of the Population Problem," *World Watch*, March, 1976.

<sup>13</sup> Central Intelligence Agency, "Political Implications of Trends in World Population, Food Production and Climate," OPR401, August, 1974.

<sup>14</sup> Edward S. Cornish, "The Case Book of an Ecological Detective," *The Futurist*, April, 1976. This is a review of Erik P. Eckholm's book, *Losing Ground*. New York: W.W. Norton & Co., 1976.

**Chart 1: The Best Growing Weather in a Thousand Years**



Source: The Environmental Fund, Washington, D.C., March, 1976. Variations in mean temperature in Iceland during the past 1100 years.

As the chart indicates, the “normal” temperature of 1930-1960 was the warmest experi-

enced in the North Atlantic region in that period.

Climatic change in relation to the loss of productive agricultural land due to settlement patterns and the misuse of the natural environment may prove critical.<sup>14</sup> The United States experience culminating in the 1930’s “dust bowl” provided the simple lesson that it is dangerous to farm grass lands. Russia, in the early 1950’s, brought 40 million hectares of new land into cultivation in its “virgin lands” program—but by 1963 it had suffered a similar experience. Today, in addition to drought, decades of accelerating deforestation, chronic overgrazing, and soil erosion have begun seriously to affect productive lands the world over. The Sahel region in West Africa; Sudan, Ethiopia and Somalia in East Africa; India and Nepal in Asia; and Chile in Latin America are examples.

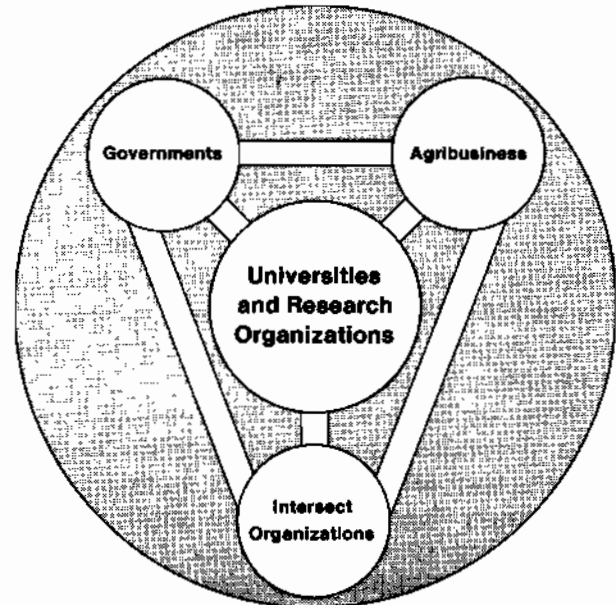
## Chapter 2

# The Role of the Universities and Research Organizations in Shaping Global Views and Complementary Roles for the Development Process

UNIVERSITIES AND research organizations have long engaged in food-related research. Yet, there are conceptual gaps in the traditional disciplines in relation to the food system. Agricultural economics, for example, has a "counting" problem. Commodities must enter the marketplace—be given a dollar or other monetary value—to be counted in the production process. This systematically underestimates "kitchen-garden" produce and "gathering" activities in subsistence-level economies, and overestimates growth rates as these activities are monetized.<sup>1</sup>

Nutrition science has found that body type and size, physical activity, climate, culturally preferred food combinations, and preparation styles all interact to determine nutritional adequacy, but this knowledge has yet to be distilled into a workable concept of "minimum" food need. Although problems associated with obesity and alcoholism are also increasingly understood, these, too, have yet to be conceptualized into a "maximum" food tolerance.<sup>2</sup>

A University of California Food Task Force reports: "Current knowledge of nutritional re-



quirements is more complete for poultry, cattle, sheep and pigs than for humans."<sup>3</sup>

Knowledge of food-deficiency related disease and the relationship between diet and mental and physical health, until recently the domain of the nutritionist, has yet to find its way to the practitioners of medical science.<sup>4</sup> The scientific findings of neither medicine nor

<sup>1</sup> Elise Boulding, "Dualism and Productivity: An Examination of the Economic Roles of Women in Societies in Transition," a 1976 paper available from the Institute of Behavioral Science, University of Colorado, Boulder, Colorado.

<sup>2</sup> Robert Rodale, *The Best Health Ideas I Know: My Personal Plan for Living*. Emmaus, Penn.: Rodale Press Book Division, 1974. See also: Frances Moore Lappe, *Diet for a Small Planet*. New York: Friends of the Earth/Ballantine Books, 1974. J.R.K. Robson, "Foods from the Past, Lessons for the Future," *The Professional Nutritionist*, San Francisco, California: Foremost Foods Company, 1976.

<sup>3</sup> Division of Agricultural Sciences, University of California, *A Hungry World: The Challenge to Agriculture*. Summary Report July, 1974. Available from Cooperative Extension, U.S. Department of Agriculture, University of California, Berkeley, California 94720.

<sup>4</sup> Carl C. Pfeiffer and the Publications Committee of the Brain Center, *Mental and Elemental Nutrients: A Physician's Guide to Nutrition and Health Care*. New York: Keats Publishing Co., 1975. See also: W.A. Krehl, "Nutrition: Does the Physician Know Enough?" *The Professional Nutritionist*, San Francisco, California: Foremost Foods Company, 1976.

nutrition are readily translatable into economic terms.

Scientific agricultural research occurs primarily in the developed world—85 percent of the world's scientists work in developed, temperate-zone countries. This has important ramifications. As an example, chemical nitrogen fertilizer is a major component of the "green revolution" input package of fertilizer, water and high-yielding seed varieties. The problem with the best commercial method for producing artificial fertilizer is the high energy requirement. As the price of energy increases, the "appropriateness" of this technology becomes more questionable. Until the recent energy crisis, scientific research interest in "natural" nitrogen fertilizer had all but been suspended.<sup>5</sup> This meant that when the energy crisis arrived, the poorest farmers had the least ability to respond.

There is, however, a future-oriented "systems dynamics" group in academia—which crosses traditional disciplinary boundaries—increasingly interested in the interrelationships among all the links in the food-supply chain. These relationships, either as numerical variables or as representations of the conditions of development, are set out in computer-based models which can, according to the model's assumptions, project an interrelated view of these conditions at some future time. The difficulty is that projections of disaster or plenty are dependent upon the assumptions built into models, and the techniques generally are biased toward the quantifiable aspects of the problem.

These projections are most important in that they enable the effects of small but cumulative actions to be seen. Catastrophes have a way

of arriving "unexpectedly." But small accretions, or depletions, can have a large cumulative effect that appears suddenly. We can be surprised by a "catastrophe" but there is no longer any need to be dumfounded by the arrival of a "crisis."

## Global Views of the Food Problem

In general, studies based on modeling techniques suggest that real economic growth is essential to achievement of acceptable and sustainable standards of living for all people; in addition, the character not only of the growth component but of past and present ways of meeting human needs must be changed to take natural limitations into account. The studies also shift attention to the adaptive capabilities of all socio-political institutions, and perhaps economic ones as well.<sup>6</sup>

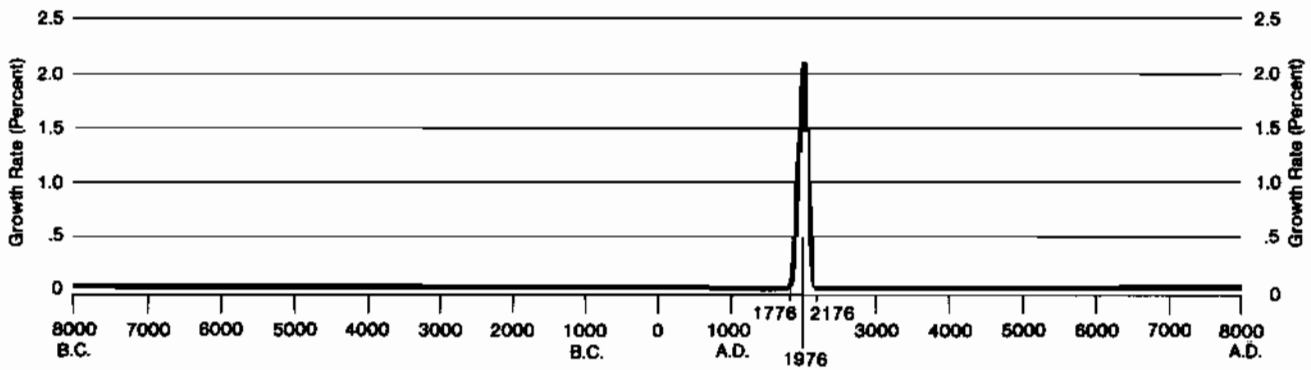
Such modeling efforts are beginning to have a discernible impact in some important policy circles. For example, *Limits to Growth*, discussed below, deeply affected the United Nations. In the early 1960's, the U.N. proposed a production-increase target of 50 percent for its member countries.<sup>7</sup> After *Limits* was debated, the U.N. issued a declaration that growth should no longer be an end in itself; rather, it should be a means for providing resources for social and national development and for assisting the Third World. The United Nations launched the Second Development Decade premised in part on the thesis that the unprecedented affluence of the rich nations was based upon exploitation of poor nations, and that any efforts of the rich to clean up their environments and preserve their prosperity

<sup>5</sup> For a notable exception see: Johanna Dobreiner, Joachim F.W. vonBulow, "Potential for Nitrogen Fixation in Maize Genotypes in Brazil," *Proceedings of the National Academy of Science (U.S.A.)*, Vol. 72, No. 6, June, 1975, pp. 2389-2393. At the Federal Rural University of Rio de Janeiro, Brazil, continuing tropical soil experiments appear to be demonstrating that "natural"—nonchemical—sources for nitrogen fixation are a commercial possibility.

<sup>6</sup> Jay W. Forrester, "New Perspectives for Growth over the Next Thirty Years," paper presented to the Conference on Limits to Growth, 1975, Houston, Texas, October 20, 1975. (Available from Professor Forrester at the Alfred Sloan School of Management, Massachusetts Institute of Technology, Cambridge, Massachusetts.)

<sup>7</sup> U.N. General Assembly, Resolution No. 1710 "The United Nations First Development Decade" of the XVI Session, December, 1961.

**Chart 2: Population Growth Rate in Long-term Historical Perspective**



Source: Adapted from Ronald Freeman and Bernard Berelson, "The Human Population," *Scientific American*, September 1974, pp. 36-37, in Herman Kahn, William Brown, and Leon Martell, *The Next 200 Years*. New York: William Morrow and Co., Inc., 1976.

must not be at the expense of the poor nations—or the poor in general.<sup>8</sup>

### The Pessimists

As characterized by *Limits to Growth*, the pessimistic view illustrates possible "alternative future" conditions by extrapolating from globally averaged data in interrelated sectors of agriculture, economics, pollution, population and natural resources.<sup>9</sup> In the best-known prognostication based on the model, food production per capita rises to a maximum by about the year 2000, and then drops sharply because of population growth and the rapid depletion of resources by industry (and the increase in pollution), all to the detriment of the agricultural sector.

### The Optimists

In *The Next 200 Years*, this mood of malaise is seen simply as a misreading of certain cur-

<sup>8</sup> U.N. General Assembly, Resolution Number 2606 of the 25th Session, 1971. United Nations Publication Sales No. E.71.II.A.2.

<sup>9</sup> D. Meadows et al., *The Limits to Growth: A Report for The Club of Rome's Project on the Predicament of Mankind*. New York: Universe Books, 1972. See also: M. Mesarovic and E. Pestel, *Mankind at the Turning Point: The Second Report to The Club of Rome*. New York: E.P. Dutton and Co., Inc./Reader's Digest Press, 1974.

rent realities and, particularly, of the future implications of these realities.<sup>10</sup> To illustrate, Chart 2 shows current growth rates as a temporary "blip" in an otherwise smooth trend line. For analytical purposes, the "pessimists" are to the left of the tip of the blip, the "optimists" to the right.

Technological progress—up into space or down into the ocean, for example—represents an unknown potential for a better quality of life. A demographic transition, in the Hudson Institute's view, reflects changes that have occurred in population growth rates during the successive stages from pre- to post-industrial society. In part, the process of industrial development generated food productivity and food distribution increases—reducing the effects of famine—that resulted in declining death rates. As the process of industrialization "matured," the value of children changed from being a "producer" item in the minds of many parents to being a "consumer" item—a bit more of an economic liability than an economic asset.

In this view, affluence is a hoped-for result of development. With it can come health and education services, better and more food, and a slowing in the population growth rate.

<sup>10</sup> Herman Kahn, William Brown, and Leon Martell, *The Next 200 Years: A Scenario for America and the World*. New York: William Morrow and Co., Inc., 1976.

It is well to note that both views—the pessimistic and the optimistic—are based on similar data and both agree that growth cannot go on forever. Although they cannot be scientifically “proved,” the models do represent a method of setting out particular assumptions—expressed as variables that are usually related to the condition of development—and of exploring the consequences of those assumptions.

### **Agricultural Research Organizations**

In the United States in the 1940's, the average farmer fed himself and 14 others. Today that same farmer feeds himself and 52 others.

### **Land Grant Colleges and Extension Services**

At the base of such productivity increase are institutions—among them agricultural land grant colleges and extension services—that play both domestic and international roles. In their international capacity, they are now providing instruction for more than 5,200 foreign students, while over 1,000 faculty members are engaged in international research.

Over the past 20 years these colleges have had cooperative activities with over 1,000 foreign institutions.<sup>11</sup> Their three-fold aim is to: (1) expand national research capacities through the training of scientists in problem-solving research; (2) create institutions and transmit information to farmers on a sustained basis; and (3) enhance the capacity of the United States to function in world situations. (See Appendix A, International Activities of Colleges of Agriculture.)

### **The Consultative Group on International Agricultural Research**

This organization, known as CGIAR, was formed in 1971 to promote the financing of in-

<sup>11</sup> Statement of Clifton R. Wharton, Jr. to the Hearing of the Committee on International Relations on the International Development and Food Assistance Act of 1975. House Document No. 94-158. Washington, D.C.: U.S. Government Printing Office, July, 1975.

ternational agricultural research. The focus of research and training activities of the more than 4,000 staff members is applied research, designed to increase production in the developing world in each of the major food crops and in each major ecological zone.

The Group has grown from regional research centers, established by the Rockefeller Foundation, the Ford Foundation, and the Kellogg Foundation.

Current (1976) funding of \$65 million is from 26 different donors. All but the three original ones are governments. To date, CGIAR has facilitated the funding of 11 agricultural research centers and programs worldwide. One example: The International Maize and Wheat Improvement Center (CIMMYT) is based in Mexico. Triticale—a cross between rye and wheat—is a product developed by CIMMYT. In general, recipients of CGIAR center research outputs are the LDCs' national research organizations. In turn, this research is adapted to local areas and is available to the LDC farmer or to agroindustry.

### **The Agricultural Development Council**

This is a New York-based operating foundation, whose objective is to strengthen professional capacity to deal with the economic and human problems of agricultural and rural development, primarily in Asia. The productivity difference in average agricultural output per worker—83 percent between more- and less-developed countries—has led the Council to focus some program efforts on the education of rural people. For example, on-site workshops are held to encourage better management methods and for training in agro-economic research.

### **World Food and Nutrition Study of the National Academy of Sciences**

The study is a response to a request from the President of the United States that the National Academy of Sciences (NAS) consider in a long-term context the actions needed to avert mass hunger:

(1) How can United States research and development resources best be mobilized and organized to increase research results and make U.S. research of maximum usefulness in the developing world and the United States?

(2) If resources are mobilized, what are the priority subject areas?

The NAS is approaching food and nutrition in the broad context of interdependent efforts to cope with world resource problems. Twelve subject area study teams and a number of subgroups have been at work assessing the role of research and development in decreasing the limits to food production and nutrition (see box). Two additional "integrating" groups will pull together the study teams' results on priorities and organization.

### The Nutrition Foundation

This non-profit institution, supported by corporations in the food and allied industries, was organized to advance the science of nutrition through programs of grant support to selected areas of nutrition research, and through communications to the public of objective, scientific information on nutritional matters.

The Foundation has an interest in such matters as research in nutrition toxicology, effects of food processing on nutrition, and the role of nutrition in metabolic disease of early life. In addition, the Foundation sponsors *International Nutrition Conferences* that review the existing knowledge of a particular subject, identify areas of future research need and indicate ways in which research knowledge can be applied to benefit mankind. It also publishes *Nutrition Reviews* and convenes small groups of experts to review new developments.

### International Agribusiness Project of the Harvard Business School

Professors at the school have developed the concept of an agribusiness commodity flow, from initial inputs to the final consumer, and encompassing all the participants involved in

### NAS World Food and Nutrition Study Topics

- (1) Crop productivity
- (2) Animal productivity
- (3) Productivity of aquatic foods
- (4) Resources for agriculture
  - (a) Land and water
  - (b) Fertilizer
  - (c) Energy and equipment
  - (d) Farming systems
- (5) Weather and climate
- (6) Improving food availability to consumer
- (7) Rural institutions and policies
- (8) Information and communication systems
- (9) Nutrition overview and food consumption adjustments
- (10) Interactions
- (11) "Blue-sky" groups
- (12) New approaches to alleviation of hunger

the production, processing and marketing of a single farm product. The system includes farm suppliers, farmers, storage operators, processors, wholesalers, retailers and coordinating institutions and arrangements. It includes agricultural and nutritional research, agricultural extension services, and nutritional education programs.<sup>12</sup>

A commodity system does not end at geographical borders. Thus the emerging concept of a world food system is focused on global coordination between MDC's and LDC's. This may be done by political "confrontations," such as those in the United Nations, or by producer and consumer "participation" in all phases of the world food system. This participation can take many innovative forms—such as public-private joint ventures; bartering arrangements by international commodity groups; long-term contract arrangements; and management contracts.<sup>13</sup> The In-

<sup>12</sup> Ray A. Goldberg, *Agribusiness Coordination: A Systems Approach to the Wheat, Soybean and Florida Orange Economies*. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1968.

<sup>13</sup> Ray A. Goldberg, "U.S. Agribusiness Breaks Out" (footnote continued on page 12)

**ternational Agribusiness Project, operating on a corporate foundation grant, is concentrating**

**of Isolation," *Harvard Business Review*, May-June, 1975. See also: Douglas N. Ross, "Toward a Better Nourished World—Ours and Theirs," The Conference Board *RECORD*, July, 1975.**

**efforts on bringing representatives of more- and less-developed countries together and on doing research papers into specific areas of interest (see Appendix E). As such, it is a small, but important, link or channel to the other sectors involved in the development process.**



### Chapter 3

## The Role of the Agribusiness Corporation: Implementing a "Systems" Solution to the Food Problem

**T**HE AIM OF business is the creation of surplus—profit—from increasingly efficient combinations of resource inputs. Efficiency (productivity) consists in getting the most from a given set of inputs—human efforts, land and its endowments, and capital. The outputs are the material goods and services produced. A better combination of these same inputs—producing more of what people want and are willing and able to pay for—increases efficiency.

It may be that a broader concept of business efficiency is needed—one that differentiates contributions on individual, organizational and societal levels. The direct links of agribusiness to the other sectors serve to illustrate the necessary and now emerging integrative activities:

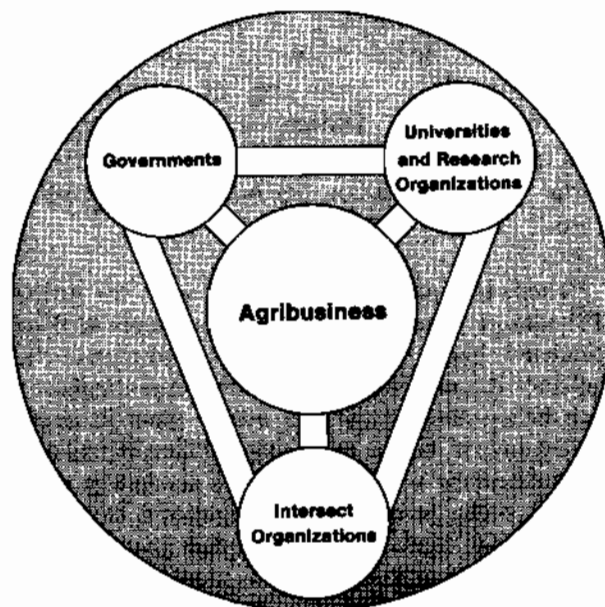
#### Business-government interactions:

- Behind the political rhetoric at the 1974 World Food Conference, some beginning was made on working relationships between LDC governments and agribusiness in specific areas, such as pesticides and fertilizers.<sup>1</sup>

- In response to the study by the Group of Eminent Persons, the United Nations formed the Centre on Transnational Corporations, in part to study the effect of multinational corporation activities on development and in part to study what developing country governments should do for (or to) business.<sup>2</sup>

<sup>1</sup> Frank Penna, *U.S. Private Nonprofit Activities and the World Food Crisis*. New York: Policy Sciences Center, 1974.

<sup>2</sup> United Nations Department of Economic and Social Affairs, *Summary of the Hearings Before the Group of Eminent Persons to Study the Impact of Multifunctional Corporations on Development and on International Re-*



#### Business-university interactions:

- Funding for various kinds of academic research activities, such as The International Food Delivery Systems Symposium, University of California, Berkeley by Foremost Foods, Inc. and Foremost International.

- Consulting arrangements, such as the specialist field teams utilized by agribusiness firms for technical feasibility studies.

#### Business-intersect organizations interactions:

- In the early 1960's, in response to suggestions from CPC International executives and

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*lations*. New York: United Nations Document ST/ESA/15, 1974. See also: United Nations Commission on Transnational Corporations, *National Legislation and Regulations Relating to Transnational Corporations*. New York: United Nations Document E/C.10/8, 1976.

to efforts by the then Secretary General of the Food and Agriculture Organization, the Industry Cooperative Programme was formed.

- Intersect organizations can generate business, as in Agribusiness Council missions to various South American countries.

Political and social aims may be of great importance in affecting productivity. In fact, schisms do occur between those who set policies—often unaware of operational problems—and those who implement policies—often unresponsive to political and social aims. A senior agribusiness executive states:

“There is a great difference between the group of functionaries at the U.N. and the people of their countries. There seem to be polar extremes in the rhetoric. At one end are the dilettantes concerned with non-problems. At the other, there is some coalescence in better managing existing things and in creating new wealth. There is a myopia in dealing with policy as opposed to operations. In Egypt, for example, there is a large cotton growing area for cash-crop purposes. Yet there are known techniques for taking gossypol—a toxic pigment—out of cotton seed. Once that’s done, everything that is done with soybean meal can be done with cotton seed. And the official reaction was: ‘Our people wouldn’t eat stuff like that.’ A great need is just clearing the bureaucratic maze, or else you never will come to grips with the issues.”

An LDC’s value system may not be that of the United States. And the U.S. value system may not necessarily be the one to be emulated by different cultures. Yet, an agribusiness executive notes: “The tendency is to impose American values, and many peoples do not want to be saved in that way.” Ideology, in this same executive’s view, “is far less important than are cultural factors.”

Agribusiness executives generally view “political” decisions—for example, the priority and purpose of a large-scale agricultural project—as within the domain of the politician. LDC government officials decide between meeting local nutrition requirements

and improving their balance of payments by moving products into international trade channels. Typically, the LDC officials decide to turn products to trade, which may provide foreign exchange to fund the project, and will provide products for the local economy only in the medium term.

According to an interviewed executive:

“Whenever a company goes into a situation, particularly in the developing world, it is responding to the priorities as the customer—usually a government—sees them. These may not be completely in tune with the way the corporation judges them. The corporate responsibility is to feed back judgments to the customer.”

There, may, however, be difficulties on the horizon if this limited approach to responsibility is taken too literally. As a senior agribusiness executive has said:

“For political reasons, nearly every country in the world wants to be self-sufficient in sugar. Subsequent to the very rapid increase in sugar price two years ago, at least 20 countries focused on sugar production as the primary objective in developing their agriculture. Sugar production in part implies progress at having reached a certain level of production, and in part provides caloric energy, even if the food value is not too high.”

The private-sector agroeconomic development patterns described in this chapter are not mutually exclusive. An individual company may go it alone in an LDC, or enter into a consortium with other businesses and possibly government as partners.

While business executives consider each project in relation to the entire food-supply system, the focus of agribusiness effort is on specific projects. The firm looks for situations in which to apply its expertise. The opportunity to increase efficiency, reduce waste—to make a profit—may occur in the delivery of food to the consumer, or it may occur at a different stage in the system—marketing, processing, production, storage, research. But all stages are considered in relation to each project.

## The Individual Company

The opinions of agribusiness executives on their role in creating more favorable conditions for the agro-economic development process were sought (see Appendix B). Based on their operating experiences in various less-developed countries, these executives define the role of the multinational corporation as requiring:

First, *a market*.

People with neither money nor goods with which to satisfy their need for food do not constitute a "market" to which commercial efforts can respond. A company can respond to those who have money, or something else of marketable value—be they governments or individuals. Market, from the business viewpoint, is demand for a product or service expressed in monetary units.

A project must dovetail with the company's goal of service to a market and with the country's goal of meeting development objectives. These objectives may be difficult to determine. CPC International, for example, contracted with Honduran farm cooperatives for the delivery of corn. They met objections to U.S. ownership by enabling the cooperatives to acquire an interest in the plant, based on the amount of corn they delivered for processing. Says one CPC executive:

"Raising the level of living encompasses all the combinations of a distribution system—that is, without the processor as a market for the farmer, the products will never leave the farm. In effect, the processor enables the farmer to begin to participate in the money economy."

In this same executive's opinion, many international food companies—for example, Del Monte Corporation; Libby, McNeill & Libby; General Foods Corporation; H.J. Heinz Company; Procter & Gamble Company; Kraftco Corporation; Foremost-McKesson, Inc.—are now emphasizing secondary processing and distribution, and are also developing suitable ownership arrangements.

When the agribusiness enters an LDC it must be prepared for problems in "start-up" areas such as training and plant and equipment construction. For example, to support a country's technical growth program, a computer expert has added chores: teaching courses, formulating curricula, administering a computer center or department, guiding research, consulting with local government and industry, serving on advisory boards, writing and translating computer-science textbooks.<sup>3</sup> There can be organizational "reentry" problems for both returning staff and the corporation. How can U.S. organizations respond to technology-transfer situations when the executives and staff who are asked to supervise the transfer are taking job risks during long periods of absence?<sup>4</sup>

While adverse effects on the food supply cannot always be anticipated, they do not have to be repeated. Twenty-five years ago, for example, Ralston Purina International designed a plant in Mexico to meet an urban demand for milk, meat and eggs. In one executive's words:

"The poor, who could not afford these products, had the corn that they had been using for food taken right out of their mouths and used for feed. But the next processing plant, in Colombia, was handled much differently. There were duty-free import permits for hybrid seeds. Ralston agronomists worked with local growers, and a double-cropping system (corn and cotton) was developed. Ralston also guaranteed prices and rented warehouses. Now there is a government price-support program and government-bonded warehousing. The net effect has been the creation of a sorghum industry and a reduction in food-chain waste."

<sup>3</sup> In a developed country, the typical software expert works 8 hours a day, while the computer works 16. In the developing country, the timing is reversed: the expert working 16 hours, and the computer 8. See Barry W. Boehm and Benton Dexter, Jr., "Software in Developing Countries," *Datamation*, September, 1974.

<sup>4</sup> This situation, too, is not limited to Third World service. See Burton W. Teague, *Selecting and Orienting Overseas Personnel*. The Conference Board, Report No. 705, 1976.

Second, a *hospitable social and political* climate.

Both the government and the people in the country or region involved must see agribusiness as a basic and productive element in the wealth-creation process. The real barriers to projects or products are costs. Governments either must pay to feed the poorest of the poor, or they must generate a process that brings the poor from the noncash into the cash economy, enabling them to pay for themselves.

The LDC government must be stable. Few companies will knowingly or willingly put investments at risk. A potentially volatile LDC government is cause for business caution.

The LDC host government must demonstrate its commitment to keeping the private sector viable. Government officials, faced with massive problems, may doubt the cumulative impact of many small projects. They need "results" and tend toward massive "macro" projects because they can see these as improving their stock of capital and their foreign exchange earnings. For the private sector, it becomes necessary to demonstrate a project's potential "catalytic" effect, such as training in financial and accounting procedures that spread to others in contact with the project.<sup>5</sup>

Third, a *hospitable economic climate*.

There must be acceptance of the concept of profitability—the creation of surplus—as an important element in the development process. The focus is either on generating a surplus of new goods and services, or on creating them more efficiently. Notes a U.S. executive:

"In other words, to do good and to be a successful businessman are part of the same solution.

<sup>5</sup> These catalytic effects are not limited to investment in the Third World. See, for example, J. La Palombara and S. Blank, *Multinational Corporations and National Elites: A Study in Tensions*. The Conference Board, Report No. 702, 1976, particularly for the effect of U.S. investment on Italian industry.

Whether you have a socialist base to the economy or not, at some time, and at some point, someone must create a surplus."

Firms are increasingly viewing their part in the development process as a broader challenge. The goals thus become, for example, the improvement of public nutrition by marketing an acceptable and affordable product together with the firm's direct contributions to raising the levels of income and standards of living of the LDC.

An agribusiness can create employment for people, can foster project-related supporting infrastructure, and can create opportunities for small farmers to become contract growers.

Increasingly, multinational enterprises act as marketing channels between the resources of the developing world and the demands of the developed world. No single company has resources enough to build a country's market structure single-handedly. As one senior agribusiness executive puts it:

"If there are 20 firms in a country, there may be enough domestic impact to take the bottom an inch and a quarter above where it is now. If that's done, it will give the people an incentive to pull themselves up another inch and a quarter. The economic progress of the world in the past 60 years has been equal to the progress that was made in 2000 years before that."

Fourth, *the corporation is not a development agency, but it is an agent in the development process*.

Company executives view meeting needs of the poorest of the poor as a government-welfare job, with the corporate role the development of a viable business that can create wage-paying jobs and that can begin the process of capital formation within the country. According to one agribusiness executive interviewed for this study: "Agribusiness has a role in building an infrastructure adapted to indigenous customs and conditions. Its role is not transplanting the American Midwest."

Two experiences taught an international flavor and fragrance producer that coopera-

"Essentially the businessman goes into the developing world food area for one of two reasons: First, because he feels he ought to be doing something and is thus willing to undertake a project for public relations purposes; or, second, because of a legitimate attempt to develop a viable business. The businessman who goes for the second reason is much more likely to stay with it."

tion with programs suggested by local governments does not necessarily ensure the desired results. In Mexico, a local effort was made to add a new cash crop for local subsistence farmers—"lemon grass"—a fragrance ingredient. Contracts of purchase were entered into but the efforts were thwarted by the free market mechanism. As other local crop prices exceeded the contract price, the lemon grass was plowed under and that ended the experiment.

A similar result was encountered in Yugoslavia. Contracts were made with state farm communes to purchase berries for processing. Again, the theory was that if the farmer knew in advance that he could sell his product at a fixed price, it would give him assurance for production and delivery. But, by harvest time, the spot prices of the berries were well above the contract price. Very few deliveries were made. The official explanation: "The berries are not there, 'people' have denuded the fields." An understandable result, but discouraging to the cooperative Good Samaritan.

In some areas, where it is "too early"—that is, adequate utilities and roads are not present—for direct investment, long-term management contracts are being tried. In effect, this has involved the development of an LDC's agriculture sector over a specific period of time in an attempt to raise its conditions of production to a level mutually agreed upon by the firm and the host government. In the Sudan, for example, the AZL Company has this kind of arrangement, but it is encountering tremendous difficulty because all the conditions of underdevelopment are present, particularly lack of infrastructure, poor health, and low literacy.

## The Syndicate or Consortium

The focus of syndicate operations is usually a specific area within a region and the aim is to balance industrial and agricultural development. A government agency can act in a planning and financing capacity, while the international business component can implement the project and meet the country's development targets.

A senior agribusiness executive says:

"A change in awareness is required of corporate management, from purely corporate goals to the measurement of development results in terms of economic growth, social contribution, and the building of political stability."

This approach is quite new, with few positive results to date. Comments, such as this one from a participant in a Middle Eastern venture, are not uncommon:

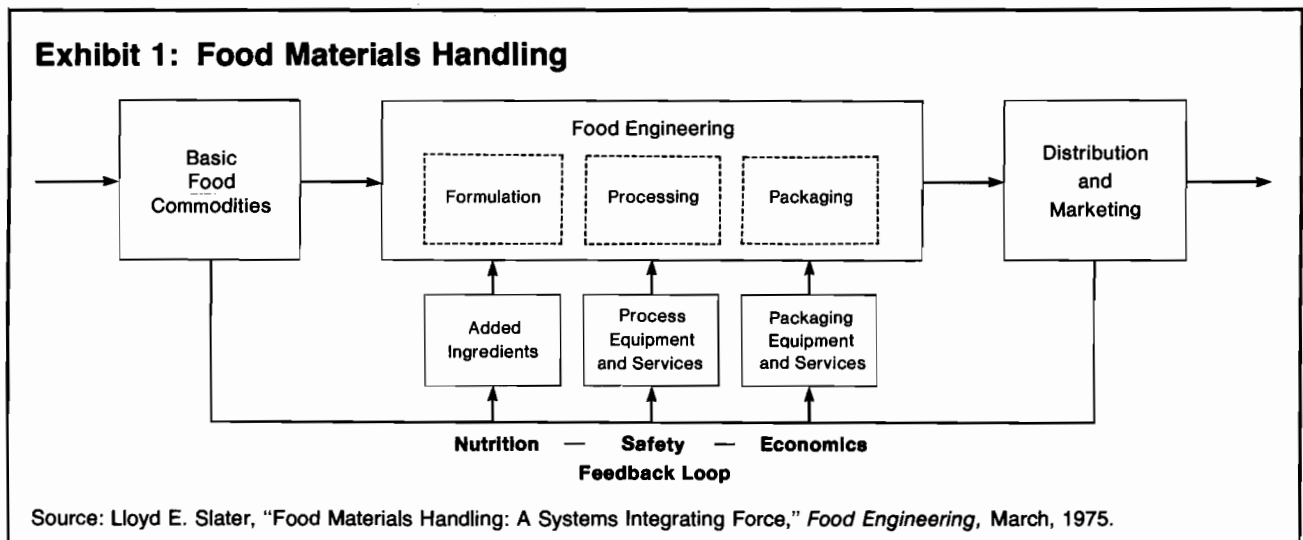
"The group got indigestion because of a lack of careful consideration of the total development problem, the sequence of development events, and the real infrastructure capacities in place."

The 1974 World Food Conference did meet with some success in raising LDC awareness of the importance to the private corporation of a workable, "bankable" project—a project that has been well evaluated and has a high probability of commercial viability. If these conditions are not present, the corporation will go elsewhere with its investment funds.<sup>6</sup>

## Multifunction Cooperatives and Agribusiness

Cooperatives can be a special private-sector mechanism in the development process. A multifunction cooperative—production, consumption, credit, marketing—may provide the foundation for the first step in moving a poor

<sup>6</sup> Based on an FAO-ICP member survey, December 26, 1974. The survey focused on effective ways for linking specific projects in LDC's to industry's resources, financing and LDC-government priorities.



farmer from a noncash into a cash economy.<sup>7</sup> A common situation in a noncash or barter economy is that one or two "entrepreneurs" manage these four functions. The cooperative provides a more democratic alternative to this "monopoly" of the few by dispersing village-level decision making among the more numerous members of the cooperative.

Very small cooperatives may be formed in remote regions. In time, these may serve as local organizing points in a development network. In Zaire, small farmer credit unions may eventually provide the link between the Third World farmer and banking institutions. Since 1972, 27 credit unions have been formed in one small region—the total deposits add to \$.5 million assembled in nickel and dime increments. In interviews, executives at the International Cooperative Alliance claimed this to be a local beginning for both a savings and investment system, as well as training for village-level money management. Such slow, mundane microprojects may potentially affect agricultural production and crop processing—the two functions that involve nearly 70 percent of the people in the Third World.

<sup>7</sup> FAO estimates are that 57 developing countries have established cooperatives in agriculture, credit and various other areas such as dairy, farming, marketing, electrification. "Endure, Unite or Leave," *Ceres*, May-June, 1976.

A challenge to agroindustry, then, is to identify rural areas of the world where there exists an already developed, if rudimentary, management capacity and a culture that fosters work and inhibits dishonesty.

### The Agrisystems Approach

A system is a collection of separate yet interdependent elements organized to achieve goals. These elements are organized in the presence of "feedback" signals that tell the system how it is performing. An "agrisystem" may be diagrammed by organization or by industry (see Exhibit 1).

Each of the following examples is illustrative of an agrisystem corporation's approach to what is perceived as the greatest improvement in food-chain efficiency.

### Food Delivery Systems

Food-service program efforts are concentrated on the institutional market—hospitals, schools, the military—and aimed at reducing waste while providing nutritionally balanced diets from local foods. This puts pressure on the links of the food-supply chain—wholesalers, processors, farmers—to meet government-company agreed upon product specifications and to upgrade both product and facilities.

*World Food Systems, Inc.*, formed in 1973, is a Washington, D.C.-based subsidiary of Cook Industries, Inc. It operates in an LDC environment in which the number-one government priority is feeding the urban masses to avert political unrest. Rural dwellers—subsistence level farmers—are typically not viewed as a revolutionary threat.

Governments and business firms in developing countries are usually not adversaries. But there can be problems:

(1) Is the government honest in terms of bookkeeping and auditing procedures?

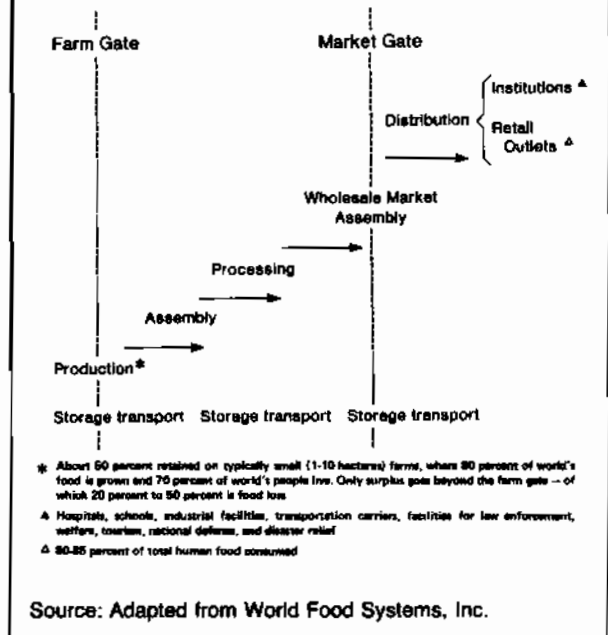
(2) Will a government official want relatives given jobs or other favors?

(3) What is the attitude toward mechanization and spare parts? (It can vary from "fix what you've got" to "people fatigue; why shouldn't machines?" For many companies this means, as a working rule, do not over-mechanize.)

(4) What are the LDC-government food specifications for the protection of consumers? Any similarity to those of the FDA or USDA is rare. Problems may vary from the need to enclose sewer lines to a need to teach personal hygiene.

(5) What are the sources of "local" long-term funding? Few developing countries have stock exchanges or commodity exchanges where local private funds from many investors can be obtained for long-term capital. Thus, other than joint-venture funds from local families or undistributed profits from local companies, the LDC government concerned and MDC-funded development assistance agencies are usually the prime source of "local" long-term funds. There are, however, difficulties with "tied money," particularly from the U.S. Agency for International Development, because clearance from the Food and Drug Administration is required for any products used, and all purchases must be made in the United States. These specific requirements are not attached to the International Development Bank (IDB) or World Bank funds.

## Exhibit 2: Simplified Representation of Food Production and Food Distribution in a Developing Nation



The main LDC approach to the alleviation of hunger has been to attempt to produce more agricultural products. Yet, in the view of those in World Food Systems, Inc., a minimum of two to three years is normally required for a production increase to work its way into the system, assuming all the other components are in place. In the processing and marketing segments of the food chain, tackling selected food loss and food waste problems may produce a much more immediate benefit.

The aim is a farm gate-to-consumer "caloric throughput" of whatever food materials the country has, with minimum or no waste. The expertise of, and profit for, World Food Systems is in decreasing throughput loss. The market is an LDC institutional feeding program (see Exhibit 2).

WSF estimates that in the past 25 years international development agencies and developing country governments have expended 90 percent of food program funds on increasing agricultural production, which means that LDC



food-conservation efforts have been small.

The assembly of surplus farm products, in the opinion of WFS executives, is commonly done by moneylenders who loan money to the farmer for seed and other inputs. The loans are typically collected seasonally, at harvest time, from marketed surplus, with the farmer usually having little knowledge of market prices. Two elements could begin to set the base for future quality improvements: up-to-date price information—retail and wholesale—made available at market assembly points; and simple grading procedures conforming to local realities and tastes.

At the assembly stage, there are additions to the food supply in the form of imports of raw grain or food aid. There are also subtractions from the food available for local human consumption in the form of exports, animal feeds, and industrial uses (alcohol production, starch manufacture, and so on). Waste, estimated at 20 to 50 percent, is considerable. Typically, little attention is paid to preservation processes (containerization and heat or cold preservation) or to quality considerations, such as the age of foodstuffs—overripe products are mixed with immature products. There are minimal procedures for cleaning, bacteriological testing, and moisture control.

Wholesale markets are commonly locations where fresh food is dumped. At this point, retailers bid for purchase and usually provide their own, unrefrigerated, transport. There is little wholesaler pressure on producers, assemblers or processors for either quality or quantity of food. Up to and through this point an estimated 30 percent loss in the surplus marketed by the producer has occurred.

Food is purchased for consumption through two main channels—80 percent “retail” and 20 percent “institutional.” Of the retail market outlet, small “Mom and Pop” stores account for more than half of all LDC family food spending.

International food company attempts to utilize this retail market by creating “low cost” but highly nutritious foods have, in the WFS view, proved unsuccessful. Their work-

ing assumption was that an effective demand could be stimulated once acceptable consumer foods were available. But the cost of fortification, packaging and consumer education resulted in a retail price too high for the masses of people most in need of the product. Additionally, market tests showed considerable consumer resistance to a product deemed a “poor man’s” food.

The institutional segment — hospitals, schools, the military, or industrial establishments—presently wastes an estimated 50 percent of the foodstuffs it procures, according to WFS, because of:

- (1) Poor specifications for the food purchased;
- (2) Poor inventory and storage practices (storage typically at 60 degrees or higher);
- (3) Poor preparation or cooking yields; and
- (4) High consumer rejection as the food is not palatable or the menu was poorly selected.

In Jamaica, for example, management controls of activity from farm gate to meals served at the individual schools reduced waste from previous operations by 40 percent. This saving enabled the Jamaican government to feed a greater number of children a more nutritious meal, which met one-third of their daily requirements at less cost. In addition, the effect of the centralized purchasing power was the establishment of higher quality standards that had to be met by local suppliers of fresh fruit and vegetables.

Thus, beginning with the WFS menu and working back down the food-supply chain, pressure is applied to the entire food chain—forcing the wholesalers to respond. In turn, this makes the processors and farmers change. This upgrading effect not only cuts waste and loss of food at the Jamaican facility, but results in the producer having a more acceptable product for other markets as well.

### Marketing-Processing-Production Systems

A capital-intensive processing project at the center—surrounded by large-scale farms to



ensure production continuity—and, on the edges, smaller, labor-intensive farms up to ten acres in size, with access to extension services, infrastructure and the market provided by the core facility, is essentially the format within which the agrisystem firm operates.

There are typically three phases (over a ten-year period) in a large-scale, mechanized agrisystems development project (see Appendix C). A project capable of annually producing—harvested and processed—100,000 metric tons of sugar or 150,000 metric tons of paddy rice, requires an area of 13,000 to 18,000 hectares and may cost in 1976 in the range of 130 to 160 million U.S. dollars.

Phase I involves the firm and client government in planning how, when and where the client's agroindustrial target objectives can be met. Feasibility studies are conducted on human and natural resources availability—soil, water, climate, people—on product or market demand (domestic and international), and on the availability of funding for the project (see Appendix D). A comprehensive master plan spells out the schedule for when the supplies, equipment, facilities and trained personnel will be needed to implement the project.

Phase II involves the establishment of a demonstration program as a test of the master plan. This enables an early beginning to "side-by-side" training—host national next to project manager and so on—and the transfer of technology—the preparation for the eventual transfer of the management of every aspect of the project. Adjustments to the program are also recommended at this stage.

Phase III is the implementation program—people trained, farms established, equipment purchased and brought into operation, crops grown, processing plants and storage facilities constructed, roads laid, communications networks installed, new markets tested. The goal is a commercially viable agroindustry.

The challenge to the large-scale mechanized farm concept is from development officials who favor a small farm pattern. However, agribusiness executives note that processing

facilities need a stable flow of products. Without LDC inducements to people to remain on the land, small farms can be counterproductive. If land is broken into small parcels, the production continuity of the central processing facility can be threatened by the whims of many small farmers. Thus executives see a compromise solution in large-scale central projects linked by contract to many small-scale farms.

The company responds to the client government's objectives. But these objectives may involve trade-offs. For example, the objective of the country could be to maximize labor inputs and productive employment—enabling a reduction in capital investment. Or the objective of the country may be import substitution and curtailment of the outward movement of foreign exchange for importing food products. This may necessitate greater capital outlays in the early stage because of the need for higher efficiency levels to compete in international markets.

Four examples of large-scale agrisystem organizations follow—Alexander and Baldwin Agribusiness, Inc., Hawaiian Agronomics, Inc., FMC International, and Delbahcon—together with brief descriptions of the planned stages through which such organizations shepherd an agricultural project.

*Alexander & Baldwin Agribusiness*, formed in 1975, is a Honolulu-based subsidiary of Alexander & Baldwin, Inc. A & B Agribusiness executives view agriculture as a system and the food problem as a "package" of problems—resources, production, marketing and management.

Pre-project evaluation has a number of elements, in addition to the factors mentioned above. First, the political stability of the LDC's government is a major condition for entry. For example, too much "red tape" may indicate that individual government agencies are more important than the central government; thus, another faction may make it impossible to carry out agreements with one group.

Second, a realistic assessment has to be made of the project's priority in the government's development scheme and this includes the LDC's desire to see the project through to completion and success.

Third, there are problems typical of an LDC environment, some of which can be anticipated. Import licensing can be worked out in advance with all the right ministries; appropriate equipment is necessary because spare parts are scarce and maintenance is difficult. The contracting government officials must be aware that agricultural development is a long-term process with the plans for the project reflecting lengthy negotiations to build credibility—foreign officials coming to Hawaiian project sites, A & B's representatives going to the LDC, and many development bank meetings.

High capital requirements for the project usually necessitate innovative financing techniques. An automatic moratorium on principal and interest payments is a necessary feature to combat fluctuations in commodity prices and yields. The high capital needs have, to date, meant that most large-scale projects have been undertaken in "resource rich" developing countries.

However, other "exclusionary policies" may also exist—for example, to do business in Rhodesia or in the rest of Africa? To do business in Israel or in the rest of the Middle East? The most desirable situation, in the A & B view, is a "cooperative" policy—one developing nation providing the financial aid to another developing nation, with a contract let to a private firm to implement an agreed-upon plan.

The A & B Agribusiness approach proceeds through several phases:

Phase 1. A plan of the project within its "system," together with sources for adequate financing.

Phase 2. Management and coordination of project phases. This involves, for example, teams of experts from universities and research stations for the assessment of re-

sources and the drawing of specifications and standards for the production facility, as well as the adaptation of local agricultural research findings to the specific project region. A & B staff establish accounting structures and budgeting systems.

Phase 3. Custom training—for LDC managers at Hawaiian operating facilities—develops the agribusiness approach and emphasizes the relationship of the individual to the whole project. Project managers and administrators must first "visit the project site to see and feel where it is lonely"—and somehow the job must be made as pleasant as possible in terms of housing, drinking water, medical supplies, and personal incentives. Local workers on the project must make a better living under better conditions than before.

Phase 4. Client involvement must be at all levels and at all phases—policy, finance, management training, and operations.

A & B's agribusiness role in the development process is engineering- and agronomy-oriented. An executive comments:

"The client government is not concerned with sociological or environmental effects on the people. The response, when asked, is, 'It's our business.' More usual, however, are demographic studies, such as one made in Iran. Building a particular dam would affect 50,000 people and five million sheep. The solution was to grow forage crops in a different valley rather than rely on the natural hay they previously had used in the Azerbaijan valley."

*Hawaiian Agronomics Company* (International), formed in 1959, is a Honolulu-based subsidiary of C. Brewer and Co., Ltd. The company's entry into an LDC environment is conditioned by several factors. First is the political climate, in terms of the LDC-government's stability. Does the government in fact want the firm in the country? Are there governmental policies that may affect the project's success—special customs duties and tariffs, or land-tenure laws that encourage better cooperation and collaboration among plan-

ning groups, funding agencies, and whoever implements a project?

Government organizations can be difficult to understand. How independent are the independent agencies and the ministries? That is, how difficult will the managerial coordination problem be in terms of customs and immigration, work permits, or the cost of local agents?

LDC government-bid systems may play one firm against another. For example, the government may underwrite a number of studies, then pick the one they like from any of the participating English, Canadian, Dutch, French, Belgian or U.S. companies.

Second, financing availability involves: a stable currency; a stable project (in terms of the country and the development bank involved); the orientation of the financing—for example, the World Bank emphasizes small farmers; and the acceptability of a low return (8 to 15 percent) to the lending agencies.

The areas or regions most in need of investment typically have the highest costs. Even the simplest equipment must be imported; the land is usually marginal and must be cleared, leveled or drained; and squatters must be resettled. The land is usually situated in isolated areas—without power, housing or roads—and so infrastructure development adds to the cost.

If workers are to move from the nonmoney into the money economy, training is necessary in field work, equipment operation, services and management. Those to be employed on the project must be carefully chosen because problems can develop when "people already trained leave the remote project site for the city without training understudies."

Third, language can be a barrier. While Hawaiian Agronomics personnel are encouraged to learn the local dialects, the main problem is in translating equipment manuals and technical data.

There are several phases (see Appendix C) to a large-scale project. Some current projects include:

(1) Iran

(a) Khuzestan Province Cane Sugar Project, begun in 1958, now completely Iranian managed and operated on 14,000 formerly saline desert hectares which yield 100,000 metric tons of refined sugar yearly.

(b) Khuzestan Province agroindustrial and livestock projects with Diamond A Cattle Co., Mitsui and Iranian partners, begun in 1973, is a 265 million U.S. dollar, fully integrated development for the production and processing, packaging, shipping and marketing of beef, sheep, poultry, forage crops, sugar beets, and cotton.

(2) Indonesia

South Sumatra Rice Project, begun in 1974, with Perdamina (the Indonesian state oil enterprise) as a partner, in a seven-year development of (and eventually Indonesian managed) 20,000 hectare, 140,000 metric ton production of paddy rice yearly.

*FMC International*, formed in 1954, is a California-based operation of FMC Corporation. The FMC aim is the development of a client country's capability for larger-scale, mechanized production.

The approach involves four phases:

Phase 1. The feasibility study, which involves selection of the project site and assessments of human and natural resource availability. Funding sources are established.

Phase 2. The comprehensive plan spells out the project's implementation schedule in detail. Advice is also given to both state and federal ministries of agriculture in identifying those products that FMC thinks might best meet the hosts' needs.

Phase 3. A pilot operation is developed for teaching and for testing purposes. The testing is both for the best production varieties under the particular climatic conditions and for the best processing and storing methods for foods normally consumed.

Phase 4. The implementation program begins. All the necessary steps are taken and programs are introduced to achieve a commercially viable agroindustry.

The development activity is seen by FMC as a cornerstone for the corporation's operations within a country. Based upon successful performance, the "demonstration effect" will provide other product opportunities in agricultural chemicals or machinery. Thus FMC International stands behind each project—the project will be technically viable in relation to the country's stated objective by the time FMC moves out.

A main criterion in undertaking any project is: "Don't go in where you can't get out." The objective is to accomplish certain things within a certain time frame and, at the end of that time, to turn a viable project over to FMC-trained local people (or, if it is so desired by the client, to expand the size of the development into additional land areas).

Management training in the agrisystems approach emphasizes getting the product to a market in good condition. But the focus may vary considerably among regions. In Libya, for example, a project to improve the yield of date production may stress methods that prevent loss from birds or infestation by pests. In Nigeria, the focus may be on upgrading of cassava production techniques. In both instances, the countries have access to large financial resources as a result of petroleum. In countries where agricultural workers are evaluated solely on production—that is, the amount produced is emphasized more than delivery to the consumer—the stress in management training may be different.

As in all ventures, close assessment is required by corporate executives of both the availability of financing and of the political climate of a potential project region.

*Delbahcon*, formed in 1976, is the Washington, D.C.-based copyrighted trading name for an association between Del Monte Corporation and Booz, Allen and Hamilton, Inc. It is a project-oriented organization with the objective of helping governments and the private-sector developer improve the growing, processing, distribution and marketing of agricultural products on a large scale.

The Del Monte Corporation's interest is in maintaining its world role as a successful food-processing company. To do so involves the recognition of the developing countries' desire to control more of the "value-adding" process. Booz, Allen and Hamilton, Inc., a consulting group that has many governments as clients, sees its contribution in the management efficiency of the food-supply chain. A key to the success of the association will be whether or not their combined experience will be "translatable" to other cultures.

## Storage Systems

Business estimates of waste from food loss because of inadequate storage and protection facilities range up to 35 percent of total production in some regions of the world. Thus, there appears to be considerable conservation potential available to augment food supplies.

*International Systems and Controls* is a Houston-based corporation for which agribusiness is only one of several areas of activity. In the ISC view there is currently no means available in many LDC's for the orderly handling and marketing of what is grown—that is, for the prevention of food-supply waste.

Although agriculture is a system, until recently the attention of development officials has been focused on output-related aspects of the food supply—such as fertilizer, irrigation, pesticides, farm equipment—with little attention given to conservation.

In the ISC view, when crops are grown and harvested in the absence of storage and drying facilities where they are needed, farmers have only three alternatives:

- (1) Sell it to a middleman, who usually puts it in a nonprotected place;
- (2) Dump it on the market; or
- (3) Put it in a sack and attempt to store it.

Many dramatic problems may have relatively simple technological solutions. In India, for example, in the view of ISC executives, an orderly system of rural storage facilities could

result in the country's becoming a surplus food producer. The big problems are institutional: "The opportunity is there; the technology is there; private companies with the expertise and incentive are there. But, to illustrate with India, the middlemen who control the rice distribution system, and the politicians who are tied in with them, do not want to see investment in modernization and particularly don't want to see the farmers get the full price."

A current ISC project is in Brazil. Local partners negotiated an agreement with the Ministers of Agriculture and Finance and Brazil's development agency. ISC will build a manufacturing plant, which will produce storage units to be used in rural areas, and the Brazilian government will provide financing to the farmers to purchase the units.

### Complementary Research

The research facility, located in the LDC and run by LDC nationals, can focus on productivity improvement in rural areas through emphasis on education, technology adaptation, and demonstration as opposed to aid.

Battelle Memorial Institute, founded in the late 1920's as a public-purpose organization devoted to scientific research and the better education of man, has grown into a worldwide research organization with a professional staff of over 5,000. However, Battelle is encountering difficulties in "selling" a research program that is fully integrated with the food-system flow. Typically, executives say, their clients

are organized by academic discipline—agronomy, nutrition—and thus their program has to be segmented to accommodate the client.

Battelle has acted as a "sister institute" to the Korea Institute of Science and Technology (KIST). This has proved to be a successful tailoring of research activities to the needs of Korea's industrial development. The approach is to act as a catalyst in developing research institutes where both the country and the organization are comfortable. Programs are mounted on a sector-by-sector basis with the goal being economic development. In the KIST situation this involved developing contract research techniques in which Battelle technologists looked at Korea's industrialization problems—such things as maritime trade, steel mill updating—while Korea controlled and funded the research.

The Battelle role has been in the training of KIST staff members in contract-research procedures and in the general mode of operations employed by the Battelle Research Institute. In all phases it was in a supplementary role and currently is in a "by request only," advisory capacity.

The KIST emphasis was on education, technology adaptation, and demonstration—as opposed to direct aid. And the research focus was on improvements to the productivity of rural sectors. KIST claims to have been successful in attracting back significant numbers of Koreans who have received their technical education and work experience in foreign countries.

## Chapter 4

# The Role of Governments in Setting Incentive Structures for the Development Process

THE DIRECT LINKS of MDC governments to other sectors provide examples of the emerging web of integrating actions:

### Government-business interactions:

- U.S. government (through the U.S. Department of Agriculture) monitoring of production, consumption and trade movements provides world agricultural commodities the most reliable guide to future world markets.

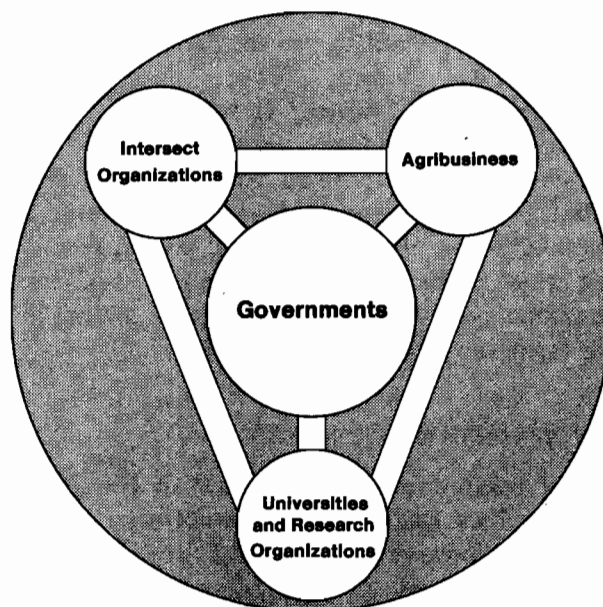
- U.S. government efforts are aimed at building foreign markets for agricultural products. For example, upon U.S. government approval of a "concessional" sale—sales of grain or other agricultural commodities as a part of the U.S. food aid program—private corporations handle negotiations with recipient countries.

### Government-research organization interactions:

- Research into international problems of nutrition—diet supplement, fortification, education—is currently being carried on in many centers, for example, Cornell University, Rutgers and M.I.T.

- A particularly difficult problem is overcoming the resistance of the few in a poor society to changes that will benefit many of the poorest.<sup>1</sup> One such means may be through agricultural research and training in farm management.

<sup>1</sup> Fernando Monckeberg, *Checkmate to Underdevelopment*. Washington, D.C.: Embassy of Chile, 1976. The structure of undeveloped society, in Monckeberg's view, is characterized by the fact that a minority—20 percent to 30 percent in Chile for example—have adequate conditions. As a country advances, this group



### Government-intersect organization interactions:

- In response to groups with interests in food, agriculture and nutrition, governments may be prodded to policy action. For example, there have been Senate hearings (by the Select Committee on Nutrition and Human Needs) on world food security and commodity reserve proposals.

- International information and action networks may provide impetus for specific projects. For example, continuing discussions on the *codex alimentarius*—an attempt to de-

“must make a progressively bigger effort to preserve their standard of living and more still if they want to improve it. It follows that, in the absence of change, an equilibrium is reached that ensures the stability of this group. This stratum sees no advantage in, and feels no need for, an elite that will lead to substantive change.”

velop common standards on food labeling and content—is due to efforts of the FAO and many nutrition-related organizations.

From the standpoint of governments, action by a more-developed country (MDC) in a less-developed country (LDC) can have unintended consequences—such as aid that defeats LDC self-help programs. LDC government policy, on the other hand, can help or hinder actions intended to increase agricultural production.<sup>2</sup>

Cooperation *between* governments is crucial. Thus, while earnings from export trade currently provide most of the developing world's foreign exchange, aid from developed countries can have a key impact. It has long been true that food aid from the United States served at least two governmental purposes. On the one hand, the United States was seeking to dispose of agricultural surpluses which threatened to depress domestic prices and farm income. On the other hand, it also sought to strengthen and stabilize developing countries politically and economically.

Whether for humanitarian, economic or security reasons, over the past 15 years the United States has donated or supplied on concessional terms to developing countries 80 percent of all food aid—valued at \$8.8 billion—available from market-system developed countries.<sup>3</sup> This is only part of the story that needs to be understood in order to link food and food-aid policy with other U.S. foreign policies: What percentage of food and food aid is tied to trade agreements? What percentage is, in fact, a subsidy to U.S. agriculture? What is the percentage in relation to all other foreign policy costs?

<sup>2</sup> Douglas N. Ross, "Whatever Happened to the Green Revolution?" The Conference Board *RECORD*, January, 1976. See also, United States General Accounting Office, *Report to the Congress: Disincentives to Agricultural Production in Developing Countries*. Washington, D.C., November 26, 1975.

<sup>3</sup> United States Department of Agriculture, *The World Food Situation and Prospects to 1985*. Foreign Agricultural Economic Report #98, December, 1974.

For perspective, it is also helpful to know the relationship between U.S. assistance and aid from other market-oriented countries and from Communist and Socialist countries.<sup>4</sup> In the 1973-1974 period, according to the USDA, for example, the U.S. contribution dropped from 80 percent to 50 percent of total world food aid and concessional sales. Of the 7.5 million tons fiscal 1974 food aid, the U.S. provided 3.7 million tons and the U.S.S.R. 2 million tons.

### **Development Assistance and LDC Incentive Structures**

Recent research has cast doubt on the utility of food-aid programs and has raised questions about the efficiency of charitable aid in general. World commodity market conditions have changed, and U.S. policy on grain trade and food has changed with it.

By 1974, world grain supplies and reserves had dwindled to the point where a three percent supply shortfall—albeit due to "bad luck and bad management"—caused a 250 percent price rise. The United States had paying international customers and a means of partly offsetting its higher oil import cost.<sup>5</sup> Yet as the United States enhances its position as a

<sup>4</sup> Aid from the Soviet Union to 47 developing countries was slightly less than \$1 billion in 1974 and \$700 million in 1975—or .16 percent of the U.S.S.R.'s GNP. Eastern-bloc countries supplied \$1.22 billion in 1975—Czechoslovakia \$380 million; Rumania \$340 million; Poland \$150 million; Hungary \$150 million; East Germany \$100 million; Bulgaria \$100 million. Eastern-bloc countries demand market-level interest rates; the Soviet Union's aid is entirely tied; that is, funds must be used by the recipient to purchase Soviet goods.

<sup>5</sup> In the past five years, the Soviet Union has accounted for 80 percent of the deviation in world grain trade trends. Critically dependent on imports of U.S. wheat are both the most prosperous LDC (Mexico) and the poorest (Bangladesh). The conditions of this trade have changed. In 1970, approximately 50 percent of food exports were sold under foreign aid agreements. This has now dropped to 15 percent. In the period 1972-1975, the dollar value of food exports to the developing world had increased from \$1.7 billion to \$7 billion; the dollar value of food aid has remained constant at \$1 billion.



supplier nation, it also becomes increasingly vulnerable to continuing commercial demand for its expanding grain production. Where previously the U.S. farmer had been somewhat isolated from international price fluctuations, currently the separation of the domestic from the international economy is not possible. These changes resulted in a U.S. reemphasis on LDC self-help—U.S. policy in the immediate post-World War II era—and LDC disincentives to agricultural production.

Forty-six developing countries were identified by the Foreign Agricultural Service of the U.S. Department of Agriculture as having policies in nine basic areas which directly or indirectly discouraged production.<sup>6</sup> For example, food-export taxes and commodity controls; in-country commodity movement restrictions; and exchange rate controls. The survey is not an ongoing program. It was undertaken by the Foreign Agriculture Service on a special request from the U.S. delegation to the World Food Conference in Rome.

United States policy realignment suggests a complementary role for future aid to LDC's which involves several changes.

(1) A change from relief programs for current political allies to emergency aid where the needs are the greatest.<sup>7</sup>

(2) A change from surplus disposal to development assistance. Development assis-

<sup>6</sup> A.A. Saleh, *Disincentives to Agricultural Production in Developing Countries: A Policy Survey*. Foreign Agricultural Service, U.S. Department of Agriculture, March, 1975.

<sup>7</sup> Douglas N. Ross, ed., *The Challenge of Overpopulation and Food Shortages*. The Conference Board, Report No. 684, 1976. William S. Gaud, former AID administrator, charged in a statement to a symposium in Dallas that U.S. foreign efforts are "not suitable for the world of the 1970's. The country's food-for-peace programs are too often based not on need but on such things as the extent of our food surpluses, our balance-of-payments position, and the desire to open foreign markets for U.S. farm products. There is nothing wrong in trying to achieve these various goals, but it is wrong to do so under the pretense that we are carrying out food-for-peace programs to help the needy."

tance—including infrastructure construction and on-site rural storage—may involve indirect paybacks. For example, establishing a clean water system raises the qualitative level of any society.

An agribusiness representative emphasizes the need for a country to have a real financial stake in a project's success: "AID loans and concessional credit to LDC's do not force the internal changes necessary. The failure of a project should hurt a little bit."

(3) A change from large investment projects to smaller, self-help assistance programs.

According to an agribusiness executive: "Aid must move away from 747's and steel mills down to increasing production on the land where three-quarters of the people live."

The current bias of aid givers is toward larger, easier-to-monitor investments. Where capital is scarce, an alternative strategy is needed—smaller, labor-intensive, self-help assistance programs, which have been requested by, negotiated with, and fully participated in, by host nationals.<sup>8</sup>

The significance of "green revolution" technology lies as much in its demonstration effect as in its increased food grain output. It marked the first time that nontraditional technology boosted food crop yields on a wide scale in the developing world. In South Asia, according to a recent World Bank study, food grain output increased by one-third between 1966 and 1970.<sup>9</sup> To date, middle-sized and large farms, rather than small ones, have made the change and have benefited most from the production increase. Productivity on large farms is now 40 percent greater than on small farms.

The World Bank study concludes that an emphasis on small farm production increases

<sup>8</sup> C. Peter Timmer, "The Choice of Technique in Indonesia," in *The Choice of Technology in Developing Countries*. Center for International Affairs, Harvard University, 1975.

<sup>9</sup> Cited in S. J. Burki and S. Yusuf, "Population: Exploring the Food Fertility Link," *Finance and Development*, December, 1975.



### **Comments of Former Public Officials Now with Agribusiness Companies**

"The best chance for aid to succeed is where you find the cultural fit that emphasizes work. The only real ground rule for people who go into a place is to try and work with whoever has a reason for making the project work."

\* \* \* \* \*

"The problem is that the Indians don't need help in feeding themselves because they could feed themselves if they wanted to change the institutional arrangements. Now all we're doing (AID) is subsidizing the existing order, which is inefficient. Currently, we're on a collision course with famine. When this is seen, we'll probably have great big expensive programs—most of which will be wasted primarily because of the institutional barriers and because you cannot change just a few inputs into a total system—that is the 'quick fix' approach such as only building a fertilizer plant."

could prove worthwhile. First, the production of 20 million additional tons of grain in the 1975-1985 period on small South Asian farms would cost an estimated \$8 billion, considerably less than on large farms. Second, inter-regional comparisons between agricultural output and crude birth and death rates seemingly confirm that, in regions where agricultural advance has been rapid, declines in fertility rates take place with increases in income and improvements in social status.

### **Policies of Less-developed Countries that May Be Disincentives**

A Report to Congress by the Comptroller General of the United States, echoing the Food and Agriculture Organization (FAO), World Bank, and United States Department of Agriculture (USDA) findings, elaborated the adverse impacts of policies of developing countries on their own agricultural production.<sup>10</sup> (Unless otherwise noted, examples in

<sup>10</sup> United States General Accounting Office, *Report to the Congress: Disincentives to Agricultural Production in Developing Countries*. Washington, D.C.: G.A.O. Document ID-76-2, November, 1975.

this section have been drawn from either the G.A.O. or the USDA study.) A number of factors are suggested:

- (1) The urban bias to food policy
- (2) Agricultural taxation
- (3) Exchange rate controls
- (4) Restrictions on internal food movements
- (5) Credit availability
- (6) Redistribution of land
- (7) Expropriation or nationalization of food industries

In many LDC's, barely 20 percent of investment during the period 1950-1965 reached the agricultural sector—where, typically, 70 percent of the population was engaged in producing 45 percent of an LDC's gross national product.<sup>11</sup> Even this minor agricultural investment has been directed into large investment projects—such as dams to provide urban electricity—instead of agricultural irrigation projects. This pattern has been supported by an array of LDC policies that have motivated the transfer of efforts and resources away from the rural and agricultural sectors and toward the urban and industrial sectors.

### **The Urban Bias to Food Policy**

The most widespread policy disincentives to expanded food production are "cheap food" programs for the urban consumer. These take several forms. The government may procure agricultural products at prices below prevailing market prices. The government of Peru, for example, set a low retail price for potatoes during a period of sharply increasing producer costs. The results were a short supply and black market goods available at three times the government price.

The government of India, in 1974, established wholesale and retail price ceilings and forced wholesalers to turn over one-half of

<sup>11</sup> See E.F. Szczepanik, "The Size and Efficiency of Agricultural Investment in Selected Developing Countries," *FAO Monthly Bulletin of Agricultural Economics and Statistics*, December, 1969.

their wheat purchases to the government at less than market price. Farmers shifted to lower-yield crops—because of higher input prices—and hoarded grain. The net result was an increased financial burden from higher food grain imports.

A second form of “urban bias” is the government-subsidized retail sale of basic foodstuffs to the urban consumer. As domestic production lags behind consumer demands, both commercial and concessional imports can be used to support food consumption patterns in the money economy portion of a developing country. Subsidized retail outlets in Pakistan, for example, control urban consumer price levels (sometimes below the price the government pays the domestic producers). They also have used United States aid grain to raise revenue and maintain low consumer prices. A domestic price level, reflective of producer costs, could be an incentive to increased production; less directly, it could result in wider distribution of income.

### Agricultural Taxation

The taxation of agricultural product exports is currently the greatest source of foreign exchange for most of the poorest countries. Farmers tend to grow less if the prices they receive are below what they would be without the tax, as seen with grain in Argentina, rice in Thailand, and cotton in Pakistan.

To illustrate further, in Pakistan, where taxes on agricultural export provide 80 percent of foreign exchange, the government nationalized cotton export trading during a period of rising prices. It then raised the export duties to absorb the difference between the price paid the farmer and the international price. As the international price declined through 1974, the export duties were not adjusted and cotton production declined 25 percent.

As one of a number of coordinated government policies necessary to increase agricultural production, agricultural land taxation could make land use more intensive while providing needed revenue. Virtually no de-

veloping country makes effective use of land taxes to give incentives to higher agricultural productivity.<sup>12</sup>

Uruguay, however, has made a beginning in its imputed land-productivity tax (IMPRO-ME). The tax is based upon the estimated productivity of land—considering farm size, access to market, soil conditions—and gives tax deductions for using modern inputs and techniques with special considerations to small farm owners.

### Exchange Rate Controls

Exchange rate controls may affect developing country production by making food imports relatively cheap and by discriminating against agricultural exports that earn foreign exchange. Brazil, for example, overvalued its currency to take advantage of a reputed inelastic foreign demand for its coffee. This had a net adverse effect on other products in which Brazil had a comparative world trade advantage.

In Kenya, such overvalued exchange rates act as a form of agricultural taxation, in that the exporter may receive less local currency than if the rate were more realistic and importers were “subsidized” by being able to purchase foreign goods below their real value. These controls have the effect of transferring income from the exporting agricultural sector to the importing, largely nonagricultural sector.

In Sri Lanka, a two-tier exchange rate system favored food imports and discriminated against plantation crop exports—tea, coconut products, and rubber. These crops, which account for 80 percent of Sri Lanka’s export earnings, were tiered at a level less favorable to agricultural export. The net result was an

<sup>12</sup> Richard M. Bird, *Taxing Agricultural Land in Developing Countries*. Cambridge, Mass.: Harvard University Press, 1974. Bird notes that the greatest need for agricultural taxes is not in the least developed countries but in the semi-developed ones, where they are needed to stimulate agriculture and offset the undesirable effects of industrialization policies upon agriculture.

economic disincentive to increased output and lower foreign exchange earnings.

### Restrictions on Internal Food Movements

Both domestic and foreign private-sector producers can be greatly affected by government restrictions on domestic food distribution. Barriers may be erected between provinces or states for health and safety reasons, or they may be used to implement cheap urban food policies. India's policy of limiting movement of agricultural products between states and between districts—intended to expedite government procurement and to keep urban food prices low—was in effect during the recent "food" crisis.

### Credit Availability

Credit is generally not available to smaller farmers, who are thus unable to gain access to the higher productivity technologies of the green revolution. Credit availability also favors export crops, rather than food crops for domestic consumption, because there is a cash flow generated by export sales.

In Kenya, about 15 percent of small farm holders have access to government credit, but none is applied to subsistence crops. In Bangladesh, farmers holding more than three acres received more than 80 percent of the agricultural bank loans. While in the Philippines, the 27 percent of farmers who owned the largest farms obtained 98 percent of the institutional credit. Artificially low interest rates in Kenya, Peru and Indonesia encourage producers to substitute capital for labor and limit credit available to smaller holders, who are considered to be high-risk borrowers.

### Redistribution of Land

Land-tenure systems that leave the cultivator only a small fraction of the benefits stemming from labor or investment are a common disincentive. Where land redistribution has been carried out, some developing countries have experienced output declines because the redistribution program was not

accompanied by complementary measures—agricultural extension support services, training, facilities.

In India, the land-reform program has reportedly delayed the installation of irrigation facilities. Family holdings may not exceed 18 acres of irrigated land—capable of producing two crops a year—or 54 acres of nonirrigated land. Thus farmers delay the installation of irrigation facilities to avoid losing the land.

### LDC's and Foreign Investment

The Peruvian nationalization of the fish meal and fish oil industry in 1973 affected five U.S. firms, but left Peru's own fishing industry unscathed. Instances of this sort—or of contract or concession cancellation, renegotiation and forced sales—have on the whole declined—from 78 in 1972-1973, to 42 in 1974-1975.<sup>13</sup>

The private sector carefully assesses LDC policies, attitudes and market potentials—the investment climate—prior to a venture. LDC's follow various practices with respect to foreign investment.<sup>14</sup>

(1) Incentives to agricultural investment may be awarded automatically to all enterprises that meet specified LDC conditions.

(2) Incentives may be granted for a specific contribution to the host country's economy—such as the promotion of new export products, the development of a backward area, or the encouragement of applied research in the host country.

(3) Incentives may be awarded through case-by-case negotiation and in accordance with ad hoc agreements.

The main incentive is usually a "tax holiday" of up to several years, and may include

<sup>13</sup> *Disputes Involving U.S. Foreign Direct Investment*, United States Department of State, Bureau of Intelligence and Research, Washington, D.C., 1975.

<sup>14</sup> United Nations Economic and Social Council, *National Legislation and Regulations Relating to Transnational Corporations*. Commission on Transnational Corporations, New York: E/C.10/8, January, 1976.

An agribusiness executive comments: "You must be welcomed by the country, have a reasonable assurance of being able to import the things you need, particularly machinery; have few limitations on the ability to bring people in, and a reasonable tax structure. However, the main consideration is that there are no disincentives rather than specific incentives."

a waiver of import duties on necessary materials and equipment and property tax exemptions.

### **The United Nations' Role in the New International Economic Order**

Political debate in the forum of the United Nations may set the stage for changes in the international economic system relative to income distribution between rich and poor countries. In fact, hard negotiations—such as the "Jamaica Accord" of January 1976 on the reform of the international monetary system—have already begun.<sup>15</sup> The "New Order" is a shorthand description of the political demands made by representatives of developing countries in the United Nations for a redrawing of the economic rules that govern the system of distributing income among rich and poor countries.<sup>16</sup>

<sup>15</sup> The first practical outcome of the September, 1975 United Nations Seventh Special Session on Development and International Economic Cooperation was the January, 1976 international monetary accord reached in Kingston, Jamaica. Representatives from rich and poor nations met at the International Monetary Fund's "Interior Committee" and reached agreement on a "reform" monetary package.

<sup>16</sup> Two resolutions endorsed by the Sixth U.N. Special Session on Raw Materials and Development in April-May, 1974—the Declaration on the Establishment of a New International Economic Order, and the Program of Action designed to implement the Declaration—were approved by the U.N. General Assembly in December, 1974. They framed what was called a Charter of Economic Rights and Duties of States that dealt with sovereignty over national resources; improved terms of trade for the raw materials producers; and increased transfer of resources to developing countries.

The LDC's consider that the need for some change is compelling. Half the world's four billion inhabitants have annual per capital incomes of less than \$200. The argument is for a massive transfer of resources from rich to poor countries to build the foundation for easing future food-supply problems, relaxing political tensions, and fostering LDC food independence.

To meet food demands occasioned by the 1974 "food" crisis—really a "price" crisis—LDC governments borrowed heavily. In fact, since 1970 the poorest developing countries have borrowed more money than ever before. They now spend more than 15 percent of all money earned from exports to service and pay interest on their \$100 billion long-term debt.<sup>17</sup> Some are close to a need to reschedule their debts—\$6 billion in Brazil, \$1 billion in Argentina, \$1 billion in Peru, \$162 million in Zaire. However, these particular countries' deficits are not due solely to the rapidly increased food price.<sup>18</sup>

Changes in the structure of international economic practices envisaged in the resolution of the U.N. Special Session on International Economic Cooperation would, if implemented now, make a substantial difference in per capita living standards by the year 2000. A study by the United Nations, based on some assumptions that parallel LDC demands as embodied in the Special Session's resolutions, showed the possibility of narrowing the MDC-LDC income gap.<sup>19</sup> If, by the year 2000,

<sup>17</sup> United Nations Conference on Trade and Development (UNCTAD IV), *International Financial Cooperation for Development*, TD/188, Supp. 1, May, 1976.

<sup>18</sup> Emma Rothschild, "Banks: The Politics of Debt," *New York Review of Books*, June 24, 1976. See also "Pertamina to Renegotiate \$10 Billion Debt," *The New York Times*, June 29, 1976.

<sup>19</sup> The Seventh U.N. Special Session on Development and International Economic Cooperation, September, 1975. See: *Environmental Impacts on the Growth and Structure of World Economy*. Document E/AC.54/L.76, United Nations, Center for Economic and Social Information, New York, 1975.

world population has increased from the present four billion, along the United Nations' most optimistic, low projection, to some six billion persons—80 percent of this two billion increase will occur in the LDC's. If the LDC's received increased commodity prices together with expanding market shares for LDC products, then a narrowing of income gap between MDC's and LDC's could occur from the present approximate ratio of 12:1 to 6:1.

However, it may be that oversimplified solutions involve unforeseen difficulties that usually result from oversimplification. For example, if the commodity prices of LDC commodity exports are arbitrarily increased, a substitutability incentive is created for those same commodities. The net result of the policy action, then, may be exactly the opposite of the desired effect.

### Changes Recommended in the U.N. Study

(1) Increases in the prices of minerals and agricultural commodities relative to 1970 prices: a 100 percent price increase for minerals and a 50 percent increase for agricultural products with the price increases evenly distributed over the entire commodity range. This means that the developing countries want a programmed shift in the terms of trade as a necessary condition of "buffering" themselves against adverse commodity-price declines.<sup>20</sup>

An agribusiness executive makes this comment:

"In the future, it is likely for us to be trading food for raw materials. At the same time, the New International Economic Order is a shorthand for saying LDC's want a faster transfer of wealth from the developed to the developing countries. A critical problem, however, is the focus on the division

<sup>20</sup> With the exception of 1973-1974, the relative terms of trade of the non-oil developing countries have not improved over the past 25 years. See: Reginald H. Green and Ann Seidman, *Unity or Poverty*. London: Penguin Books, 1968. They estimated that falling prices in the period 1945-1965 cost African nations more than all foreign funds given, loaned or invested there.

of a fixed pie as opposed to beginning to create an expanding pie. This will involve development programs and establishing mechanisms to stabilize export earnings—not fixed prices. I'd rather see it done through IMF arrangements so that when world commodity prices dip, raw materials exporters can borrow and pay back when prices go up again."

Malaysia—a country whose national budget is funded 90 percent from foreign export earnings—is pressing the world's natural rubber suppliers for a world rubber compact, complete with a buffer stock system to stabilize world prices. As with the world tin agreement, there is to be voting participation of both producing and consuming countries.<sup>21</sup>

(2) Increases in the developing countries' share in world export trade in all LDC commodities except food and agricultural products from Asia and Africa. As envisaged by the U.N. study, the LDC share of world mineral exports would increase from 58 percent in 1970 to 71 percent in the year 2000; of light manufacturing from 13 percent to 22 percent; and of heavy manufacturing from 5 to 10 percent.

Comments an agribusiness executive:

"Essentially it's just redividing the cake to give them a bigger slice. It will help us. Two major policy changes are quite important for LDC's. On the one hand, there will be a better balance in the developing countries between urban and rural or industrial and agricultural development. On the other hand, pending United States trade legislation to decrease import tariffs, it will aid considerably in removing artificial barriers to the U.S. market. For example, some vegetables are subject to a 17 percent 'rural' tax."

But other executives do not view the situation as being so beneficial:

"While it is doubtful that operations in any countries will cease, the pressure to decrease own-

<sup>21</sup> "Business in Malaysia," *The New York Times*, August 6, 1976.

ership down to minority positions is increasing in a number of nations. The New International Economic Order is almost completely shutting down the exploration of new investment opportunities in the really poor fourth-world countries."

(3) Reduction of LDC dependence on imported manufactured goods by 30 percent. An agribusiness executive offers this comment:

"Nationalism is not good for anybody. It is hard to see how developing countries can ask for trade agreements with favorable treatment of their own exports of raw agricultural commodities, and then turn around and build tariff walls against everything else—including the investment of technology and the financing package. Basically when negotiations begin, however, there is usually a lot more rationality and a lot less rhetoric. Yet, in the early 1970's, the United States placed embargoes on agricultural exports—this was a simple exhibition of our own nationalism, giving us a temporary gain in some commodity prices at the expense of the confidence of our customers. The natural question, then, is why other nations should not politicize their products as well."

(4) Increases in the volume and improvement of the terms of development assistance from the developed to the developing world. In the United States the amount of assistance is currently .35 percent of GNP, while the U.N. study suggests .7 percent of the gross national product—or a doubling—to be necessary.

In fact, United States-LDC financial relations are characterized by a shift from public aid to private lending. Official development assistance in the 1960's accounted for over 60 percent of total U.S. capital flows to LDC's; by 1974, it was less than 30 percent.<sup>22</sup> Private flows—direct investment, export credit, bilateral and multilateral portfolio investment—are now greater than 50 percent of the total net flow of resources from the United States to LDC's.

<sup>22</sup> *International Economic Report of the President*, Washington, D.C.: U.S. Government Printing Office, March, 1976.

### A Skeptical Agribusiness Executive

"Proclamations will not help—the U.S. role is in helping them to help themselves. In many instances it is not the foreigner who is the problem, it is their own people. For example in \_\_\_\_\_ the wife of the president is known as 'Mrs. Ten Percent,' and the president's cousin has a monopoly on all imports of fabric. Thus when \_\_\_\_\_ is forced to renegotiate its debt and presses oil companies to give them more money, the division of the new money is based on feudalistic premises."

### Possible Effects of U.N.-Suggested Changes.<sup>23</sup>

The net effect of the new economic order, according to the U.N. study, could possibly be:

(1) *In developed regions*, the net incomes of ordinary citizens would not rise as quickly as heretofore. To illustrate, per capita income in North America was approximately \$4,600 in 1970, and is projected to increase by 141 percent (to \$11,000 in constant 1970 dollars) by the year 2000. In the U.N.'s "New Order" scenario, average North American per capita income would rise only 100 percent to \$9,550. For other developed countries, a continuation of present trends means a rise in per capita income of 255 percent from \$1,900 in 1970 to \$6,750 in the year 2000. Under the "New Order" assumptions, the increase in average income would be 163 percent, to \$5,000.

(2) *In the developing world*, there would be marked acceleration in per capita income. Under "New Order" assumptions, per capita income in Latin America could jump 300 percent from \$550 in 1970 to \$2,200 by the year 2000. Present trends extrapolated yield an increase of only 155 percent, to \$1,400. For Africa and Asia, the "New Order" could mean a 433 percent increase in per capita income,

<sup>23</sup> United Nations Economic and Social Council, Committee for Development Planning, *Environmental Impacts on the Growth and Structure of the World Economy*. New York: U.N. Document E/AC.54/L.76, April, 1976.

from \$150 in 1970 to \$800 by the year 2000. If present trends in per capita income increases are extrapolated, the increase would be only 233 percent, to \$500.

The LDC's aim is a larger share in the industrialized world's economic growth. As five percent of GNP growth in the U.S., about \$60 billion, is equal to the combined GNP of 70 Asian, African and Latin American LDC's, they argue that some larger fraction of MDC growth should be diverted to them.<sup>24</sup>

### The "New Order" or Market Trends?

It would be a mistake to ascribe to the "New Order" trends occurring in LDC's as a result of people responding to market opportunities in the United States. Processing operations are moving to LDC's to be closer to

<sup>24</sup> Jahangir Amuzegar, "The North-South Dialogue: From Conflict to Compromise," *Foreign Affairs*, April, 1976.

necessary raw materials. Some important market trends are:

(1) Displacement of vegetables by wheat because it is more economical—less labor intensive—to grow wheat in the United States. This is not due to any Latin American decision.

(2) Displacement of vegetables by houses (for example, New Jersey or Florida) as land is being taken out of production.

(3) Displacement of beef production—due to increasing corn prices—either for the direct consumption by people or for feeding more efficient converter animals.

(4) The displacement of field labor by the availability of welfare payments (another U.S. event unrelated to a Latin American or other LDC decision). The net result of these trends is that the developing world, particularly Latin America, is becoming "rural America." But this continues only so long as there is a cost differential; it is not an irreversible process.



## Chapter 5

# The Linking Mechanism Role of the Intersect Organization

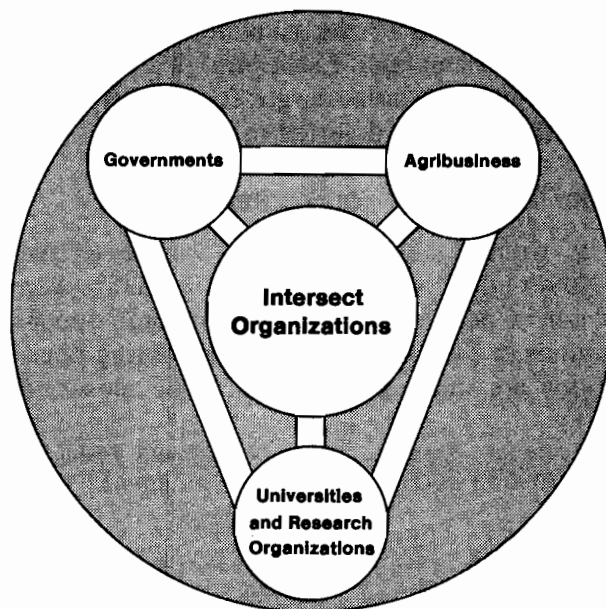
THE WORLD OF the “intersect” is in the interstices between society’s dominant organizations.<sup>1</sup> The intersect organization is seldom a doer, but often a facilitator; it exists to put the right pieces in place so that something can happen. A useful parallel may be drawn at the organizational level. The intersect may resemble a “staff” function—advice givers, information and service providers, but with little control over the “operators.” The organizations discussed in this chapter have as their basic purpose the linking, or coordinating, of policymaker and implementer in attempting to solve the food problem.

### The Food and Agriculture Organization and the Industry Cooperative Programme (ICP)

The ICP is a multilateral organization, funded by contributions from its 106 agroindustry members. It was established by the Food and Agriculture Organization (FAO) in 1966 to involve industry in the problems of hunger and malnutrition by providing a mechanism for promoting partnerships between governments and industry. Currently, it is the only United Nations channel that officially links senior executives from agroindustry with representatives of developing countries.

The ICP’s activities are focused on working groups, each having to do with a major agroindustrial sector. These include areas such as dairy, livestock, plastics, pesticides, fisheries, forestry and nutrition. Each group

<sup>1</sup> Kenneth E. Boulding, “Intersects: The Peculiar Organizations,” in *The Conference Board’s Challenge to Leadership: Managing in a Changing World*. New York: The Free Press, 1973.



concentrates on policy and technical matters of common interest to industry, the United Nations, and governments of developing countries. For example, the Pesticides Working Group’s (PWG) discussions have resulted in industry working with the FAO and the World Health Organization (WHO) to hold regional seminars on the “safe and effective use of pesticides in agriculture and public health.” Discussions ranged from national legislation and proper labeling to helicopter and backpack spraying in relation to local conditions.

In Kenya, an FAO beef feedlot project fattened cattle on a local “surplus” byproduct (molasses) from the expanding local sugar industry. Several ICP members worked independently with the project to supply materials. One result is that products are now being marketed to local farmers by Shell Chemical Co., Booker McConnell Ltd., and Pfizer and Co.



To complement the working group programs, high-level missions are the ICP's means of working directly in an LDC. Seven developing countries (Sri Lanka, Venezuela, Dahomey, Cameroon, Brazil, Liberia and Pakistan) have requested and received missions. The missions, manned by senior agroindustrialists from ICP's members, serve in an impartial capacity and advise host governments on planning and project priorities. The ICP reports that it provides assessments of particular countries to its members on both government policies and LDC project opportunities; follow-up reports assess "mission" results.

The ICP is agribusiness' official "door" to the United Nations system. To illustrate, one result of the 1974 World Food Conference was the formation of the Consultative Group on Food Production and Investment (CGFPI) as a forum for development-assistance donors and recipients and other coordinating government groups, such as the ICP as the representative of agroindustry (see Appendix E).

A main purpose of CGFPI—cosponsored by FAO, the World Bank and the United Nations Development Programme (UNDP)—is to attract additional external resources to developing-country agriculture and guide their effective use. To this end, based upon FAO and CGFPI information, the ICP is currently setting up a mechanism to link MDC seed industries with LDC projects, emphasizing training local manpower and joint ventures between MDC agribusiness and LDC governments. A second purpose of the CGFPI is to overcome the past confusion of the planning process, caused by both the multiplicity of institutions and approaches involved, and poor communications among the institutions.

The 1974 World Food Conference projected an 85 million-ton grain deficit by 1985. To avoid the calamity that such a shortfall would cause, basic changes are being sought in developing-country productive capacity. Five developing countries, all market oriented, account for most of the deficit—India, Pakistan, Bangladesh, Sri Lanka and Indonesia. CGFPI

has requested each country to develop a detailed food plan that sets out specific investment needs to meet the targets. Coordination of public- and private-sector roles in the plan is the function of the Consultative Group (CGFPI).

Additionally, there is a 1985 conservation target of 50 percent reduction in storage losses. Major efforts are now under way in other United Nations groups (or official observer organizations), such as the Consultative Group for International Agricultural Research (CGIAR)—a group of foundations, countries and U.N. agencies that provide funds for research—or the International Food Policy Research Institute (IFPRI) that, among other things, makes technical recommendations to CGIAR.

There is, however, considerable difficulty with the final link in the food chain—consumption and nutrition. The agencies (World Bank, FAO, UNICEF, WHO, PAG) have thus far been unable to agree on the best strategy because of the complexity of the situation. The agencies' emphasis changes, for example, from protein to protein-calorie measures of diet adequacy. Or experts debate the relationship between vitamin deficiency and simple diseases. Until priorities are agreed upon, the choice of a plan to implement them cannot be made.

The ICP will attempt to provide the industry liaison for each of the priority segments—production, storage, consumption, nutrition—developed at the 1974 World Food Conference as they become more clearly defined. The overall objective is a closer coordination between the movement of public-sector resources into infrastructure development and potential commercially viable agroindustry projects.

Possible future avenues for agribusiness cooperation through the Industry Cooperative Programme (ICP) channel are in the areas of international agricultural research and of Food and Agriculture Organization programs. (See Appendix E for a listing of FAO programs and contacts.)

## The Agribusiness Council

The Agribusiness Council (ABC) is an organization with 75 U.S. agribusiness members, and is funded primarily by member contributions with some assistance from the Overseas Private Investment Corporation (OPIC).

Formed in 1967 as a result of the 1965-1966 food crisis, it was a part of the general recognition of the world food problem. It provides a U.S. forum for representatives from universities, the International Finance Corporation (IFC), the USDA, AID, and private sector agribusiness. The Agribusiness Council's main concern is with the transfer of technology to developing countries with, and in the presence of, supportive investment. The main focus of the ABC program is on agribusiness "missions" to encourage the U.S. private sector to look for joint-venture opportunities. ABC is expert in the difficult and lengthy process of uncovering and creating such opportunities.

The ABC approach is to find receptive agriinvestment climates, then to identify investment projects. This process has five phases that take up to 26 weeks.

Phase 1. Pre-screening a member's project interests. An agribusiness investment mission, consisting of representatives from a group of companies, performs a pre-investment evaluation. Since many agribusiness activities are interrelated, the mission structure allows an interaction among executives of different companies that stimulates a critical examination process.

Phase 2. Conferring with LDC national, state and development officials to see which firms, in their terms, are most suitable.

Phase 3. The Investment Mission: To illustrate, the Brazilian state of Minas Geras hired Arthur D. Little and Co. (a U.S.-based consulting firm) to aid them in building an approach to economic development. This involved the assessment of problem areas for particular development assistance—one of which was agriculture and agribusiness—and the formation of the Industrial Development Institute (INDI). Under Arthur D. Little's

guidance, the agribusiness section developed project-oriented "prefeasibility studies" that dealt with: scale and size of the project; personnel availability and training requirements; infrastructure in place; wholesale and retail markets; and export possibilities.

Additionally, the government stated its agreed-upon priorities. States a business member of the Agribusiness Council:

"Many members think that the Brazilian program [as outlined above] goes beyond the usual LDC indication that the government would like to see investment. It is an aid to our mission for us to know the LDC knows what it wants."

The investment mission, comprised of up to six corporations, is assured priority treatment in its pre-arranged meetings with the proper LDC officials—state and national ministers of finance, agriculture and planning, the governor of the state, and the directors of the Industrial Development Institute program. These meetings typically outline a project's priority, requirements and the incentives attached to it from the government's view. At the same time, local private-partner interests, banking connections, and transportation and export channels are explored.

Phase 4. Feasibility studies: The ABC focus during its investigatory stages is on U.S. private investment in the lesser developed countries. In the mid-1960's, AID—with its emphasis on aid and disaster relief—developed a "feasibility study program" for agribusiness. The program function was transferred to the Overseas Private Investment Corporation with OPIC's creation in 1971.

OPIC finances the feasibility studies for the companies on the mission if they decide to go to that phase. To date, there have been three missions in groups of six companies each. Thus far there are 15 potential investors at the feasibility stage.

Phase 5. Agribusiness Consortium: The end result of this investigation and negotiation process may be an agribusiness consortium. Under ideal conditions, in the Agribusiness Council's view, the project will have some

government participation. Participation by the appropriate agency of the host government gives the consortium a quasi-official status, enabling it to deal directly with international financial institutions or other development groups. Such multicorporate consortia can then develop integrated agribusiness projects in specific areas with incentive packages tailored to them.

### **Private Regional Investment Groups**

There are several private multinational investment groups organized to encourage investment in the three major developing regions.

The *Adela Investment Company, SA* (1964) is an attempt at broadly based investment focused on Latin America. It provides seed capital, as in the case of any investment company. Adela looks at the possibility of taking a position in a range of activities—agricultural and nonagricultural. Shareholders' concern is more with the overall rate of return than with the performance of specific projects. In relation to a given project, it provides technical service and financing; to encourage investors, it functions as a limited-profit, minority investor.

The *Private Investment Company for Asia* (PICA), organized in 1968, was founded to represent the private sector in carrying out development financing in developing areas of Asia. It is a for-profit enterprise designed to provide equity, extend loans for medium- and long-term periods, arrange syndication and underwriting of securities, locate foreign partners or sources of know-how for business ventures, and arrange for market studies in foreign countries where future sales opportunities could exist. It currently has over 200 shareholders from Japan, the United States, and developing countries of Asia.

The *SIFIDA Investment Company* (chartered in 1970) focuses on promoting development in the independent African countries. Since its inception, it has been involved in more than 20 projects in 11 different African countries. It has committed more than \$13

million of its own (U.S.) funds to projects, enabling it to take a position in total African investment projects of more than \$200 million, while creating 14,000 new jobs. It is currently at the critical phase—ensuring that each of its projects moves from the construction to the production and distribution stage effectively.

The *Latin American Agribusiness Development Corporation* (LAAD), organized in 1971, is a private investment and development company that finances and develops agribusiness opportunities in Latin America. It involves all phases—production, processing, storage, services and marketing—in the fields of agriculture, livestock, forestry and fishing. Directors typically take a specific interest in each project. Currently the organization is looking for broader corporate equity support.

A number of criteria must be met for LAAD to consider any proposal. The project must be:

- (1) labor intensive;
- (2) a new or nontraditional export product for the particular region;
- (3) aimed at building the local business community;
- (4) small in size;
- (5) in a region with adequate infrastructure;
- (6) in a problem area where LAAD expertise can make a difference.

The first approach involves "picking the bottlenecks," or the evaluation of opportunities in a particular industry and determination of what is needed in the various segments of that industry. To illustrate, LAAD's analysis of the Latin American cattle industry turned up the need for a focus on yield improvements through improved breeding stock, together with markets for the processed products. LAAD was instrumental in getting breeders and, at the other end of the chain, developing slaughterhouse marketing.

LAAD also acts as a financial formulator. While a project's focus is usually on processing, both as a source of production and as a market assembly point, local banks and finan-

cial institutions typically are interested only in the short-term working capital requirements. The greatest need is for long-term capital from World Bank, or Inter-American Development Bank (IDB), or private sources such as LAAD.

A second approach involves moving a step up the processing ladder and developing non-traditional export-oriented projects. The problem in Latin America is not "food," rather it is rural purchasing power. Development is viewed as a process of bringing people into the money economy and then upgrading their employment. In Colombia, for example, the new cut-flower business has resulted in 10,000 new jobs in the past five years, and now serves 30 percent of the United States carnation market. On the one hand, the LAAD impact is through U.S. market contacts; on the other, it is aiding in the development of new sources of supply.

Barriers to a project's success include:

(1) *People*: Post-contract conflicts most usually crop up in the people, personality and ways-of-doing-business areas. These may be with financial sponsors or with management. For example, all manner of things went wrong in one Central American project—poor recordkeeping, no controls, failure to live up to contracts, bad deliveries, products that did not meet quality specifications. LAAD, initially a marketing agent in the United States, had to move in and restructure the company.

(2) *Politics*: As LAAD is not an operator, but an aid or coordinator, it is typically not faced with bribery or extortion problems because it does not need an export license or an operator's license to keep going.

Governmental policies, which may have broad political appeal, can compound operating difficulties—such as a policy of grain self-sufficiency in a country economically unable to produce grain or soybeans. It may be more efficient for the United States or some other country to supply the LDC with grain, thus enabling the country, for climatic or for labor-availability reasons, to concentrate on other crops. In general, labor-intensive crops,

such as vegetables, are moving "south." The effect is both a creation of wage opportunities and, in some cases, an upgrading of wage levels. In Honduras, Nicaragua and Guatemala, for example, only about 50 percent of the people are in the money economy. Hence, many projects represent a first step in bringing these people into the money economy.

(3) *Data and information*: Export and import data are generally adequate, but there is simply no way of getting actual production data. Small-farm production is not recorded because it does not enter the money economy. Nevertheless, it is obvious that people are being fed from local production, and some crude estimates of production can be derived from rough population estimates.

(4) *Evaluation*: Project evaluation is complex. It may include such things as the impact on LDC employment—jobs created; local demand stimulated (not all production is exported); gross national product impact in the form of production increases; export earnings derived from the project; and food-supply increases related to the production increases.

In the view of LAAD officials, it is difficult to evaluate third- and fourth-order project impacts. What is needed are specific, on-project studies to determine the effects of the project, for example, on women or on changed patterns of life. In Guatemala, for instance, the growing of hybrid palm seeds involved cutting forest back at the initial stage, and the employment of women during the second phase. Or, in Honduras, a small milk-pasteurization plant, while employing only a very few people, provided a market for small farmers that had not existed before.

### **The Developing Country Consultant**

The consultant can serve as a "cultural link" to determine the attitude of the host government toward a project. This includes:

(1) The matching of the project to the national economic plan: The coincidence of interest between country and company for a new product (for example, textured vegetable

protein) needs to be established in terms of needed regulations and standards for the product.

(2) Making necessary project adjustments: A demonstration school-lunch program might be planned for an area where the mayor is not one of the ruling party and, therefore, the government would not support the project. Coping with situations of this kind necessitates working close to local conditions in order to receive the support required.

(3) Thinking through the political implications of foreign investment: The well-chosen consultant-negotiator may know whom to see in the government; how to approach and introduce the problem; how to negotiate the approval of the project; how to adjust the undertaking to the policy that interests the host government; how to adjust to the existing LDC private sector; and, importantly, how to assess the timeliness, completeness and validity of local information.

On the other hand, a concerned senior agribusiness executive notes: "There seems to be a necessity for a local agent, but how can you be sure you are hiring a consultant and not a gangster?"

### **The World Food Production Conferences**

Begun in 1965, these conferences are sponsored by the International Minerals and Chemicals Corporation. These twice-yearly meetings have a dual objective: First, the mobilization of agroindustrial leadership in the battle against world hunger; and, second, promotion of the solutions offered by the increased use of fertilizers.<sup>2</sup>

In a nutshell, the IMC answer to the food problem is more food. To this end it has convened 20 conferences around the world as forums for the frank exchange of ideas and information related to the growth of food production.

<sup>2</sup> Joseph Sander, *Hunger Can't Wait*. Libertyville, Ill.: International Minerals and Chemicals Corporation, 1975.

### **Training and Consulting Organizations**

In the United States alone, there are over 100,000 private voluntary organizations, 400 of which seek to improve the quality of lives of people through social and economic development.<sup>3</sup>

*The Coady International Institute*, based in Antigonish, Nova Scotia, was founded in 1959, in part to meet the needs of students from developing countries for a training program based on cooperative principles.<sup>4</sup> Since its inception, 2,000 Institute students have returned to the service of their 102 countries. In the view of Coady Institute officials, the key to their success has been the selection of responsible and acceptable people—for example, blacks working with blacks—together with the Institute's assistance available when needed.

A Coady Institute trainee was instrumental in forming a rice-growing cooperative in Honduras. Beginning with 40 acres, and utilizing fertilizers, insecticides and high-yielding variety seeds, the project resulted in two crops a year and worker income rose from \$1 to \$8 per day. Encouraged by this, running water was brought to the village and a school was built.

One aspect of the Coady program is on-site seminars—a slow, small specific response that gets directly to the people. The range of problems addressed are illustrated by those in Northern Ghana:

(1) A villager, with a large warehouse in which he stored his neighbors' grain, resold the grain to them three months later at a 250 percent markup.

(2) Bushfires, set to rid the countryside of snakes, at the same time destroyed soil bacteria necessary for growing crops.

<sup>3</sup> *U.S. Nonprofit Organizations and Development*. New York: American Council of Voluntary Agencies for Foreign Service, Inc., 1971.

<sup>4</sup> *The Antigonish Movement: Yesterday and Today*. Antigonish, Nova Scotia: The Extension Department, St. Francis Xavier University, 1976.

*The Cooperative League of the U.S.A.* (CLUSA), is a Washington, D.C.-based confederation of cooperatives that undertakes activities to expand and strengthen participation in cooperatives.<sup>5</sup> The objective in international development is to make available, upon request, experience and technical resources from U.S. cooperatives to meet the needs of cooperatives in LDC's. For example, U.S. cooperative specialists are assisting the Indian Farmers Fertilizer Cooperative, Ltd., Gujarat State, Western India, in a \$125 million farmer-owned program that now has three fertilizer plants under construction.

*The International Executive Service Corps*, since its inception in 1964, has involved over 2,400 men and 22 women executives as volunteers. They have carried out over 4,000 individual consulting projects in 58 countries. Projects include:

- an edible-oil mill in Iran;
- a cooperative of cotton growers in El Salvador;
- a rice-processing plant in Ecuador;
- a cannery in Argentina;
- a commercial fishery in Brazil;
- a grain-products mill in Greece.

It is a not-for-profit corporation, based in New York, with revenues from overseas client firms, contributions from U.S. business firms, and supplemental overseas operating grants from AID. It assigns seasoned executives to short-term projects abroad to counsel LDC companies that have requested assistance in management problems.

*The Volunteers in International Technical Assistance* (VITA), formed in 1959, has en-

<sup>5</sup> Mr. Robert D. Partridge, Chairman, Advisory Committee on Overseas Cooperative Development on July 18, 1975, Appendix 6 of the *Hearings on the International Development and Food Assistance Act of 1975*, 94th Congress, House Document No. 94-158, Washington, D.C.: U.S. Government Printing Office, 1975.

listed over 7,000 volunteer specialists to work in 95 countries. Technical support has been provided to many development agencies—the Peace Corps, CARE, and the United Nations, among others.

It is a nonprofit association of American scientists and engineers that focuses on developing appropriate technologies for use in Third World countries. These include:

- grain storage manuals
- low-cost construction techniques
- solar cooking facilities.

*The New Alchemy Institute*, begun in 1970 and based on Cape Cod, attempts to design and test intensive food-growing methods that can be employed on a small scale and without recourse to the extensive mechanization and chemical consumption of modern agriculture.<sup>6</sup> Assisted by operating grants from the Rockefeller Brothers Fund, the Institute's marine biologists have designed a small-scale "solar pond" that grows large amounts of edible fish. The system reportedly feeds so efficiently on itself that 10 pounds of fish can be grown for every pound of food. Institute experiments on specially designed "appropriate" equipment for specific developing countries are being carried on in, for example, Costa Rica (solar herb drying) and in India (low-cost, water-pumping windmill).

<sup>6</sup> Wade Greene, "The New Alchemists," *The New York Times Magazine*, August 8, 1976. "The solar ponds are cylinders of varying sizes (from five feet high and 18 inches in diameter to five feet high and five feet in diameter) made of reinforced fiberglass . . . because their walls are translucent, light reaches through the sides as well as the top of any water contained in them, and algae, which require light for photosynthesis, grow much more abundantly—ten times more so than in regular commercial fish tanks or ponds. The more algae, the more fish that can be fed and, the New Alchemists also found, the more fish wastes that are readily absorbed." See also: "The Ark: A Solar-heated Wind Powered Greenhouse and Fish Pond Complex," *The Futurist*, December, 1974.



## Appendix A

# International Activities of Colleges of Agriculture at 58 U.S. Universities\*

### International Activities of Colleges of Agriculture at 58 U.S. Universities<sup>1</sup>

Agriculture college faculty now on overseas assignments .....	320
Agriculture college faculty now carrying on "international" research .....	1,125
Total agriculture college faculty engaged in research .....	10,386
Agriculture college faculty members who have served abroad for 3 months or more in the last 10 years .....	2,806
Agriculture college faculty members with work experience in:	
Asia and/or Middle East .....	1,059
Africa .....	737
Latin America .....	1,377
Foreign students in U.S. colleges of agriculture .	<u>5,228</u>
Undergraduates .....	1,253
Graduates .....	<u>3,975</u>
Foreign postdoctorals and visiting professors in U.S. colleges of agriculture .....	410
Foreign students in U.S. colleges of agriculture with support from USAID or FAO .....	915
On-campus training programs for groups of foreign trainees in 1974 .....	538
Foreign institutions with which U.S. colleges of agriculture have had some kind of cooperative projects in the last 20 years .....	1,161
Colleges of agriculture with 200 or more foreign students and visiting professors:	
California, Davis .....	391
Cornell .....	363
Wisconsin .....	359
Virginia Polytechnic Institute .....	319
Michigan State .....	316
Louisiana State .....	285
Minnesota .....	261
Florida .....	215
Ohio State .....	212

<sup>1</sup>Includes 50 First Morrill Act Colleges, 7 Second Morrill Act Colleges, and Southern Illinois University.

Colleges of agriculture with 50 or more foreign undergraduate students:	
Louisiana .....	208
Virginia Polytechnic Institute .....	101
Cornell .....	78
California, Davis .....	72
New Mexico .....	70
Oregon .....	67
Texas A. & M. ....	67
Minnesota .....	55

Colleges of agriculture with 100 or more foreign graduate students:	
Wisconsin .....	283
California, Davis .....	282
Cornell .....	246
Michigan State .....	243
Virginia Polytechnic Institute .....	213
Ohio State .....	195
Minnesota .....	186
Florida .....	179
Kansas State .....	132
Illinois .....	126
Texas A. & M. ....	115
Mississippi State .....	112
Purdue .....	110
Arizona .....	104
Iowa State .....	102

Colleges of agriculture with 15 or more foreign postdoctorals and visiting professors:

Michigan State .....	62
Wisconsin .....	56
Cornell .....	39
California, Davis .....	37
Illinois .....	23
Colorado State .....	21
Iowa State .....	20
Minnesota .....	20
Wyoming .....	20
Florida .....	15
Purdue .....	15

\* Source: Committee on International Relations, House of Representatives, Ninety-fourth Congress, *Hearings on the International Development and Food Assistance Act of 1975*, Washington, D.C.: House Document No. 94-158, 1975.

Colleges of agriculture with 20 or more AID and FAO supported foreign students:

Michigan State .....	75
Wisconsin .....	70
Florida .....	54
New Mexico State .....	49
Minnesota .....	43
Ohio State .....	42
Oklahoma State .....	41
Illinois .....	39
California, Davis .....	37
Iowa State .....	36
Colorado State .....	35
Purdue .....	34
Arizona .....	33
Kansas State .....	33
Kentucky .....	28
North Carolina State .....	24
Mississippi State .....	21

Universities with 10 or more faculty members currently abroad on assignments:

Wisconsin .....	31
Michigan State .....	21
Purdue .....	17
Minnesota .....	16
Texas A. & M. ....	14
Cornell .....	13
Iowa State .....	13
Kansas State .....	13
Utah State .....	13
California, Davis .....	11
Kentucky .....	11
Florida .....	10
Pennsylvania State .....	10

Colleges of agriculture with 15 or more faculty members with work experience in Asia and/or the Middle East:

Cornell .....	84
Michigan State .....	83
Utah State .....	75
California, Davis .....	65
Illinois .....	61
Ohio State .....	60
Tennessee .....	48
Texas A. & M. ....	46
Oregon State .....	41
Kansas State .....	36
North Carolina State .....	35
Purdue .....	27
Kentucky .....	27
Washington State .....	27
Minnesota .....	26
Nebraska .....	26
Hawaii .....	25

Pennsylvania State .....	25
Missouri .....	21
Wisconsin .....	20
Wyoming .....	20
Virginia Polytechnic Institute .....	19
Maryland .....	18
Florida .....	17
Massachusetts .....	16

Colleges of agriculture with 15 or more faculty members with work experience in Africa:

Oklahoma State .....	150
Texas A. & M. ....	75
West Virginia .....	70
Kansas State .....	43
Wisconsin .....	38
Michigan State .....	37
Minnesota .....	27
Cornell .....	24
Massachusetts .....	21
Illinois .....	20
Utah State .....	16
California, Davis .....	15
Ohio State .....	15

Colleges of agriculture with 15 or more faculty members with work experience in Latin America:

Texas A. & M. ....	180
Utah State .....	175
Purdue .....	130
Iowa State .....	82
Michigan State .....	77
Florida .....	61
Cornell .....	59
Ohio State .....	58
Wisconsin .....	53
Arizona .....	50
New Mexico .....	46
California, Davis .....	30
Oregon State .....	24
Pennsylvania State .....	24
Puerto Rico .....	23
Minnesota .....	22
Southern Illinois University .....	21
Missouri .....	21
Illinois .....	20
Kansas State .....	20
Nebraska .....	20
Virginia Polytechnic Institute .....	20
Connecticut .....	15
Georgia .....	15
Rutgers .....	15
Oklahoma State .....	15



Colleges of agriculture with 15 or more faculty engaged in international research:

Florida	114
Arkansas	96
Michigan State	75
California, Davis	50
Wisconsin	50
Iowa State	43
Illinois	43
Virginia Polytechnic Institute	40
Minnesota	33
Oklahoma State	29
Georgia	25
Purdue	25
Cornell	25
Delaware	22
Colorado State	20
Southern Illinois University	20
North Carolina State	20
Rhode Island	20
Texas A. & M.	20
Utah State	20
Kentucky	18
Rutgers	18
Pennsylvania State	18
Kansas State	15

Colleges of agriculture with 20 or more special training programs for groups of foreign trainees:

Hawaii	135
California, Davis	35

Utah State	34
Auburn	29
Kansas State	29
Nebraska	26
Michigan State	22

Colleges of agriculture with cooperative programs with 15 or more foreign institutions in the last 20 years:

Auburn	125
Rhode Island	120
Michigan State	108
Utah	90
Purdue	81
Illinois	69
Mississippi State	58
Florida	50
Cornell	50
Hawaii	35
California, Davis	30
Virginia Polytechnic Institute	26
Oklahoma State	25
Ohio State	23
Vermont	20
Wisconsin	20
Kansas State	18
Arkansas University	17
Southern Illinois University	16
Minnesota	16
Iowa State	15
Texas A. & M.	15

## Appendix B

# Excerpts from an Agrisystem Firm's Checklist for Foreign Investments\*

### Preliminary Investigation

#### I *Schedule*

Dates, location and times of discussions.

#### II *Credentials*

Who are parties participating in discussions?

Positions in or connection with company or properties under consideration.

Scope and extent of authority to make final decision pertinent to sale.

Personal credit rating.

#### III *Form of Transaction*

What precisely is being sold?

Total assets

Stock: common, preferred

Bonds

Partial or complete interest in properties?

If partial, what portion?

Who are other owners?

#### IV *Terms of Sale*

Price

Method of payment: cash, exchange of stock, equity as payment for service provided

Schedule of payments

Lump sum

Term—interest schedule

Withdrawal provisions and terms, if any.

Understandings concerning retention of personnel, name of company, protection of previous customers or suppliers, etc.

\*Checklist applies to LDC nationals.

### Detailed Investigation

#### V *Physical Assets*

##### A. Land

(1) Total area location

(2) Type tenure

Area in fee simple

Area in lease (duration, annual rental)

(3) Proportion of property devoted to various uses:

a. Agricultural

b. Factory and plant

c. Residential

d. Commercial (subleased?)

e. Waste land (suitable for other uses?)

f. Roads, irrigation (public?)

(4) Layout of property (compact, extended, contiguous, interrupted by other owners)

(5) Topography

a. Suitability for agriculture

b. Soil types

c. Water availability—irrigation and domestic

d. Type of ground cover—clearing costs

(6) Communications

a. Road system (extent, type, state of repair)

b. Telephone, radiophone, mobile radio system

c. External—mail, cable,

- wireless, etc.
- d. Utilities

**B. Plant and Facilities**

(1) Factory

- a. Capacity, design and actual
- b. Make, type and age of equipment
- c. Condition
- d. Condition of buildings and related facilities
- e. Type of construction, roof, siding, etc.
- f. Electric power, source, type, extent of use
- g. Electric generation capacity equipment
- h. Water source, availability, pumping requirements
- i. Furnace and boiler specifications

(2) Automotive and Field Equipment

- a. Rolling stock quantity, capacity, condition
- b. Maintenance facilities and equipment
- c. Parts supply and availability

(3) Miscellaneous Facilities

- a. Office and accounting buildings and equipment
- b. Warehouse and purchasing buildings and equipment
- c. Medical and hospital buildings and equipment
- d. Housing: size, number, condition

**C. Crop and Animal Herds**

- a. Area under cultivation, number of animals
- b. Types of crops or animals

raised

- c. Varieties
- d. Crop cycle, yields, cultural practices
- e. Irrigation practices
- f. Value of growing crops or animals
- g. Condition of growing crops or animals

**D. Miscellaneous Assets**

- a. Warehouse inventories, parts, supplies, etc.
- b. Inventories of sugar and molasses for sale
- c. Equities and investments in other properties
- d. Tax credits, accounts receivable, cash

**VI Employees (expatriates governed by contract; nationals governed by LDC national law)**

**A. Management and Supervisory**

- (1) Number
- (2) Quality, training, experience
- (3) Pay scales and total payroll
- (4) Attitude and morale
- (5) Availability: quality, quantity and training
- (6) Union contracts
- (7) Pensions liabilities
- (8) Severance liabilities and suits

**B. Hourly Paid**

- (1) Number
- (2) Quality, training, experience
- (3) Pay scales and total payroll
- (4) Attitude and morale

**C. Housing**

**D. Perquisites**

- E. Educational facilities (staff, children, vocational—elaborate in detail)**

F. Recreation

VII *Applicable Laws*

A. Labor (LDC nationals)

- (1) Wage and hour
- (2) Social benefits
- (3) Workers' compensation and safety

B. Immigration (expatriates)

- (1) Status of aliens employed
- (2) Visa and work permit requirements
- (3) Duration of work permits

C. Taxes (expatriates)

- (1) Corporate income, sales
- (2) Tariff—import-export
- (3) Personal income—other individual taxes
- (4) Land and property
- (5) Improvement assessments
- (6) Transportation, vehicle, road, wharfage
- (7) Duty: machinery and supplies

D. Monetary (LDC laws applying to expatriates)

- (1) Investment restrictions
- (2) Withdrawal of funds
- (3) Currency restrictions

VIII *Government, National and Local*

- A. Type and makeup
- B. Stability and attitude towards U.S. investment
- C. U.S. Government attitude toward country
- D. Investment guarantees available
- E. Attitude towards industry and company under consideration

IX *Marketing Considerations*

A. Sales, domestic or export—proportion

B. Price

- (1) Who determines: pegged or market?  
—who sets internal commodity price?  
—how often is it reviewed?  
—who sets internal quota for each mill?  
—who sets wages?
- (2) Frequency of price change
- (3) Where based—FOB factory or port?

C. Costs of Marketing

- (1) Transportation—internal and overseas
- (2) Bag or bulk shipment
- (3) Stevedoring and storage costs
- (4) Wharfage charges
- (5) Established marketing areas
- (6) U.S. quota participation

D. Competition

- (1) Size of growers

X *Production*

A. Costs

- (1) Past unit costs
- (2) Labor rates and contracts
- (3) Growers' fees—how determined
- (4) Material costs—fertilizer, oil, machinery
- (5) Air and railway travel

B. Agricultural

- (1) Tonnages, yields

C. Factory

- (1) Grinding rates, extraction
- (2) Bagasse and molasses policy
- (3) Steam-generation efficiency
- (4) Oil burner

## **XI *Miscellaneous***

### **A. Corporate Structure**

- (1) Where and when incorporated?

- (2) By-laws
- (3) Partnership or other basis of ownership

### **B. Debt structure: amounts and terms**

### **C. Title to land and other assets**

### **D. Pending litigation, investigations, etc.**

## Appendix C

# Excerpts from an Agrisystem Firm's Procedure for a Large-scale Agricultural Project

Prime objectives for establishing an agricultural project are as contributions toward the food self-sufficiency of a region; the creation of employment opportunity; building an economic base for improving economic conditions in the project area itself; and assisting in stabilizing food costs and availability within the country.

Typical projects involve producing 100,000 metric tons of sugar annually—or 150,000 metric tons of paddy rice (harvested and processed)—and require an area of approximately 13,000 to 18,000 hectares, including roads, canals, drains, factory, warehouses and employee housing.

There is an assessment made of the climate: adequate rain or supplemental irrigation, suitable soil types and terrain, sunlight and growing temperatures, and seasonal weather for growth and harvesting. In addition, assuming the location to be remote, the approximate development cost of such projects including housing, support, facilities and internal roads, but excluding access roads, port facilities, and so on, is in the range of 130 to 160 million U.S. dollars (1976).

The first step in the mechanized, larger-estates approach is the coordination of policy and action by linking LDC policy incentives with company implementation actions to attain mutually agreed-upon development ends.

*Phase I—Reconnaissance Survey* (2 to 4 months): consists of the collection and orderly arrangement of basic information (including field studies) relating to food-production possibilities for areas under consideration and focusing attention on locations (technical site selection—water, soil) best suited to meeting the stated objectives.

*Phase II—Feasibility Study* (4 to 7 months): presents a plan and program outlining the timing of each step to be carried out in establishing and implementing the project—together with the financial aspect: capital requirements, cash flow, and return on investment.

*Phase III—Project Development* (5 to 7 years): involves the acceptance and approval of the feasibility study's plan and program by the client government (usually) and the funds being made available together with the commencement of concurrent related programs.

A collection would be made of all available maps and surveys of areas to be developed and a program established for field activities. The programs include:

(1) Field design work: establishing field locations and boundaries and layout; providing for clearing and leveling; designing irrigation and drainage requirements; and establishing experimental test areas and a research program, including collection of weather data.

(2) Factory, mill or processing-plant development: establishing the pertinent requirements related to the location and design requirements for the factory (production capacity, water, steam and electrical requirements, factory buildings, warehouses, offices, and so on, and mill yard requirements as related to unloading and storage facilities); inspecting the manufacturing and assembling of equipment at the suppliers' works; furnishing staff engineers as resident advisers and trainers or permanent factory personnel until all operating tests, performances and guarantees have been met.

(3) Factory buildings, warehouses, offices, civil works, and other facilities necessary to support the integrated project operation (all

utilities for both factory and community—water, power, sewers and communications, the layout and design of village facilities).

(4) Agricultural requirements: begin agricultural research activities to prepare for field's coming into operation. Research evaluations are made on seed varieties and fertilizer/irrigation programs. As well, harvesting and transportation systems are developed and coordinated with factory start-up timing.

(5) Management and office procedures: provision of training and advisers to implement efficient management and office procedures found necessary to operate the project.

(6) Personnel and training objectives: establishing requirements for both supervisory and labor staffs and arranging for necessary training and orientation of all personnel (conducted locally and by assignment to established agricultural units elsewhere). The ultimate objective of all training is the development of a local staff qualified to manage and operate the project with minimum assistance from expatriate consultants.

(7) Special additional requirements relating to the project such as storage, shipping facilities, and the development of by-product manufacturing are added as required.



## Appendix D

# Excerpts from an Agrisystem Firm's General Survey Procedure Checklist

The feasibility study team would include the following:

1. Agriculturist familiar with general plantation operations and agronomic requirements of sugar cane plantation.
2. Civil engineer experienced in general plantation field layouts, roads and building requirements.
3. Industrial engineer experienced in plantation operations to develop economic evaluation of the project.

The selected team should be given all the assembled and organized data that are available and applicable to the country and area to be studied, prior to departure for the site. This will reduce time required and expenses of the survey.

It is assumed for this purpose that a complete and detailed study, which would constitute a master plan for the establishment and operation of a plantation, would be the objective of the survey; and that data presented to the principals of the project would include not only the establishment phase, but also profitability estimates and cash flow requirements.

This plan would include, but not be limited to, the following:

1. Agricultural field developments schedule, crop program, and cost estimates.
2. Agricultural field development equipment requirements, acquisition schedule, and cost estimates.
3. Factory specifications, construction schedules, acquisition requirements, cost estimates (milling or diffusion system, etc.)
4. General facilities requirement—i.e., warehouses, repair shops, office, housing, sanitation, etc., construction schedule and cost estimates.

5. Establishment of cash-flow requirements and funds availability.

6. Forecast of operating costs, revenues, profit and loss, etc.

7. Recommended agricultural practices, field layouts, cane varieties, irrigation methods, harvesting and transporting methods, sugar and molasses marketing, etc.

8. By-products recommendations, depending upon existing markets and demand.

A checklist which may be followed would include, but not be limited to, the following phases:

1. Study of present sugar operations in the vicinity:

- a. Historical data
- b. Imports and exports for the last years (including government regulations and practices)
- c. Population and per capita consumption
- d. Product trend for the most recent years
- e. Sugar and the economy of the area involved
- f. Government regulations, price control, etc.
- g. Current operations, season variety yields, etc. that are available on the current sugar operation.

2. Agricultural considerations—other fields:

- a. Agricultural general practices in the vicinity
- i. Current agricultural activities as to crops, livestock, imports and exports, local production, etc.

- b. Factors affecting production potential, which would include existing records.
  - i. Weather
    - (a) Temperature
    - (b) Rainfall
    - (c) Wind
    - (d) Humidity
    - (e) Storm hazards
    - (f) Frost hazards
  - ii. Soils
    - (a) Terrain—all available contour maps, etc.
    - (b) Soil types and characteristics
    - (c) Soil analysis
    - (d) Drainage
    - (e) Salinity
    - (f) Water table effects
  - iii. Water resources
    - (a) Rivers
    - (b) Rainfall
    - (c) Subterranean sources
- 3. General economic factors:
  - a. Corporate and personal income taxes, other taxes, operating license taxes.
  - b. Cost of living
    - i. Food
    - ii. Housing
    - iii. Clothing
    - iv. Utilities
    - v. Durables
    - vi. Miscellaneous
  - c. Government systems
    - i. Laws and regulations, work permits, residence permits, registration and licensing permits
    - ii. Established agencies—agriculture, geology, hydrology, etc.
    - d. Adverse regulations, if any
    - e. Export areas
    - f. All import regulations and taxes involved
- 4. Factors affecting economics of plant location:
  - a. Population and market
  - b. Transportation—details and equipment; facilities and availability; rates, limiting factors; access facilities for construction equipment and finished products
    - i. Water
    - ii. Rail
    - iii. Truck, etc.
  - c. Land—availability and cost
  - d. Utilities—availability and cost
    - i. Water
    - ii. Electricity
    - iii. Telephone
    - iv. Gas
    - v. Sewage and waste disposal
  - e. Labor—availability—skills applicable to sugar production, i.e., mechanics, operators, engineers, chemists, agriculturists, accountants, etc.
    - i. Wage scales by area—includes all cost factors; laws, government regulations, fringe benefits
    - ii. Perquisites
    - iii. Work hours, holidays
    - iv. Local customs and practices
    - v. Skills and work effort
    - vi. Reliability
  - f. Materials and supplies—availability and costs; government regulations

- i. Construction
    - ii. Repair materials
    - iii. Operating materials
    - iv. Import regulations
    - v. Equipment and spare parts—  
agricultural equipment of all types
  - g. Building construction
    - i. Construction supplies and equip-  
ment
    - ii. Type of structure
    - iii. Customs and regulations
    - iv. Rental space
    - v. Availability of local contractors  
for building, etc.
  - h. Recreation and educational facilities
  - i. Repair and maintenance facilities—  
availability of local contractors
5. Economic evaluation separately for plan-  
tation refinery and by-products:
- a. Estimated cost
    - i. Establishment
    - ii. Operation
  - b. Profit and loss estimates
  - c. Cash flow and return on investment
  - d. Competitive position
  - e. Appraisal of noncontrollable hazards
6. Appraisal of other agricultural oppor-  
tunities:
- a. Paper mill
  - b. Livestock
  - c. Diversified crops
  - d. Molasses use—marketability
  - e. Alcohol
- Other pertinent problems peculiar to the  
area should be investigated and included in  
the report.

## Appendix E

# Contact Points for Agribusiness in the United Nations Food and Agriculture Organization\*

### Food and Agriculture Organization (FAO)

#### *Purpose*

To raise world nutrition levels; to promote efficient production and distribution of food and agricultural products; to help industries to process the products of agriculture, forestry and fisheries; to raise living standards and well-being of world communities.

*Established:* 1945

*Membership:* 114 Countries

*Headquarters:* Via delle Terme di Caracalla,  
00100 Rome / Italy

*Regional Offices:* Accra, Bangkok, Santiago,  
Cairo, Washington, New  
York, Rome.

*Field Offices:* In 68 countries.

*Director-General:* Dr. Edouard Saouma

*Staff Size:* 5,500

*Major Activities.* FAO units have a variety of functions, including policy formation, liaison work with other agencies, gathering of research and statistical information and providing technical expertise and preinvestment surveys for other UN agencies, such as UNDP and the World Bank.

\*Source: K. Albright, J.F. McClelland III, W.H. Young, *A Case for Increased Cooperation Between Agroindustry Enterprises and Selected United Nations Agencies for Agricultural Development in Less Developed Countries*. Cambridge, Massachusetts: International Agribusiness Project of the Harvard Graduate School of Business Administration, 1976.

*Resources.* Approximately \$170 million budget for 1976 from member country contributions.

*Organization.* The following describes the functions of the major units within FAO:

*Economic and Social Policy Department.* Responsible for overview of policy in the agricultural sector, as well as collection of statistics to aid in policy formation. Two groups should be of special use to industry—the Commodities and Trade Division, which follows trends in basic commodities including price, production, consumption and trade volume and publishes surveys on individual commodities. Experts on each commodity have contacts with private industry, and the information gathered is publicly available. Also of interest to business is the Food Policy and Nutrition Division, which has a project as well as a policy orientation and has state-of-the-art information in the nutrition field.

*Regional and Field Offices Group.* FAO has seven regional offices, and field offices in sixty-eight countries. Much FAO and FAO-UNDP project formulation takes place at this level. Their representatives in the field have the best knowledge of a particular country's or region's agroindustrial sector within FAO. Meetings with FAO field representatives can be most helpful to business and may be arranged through the FAO Industry Cooperative Programme (see section on "ICP").

*Development Department.* Contains the Investment Center which coordinates FAO activities with the World Bank, the regional development banks, and private financial institutions. The purpose of the Investment Center is

to make FAO technical expertise available to financial institutions seeking to fund agricultural development projects. Also contains the Industry Cooperative Programme, a group of 106 companies involved in agroindustry based in the developed world. ICP is the *only* industry group within the UN system and is probably the best entry point for companies seeking to understand and make use of specific UN resources.

*Agriculture Department.* Resources and programs of interest to business include world soil and water maps provided by the Land and Water Development Division. Within the Agricultural Services Division, Edward Asselbergs heads the Food and Agricultural Industries section which gives special attention to "twinning" programs, where big companies work with local entrepreneurs in the food-processing field. Also in Agricultural Services, the Agricultural Engineering section has had long-standing cooperation with the farm equipment industry for FAO training and demonstration programs in developing countries.

The *Plant Production and Protection Division* is the FAO interface with the pesticide and herbicide industries. The Division also is concerned with commercial crop production and rangeland management and has information on climate and fodder conditions around the world.

The *Animal Production and Health Division* is concerned with red meat, poultry, dairy production, and animal health. This Division maintains production and consumption statistics in these sectors, as well as information on health requirements for livestock and dairy industries in specific countries. Companies producing animal health products have cooperated with this Division in demonstration programs and symposia, as well as in field experimentation with new pharmaceuticals. Pet food production from livestock by-products also falls into this Division.

*Forestry Department.* Of interest to business is the Forestry Department, headed by Kenneth King, which, among other activities, maintains liaison between forest products companies and FAO/UN activities. Private industry is considered essential to forestry development, and this group is especially active in working with business. The Department has trade statistics and market information, a global pulp and paper survey, present and potential project opportunities, and is sponsoring a planning meeting between pulp and paper manufacturers and developing country representatives to discuss setting investment ground rules.

*Fisheries Department.* The Fishery Industry Division, headed by Philip Appleyard, has been very active in promoting cooperation between industry and FAO. This Division sends questionnaires to some two hundred fishery companies (fishing companies, marketers, processors, equipment manufacturers, and consultants) regarding their areas of expertise and interest. These industry resources are then matched with fishery opportunities in developing countries, with the Fishery Industry Division playing the role of honest broker between the two. The Fisheries Department has regional programs for the Indian Ocean, South China Sea, West Africa, Central and East Atlantic, and the East Pacific. These regional programs have information on location, types and amounts of fish in these regions as well as prefeasibility studies for specific fishery and fish-processing investment opportunities within the regions. The Department also has an excellent staff of biologists with information on aquaculture and odd species.

*Office of General Affairs and Information.* Of specific interest to business is the Publications Division, headed by H. Mandefield in Rome, which prints thousands of publicly available reports yearly. A list of available FAO publications may be obtained by writing to the Rome Office. Of additional use is the Documentation Center which pub-

lishes, on a monthly basis, a list of those FAO reports and studies that are not published for mass distribution. This list is available to the public.

### **Agroindustry Contact Points Within FAO**

#### *Where to Start*

The Industry Cooperative Programme (ICP) was founded to facilitate and increase industry cooperation with governments through the UN in developing-country agriculture. It is industry's "window" on the workings and projects of the UN system, and its services are available first to its own industry members, but also to nonmembers who need information on the UN. The ICP has a secretariat (full-time international civil servant staff), headquartered in Rome, with an office in New York as well.

### **Contact Points in FAO by Sector**

#### *Industry Sector*

Herbicides and Pesticides

Fertilizers

Soils

Water and Irrigation

Machinery and Equipment

Livestock, Poultry, Dairy

Food Processing

#### *Rome*

Industry Cooperative Programme  
FAO  
Via delle Terme di Caracalla  
00100 Rome/Italy  
Tel.: Rome (396) 5797 Telex: 61181  
Cable: FOODAGRI  
*Executive Secretary:*  
Dr. A. Guenther Friedrich

#### *New York*

ICP Liaison Office  
FAO Liaison Office with United Nations  
United Nations Headquarters  
42nd Street and First Avenue  
New York, New York 10017/USA  
Tel.: (212) 754-6966/62 Telex: 23650  
Cable: FOODAGRI  
*Deputy Executive Secretary:*  
Mr. Walter Simons

#### *FAO Contact Point*

Plant Production and Protection Division of the Agriculture Department, headed by Dr. F. Albani.

Fertilizers Industry Advisory Committee (FIAC) within the Land and Water Development Division of the Agriculture Department. Rome contacts are M. Mathieu or D. Halliday.

Soil Resources Development and Conservation in the Land and Water Development Division of the Agriculture Department. Head is R. Dudal.

Water Resources and Development in the Land and Water Development Division of the Agriculture Department. Head is C. E. Houston.

Agricultural Engineering Group of the Agricultural Services Division in the Agriculture Department. Headed by H. von Hulst.

Animal Production and Health Division of Agriculture Department. Headed by R. B. Griffiths.

Food and Agricultural Industries Group in Agricultural

*Industry Sector*

*FAO Contact Points*

	Services Division of Agriculture Department. Headed by E. Asselbergs.
: for Pet Foods	S. Barat, Animal Production and Health Division.
: for Fish	P. Appleyard, Fishery Industries Division.
Fisheries and Fish Processing	Fishery Industries Division of the Fisheries Department. Headed by P. Appleyard.
Forest Products	Forest Industries and Trade Division of the Forestry Department. Headed by P. J. Vakomies.
Farmer Cooperatives	Human Resources and Institutions Division of Economic and Social Policy Department. Headed by K. A. Stevenson.
Nutrition	Food Policy and Nutrition Division of Economic and Social Policy Department. Headed by M. Ganzin.
Finance	Investment Center of the Development Department. Headed by J. Huyser. World Bank Cooperative Programme } Contact: Regional Bank Cooperative Programm } C. Fernando FAO-Bankers' Programme (national development banks and private financial institutions). Contact: A. Forbes-Watt.
Commodity Statistics	Commodity Trade Division, headed by A. Leeks; or Statistics Division, headed by K. Bachman, both within the Economic and Social Policy Department.
Publications	Publications Division. Headed in Rome by H. Mandefield. New York contact: Lila Golden, FAO Information Office (212) 753-1234, Ext. 3545.



## List of Participating Organizations

**Business Organizations:** Alexander & Baldwin Agribusiness; Allis-Chalmers; Arthur D. Little, Inc.; Battelle Memorial Institute; Cooperative Union of Canada; CPC International; Delbahcon (Del Monte Corporation, Booz Allen & Hamilton); The Federated Cooperatives Ltd.; FMC International; Foremost Foods, Inc.; General Foods Corporation; General Mills; Hawaiian Agronomics; H. J. Heinz Company; International Business Machines Corporation; International Flavors & Fragrances, Inc.; International Minerals and Chemicals Corporation; International Systems and Controls; Kraftco Corporation; Nabisco, Inc.; Olin Corporation; Ralston Purina International; The Rodale Press; World Food Systems, Inc.

**Government Organizations:** Food and Agriculture Organization; House Agriculture Committee; Senate Agricultural Committee; The United Nations Development Programme; United Nations Protein Advisory Group; United States Agency for Interna-

tional Development; United States Department of Agriculture; The World Bank.

**Intersect Organizations:** The Agribusiness Council; Coady International Institute; Industry Cooperative Programme (FAO-ICP); International Executives Service Corps; Latin American Agribusiness Development Corporation; Volunteers in Technical Assistance.

**Universities and Research Organizations:** American Friends Service Committee; Brazilian Nutrition Foundation; Brookings Institution; Consultative Group on International Agricultural Research; Cornell University; University of California—Davis; University of Colorado; Council on Religion and International Affairs; Federal Rural University of Brazil; Harvard School of Business; Massachusetts Institute of Technology; Sloan School of Business, Department of Nutrition, Department of Food Sciences; Overseas Development Council; Pennsylvania State University; Policy Sciences Center (New York).