Food and Agriculture Organization Completes 15 Years

An international organization helps to bridge the gap between agricultural science and practice.

Ralph W. Phillips

On 16 October 1945, representatives of 34 nations signed the constitution of the Food and Agriculture Organization of the United Nations (FAO) in Quebec, Canada. Thus, these and other nations who have since adhered to the constitution of FAO stated their determination to take separate and collective action to raise levels of nutrition and standards of living of their peoples, to secure improvements in the efficiency of production and distribution of food and agricultural products, to better the conditions of rural populations, and by these means to contribute toward an expanding world economy.

Actually, FAO had its beginning in a 44-nation Conference on Food and Agriculture at Hot Springs, Virginia, in May 1943. This wartime conference, convened on the initiative of President Franklin D. Roosevelt, set up an interim commission with headquarters in Washington, D.C., which functioned until FAO was brought formally into existence at the first session of the FAO Conference in Quebec, nearly two and a half years later. In addition to the 34 nations which adhered to the constitution at the beginning of the Quebec conference, eight other governments had accepted the constitution or had been admitted to membership by the close of that conference, bringing the membership to 42 nations.

Membership in the organization has now increased to 79. In addition, three other countries have been admitted to membership pending their achievement of full independence and their acceptance of the FAO constitution. Also, five colonies and territories have been granted associate membership status.

So the child that was conceived in wartime adversity and was over two years a-borning is now a rather well-muscled teen-age youth striving to serve the food and agricultural interests of a large portion of the nations of the world. Perhaps the 15th anniversary is an appropriate time to take stock of the youth's development and of his capacity to deal with the tasks ahead.

Role of the Organization

The terms *food and agriculture* in the FAO name cover the broad fields of agriculture, fisheries, forestry, and nutrition and the agricultural, economic, and statistical problems related to these fields. Within these fields, it is the task of FAO to assist governments in the development of their programs and projects aimed at improving agricultural production, processing, and distribution. Thus, FAO is in a sense an international extension service with governments as the recipients of its services. Rural peoples, and consumers generally, benefit as information and the advantages of improved services become available to them.

This does not mean that FAO is concerned only with the applications of science. It is also concerned with the development of research in all its fields of endeavor; with the establishment and strengthening of the organizational or administrative structure of research, extension, and other government services to agriculture; and with the economic and social structure wherein the results of research may be applied with maximum benefit and upon which more adequate support for research, extension, credit, and other essential services can be built. But, FAO is not the doer of research, or the conveyer of new knowledge to farmers through extension, or the provider of credit, and so on. Its task is to assist governments in doing these things or in improving their ways of doing them.

The task is large and diverse. Countries vary widely in the kinds of service they need, or can use, from an international organization. This variation is, to a considerable degree, a reflection of their diverse stages of development.

The agricultural revolution in the more highly developed countries during the last few decades has resulted in more efficient farming and greater productivity per person engaged in agriculture. In the United States, for example, the percentage of the total population represented by the farm population has dropped steadily from 34.9 percent in 1910 to 12 percent in 1959. While the capacity to produce has increased enormously in these countries, the underdeveloped countries have been barely able to keep food production abreast of exploding populations. There are many reasons for the vast gap between these groups of countries which I cannot go into here; Paul Hoffman gives a dramatic summary of the resultant world economic situation in *One Hundred Countries—One and One Quarter Billion People.*

As compared with an estimated annual per capita national income of $2075 in the United States, of $1450 in Canada, and of an average of $875 for the United Kingdom, Switzerland, Sweden, Norway, Denmark, and Austria, there are 100 countries and territories in which the income is less than $700. Among these 100 countries and territories there are 52 in which the average annual income is under $100. This latter group includes approximately 70 percent of the world's population. As Hoffman points out, some of the statistics for underdeveloped countries are only informed guesses, and they probably tend to exaggerate the differences between the poorer and the richer countries. But even when allowance has been made for this and other sources of exaggeration, there can be no doubt that the gap between many developed and underdeveloped countries is indeed wide. This gap has tended to grow wider in spite of the substantial efforts which have been made since World War II to assist the underdeveloped countries.

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In this complex world picture, FAO has the task of serving all its member countries, from the least to the most highly developed.

It follows that the underdeveloped countries have been interested in such matters as the technical improvements in agriculture that are necessary if production is to keep pace with population, and in the economic problems relating to markets for the export crops upon which they depend for foreign exchange. Developed countries, on the other hand, have been interested more in problems of international trade; in problems of surplus production, particularly in cases where troublesome surpluses are accumulating; in the ways whereby an international organization can assist in the exchange of information; and in the extent to which FAO can serve as an effective channel for technical assistance to the underdeveloped countries.

So the program has developed in such a way that, while the largest share of the available funds has been devoted to activities aimed at assisting the underdeveloped countries, the developed countries have taken an active part in the Organization and have benefited from many of its activities.

Admittedly, this is a brief account of the complex of world food and agricultural problems, and of FAO's role in assisting its member countries to deal with those problems. However, it does give a broad background against which to consider the kinds of things FAO has done and is doing.

Structure

The subject-matter activities of FAO are reflected in the organizational structure of its headquarters staff; the technical work is grouped under a Technical Department and an Economics Department, with appropriate supporting services and over-all administrative groups.

The present organizational structure, which has been fully in effect only since 1 January 1960, is as follows.

1) A Technical Department, including Divisions for Land and Water Development, Plant Production and Protection, Animal Production and Health, Fisheries, Nutrition, Forestry, and Rural Institutions and Services. Also there is an Atomic Energy Branch attached to the office of the assistant director-general, who is responsible for this department.

2) An Economics Department, also under an assistant director-general, and with Divisions for Statistics, Commodities, and Economic Analysis.

3) A Department of Public Relations and Legal Affairs, under an assistant director-general. This department includes an Information and Public Relations Service, a Publication Service, the Office of Legal Counsel, an Office of Liaison and Protocol, the Rural Legislation Branch, a Conference and Operations Branch, and the library. The library, called the David Lubin Memorial Library, is named after the American whose activities led to the establishment in 1905 of the International Institute of Agriculture. After World War II, that institute's assets (including its library) were absorbed by FAO.

4) A Division of Administration and Finance, under a director.

5) The Office of the Director-General. The director-general, who is elected by the Conference, is assisted by a deputy director-general, a Program and Budgetary Service, two special assistants, and the internal auditor.

Apart from the headquarters staff, there are provisions for regional offices in North America, Latin America, Africa, the Near East, and Asia and the Far East; there are also a few subregional offices. In addition, there are technical assistance teams in many of the underdeveloped countries, and in most cases one member of the team serves as the FAO representative in the country concerned.

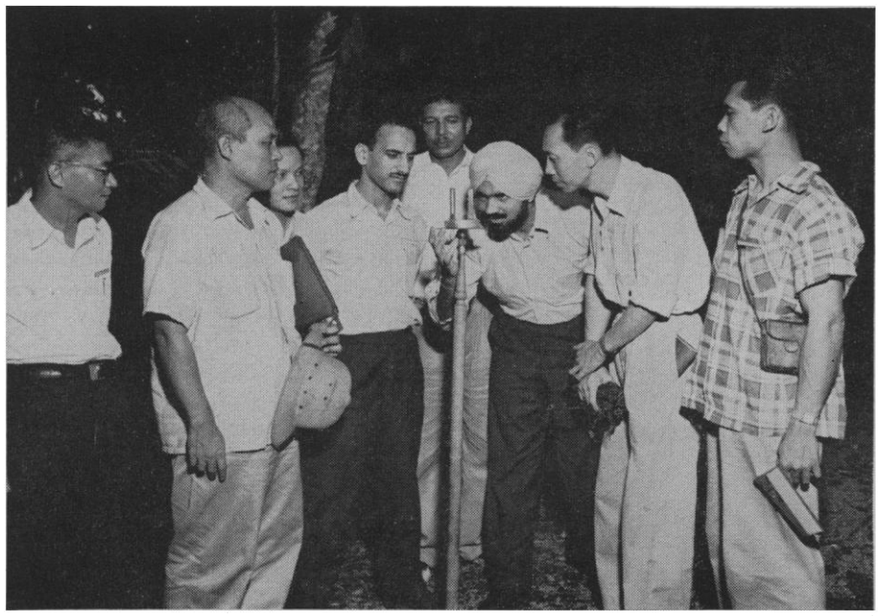
In the early years there were subject-matter divisions for Economics, Fisheries, Forestry, and Nutrition. Some leaders, believing in a planning and management role for FAO and advancing proposals such as establishment of a world food board, were stressing economic aspects of agriculture, and the technical aspects were left largely to one side. It was over a year after the formal establishment of FAO in Quebec that an Agriculture Division was initiated. Somewhat later a Rural Welfare Division was established. When postwar scarcities were becoming less troublesome and countries were turning their attention to longer-term commodity problems, a Commodities Division was established, utilizing some personnel from the Economics Division and the secretariat of the International Emergency Food Council, which had been established by FAO.

Early in 1951, when the headquarters of FAO was transferred from Washington to Rome, some consolidation took place. The Commodities Division was abolished, and most of its functions were assigned to the Economics Division. The Rural Welfare Division was also abolished, and its functions were assigned to the Agriculture and Nutrition divisions. Thus, from early 1951 to 1958, there was a reasonably stable period during which five subject-matter divisions (Agriculture, Economics, Fisheries, Forestry, and Nutrition) were responsible for the substantive work. However, owing to the concern of member countries with technical agricultural problems, particularly as expressed in their requests for technical assistance, work in Agriculture expanded more rapidly than in other fields. So it came about that this division was carrying something over half the total work program, when the regular and the technical assistance programs are considered together. It was at this stage that a decision was taken to divide the Agriculture Division into four divisions, plus a branch to deal with the applications of atomic energy to agriculture. At the same time, it was decided to divide the Economics Division into three divisions. These changes led to the present organizational structure that is described above.

It is natural that a new organization should undergo some structural changes as it undertakes to meet the needs of its member countries, and as it achieves a reasonable balance in the emphasis given to the many phases of food and agriculture encompassed in its terms of reference. Also, during FAO's first 15 years, a time of postwar scarcities has given way to a time of troublesome surpluses of certain commodities in the main exporting countries.

To understand the work of FAO it is also necessary to understand that it is an intergovernmental organization, controlled by its member governments and designed to serve those governments. It may be said that there are two FAO's, the countries which make up the organization and the staff which carries out the program of work agreed to by the governments of the member countries.

The Conference is the primary governing body of FAO. It holds regular sessions biennially. Special sessions may be called to deal with emergency or other special problems. Each member government may send one delegate to the Conference and has one vote. The delegates are accompanied by alternates, associates, and advisers, according to the desires of the respective govern-



Trainees from Southeast Asian countries participate in a regional training center on mechanical logging, which was held in the Philippines.

ments. The Conference acts on applications for membership in the Organization, elects member governments to the Council, decides the level of the budget, sets the scale of contributions, reviews and approves the program of work, reviews the state of food and agriculture, takes decisions on administrative and constitutional questions, discusses any special topics that it may include in its agenda, and (when the posts are to become vacant) appoints a director-general and an independent chairman of the Council. It also acts on other matters that may appropriately be brought before it. One such matter was the determination of the permanent site (Rome, Italy) of the Organization's headquarters. Early sessions of the Conference were held in Quebec (1945), Copenhagen (1946), and Geneva (1947). Since that time all sessions have been held at either the temporary headquarters in Washington or the permanent headquarters in Rome.

The Council, representing the 25 member governments elected by the Conference, serves as the governing body between sessions of the Conference. It holds at least one full-scale session each year, in addition to brief sessions just prior to and immediately after sessions of the Conference. An independent chairman, elected by the Conference, presides over Council sessions. Much of the substantive and detailed work assigned to the Council is done by committees—work which leads in many instances to formal council or conference action. There are four standing committees, dealing with program, finance, constitutional and legal, and commodity problems, respectively. In addition to these standing committees, there currently exists an FAO–UNICEF Joint Policy Committee, which was established on an *ad hoc* basis by the FAO Council and the executive board of the United Nations Childrens' Fund (UNICEF) to advise on administrative, financial, and operational problems arising from the joint activities in which FAO and this special arm of the United Nations participate.

Work of the Organization

Broadly speaking, FAO's work is designed to provide countries with opportunities for intercountry consultation and with information and advice, including technical assistance. Within these broad categories various approaches are used, either singly or in combinations of two or more, depending upon the nature of the job to be done.

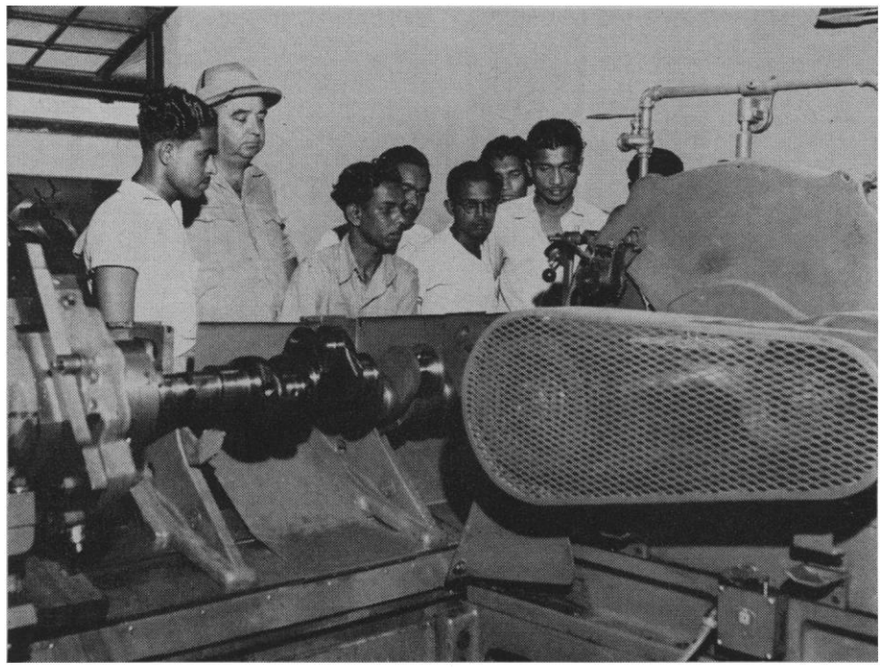
The Organization provides international and regional forums at both the scientific and technical level and the policy level. Discussions of over-all problems relating to food and agriculture take place in the FAO council and conference sessions, in regional conferences that are held biennially in several of the major regions, and, in more limited subject-matter areas, in the regional fisheries and forestry councils, the International Rice Commission, the Council's Committee on Commodity Problems and its subgroups on grains, rice, cocoa, coconut, citrus fruits, and surplus disposal problems, and in other forums.

On the scientific and technical side, international and regional meetings, group meetings of experts, and other forums provide opportunities for exchange of information and ideas, and in many cases for the planning of coordinated action, on practically all the subjects covered by the ten divisions and the Atomic Energy Branch, which constitute FAO's Technical and Economic departments. In the forums organized by seven of these divisions and in the atomic energy field, major attention is given to scientific developments and their applications in agricultural production, processing, and distribution.

In FAO's early years, considerable emphasis was placed on missions, usually of a few months' duration to various countries to carry out technical and economic surveys and to propose lines for development, either in the broad field of agriculture or in some limited sector of it. Only one such mission has been organized in recent years, and with the advent of the Special Fund, a somewhat different approach has evolved, based on projects. Each project is designed to lay the basis for a development project such as an irrigation scheme, or a training institute, or a research project. The team supplied by FAO may remain in the country for from one to several years.

Much of FAO's direct assistance to governments has been accomplished through sending experts, sometimes for a few months but usually for one or more years, to advise and assist the governments in planning and carrying forward technical projects and economic studies. Most such experts have been financed under the Expanded Technical Assistance Program. As of September 1959, 1773 experts from 40 countries had served in the field for FAO under this program.

Limited amounts of technical supplies, equipment, and literature may also be made available to countries to enable experts serving in those countries to carry forward their advisory activities—in particular, specialized items which are not readily available in the countries receiving assistance. While such equipment and supplies are usually limited to laboratory items, such things as tractors for experimental purposes and vehicles for transporting FAO



An FAO expert, advising on the engineering aspects of the Gal Oya development project in Ceylon, trains Ceylonese in machine-shop techniques.

personnel, or for transporting supplies in special cases such as the desert locust campaign in the Near East, are provided. Also, in a few instances, experimental animals, such as flocks of sheep, have been supplied.

Nationals of the recipient country are trained in varying degrees by practically every expert who carries out an assignment. In addition, training centers are held for junior personnel, and development centers and study tours for senior officials, in order to train the former in specific techniques for carrying forward agricultural projects and to enable senior personnel to exchange ideas and study new approaches as a basis for planning and administering projects in their own countries. Some of these training programs are carried out under the regular budget or under special grants, but most of them have been carried out as regional projects, or in some cases as national projects, under the Expanded Technical Assistance Program. As of September 1959, approximately 100 such centers had been held under this program.

The Organization also provides fellowships for study outside the fellow's home country, primarily as a means of providing technicians and leaders with training needed to carry forward or administer projects upon which advisory assistance has been, or is being, given by experts. Most such fellowships have been granted under the Expanded Technical Assistance Program, the total number awarded as of September 1959 being approximately 1600. A few were awarded in the early years under an UNRRA transfer fund. In recent years the André Mayer Fellowships (named after the French physiologist) were established to foster research, and advanced training in research methods, in connection with projects related to the FAO program. Approximately 12 are awarded each year.

The Organization prepares and publishes many documents containing statistics and summaries of new scientific, technical, and economic findings and other materials for the information of member countries, and in some instances for the guidance of officials in planning and implementing projects for economic development. These publications cover a wide range; there are yearbooks of production and trade statistics; technical publications in many phases of agriculture, economics, fisheries, forestry, and nutrition; reports of meetings and training centers; reports of missions; reports to governments by technical assistance experts; and documentation for various technical and economic meetings and sessions of the Conference and Council. The nature and extent of FAO's publishing activities is indicated by the following list: *State of Food and Agriculture* (a comprehensive review issued annually); *World Food Survey* (issued in 1946 and 1952); *Agricultural Studies* (approximately 50 comprehensive reviews have been issued in this series to date); *Agricultural Development Papers* (for the guidance of agricultural leaders; approximately 65 papers have been issued); *Nutritional Studies* (including 16 major studies); periodicals including the *Plant Protection Bulletin*, a *Monthly Bulletin of Agricultural Economics and Statistics*, the *FAO Fisheries Bulletin*, *World Fisheries Abstracts*, and *Unasylva*; regular statistical volumes, including a *Production Yearbook*, a *Trade Yearbook*, *Yearbook of Fisheries Statistics*, and a *Yearbook of Forest Product Statistics*; and numerous publications in the *Commodity* and *Commodity Reports* series. There are other types of publications as well, but this list should be sufficient to indicate the kinds of information FAO makes available to its member governments.

Another approach is the organizing and servicing of permanent bodies, as arms of FAO, to provide continuing mechanisms for (i) consultation among countries which have common problems and (ii) such cooperative action as the countries concerned may agree to undertake. These arms of FAO include a considerable number of regional and international commissions, in various phases of agriculture, fisheries, and forestry.

Still another approach is the assisting of governments in the preparation and formalizing of conventions aimed at laying the basis for common action. This procedure has been little used; only one such convention—the International Plant Protection Convention—has been prepared and brought into effect under FAO auspices.

Also, FAO staff members maintain contact with leaders in member countries, through correspondence and visits, to obtain information on their problems, to supply information and advice when requested, and to provide background for the effective use of the approaches described above.

These methods provide a great deal of flexibility yet conform to the Organization's terms of reference. In actual practice the various methods are interrelated, and it is often necessary, as I have already pointed out, to use a number of these methods in dealing with any particular problem or set of problems, in order to achieve the most satisfactory results.

Sources of Financing and Shifts in Emphasis

The activities of FAO are financed by governments through three main channels—the FAO Regular Budget, the Expanded Technical Assistance Program, and the United Nations Special Fund. Limited financial support has also been received from other sources.

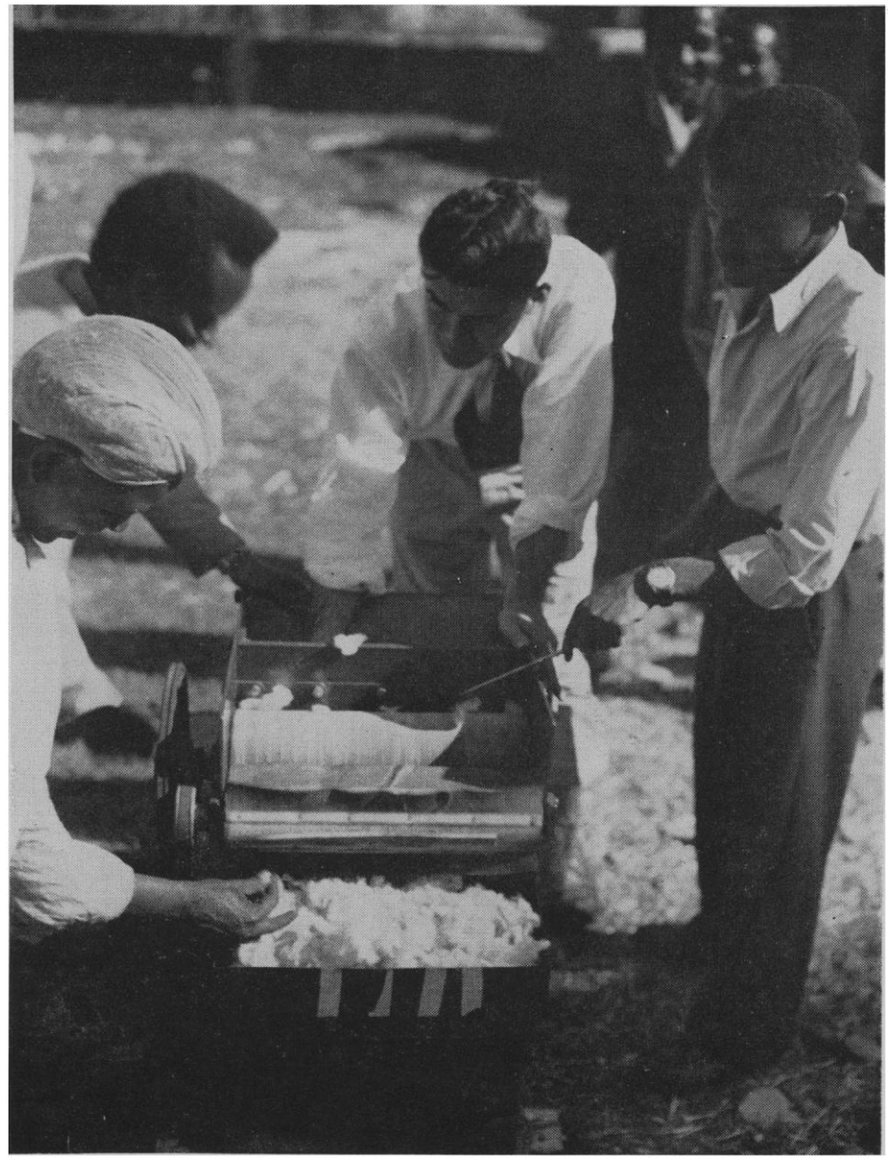
During the first five years, activities were financed largely from the regular budget and consisted mainly of holding international and regional meetings, sending survey missions (at the request of member countries) to study agricultural problems and to propose developments programs, collecting and publishing statistical and technical information, and organizing technical bodies (mostly regional in character, although some—for example, the International Rice Commission—are international in scope) as arms of FAO. Direct technical assistance to member countries was limited largely to brief visits by staff members, to visits of consultants on specific assignments, or to survey missions such as those to Greece, Poland, Thailand, and Nicaragua. Two other aspects of the early work of FAO should also be mentioned here.

During the years immediately after World War II, the Organization serviced an International Emergency Food Council (later renamed "Committee"), which provided the mechanism for voluntary rationing of short supplies of certain agricultural products among countries. Also, much attention was given to proposals for international activities aimed at stabilization of supplies and prices of agricultural commodities. These included proposals for establishing a world food board and an international commodity clearing house. These proposals were not adopted, since governments were not prepared to place this kind of responsibility in the hands of an international agency. The discussions contributed, however, to the decision to set up the FAO Council (replacing an executive committee), with the function, among others, of keeping under review the state of food and agriculture in the world. In practice, this function has been limited largely to consideration of commodity problems by the Council and by the Council's 24-member Committee on Commodity Problems and its subsidiary working groups described above.

Early in 1947, FAO reached an agreement with the then existing United Nations Relief and Rehabilitation Administration whereby UNRRA turned over to FAO something over $1 million for direct advisory assistance in agricultural problems to nine FAO member countries that had been receiving supplies from UNRRA. This supplemented the regular budget, and over a period of several years scientific and technical advisers could be stationed in these countries for fairly long periods. In addition, some fellowships were provided, as well as some equipment and materials to enable the advisers to move ahead with their work.

The amount that each member government and associate member is to contribute to FAO's regular budget is determined by the Conference for each biennium, according to an established formula. For 1960 and 1961 the amount assessed from governments is $18,451,000, or $9,225,500 annually. The United States' share is 32.51 percent, or $2,999,210.05 annually. From the beginning, the regular staff, which has been financed under this regular budget, has provided the backbone of FAO's work and has been the central core around which other phases of FAO's program have developed.

The Organization's second five years may be characterized as the period during which the Expanded Technical Assistance Program was established and developed, following the action of the



An FAO specialist in cotton production demonstrates a light ginning machine to his Ethiopian colleagues. Though not a supply agency, FAO does provide limited amounts of equipment and supplies as a part of its technical assistance work.

U.N. Economic and Social Council in 1949, under which this interorganizational program was established and under which work was initiated in July 1950. This new source of funds enabled FAO to extend direct advisory assistance to many of the less-developed countries. Activities included the sending of advisers, the provision of limited quantities of technical equipment and supplies, and the awarding of a substantial number of fellowships. Also, many regional training and development centers were held. This new and expanding phase of the Organization's program brought the underdeveloped countries a new source of outside assistance, and to the staff it brought new opportunities for field activities in support of the more "academic" types of work, activities that had been impossible up to that time except for limited opportunities for work in certain countries under the UNRRA-Transfer fund. Currently, the United States contributes 40 percent of the funds for the Expanded Technical Assistance Program, under legislation which provides for the matching of contributions of other countries on a 40:60 basis up to a specified amount.

The amount that FAO and each of the other agencies participating in the program receives each year is determined (within the total amount contributed voluntarily by governments that are members of all or any one of the organizations in the United Nations "family") primarily by the proportion of requests from governments for assistance that fall within its terms of reference. Other factors that affect the total amount are allotments for headquarters costs and for regional projects. The amounts available to FAO were $8,352,-451, or 24.70 percent of the total, in 1958 and approximately $8,225,390, or 24.67 percent of the total, in 1959.

Thus, by the end of its first decade, the FAO program had become more or less stabilized, with its regular and its Expanded Technical Assistance programs receiving approximately equal financial support. This situation persisted during the next three to four years.

A further major step in the development of FAO's program came with the establishment of the United Nations Special Fund, in October 1958. The first group of projects approved in 1959 for financing under this fund included five for which FAO became the executing agency. Later that year 12 more projects were assigned to FAO. For these 17 projects a total of $10,-185,600 was assigned to the Organization during 1959. In May 1960, 11 more projects, totaling $6,344,100, were allocated to FAO. These funds are assigned on a project basis and may be expended over several years; the period will vary according to the agreement covering each project, so it is difficult to estimate the additional resources that may be made available to FAO on a year-by-year basis. However, if a substantial proportion of the requested projects continue to be in FAO's field, FAO's annual resources from the special fund may compare favorably with, or even exceed, its resources from the regular budget or for the Expanded Technical Assistance Program. Thus, over the next few years, the FAO program may tend to become stabilized on a triple financial base, each of the three "legs" being more or less equal in terms of dollars. United States contributions to the special fund are currently 40 percent of the total, on the same 40:60 matching arrangement that applies to the Expanded Technical Assistance Program.

The Organization has also received some financial support from other sources. For example, the United Nations Children's Fund has financed a number of FAO agricultural and nutritional activities carried out in support of UNICEF-financed projects in various countries. The Council on Economic and Cultural Affairs (a private foundation) has supported some work in the farm-management field, relating to rice. A number of the less developed countries, not being able to secure all the outside assistance they needed from multilateral or bilateral sources and experiencing difficulties in recruiting staff members from outside their borders, turned funds over to FAO to enable that organization to recruit and administer staff members for service in their national programs. Currently, nongovernmental organizations, foundations, and member governments are being

A trainee in a training center for census-takers for Latin America, which was held in Peru under the combined auspices of FAO, the Inter-American Statistical Institute, and the United Nations, gets field experience in an experimental census.

Staff members of a school for dietitians at Pasaminggu, Indonesia, give a course for women of the community. The director of the school was the recipient of a fellowship for foreign study under the FAO technical assistance program.

asked to consider making voluntary contributions to a fund that will be used to support a freedom-from-hunger campaign, which the Conference authorized for the period 1960–65. This campaign is, in a sense, a rededication by member countries to the principles set forth in the FAO constitution when FAO was founded.

Success to Date

In the complex of world affairs, food and agriculture have important places. Improvements in transportation and communications are bringing peoples of all countries into closer and closer contact and are enhancing the understanding of peoples of each country regarding the situation in all the others. Thus, the wide gaps in food supplies and levels of living are becoming more apparent. Peoples of the less developed countries, becoming increasingly convinced that inadequate food supplies and poor living conditions are not inevitable, are seeking ways to better their lot. Developed countries, recognizing this need, have been extending economic and technical aid on an unprecedented scale.

The primary place of food and agriculture in world affairs was evidenced by the fact that, among the many international organizations created by governments after World War II, either as new agencies or replacements for old ones, FAO was the first to be set up.

Measuring the success, or lack of success, of an organization that deals with such a broad complex of problems is difficult indeed. Few objective yardsticks are at hand, but some subjective estimates may be useful.

Perhaps the greatest single contribution of FAO is the degree to which it has created understanding of the ways in which countries can work together to their mutual advantage. An example from the field of plant breeding will illustrate the point.

Between 1947 and 1958, FAO organized a series of ten meetings, in Europe and the Mediterranean area, on hybrid corn. These meetings enabled the leading corn breeders in this region to meet, to exchange information on their respective research programs, and to plan coordinated action. The Organization provided experimental seed from the United States and Canada during the first half of the period. Testing programs were planned at the meetings, and the results of the previous years' tests were reviewed to determine which hybrids could be used most advantageously in various countries and areas. The results were published, and made generally available to all countries, by FAO. As the work developed and as wider use was made of imported hybrid corn seed, attention gradually shifted to the development of inbred lines from breeding stocks available in the region in question and to the testing of hybrids from these inbred lines. The stimulus to plant-breeding work as a result of these activities was substantial. Also, marked increases in production resulted. For example, data submitted by the delegates to these meetings indicated that, in 1952, 6 percent of the corn area in 17 countries was planted to hybrids, and the increase in production resulting from the use of hybrids was estimated at about 400,000 tons. By 1954, the increase from the use of hybrids over the tonnage that would have been obtained through the use of ordinary open-pollinated varieties on the same land was estimated to be 640,000 tons. The value of this increase in 1954 was estimated to be $55 million. The amount spent by FAO to catalyze this activity, from the beginning of the work, in 1947, to 1954, had been only about $40,000.

Such striking results cannot be expected from all international efforts. But this work on hybrid corn does show what can be accomplished when an international organization provides competent scientific leadership and the forum in which representatives of countries can meet to tackle a common problem.

After the 1958 meeting it was decided that FAO leadership was no longer essential, and the corn-breeding activities have since been left entirely in the hands of the countries concerned. However, as a further step in making information available to all its member countries, FAO published a 440-page volume, *Hybrid Maize Breeding and Seed Production.* Like most other FAO publications, this was issued in the three official languages of the United Nations —English, French, and Spanish.

Similar activities have been undertaken in many other fields, Naturally, each activity develops along the lines required to meet the needs of countries in the respective fields. For example, one activity arising from the FAO International Rice Commission's work on rice breeding was a project to hybridize *japonica* and *indica* rices, with the aim of combining the high response to fertilizer of the *japonica* rices grown in more northerly latitudes with the capacity to adapt to tropical conditions that characterizes the *indica* varieties. In the Near East, an intercountry proj-

ect on wheat and barley breeding is actively under way; this has included cooperative efforts aimed at identification of rust- and bunt-resistant stocks suitable for use as parental material in national breeding programs. On the animal-breeding side, meetings have been held, in various parts of the world, devoted wholly or in part to the improvement of livestock through breeding. These have included, for example, a series of four meetings over the last ten years on livestock production in the Americas. These and other meetings gave much attention to the complicated genetic, physiological, and managerial problems of breeding livestock adapted to unfavorable environments. This line of work has resulted in a number of FAO publications other than the reports of the meetings themselves, including three major documents: "Breeding Livestock Adapted to Unfavorable Environments," "Zebu Cattle of India and Pakistan," and "Types and Breeds of African Cattle."

Although it is not possible to measure the effects of such activities precisely, it is clear that their catalytic action has resulted in much activity in the countries concerned and an increase in the flow of information between countries. When one makes a mental addition of these effects in all the technical fields covered by FAO, the impression of substantial results cannot be avoided.

Similar efforts have been made in other areas, such as credit, cooperatives, land tenure, commodities, statistics, economic analysis and planning, and the overall improvement of government services to agriculture, with emphasis on the organization of research, the organization and improvement of extension services, and the requirements and facilities for training agricultural scientists and leaders. Phillips, Moskovits, and Lininger have discussed the organization of agricultural research in Europe, and Chaparro has made an intensive study of higher education in the field of agriculture in Latin America. Activities in these several fields have also led to the exchange of much information and of many ideas among countries and have contributed substantially to the understanding by countries of each other's problems and of the areas in which coordinated action is desirable.

Workers in a cooperative project on the hybridization of *indica* and *japonica* rice at a rice research institute in Cuttack, Orissa, India.

Without attempting to give further examples of the ways in which ideas proceed from member countries into the many forums provided by FAO, resulting in action in the countries concerned, with many interactions in the process, we may sum it up by saying that FAO has contributed much to an understanding of how countries can work together and, in addition, that the processes through which countries have gained this understanding have yielded many direct benefits in terms of information, ideas, and action.

The direct assistance which FAO has provided to individual countries in the underdeveloped areas should probably be ranked second among its achievements, although activities in this phase of FAO's program of work are admittedly more spectacular than those just discussed, and the results of direct assistance are difficult to compare with the less tangible results of intercountry discussions and coordination of ideas and actions.

Mention has already been made of the 1773 experts who had served in 40 countries up to September 1959, of the approximately 100 training and development centers which have been held, and of the projects already assigned to FAO under the recently established special fund. In addition, we should mention the missions which have made on-the-spot studies in various countries and the direct assistance by staff members and consultants, financed under the regular budget and by funds from several other sources.

Much has been done, for example, to assist countries in ridding themselves of the deadly cattle disease rinderpest. Veterinarians have assisted in the development of vaccines, the establishment of biologics laboratories and vaccine-production facilities, the training of field teams, and the organization of vaccination campaigns.

Governments of countries in the Near East and adjacent portions of Asia and Africa have been assisted in the organization and conduct of cooperative campaigns to control the desert locust. Recently they have been assisted in the initiation of an extensive cooperative research project aimed at making an ecological survey and conducting other studies to obtain more adequate knowledge of the locusts' breeding habits and breeding areas, of factors which affect reproduction, of methods of predicting

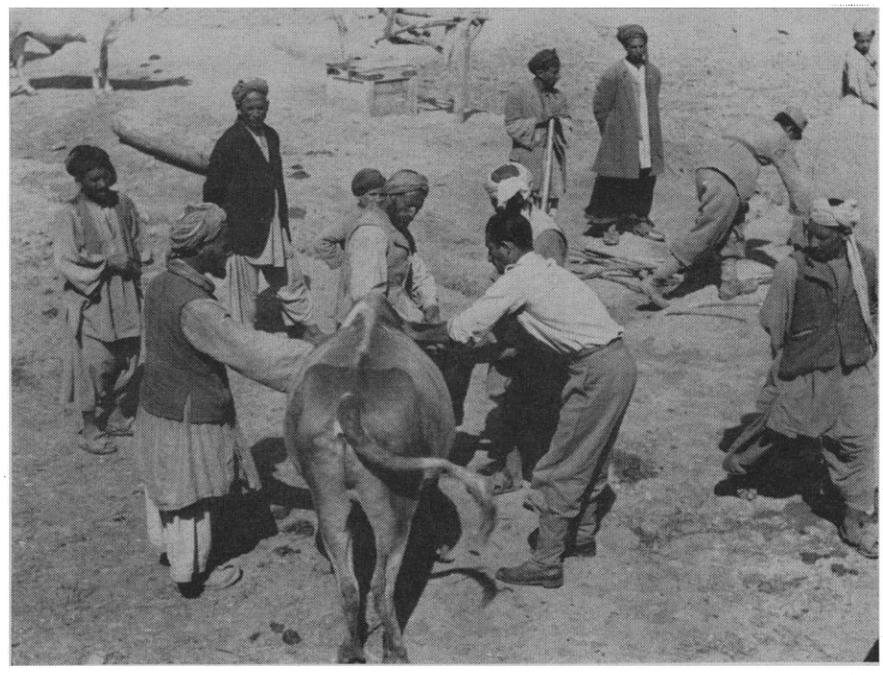
outbreaks, and of methods of control. Seventeen countries are involved in this effort.

Experts on soils and land use have helped or are helping many countries in the making of soil surveys, in soil fertility studies, and in planning for the most effective use of lands now cultivated or being brought under cultivation in new irrigation and other land-development schemes.

Nutritionists are assisting in the making of dietary surveys, determining how the nutritional needs of countries may be met more effectively, and in the development of new sources of foods rich in protein, minerals, and vitamins. Fisheries experts work with many governments in studies of both fresh- and salt-water fisheries, in an effort to develop more adequate sources of protein.

This listing of kinds of direct assistance could go on, covering all the technical and economic areas with which FAO deals. But these few examples, coupled with the indications already given of the over-all size of the effort, should be adequate to indicate that much is being accomplished to assist countries in their efforts to bridge the gap between modern agricultural methods and the practices followed in agricultural production, processing, and distribution and in food utilization.

A third major area to which FAO has contributed is that of the collection and dissemination of information. Much of FAO's publishing activity is an integral part of other phases of the program. Yet, the complex of statistical, economic, technical, and scientific information which FAO makes available to its member countries is a contribution which deserves recognition in its own right. A few titles, in addition to those mentioned above, will illustrate the variety and scope of FAO's publications: "Efficient Use of Fertilizers," "Water Lifting Devices for Irrigation," "Legumes in Agriculture," "Olive Oil Processing in Rural Mills," "Advances in Cheese Technology," "Meat Hygiene," "Marketing Fruit and Vegetables," "Protein Requirements," "Teaching Better Nutrition," "Agricultural Credit in Economically Underdeveloped Countries," and "Fact-Finding with Rural People." Such materials, while particularly useful to underdeveloped countries which may not have the facilities to compile the information for themselves, are also very useful to all the member countries of FAO (*1*).



A native worker, trained by an FAO veterinary adviser, vaccinates cattle against rinderpest in Afghanistan.

In the evaluation of an organization's work, it is easy to err on the side either of optimism or of adverse criticism. The Food and Agriculture Organization has had its share of failures, and of successes varying all the way from programs which just missed being failures to glowing successes. On the whole, its record has been good, and the member governments generally regard it as an organization in which they can participate with confidence and to which they can look for sound information and—particularly in the case of the underdeveloped countries—useful assistance.

What of the Future?

Against a background of useful service to its member countries, what are the prospects for the future?

Agricultural development, usually slow, is a continuing process. Just how soon the many underdeveloped countries will achieve "economic breakthroughs" and reach a stage which some are now calling "self-sustaining growth" is difficult to predict. But it seems certain that the process will go on for many decades. So the opportunities for direct assistance to governments from FAO will persist. The degree to which governments will use this channel in the future remains to be seen.

As populations expand (the population explosion threatens to bring the world total to six billion or more by the turn of the century), as contacts between countries become closer, through travel, better communications, and greater emphasis on trade, and as pressures on the land increase, the need for intercountry consultation and cooperation will certainly increase. The facilities of FAO and the experience gained to date in FAO forums should serve countries well. Nevertheless, it is difficult to predict how far governments will go in utilizing the channel of FAO in preference to others available to them.

The need for a ready international source of information—scientific, technical, economic, and statistical—seems certain to increase as relations among countries grow more intimate and complex, and as the world's store of information expands rapidly, reaching levels in many fields where the human brain—or the compiling facilities, in many countries—cannot cope with it all. Here, too, member governments will need to look carefully at the problem and to determine the kinds of compilation they need most from a central source such as FAO. Great wisdom will be needed in choosing the things to be done by FAO, in eliminating duplication of effort between FAO and governments of the member countries, and in selecting those areas wherein each government should depend upon its own resources.

Food made with fish flour, developed with the assistance of FAO representatives in a nutrition laboratory in Rangoon, Burma, is served in a nursery school.

The countries of the world are becoming increasingly interdependent, and although this fact is generally recognized, governments are under increasing pressures to make decisions regarding the development and utilization of their resources without adequate knowledge of the policies and objectives of other countries or often of the basic scientific, technical, and economic facts upon which the decisions should be based. On the other hand, governments have set up a substantial number of international and regional organizations, both technical and economic, to serve them. This has created a problem of coordination of another kind. There is much talk of coordination among agencies, and progress is being made. But the fields are many and the problems complex. One sometimes gets the impression that a stage has now been reached comparable to the warming-up, tuning-up stage in a large orchestra, when only a jumble of sound emerges. This is not an adverse criticism—rather, it is a reflection on the increasingly complicated world in which we live. The best of statesmanship will be needed in governments, and in FAO and other international forums, if this much-discussed coordination is to be achieved, and not allowed to become an end in itself.

Mention was made above of the extent to which FAO draws its finances from outside sources, in particular from the Expanded Technical Assistance Program and the United Nations Special Fund—sources over which the FAO governing body, the Conference, has no direct control. Here is a coordination problem of yet another kind. How does an organization plan and coordinate its own activities and ensure the effective use of its staff if its governing body controls only a rather small portion of its finances? The time is approaching when the proportion of FAO resources controlled by the Conference may be only about one-third or even less. Here, too, is a problem that will require real statesmanship in international agricultural and related affairs.

The degree to which FAO becomes an increasingly important source of information for governments and an instrument through which governments consult with one another and through which assistance is channeled to underdeveloped countries will depend primarily on the degree to which governments elect to use FAO for these purposes.

If governments do elect to deal with agricultural matters to an increasing degree through FAO, then perhaps the most important factors in determining the success of such intercountry efforts will be the following.

1) The competence of the representatives designated by governments to represent them in scientific, technical, economic, and policy-making forums.

2) The ability of the leadership of FAO to sense the real needs of the countries concerned and to build well-balanced programs aimed at meeting those needs.

3) The maintenance of a proper balance between the responsibilities and functions of governments on the one hand and of FAO on the other. One example of a particularly sensitive area is that of short- and long-range planning. Here, an international organization can be very helpful when it assists governments singly and, on occasion, in groups to improve the effectiveness of their planning operations, but it can generate suspicion and ill will if it attempts to do the planning itself.

4) The competence of the staff. An international organization requires staff members of a competence which commands respect among their counterparts in governments, members who have the imagination to develop programs that are of real benefit to the countries concerned, and who have the ability to deal with people from a wide variety of national backgrounds. The director-general, elected by governments to represent them in the management of the Organization, must depend to a large extent upon his staff, in both program building and implementation, so the success of his leadership depends to a large degree on the competence of those who serve under him.

Conclusion

The time has passed when ministries and departments of foreign affairs can carry the full load of foreign relations for their countries. In the broad field of food and agriculture, agricultural scientists and economists are playing an increasingly important role in international affairs. This does not mean that foreign ministries have a lesser role. On the contrary, as problems on the foreign-affairs front grow more complex, the size of the task increases. Already, it has increased to a point where support is needed on many fronts, including the various aspects of food and agriculture. This is a theme which Kistiakowsky stressed in his recent article on "Science and foreign affairs." If this trend continues, as seems almost certain, there will be a corresponding increase in the need for countries to "tool up" the mechanisms which are required if they are to work together more effectively on problems of food and agriculture.

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Note

1. The sales agent for FAO publications in the United States is the International Documents Service, Columbia University Press, 2960 Broadway, New York 27, N.Y.

Science in the News

Nixon on Education: His Policy Paper Endorses a Broad, Expensive Program of Federal Support

The new policy paper issued this week by the Vice President was entitled "A National Program of Support of Education," and the broad and expensive program it espoused carried Nixon well beyond anything the President or the Republican Congressional delegations have been willing to support in the past. Indeed, Nixon's public position becomes very close to Kennedy's, the principal difference being that Kennedy is more explicit about the size of the programs he has in mind and about how much he would like to spend.

Nixon proposed increased federal financial support to virtually every phase of the nation's educational system, from elementary schools to adult education. The paper specifically advocates a loan program for colleges that Eisenhower vetoed, asks for a federal scholarship program, a much expanded student loan program, and a program of grants to private and state universities to help finance expansion of facilities. It is a significant document, whether Nixon wins the election or not, for it places the leading Republican in the camp of the dominant wing of the Democratic Party in accepting a basic role for the federal government in support of the nation's educational system.

With few important exceptions, it has been customary to justify federal money for education on the grounds that an emergency program was needed to meet a specific critical situation. Federal aid to school construction, to the extent that it has been accepted at all by conservative Republicans and Southern Democrats, has been justified as an emergency measure to meet the critical classroom shortage; the federal student loan and graduate fellowship programs were justified as emergency programs to meet a threatening critical shortage of scientists (hence the title: National Defense Education Act); aid to federally impacted school districts was justified as a measure to aid districts in which a great deal of untaxable property (an air base, for instance) placed an unsupportable burden on the community.

To a great extent the "emergency" justification of many programs has been merely a convenient fiction to enable legislators to vote for federal action without too obviously compromising their adherence to the principle that education is a state and local, rather than a national problem. But the Nixon paper makes a complete break with this approach. Nixon's recommendations for aid to public school construction are justified only secondarily as a means of alleviating the temporary classroom shortage. The primary objective, Nixon says, is to indirectly make money available to raise teachers' salaries. Under a section headed "Loans, scholarships and fellowships" Nixon says: "A start, and a good one, has been made under the National Defense Education Act. . . . But this was in a sense 'emergency' legislation. We should now extend and expand this program." "All that we are and all that we hope to be," says the paper, "depend not only on the wisdom but also the sense of urgency with which we develop and mobilize and apply our total brainpower. . . . The target of American education must be that every individual has the opportunity and the facilities to develop to the highest power the full range of his inherent ability. There must be no arbitrary barriers—neither racial nor economic." The federal government, the paper makes clear, has a major share of the responsibility for seeing that this target is approached.

Public Schools

Under the program Nixon endorses, the essential line between the Republican and Democratic approaches to federal aid to public schools is reduced from a basic difference in attitude to a fine point in legislative technique. Kennedy and the Democrats have been advocating a program of about a billion dollars a year of federal assistance to public schools, with the states and localities free to use the money not only for classroom con-