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TECHNICAL ASSISTANCE

FOR

ECONOMIC DEVELOPMENT

TECHNICAL ASSISTANCE FOR ECONOMIC DEVELOPMENT

Plan for an expanded co-operative programme through the United Nations and the specialized agencies

Report prepared by the Secretary-General in consultation with the executive heads of the interested specialized agencies through the Administrative Committee on Co-ordination pursuant to resolution 180 (VIII) of the Economic and Social Council



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INTRODUCTORY NOTE

1. On 4 March 1949, the Economic and Social Council adopted resolution 180 (VIII) requesting

". . . the Secretary-General, in consultation with the executive heads of the interested specialized agencies through the Administrative Committee on Co-ordination, and taking into consideration the suggestions of Member Governments, to prepare a report for the ninth session of the Council setting forth:

"1. A comprehensive plan for an expanded co-operative programme of technical assistance for economic development through the United Nations and its specialized agencies, paying due attention to questions of a social nature which directly condition economic development;

"2. Methods of financing such a programme including special budgets; and

"3. Ways of co-ordinating the planning and execution of the programme."

2. Immediately following the adoption of this resolution, the Secretary-General entered into direct consultations with Mr. David A. Morse, Director-General of the International Labour Organisation; Mr. Norris E. Dodd, Director-General of the Food and Agriculture Organization; Mr. Jaime Torres Bodet, Director-General of the United Nations Educational, Scientific and Cultural Organization; Dr. Brock Chisholm, Director-General of the World Health Organization; Dr. Edward Warner, President of the Council of the International Civil Aviation Organization; Mr. John J. McCloy, President of the International Bank for Reconstruction and Development; Mr. Camille Gutt, Managing Director of the International Monetary Fund and Mr. William Hallam Tuck, Director-General of the International Refugee Organization. As a result of these consultations, a working party of experts was established to prepare a draft report in the form requested by the Council. In the course of the deliberations of the working party,

suggestions were received from a number of Member Governments; informal consultations were also held with representatives of the Organization of American States. On the basis of the draft prepared by the experts, a report was agreed upon by the Secretary-General and the executive heads of the specialized agencies concerned at a meeting of the Administrative Committee on Co-ordination on 18 May 1949. This report, a co-operative product of the secretariats of the United Nations organizations, is submitted herewith to the Council by the Secretary-General.

3. The report is in two parts. Part I, which sets out the objectives and nature of the programme, the fields of work covered and the proposed organizational and financial arrangements, represents a text agreed by the heads of all the organizations concerned. Part II sets out the proposals and statements of the various organizations prepared on the basis of their special knowledge and experience and on the results of consultations between them at the secretariat level. It should be noted, however, that the Secretary-General and the executive heads of the various organizations accept responsibility only for the proposals or statements in part II of the report which relate to their respective organizations.

PART I

OBJECTIVES AND NATURE

CHAPTER 1

Objectives of the programme

The rapid technological evolution of the past two or three centuries has opened the way to use of the world's resources for the benefit of its inhabitants with unprecedented and increasing effectiveness. But the rate of progress in different geographic areas has been notably unequal. In some countries there has been a fairly steady rise in productivity and a basic transformation in the living and working conditions of most of the population. In many others the application of modern techniques has been slow and uneven. Elsewhere it has sometimes served only to dissipate the resources of under-developed countries more speedily.

Great possibilities for economic development exist in most of the less-developed countries and in many of the non-metropolitan territories. Realization of these potentialities will require full use of the scientific and technical advances which have already so changed the economies of more-highly developed areas. The United Nations and the specialized agencies have an unparalleled opportunity to assist under-developed countries to take advantage of modern techniques, and so help them to achieve for themselves the material and social benefits of sound, balanced economic development. The purpose of this report is to outline a programme of combined effort to attain this end.

It is impossible to define economic development precisely or in absolute terms. Development is a process, which is nowhere complete and nowhere entirely absent. It is never an isolated phenomenon. It is the product of simultaneous developments in many fields. In particular, it involves an increase in productivity—a more efficient use of resources to produce more and better food, clothing, shelter and the other necessaries and amenities of life, at a less heavy cost in human toil and hardship. Economic development has far-reaching implications for all aspects of life. It makes possible higher standards of nutrition, health and education. It permits an increase of leisure and

opens up new intellectual frontiers. Given a wide and equitable distribution of its benefits, it is likely to result in a substantial increase in the security of the individual and in social stability.

The effects of economic development can be illustrated most strikingly by a few simple comparisons between the more and the less developed countries.

It is estimated that the average income per head[1] in the United States of America in 1947 was over $1,400, and in another fourteen countries ranged between $440 and $900; but in twenty-five other nations and most of the Non-Self-Governing Territories, comprising together substantially more than half the world's population, average income was less (often much less) than $100 per year. Moreover, in many of the less developed countries the extremes of wealth and poverty are particularly striking, whereas in the more highly developed countries there has recently been a marked tendency towards greater equality of incomes.

The economy of under-developed areas is typically agrarian; by far the largest number of their people derive their living from the soil. But the average output per person in agriculture in these areas is less than one-tenth of that achieved in more advanced countries. The difference in productivity per man in industry and transport is as striking, and in consequence real wages are very low.

In most under-developed areas the average life expectancy is generally less than half as long as in the highly developed countries. This is a result of the prevalence of preventable diseases and the high mortality among infants and young children. Even if the effects of infant mortality rates are eliminated from general mortality statistics the disparities remain wide. In some of the very highly developed areas the average expectancy of life at the age of one has approached and even exceeded 70 years. By contrast the average expectation of life at the age of one in the under-developed countries is 25 per cent less than in the developed areas. Indeed in some great areas of the world the expectation of life at the age of one drops as low as 33 years, or approximately half of the general average for the developed areas. In the former areas health and welfare services are scanty; sanitation practices and facilities are primitive or non-existent; there is little or no framework of public health administration upon which remedial

[1] According to estimates prepared by the Statistical Office of the United Nations on the basis of official statistics of national income and other data.

and long-term measures can be built; malnutrition is the rule and starvation not uncommon.

Illiteracy is widespread in most under-developed countries and the level of education will not support sound economic development. Opportunities for training in skilled trades, in simple agricultural techniques and in elementary rules of health are woefully inadequate.

This gap between the most and the least developed countries is one of the most significant and alarming aspects of our contemporary society; and, in spite of the growing interdependence of the world, it has tended to become progressively wider in recent decades, for the more advanced countries, by very reason of their progress, have an important advantage over the retarded ones. Their higher levels of output and better economic organization make it easier to accumulate capital for further development and to direct it into productive channels. The existence of highly developed and differentiated industry and agriculture automatically provides the best kind of training facilities for managers, technicians and skilled workers and each technological advance helps to stimulate further inventions, by creating new demands and suggesting new solutions to technical problems. The under-developed areas thus tend to fall farther and farther behind, and they are likely to continue to do so unless deliberate and effective measures are taken to bring to them the benefits of modern science and technology.

In recent years the people in these areas have become increasingly aware both of the disparity between their condition and that of economically more advanced countries and of the need to increase their productivity in order to raise their living standards. Similarly the more developed nations have gradually come to realize that in an interdependent world economy the burden of high costs, due to low productivity, falls on all the world's peoples, and that full employment and utilization of resources in the advanced countries is possible only through a general economic expansion in which the less developed countries fully share. Moreover, it has become clear that the wide gap between unprecedented wealth in a few countries and grinding poverty in most of the others constitutes a basic source of economic and social instability in the world. The narrowing of this economic gap, by accelerating development in the less advanced areas, is thus an imperative and urgent task from the standpoint of the more and the less developed countries alike.

The rate of economic development must be fast enough not only to keep up with population growth, but to exceed it by a substantial margin. For a little development may sometimes be a dangerous thing, if it provides only a temporary palliative for starvation and misery without bringing about a continuing, balanced rise in welfare and productivity. Such limited, partial development may serve in the long run, as it has in the past, only to increase social tensions and permit a more reckless waste of both human and natural resources.

The problem must be attacked on several fronts at once. A great increase in output of food and other agricultural products is urgently necessary, but there must also be a concurrent development of industry and transport. The mechanisms of trade and finance must be expanded and improved. None of this is possible without simultaneously taking steps to raise the levels of health and education, to improve conditions of work and to provide basic social security.

On whichever front the problem is attacked—whether it be the economic process itself or the necessary social pre-conditions—effective economic development can only proceed where there are available technical knowledge and finance. The present report is not concerned with capital investment[1], but any programme of technical assistance must take into account the importance of investment and the extent to which financial resources are available. There are many aspects of development in which much can be accomplished through technical aid requiring relatively small expenditures for supplies and equipment. This is likely to be true especially in the earlier stages of a development programme. Even in fields where substantial financing is necessary, a great deal of technical work is usually required in advance of investment—in determining where the available financial resources can be used to best advantage, in preparing more detailed studies and plans, and sometimes in mobilizing domestic capital for investment.

In many under-developed countries deficiencies in technical knowledge constitute an even more serious and immediate obstacle to economic progress than lack of capital. Technical assistance from the more advanced countries may therefore be of major significance in promoting more rapid and better balanced development. The amount

[1] Following the request contained in resolution 179 (VIII) the Economic and Social Council, at its ninth session, will have before it a separate report ". . . setting forth methods of financing economic development of under-developed countries, including methods of stimulating the international flow of capital for this purpose. . .".

of scientific and technical knowledge available for this task is greater now than ever before and is constantly increasing. The problem immediately at hand is to organize it and direct it into the channels where it can produce the speediest and most constructive results.

The effective organization of more rapid economic development will require broad vision and sustained effort on the part of both the under-developed and the developed countries and on the part of the United Nations and the specialized agencies. Patterns of economic development which fit the economic and social structure of the technically more advanced countries cannot be applied without modification to those which have remained under-developed. In every country development must be brought about mainly through the efforts of the local population, with the help of domestic resources, and by means of appropriate changes in economic and social structure. External assistance in the shape of capital and technical facilities may be important, in some cases crucial, but the major initiative, and the largest part of the capital and labour required, must come from domestic sources. Indeed, too great and too long-continued dependence on foreign capital and technicians may impede rather than accelerate development along sound lines.

In the past, private initiative and capital have in most countries been the principal agents for economic development. Even so, governmental assistance and guidance have played an important role in almost every country, through protective and regulatory legislation, subsidies, and public investment in such basic facilities as transportation systems and public utilities. Today, the importance of public direction and help is even greater. The complexity and inter-dependence of the modern economy, both of individual nations and of the world as a whole, has led to more and more government action. The failure of international private investment to revive after the great depression, as a result of continuing insecurity and unfavourable conditions in most parts of the world, has forced Governments to play important roles, both as borrowers and lenders, in international financing. The accumulation of capital and organization of technical skills on the scale necessary for effective economic development is often possible, especially in under-developed countries, only through governmental action.

These facts impose a heavy responsibility on the Governments of countries seeking rapid development. Inevitably that process involves

serious social and economic stresses, which reach into every aspect of the nation's life. An unusual measure of social vision, political courage and administrative competence will be needed to keep these stresses within manageable limits, and to make necessary adaptations in the social institutions and practices of the developing countries. It will be necessary to keep various fields of investment in balance, to curb inflationary pressures, to make proper use of foreign exchange assets, and to mobilize local capital resources and attract external financing where necessary, through wise and vigorous government action. Moreover, if economic development is to achieve its purpose of increasing the security and welfare of the great mass of mankind and enabling them to enjoy a fuller, more fruitful life, its benefits must be widely distributed; it must not serve merely to augment the wealth and power of a small section of the population.

While it will often be necessary for Governments in under-developed countries to take the initiative in promoting and guiding certain phases of economic development, it is no less important that the fullest exercise of individual initiative and enterprise be encouraged wherever these can be effective. Similarly the co-operation and active support of the major economic groups in the community such as labour unions, farm organizations and trade groups is of vital importance to the success of a development programme.

The under-developed countries may profitably draw upon the experience of countries with a longer history of development in all these fields—of economic and social policy, financial measures and administrative methods—as well as in the more limited sphere of production. But it will not be enough simply to apply in a new environment the techniques evolved from such experience. Under-developed countries differ widely in their climate, resources, population, and history—both among themselves and in relation to the more advanced countries—and for each the first step in development must be a realistic appraisal of its special conditions and needs. The basic aim of outside technical assistance to under-developed countries must be to help themselves, and to diminish their dependence on external aid.

Technical assistance may and should be provided through many channels. Private action, which has historically been the principal means for the international transfer of technical skills and knowledge, will continue to have an important place. Technical and managerial skills of a high order are frequently associated with direct investments

of capital. Universities, foundations and research institutions also play a significant role, especially in the fields of education, health and scientific training and research. Migration from the relatively advanced countries to those less developed but sparsely populated, continues to be an important means for transferring knowledge and skills.

Technical assistance for the economic development of colonial territories has been greatly expanded by metropolitan Powers in recent years. In addition, technical assistance programmes, worked out on a bilateral basis between Governments, have grown considerably in scope and magnitude. In view of the increasingly large role of Governments in the development process, it is likely that such bilateral programmes will continue to be an important source of technical assistance to under-developed countries. But international action in this field has also been increasingly significant. Since the family of United Nations organizations has been created, aid to under-developed countries has assumed progressively greater importance. At Hot Springs in 1943, at Philadelphia and Bretton Woods in 1944, at San Francisco in 1945, and at successive international meetings and conferences thereafter, the necessity and urgency of economic development has been repeatedly emphasized.

The United Nations and the specialized agencies, through their research and advisory programmes, have been providing extensive aid to their member countries. The third session of the General Assembly, meeting in December 1948, laid the groundwork for a further expansion of international action in this field through its resolution 200.

Between the adjournment of the Assembly in December, and the eighth session of the Economic and Social Council, the President of the United States, in his inaugural address on 20 January 1949, proposed "a bold new programme for making the benefits of our scientific advances and industrial progress available for the improvement and growth of under-developed areas". He went on to say:

"I believe that we should make available to peace-loving peoples the benefits of our store of technical knowledge in order to help them realize their aspirations for a better life. And, in co-operation with other nations, we should foster capital investment in areas needing development.

"Our aim should be to help the free peoples of the world, through their own efforts to produce more food, more clothing, more materials for housing, and more mechanical power to lighten their burdens.

"We invite other countries to pool their technological resources in this undertaking. Their contributions will be warmly welcomed. This should be a co-operative enterprise in which all nations work together through the United Nations and its specialized agencies wherever practicable. It must be a world-wide effort for the achievement of peace, plenty, and freedom."

On the proposal of the United States delegation, the Economic and Social Council adopted resolution 180 (VIII) requesting:

"... the Secretary-General, in consultation with the executive heads of the interested specialized agencies through the Administrative Committee on Co-ordination, and taking into consideration the suggestions of Member Governments, to prepare a report for the ninth session of the Council setting forth:

"1. A comprehensive plan for an expanded co-operative programme of technical assistance for economic development through the United Nations and its specialized agencies, paying due attention to questions of a social nature which directly condition economic development;

"2. Methods of financing such a programme including special budgets; and

"3. Ways of co-ordinating the planning and execution of the programme."

President Truman's proposal, and the resolution of the Economic and Social Council, present to the family of United Nations organizations both a challenge and an opportunity—a challenge to show that their present efforts can be effectively extended in co-operation on an unprecedented scale, and an opportunity to bring to bear the experience, the knowledge, and some of the capital resources of economically advanced countries to aid and accelerate the progress of those which are under-developed. The result may well be to open a new and memorable phase in the economic and social history of mankind.

CHAPTER 2

Nature of the programme

It was pointed out in chapter 1 that technical assistance may become available to under-developed areas through many channels, public and private. But the increased role of government initiative and direction in economic development suggests that the provision of large-scale technical help to under-developed countries will usually involve some sort of inter-governmental arrangements, either on a bilateral basis or through international organizations.

The relation of international technical assistance to national programmes

Extensive programmes of technical assistance, given directly by one Government to another, already exist and there will doubtless always be cases in which technical assistance can most appropriately or conveniently be furnished in this manner. In view of the size and population of the areas suffering from inadequate development, and the magnitude of the lag that must be made up, there is ample room for a great expansion of technical assistance through the United Nations and the specialized agencies without affecting the amount of aid given through these national channels. There should, however, be a progressive increase in the relative importance of international action, in the amount of technical assistance provided as "a co-operative enterprise in which all nations work together through the United Nations and the specialized agencies".

In the Charter of the United Nations, the Member countries pledged themselves to co-operate "in solving international problems of an economic, social, cultural or humanitarian character"[1] and in the promotion of:

(*a*) Higher standards of living, full employment and conditions of economic and social progress and development;

(*b*) Solutions of international economic, social, health and related

[1] Article 1, paragraph 3.

problems; and international cultural and educational co-operation; . . .[1] Similar objectives are set forth in the constitution and basic declarations of the specialized agencies. The reasons and purposes which inspired these documents have in no way lost their force. A world-wide programme of technical assistance for economic development cannot succeed without effective international co-operation.

No nation has a monopoly of technical knowledge and competence. The spectacular economic advances that have already taken place are the result of inventions and adaptations in many countries, and of an extensive interchange of information among them.

A sound international programme must combine and make use of the experience of many nations with differing social patterns and cultural traditions and at different stages of development to facilitate progress in the less advanced countries and to help solve their technical and economic problems. The highly developed nations will necessarily make the principal contributions to this effort, but others can assist in important ways; it may be, in fact, that the experiences of countries in the middle stages of economic progress may fit the needs of still less developed areas better than the most advanced techniques used in highly industrialized economies. It is essential, therefore, that the technical contributions of many countries be sought and utilized.

There are certain fields in which international action is indispensable. Epidemics and insect pests, such as locusts, do not respect national frontiers. Their control must be organized on an international basis. Some other problems are regional in character, transcending national lines as, for example, the technical control and use of rivers flowing through more than one country and the efficient organization of certain transportation systems.

In other fields international standardization and uniformity are important, as, for example, in the facilities and regulations of international air transport and in the collection and classification of certain types of statistics. International organizations will normally be in the best position to assist the under-developed countries in bringing their plans and practices into conformity with established standards.

Moreover, from the standpoint of the under-developed countries themselves, international action has notable advantages. The exploita-

[1] Article 55; see also Article 56.

tion and abuses often associated with development in the past have left a legacy of distrust, which in some cases hampers the introduction of new techniques into the less advanced countries. The best remedy for such distrust is to provide assistance in ways clearly directed toward the achievement of a fuller and better life for the peoples of the recipient countries. Their confidence and co-operation is likely to be given most freely to a programme under international auspices, in the direction of which the under-developed countries can take as full a part as the economically advanced countries.

The administrative pattern of the proposed international technical assistance programme, and the need for organizational links between the programme on the one hand and various bilateral activities on the other are dealt with in chapter 5. It will be sufficient here to point out that whatever the source of the technical help given in a particular case, it will be undertaken at the request of and by agreement with the Government of the receiving country. Moreover, close consultation and exchange of information between the international organizations and the agencies of national Governments rendering technical assistance in the same and related fields will be essential to ensure that the best use is made of all the sources which are available.

Requirements for success of the technical assistance programme

The effectiveness of the proposed technical assistance programme in stimulating and accelerating sound economic development will be the measure of its success. Certain basic requisites for a programme to fulfil this purpose are indicated below.

1. *A practical approach.* Development in each country must grow out of that country's particular needs, desires and potentialities. It is impossible to transfer a given pattern of development intact from one area to another. A technical assistance programme will be judged largely by its practical success in adapting and combining scientific findings and technical experience from many sources to meet the requirements and resources of particular countries.

As has already been suggested, techniques used in highly-developed countries are not always suited to conditions in less developed areas. The techniques recommended to under-developed countries under an

international technical assistance programme must be fully proven and practical ones and suitable for use in the particular recipient country. Otherwise there is a danger that under-developed countries may be saddled with unusable facilities and unworkable methods, at a stage when they still lack the knowledge necessary to perfect or replace them. This consideration applies to the methods introduced for dealing with social problems no less than to techniques based on natural science and modern technology.

It must be recognized that a comprehensive programme of the type here envisaged cannot always be put into effect at once. In many cases international organizations will be asked for technical assistance in the first place on a piecemeal basis, to meet specific urgent needs, and it would be wrong to underestimate the value of such assistance. Simple improvements at different points have a cumulative effect. They serve not only to increase productivity and living standards at their point of impact but also to demonstrate the benefits to be derived from further steps in economic development.

It is important, however, that the objective of balanced development be kept constantly in mind. The success of specific forms of assistance must be judged in part by the extent to which it encourages a realistic conception of economic development and the formulation by the Government concerned of a consistent general programme. The organizations engaged in technical assistance projects in particular countries should keep in close touch with one another, and as occasion offers should suggest the extension of international action in providing technical assistance for economic development on the basis of such a general programme.

2. *A favourable environment.* Any comprehensive programme of economic development will involve far-reaching changes in the social and economic structure of an under-developed country. The proposed technical assistance activities are intended to help the under-developed countries to help themselves in developing their resources and their productive capacity. This purpose cannot be achieved unless the countries concerned are willing themselves to take vigorous action to establish the internal conditions upon which sound development depends.

In some countries existing social institutions may hamper economic modernization. Obsolete and oppressive systems of land tenure, and

inadequate credit and marketing facilities may retard agricultural development. In many under-developed countries the creation of a sounder financial structure, stronger and more efficient in both its public and private aspects, is essential. An overhaul of the government's fiscal policies, and the strengthening of its financial machinery, are often necessary. The expansion and strengthening of other governmental activities will often be needed to protect the lawful interests of the people in changing social circumstances, to provide adequate social services, to encourage scientific research and invention; in short, to conserve and develop all the nation's resources, human and material.

Far-reaching changes may also be necessary in the attitudes and habits of the people. Workers for newly developed industries must be drawn largely from the farm population, whose families may have lived on the land for centuries; they must adjust themselves to new surroundings and learn new work habits and disciplines. Individuals possessed of financial resources must be prepared to invest in new productive enterprises, and not merely to hold their wealth in land, precious metals or commodity stocks. Merchants must learn to think in terms of wider markets and narrow profit margins instead of maximum profits on a small volume of sales. Traditional methods of soil cultivation and handicraft must often be modernized. New crops and new breeds of livestock may be introduced. These changes will often impose considerable psychological and social strains but those strains may be greatly eased and their duration shortened if an effort is made to make the economic development programme itself and the changes which are necessary for its success as widely understood as possible among those whose interests are affected.

3. *Personnel.* Essential for any programme of technical aid is an adequate supply of qualified experts. The larger the technical aid programmes undertaken either by the international organizations or under national auspices, the greater will be the difficulty in obtaining a sufficient number of experts. The quality of the experts is even more important than their number, for inappropriate or unimaginative technical advice, given at a critical stage in the planning or execution of a development programme, may be ruinously costly. It is essential that the persons chosen to advise or assist under-developed countries be wholly disinterested and that they should, in addition to their technical qualifications, have an under-

standing of the basic problems which face the countries in which they serve.

It is evident that the international technical assistance programme cannot succeed unless it has the fullest co-operation from Governments particularly of the more advanced nations, in making available experts from among their own officials and technical staffs, and in recruiting qualified specialists from other sources. In this connexion it will be remembered that Governments have committed themselves in resolutions passed by the governing bodies of a number of specialized agencies to the principle that they will grant leave of absence, sometimes for extended periods, to civil servants and technicians for service with international agencies, without prejudice to their permanent status or other rights.

Universities, technical schools, foundations and research institutions offer an exceptionally promising source of personnel for an expanded technical assistance programme. Many of them have outstanding experts on their faculties or staffs, some of whom might be granted leave of absence for field assignments on behalf of the United Nations and the specialized agencies. They constitute a principal source for capable, trained younger men and women to staff technical assistance projects. In addition some of these institutions could undertake special research projects on problems related to economic development. An approach should be made by the international organizations to institutions of research and learning, to enlist their full co-operation in the recruitment of personnel. The development of the programme will in itself bring about an increase in the number of technical personnel not only for continuing use within the projects carried out under the programme, but also for work in new projects to be undertaken at a future stage.

The international technical assistance programme should also take full advantage of the services of personnel available in the countries receiving technical assistance. This will help to make available adequate staff for the programme, to supplement the experience of external advisers with knowledge of special conditions and problems within the recipient country, and to provide practical training for local technicians.

4. *Supplies and equipment.* The importance of capital investment for economic development has already been noted, though it is not covered in detail in this report. Limited amounts of supplies and

equipment, however, are often necessary as part of the technical assistance programme itself. For example, it may be necessary to supply technical equipment, books, and other materials to facilitate training and demonstration, or to establish educational or research institutions and experimental stations, or to demonstrate methods of disease and pest control. The need for this type of equipment has been provided for in the financial estimates for technical assistance in part II of this report.

5. *Continuity.* Progress in economic development must be measured in decades rather than years. The technical assistance projects described in this report are merely a beginning and some of these will take years to complete. The expanded technical assistance programme is, therefore, essentially a long-term undertaking, and the need for concerted efforts on a substantial scale will continue for many years before the countries now under-developed can become largely independent of outside technical aid.

This need for continuing activity imposes certain obligations on all the participating countries. While it is fully recognized that it is generally impossible for Governments to make firm budgetary provision for a long period in the future, it is important that the long-term nature of the undertaking, and the waste that would be entailed in abandoning it half-way, be fully recognized. Against this, it must also be realized that the continuance of the programme will depend largely on the early achievement of practical results.

The domestic contribution to economic development by the countries receiving technical assistance will be much larger than any external aid they may be given. Thus, it is in their own interest to ensure that external aid will achieve its full purpose by making the necessary provision for the maintenance and further development, at the conclusion of the international assistance, of the technical facilities and services established in the country. Countries requesting assistance should be prepared to take the steps necessary to ensure that this will in fact be done. They will be reluctant to do so unless there is a reasonable expectation that outside assistance will be continued long enough for them to draw benefit from it.

In view of the many types of technical assistance contemplated and the variety of agencies which will participate, it is not feasible to suggest any uniform terms on which international technical assistance should be furnished. Appropriate understandings and neces-

sary arrangements with particular Governments will presumably be made in accordance with the circumstances in each case.

Certain general principles, which should govern the entire collective effort of the United Nations and the specialized agencies, have been defined in resolution 200 (III) adopted by the General Assembly at its third regular session, as follows:

"(*b*) The kind of service mentioned under paragraph 3 to be rendered to each country shall be decided by the Government concerned;

"(*c*) The countries desiring assistance should perform in advance as much of the work as possible in order to define the nature and the scope of the problem involved;

"(*d*) The technical assistance furnished shall (i) not be a means of foreign economic and political interference in the internal affairs of the country concerned and shall not be accompanied by any considerations of a political nature; (ii) be given only to or through Governments; (iii) be designed to meet the needs of the country concerned; (iv) be provided, as far as possible, in the form which that country desires; (v) be of high quality and technical competence."

In the light of the considerations outlined earlier in this section it may also be assumed that those responsible for execution of the technical assistance programme will wish to satisfy themselves that the requesting Government will:

(*a*) Undertake the sustained efforts required for successful development, including the organization and adequate support of administrative services capable of progressively assuming responsibility for the administration of operating programmes;

(*b*) Give full, prompt and sympathetic consideration to the technical advice it receives;

(*c*) Undertake continuing support of the institutions or programmes initiated under international auspices;

(*d*) Normally assume responsibility for some part of the costs of the technical assistance with which it is provided, for example for local expenditures;

(*e*) Make it possible for the organizations giving assistance;

(i) To obtain necessary information about the country and the problems with which they have been asked to help;

(ii) To make contacts, whenever appropriate, with individuals and groups within the country, in addition to government agencies,

concerned with the same or related problems, for the purpose of obtaining information, providing instruction, or enlisting co-operation in the programme; and

(iii) To publish information regarding the results of technical assistance and the experience derived therefrom that may be of value to other countries.

CHAPTER 3

Fields of work

Self-determination is an essential principle in economic development, as in political organization. As resolution 200 (III) of the General Assembly recognized, Governments must themselves decide the kind of services they need. But such services, to be effective, must be related to long-term programmes of economic development prepared by the Governments asking for help.

Immediate problems and difficulties cannot be ignored but their solution may depend on progress in a wider field. A balanced programme of economic development can best be achieved on the basis of a comprehensive plan of development. Such a plan should itself be based on a realistic assessment of economic resources and prospects and on the acceptance of certain priorities. Until recently few countries have been equipped to make such an assessment, and one of the most useful forms of technical assistance will be to help them to estimate their needs and formulate their programmes of development. The existing facilities of the United Nations and the specialized agencies can be used for these purposes and these facilities can be expanded where they are insufficient.

The increasing interdependence of the different countries of the world makes it particularly necessary that a country preparing its plans for future development take into account not merely its own resources and potentialities but also the state of affairs in other countries and the plans of other Governments. For example, it would be folly for a country to undertake an ambitious programme to develop agricultural and industrial production for export without first taking account of present and prospective world demand and the related production plans of other countries. The United Nations and the specialized agencies are especially well qualified by reason of their world-wide scope in a variety of special fields to advise and assist Governments in taking account of those external factors.

While it is desirable that Governments should base their long-term planning on a comprehensive review of their resources and prospects,

their economic development may, at the outset, be simple and limited to a few activities. Indeed, some countries will not be in a position to undertake many new activities in the first instance even with outside help. As experience is gained, as administrative machinery is built up, and as statistical and other information is accumulated, fields of activity will widen. Meanwhile, technical assistance need not be delayed merely because comprehensive long-term plans have not been prepared. It is always valuable to eliminate human, animal, and plant diseases, to exterminate pests which carry disease or destroy food, and to educate and train the people upon whose efforts economic development depends.

Whether it is a question of providing advice and assistance in particular fields such as agriculture, transport, industry, labour, finance, health, welfare and education, or in the broader field of assessment of resources, the determination of priorities and the preparation of development plans, the United Nations and the specialized agencies are equipped or can readily equip themselves to supply the technical aid needed. They have already acquired considerable experience. In part II of this report are set out programmes of technical assistance which the United Nations and the specialized agencies could undertake, in addition to those already under way, as initial steps in an expanded programme of technical assistance for economic development. The present chapter reviews briefly the principal fields in which technical assistance can be rendered.

The needs of under-developed countries are many and urgent. The fields of international action through which these needs can be met are so interrelated that a discussion of them could begin with any one of a number of fields. While the main emphasis of economic development must be on the expansion of production through a balanced programme for industrialization and diversified agriculture, such a programme depends primarily upon the provision of power and transport. All under-developed countries are, however, handicapped in regard to their future development by malnutrition, ill health, and illiteracy. Economic development cannot, therefore, be successfully achieved without full attention being given to all the interrelated fields. Since increased production through improved agriculture and developing industry is the primary economic objective of the under-developed countries, this chapter provides a brief description of these fields.

In the under-developed countries, 50 to 75 per cent of the population is engaged in primary industries concerned with food production; but the food supplies of most of these countries are notoriously inadequate, both in quantity and quality. Improvements in agriculture are needed first to increase domestic supplies of food both for the rural population and for those engaged in the new industries, secondly for the production of raw materials for domestic industry, and thirdly to expand exports through which the under-developed countries can pay for imports needed in their development. Therefore, the increase of indigenous food supplies, including fish, and of agricultural and forestry products for export, should almost always form a fundamental part of the economic development schemes of under-developed countries.

Agricultural production can undoubtedly be substantially increased. Many means of doing so are known and hundreds of examples could be given of how the requisite knowledge could be applied. In many cases, relatively simple improvements in methods of husbandry, the provision of more effective tools and small-scale implements would bring about important changes. The use of better seed and of fertilizers would have immediate results. It is conservatively estimated, for example, that yields in the rice-producing countries could be increased by 10 per cent if the best varieties were generally utilized, while the introduction of hybrid varieties of corn (maize) can add 20 or 30 per cent to the crops. Similarly, it is estimated that livestock production on a world scale could be increased by 25 per cent in ten years through selective breeding. The control of animal diseases, and better feeding could have similar results: rinderpest, the major livestock disease in Africa and Asia, which accounts for the loss of 2 million cattle annually, can now be eradicated by the use of vaccines; grass and other forms of forage are among the most important of crops and are frequently the most neglected. Technical assistance in these fields can readily be made available.

Apart from production as such, substantial increases could be made in the quantity and quality of agricultural and forestry products by the prevention of losses and the better utilization of available resources. Among many examples the following are cited. The present annual loss of stored grains and edible legumes throughout the world is estimated at 30 million tons a year or 10 per cent of the total world crop, a quantity sufficient to feed 150 million persons. These losses,

caused by insects, rodents and fungi, can be vastly reduced by known methods of controlling infestation and by the provision of more and better storage, especially in tropical and sub-tropical areas.

The application of modern techniques to the processing and handling of agricultural, fishery and forest products would result in a substantial increase, both in efficiency of production and in output. Shortages of essential foodstuffs could be overcome. The yields of marketable products could be increased. Waste products could be utilized and the nutritional value of foodstuffs improved. Thus, improvements in sea fishing and pond culture would greatly augment the supply of high-quality protein. Fish liver oils, rich in vitamin A, now wasted, would make a badly needed improvement in diet in many areas. Improvement in the nutritive value of cereals, particularly rice, as consumed could be brought about by improved milling practices. Examples of this nature could be multiplied many times.

An essential complement to agricultural improvement is the expansion and diversification of non-agricultural industries. Industrial development, indeed, leads to development in all other fields. It facilitates capital formation and the provision of capital facilities, with a consequent rise in general productivity and living standards. By increasing the diversity of the economy, industrial development permits a more efficient use of resources and reduces the vulnerability of underdeveloped countries to economic fluctuations, especially those caused by wide variations in the world demand for primary products. It furthers development in agricultural fields directly through production of the tools and equipment needed for improvement of agricultural techniques, through the provision of consumer goods for the agricultural population and incentives for increased production, and through the expansion of domestic markets for agricultural products. In densely populated countries especially, industrial development is necessary to furnish alternative employment for farm workers at present underemployed or whose services will be released as farm productivity rises.

Industrial development will take place along many different lines, according to the nature of the physical resources and the size and skills of the population of each particular country. In some countries early attention will be paid to the development of mining, in others to the processing of agricultural products and minerals of domestic origin. In some countries there will be concentration on the production of manufactures required to meet essential needs for current consump-

tion; in others there will be progress in the production of capital goods. In almost all under-developed countries there will need to be an expansion of transport and power.

A lack of adequate power facilities, whether in the form of steam or diesel power plants or hydroelectric installations, has been a major obstacle to industrial development in almost all areas. Many areas have potentialities for greatly increased power development, but lack both the capital and the knowledge required to extract the coal or oil, harness the water-power, or build the necessary generating facilities. In some areas, wind-power might be used effectively for small industries if proper technical knowledge were available.

Technical assistance in the industrial field may be required at several stages. In the first place, careful economic and engineering studies are often necessary to determine what industries can be advantageously developed with the raw materials, power, markets, capital and man-power available in a given country.

Once it is decided that a certain type of industrial development is desirable, it is usually necessary to undertake more detailed investigation and planning for a specific project—to define the economic size for a plant, to decide which of several alternative processes to use, to determine what auxiliary facilities such as power, transportation and water will be needed, and to estimate production and marketing costs.

Finally, technical assistance will be required in the construction and initial operation of the plant. Engineering drawings and specifications must be prepared; equipment must be procured and its installation supervised; early operating difficulties must be eliminated; and local managers and technicians must be trained to run the plant themselves. Much of the technical help needed in the later stages can be provided by private engineering firms and by the manufacturers of specialized equipment, but assistance by the international organizations will often be valuable in such aspects of the work as providing technical information, selecting reliable advisers and helping to co-ordinate their activities with the broader development plans of the country concerned.

Improved transport is the key to economic development in many parts of the world. Most under-developed countries need better road transport, but improvements in inland water transport, rail transport and also civil aviation and maritime harbour facilities are often

needed. While in many instances such improvements will require substantial capital investment, technical assistance in the construction of low-cost transport facilities, particularly of rural roads, would immediately result in increased food supplies in urban areas and supplies of incentive goods to agricultural producers. It would promote the mobility of rural labour, and aid in the spread of new ideas. Further, by making assistance available for surveying over-all transport needs and for the planning, construction, and maintenance of transport systems, the way would be prepared for future capital investment.

Air transport has particular significance for under-developed countries whose geographical and climatic features impede access to their natural resources, since it is not affected by the natural obstacles which beset the construction of surface transport facilities. The speed of air transport also makes it valuable as an instrument for integrating economically, administratively and politically the widely scattered centres of population of many of the under-developed countries; similarly, it can bring any country into close contact with the world centres of economic development. Technical assistance could be given on aviation problems by the conduct of air transport surveys, and by advice on the design, construction and installation of aerodromes and air navigation facilities, on organization and operational standards, and on the training of personnel.

In the field of communications, technical assistance can be made available to under-developed countries for the improvement of postal services, telegraph, telephone and radio systems, as well as for the development of the press, broadcasting and film industries.

Increased production in both agriculture and industry must always depend on the human factor. An improvement in rice varieties, beneficial as this would bé, cannot achieve its full effect in areas where those who plant and harvest the rice are incapacitated by malaria, a disease which affects 300 million persons per year, accounts for three million deaths and is responsible for a work loss of twenty to forty days per person per year. Irrigation and drainage programmes are directly connected with such a disease as schistosomiasis, which is contracted through infection from polluted water. Such diseases prevail over wide areas of the African, Asian and American continents; it has been estimated that in the Middle East alone from 20 to 30 million persons, or 90 per cent of the rural population, are affected. There is no necessity for the continued high incidence of these diseases any more than

for the present low yields of crops and livestock in many of these areas. With the mass use of insecticides malaria, typhus, relapsing fever, yellow fever, plague, and kalazar may be eliminated. With the proper use and protection of water supplies, it is possible to control cholera, enteric fevers, dysentery, worm infestations such as hookworm and certain parasitic diseases. Antibiotic drugs, vaccines, and other biological products make possible the virtual elimination or at least an important reduction of such diseases as smallpox, trachoma, venereal diseases and diphtheria. Large and increasing investment in the health of the people, therefore, will be an essential prerequisite for the successful and continuing economic development of under-developed areas.

Public health is as important a basis for industry as for agriculture. Effective health services will be of particular importance in newly established industrial centres. The areas of the world in which people have the best health have also the highest productivity per head. In these areas we find the lowest infant and maternal mortality as well as the lowest general death rates. But these high indices of health cannot be obtained without continuing long-term health programmes. In the under-developed areas such programmes must begin with the "eradication" approach. When confidence has been established by the spectacular success that can be obtained in this way, a longer-term campaign for improved maternal and child health, for the control of venereal disease and tuberculosis and for health education can be instituted.

If agricultural practices are to be fundamentally improved, if the importance of health and hygiene is to be widely understood and if substantial advances are to be made in industry and transport, attitudes of mind must change and new knowledge and skills be acquired. This is a long process and involves fundamental education more far-reaching than the abolition of illiteracy. Techniques have been developed and are available whereby a foundation may be laid for the acquisition of such knowledge and skills.

The first educational demands from economic development schemes are likely to be for technical education. Help and advice will be requested at all levels from training in elementary handicrafts to the education of engineers and other specialists in technological institutes. Many under-developed countries lack the knowledge, personnel or traditions with which to build up a technical school system adequate to

their growing needs, and want help on such matters as organization, finance, buildings, equipment, staffing, the training of teachers, curricula, teaching methods, the use of audio-visual aids, and the integration of technical schools with industry.

Economic development is bound up with technical development and cannot progress unless backed by research. Research laboratories can belong to universities, government services, industrial concerns, or special institutions. Their organization, equipment and programme must be carefully planned. Advice and help from international organizations will assist Governments of under-developed countries in organizing laboratories for the practical teaching of applied science.

Programmes of economic development will create a growing demand, in under-developed areas of the world, for scientific information and liaison centres. International organizations can assist Governments to establish centres, which will keep scientists and research workers within these areas in contact with recent scientific developments throughout the world.

There are scientific problems common to large areas of the earth, namely those of the so-called arid zones, of the tropical humid zone (e.g., the Amazon Basin), and of the high altitude plateaux (e.g., Andes and Himalayas). In each of these areas studies are necessary on conditions of life for human beings and animals, on problems of power production and, in the arid areas, on the more economical and effective use of water.

Although fishing is one of the oldest of human occupations, singularly little is known of the economic potentialities of the seas save in the North Atlantic and North Pacific. The sea can also provide important chemical resources from seaweeds and algae, while salts from coastal waters can become an important source of raw material for chemical industries.

Basic changes in the economic life of a country, whether in agriculture, industry or commerce, will involve social problems of a fundamental nature. A people whose social order centres about an older form of economy will be able to assimilate new economic forms and techniques only through gradual adaptation. Experience has shown that unless proper measures are taken, the period of transition, and particularly a transition to a more industrial and urban economy, may involve serious social strains, with dislocations of family and community life. Under-developed countries may desire technical as-

sistance in building up basic social services to deal with the problems of this transitional phase.

A prime objective of economic development is to improve the conditions of life and labour of working men and women. Unless these conditions are clearly being improved the sense of exploitation, so widely prevalent and so dangerous to world peace, will be heightened rather than removed and will present a fertile ground for political agitation, internal instability and external recrimination. Moreover, unless labour and social standards are raised, the full benefits expected from new equipment and improved methods of production will not in fact be realized. Technical assistance in this field is, therefore, an indispensable part of any expanded programme of economic development.

In this connexion vocational training and employment service organization are particularly important. Economic development is in essence a process of combining and using resources in new ways, with new techniques. At each stage new skills are needed. Workers able to acquire these skills must be recruited and must often be brought from long distances. They must also be trained. If these things are to be done efficiently, there must be well organized vocational guidance, employment and training services, in the organization of which assistance will often be needed.

If he is to do his best, the worker must also be assured of adequate food, clothing, housing and facilities for recreation and community living; he must be safeguarded from occupational hazards; his general conditions of employment must be such as to make possible sustained high levels of output; and he must know that effort and initiative will earn a fair reward.

In the field of industrial safety, for example, assistance will be needed in the preparation of safety regulations and manuals for a wide range of specific industries and processes, in the organization and training of inspection services competent to ensure the effective application of those regulations, in the promotion of voluntary safety movements in which Governments, employers and workers can all take an active part, and in the organization of training courses in methods of preventing accidents at work.

The problem of incentives, of enlisting the full co-operation of workers in new tasks and new ways of life, is broad and complex. It is a question of the degree of public knowledge of, and confidence in,

the nature and objectives of the development programme; of remuneration; of security of employment and livelihood; of industrial relations in general; and of providing at least a minimum programme of security against destitution in case of sickness, unemployment or old-age. In regard to all of these factors, technical advice and assistance can be given to under-developed countries on the basis of international experience.

Co-operative methods of organization can often play an important part. Self-employed workers in handicrafts and cottage industries, for example, can be grouped together in co-operative units large enough, though decentralized, to secure the benefits of larger-scale operation and thus to play a considerable part both in supply needs for locally manufactured goods and in providing supplementary income for village populations. Farm credit and marketing co-operatives as well as co-operatives for the purchase of supplies can make an important contribution to agricultural development. Valuable services can be performed, therefore, by technical assistance in the development of such co-operatives where they do not yet exist, and in the extension of existing but simple types of co-operation into more advanced and complex economic activities.

While it is improbable that migration will be as important in the twentieth century as it was in the nineteenth, it can still make a substantial contribution to under-developed countries where the population is relatively sparse. Immigration of skilled workers can assist in the establishment of a labour force for industrial development, while new settlers for agriculture, forestry and fisheries could help many under-developed countries to develop these resources. Highly skilled and professionally trained refugees and displaced persons who might apply for emigration to under-developed countries would strengthen domestic personnel. Under modern economic and social conditions successful migration, either for employment or for settlement, requires careful planning in which international technical assistance can be of great value to the country receiving the migrants and to the country from which they come.

Difficult problems of readjustment and housing also arise where there are movements of people within a country which is developing industrial areas. Likewise, land-settlement schemes, whether for internal migrants or immigrants, must take account of the quality of the land, the availability of water and the effects of climate on the

health of the new settlers. The international organizations working in conjunction with the recipient Government can ensure that the many mistakes of the past are not repeated and that a sound foundation for settlement is laid.

In many under-developed countries the financial foundations are too insecure to provide a firm base for large-scale development programmes. Domestic savings are small and are often hoarded, invested abroad or used for speculation. The mechanisms for extending credit and mobilizing domestic capital are frequently inadequate to permit investment on the scale required. Fiscal and monetary policies are often of such a character as to discourage saving and the investment of domestic or external capital. The correction of these conditions is a prerequisite to improving the flow of capital to support programmes of economic development.

The process of economic development itself, complicates the financial problems facing a Government. Suitable fiscal, financial and monetary policies and techniques must be adopted, or the expected boon of economic development may become instead a burden. In the absence of sound policies and effective action in the financial field, efforts to achieve rapid economic development may lead to runaway inflation and accentuate external payments difficulties.

In these circumstances it is plain that technical assistance will be of vital importance in helping under-developed countries to establish the monetary system, the credit machinery, and the financial safeguards necessary to strengthen the Government's financial position, to curb inflation and to mobilize capital for productive investment. The successful application of sound financial measures will be of major importance in attracting capital from abroad, from either public or private sources, as well as in making the best use of domestic financial resources, and in obtaining the greatest benefits from the programme of economic development.

If lasting benefit is to be derived from technical assistance as described above, the national administrative services responsible for continuing work initiated with the assistance of international organizations will need to be strengthened and developed. While such strengthening must proceed on the basis of existing organizations and traditions and must avoid the pitfall of over-organization, it is a process vital to the success of the technical assistance programme as a whole. International organizations will therefore often find it necessary to as-

sist in the establishment or strengthening of national administrative services.

Assistance may also be given on general administrative problems arising out of the assumption by Governments of greater responsibility in connexion with economic development. This may involve advice on the reorganization of the administrative structure and in the co-ordination of its component parts, on methods of budgeting and planning and on the simplification and standardization of administrative procedures. Finally, since the level of competence and responsibility of personnel in the various national administrative services will be a decisive factor in the success of development programmes, it will be desirable to assist Governments to introduce sound methods of personnel selection and training of public officials.

CHAPTER 4

Forms of technical assistance

Technical assistance for economic development may take a wide variety of forms, including advisory missions, direct help in specific operational activities, provision of improved opportunities for training within the under-developed countries or abroad, practical demonstrations of modern techniques, industrial research activities designed to evolve suitable methods of production, and furnishing of supplies and equipment necessary for the technical assistance. Expansion of the facilities already afforded by the United Nations and the specialized agencies for aiding in the formulation of general economic policies and legislative and technical standards, and for the publication of technical reports and dissemination of other technical information, may also be required.

1. *Technical advisory services.* The first requests for technical assistance from the international organizations are likely to be for advisers in connexion with specific aspects of economic development. In fact, throughout the life of the programme, the core of most technical assistance activity is likely to be formed by individual experts or groups of experts working in the under-developed countries on specific projects, for periods ranging from a few weeks to several years.

The functions of such experts may be of various kinds. They may be responsible to the local government for the operation of specific projects, or serve as advisers to appropriate branches of the administration, or act as consultants for brief periods on special problems, or assist in the organization of administrative services, or help in the drafting of legislation, either of a general or a specialized character. In some cases they will act directly on behalf of Governments; in others their experience and objectivity may make them most useful as catalytic agents to precipitate policy decisions or reconcile conflicting viewpoints. In any event, their aim should be to make their services self-liquidating, by training local personnel progressively to take over their administrative and advisory functions.

Advisory missions may sometimes be required also to assist the Gov-

ernment of an under-developed country to make a general assessment of its human and material resources for economic development. Such an assessment, which will be very valuable as a basis for and guide to any comprehensive programme of technical assistance and to assure that the assistance granted in various fields will be of a complementary and mutually supporting character, is an essential prerequisite to the formulation of co-ordinated development policies and an integrated programme of investment. However, specific projects of technical assistance or investment, where an obvious need exists, should certainly not be delayed pending the completion of a comprehensive survey.

2. *Training.* One of the major obstacles to the economic development of under-developed countries is the lack of trained personnel, both in the skilled trades and at advanced technical professional and managerial levels. Means must be found to overcome this deficiency. The long-term objective, to develop adequate training facilities within the under-developed countries themselves, will often require considerable time; meanwhile, external help will be of great value, both in providing training abroad and in developing the necessary domestic facilities.

A beginning can be made at once by organizing temporary training facilities, and by initiating immediately the planning, construction and equipment of permanent training institutions, in localities so chosen as to be of benefit to the widest possible group of countries. The under-developed countries themselves could provide the buildings, while the international programme might assist by initially providing teachers, experts and equipment. Where training facilities already exist in under-developed countries, they often suffer from a lack of opportunity for practical experience; this could be remedied, in part at least, by supplying equipment and materials and by facilitating the recruitment of personnel skilled in practical training methods.

While keeping in mind the long-run objective of improving training facilities within the countries themselves, immediate results can be achieved by the expansion of programmes for advanced training abroad of experts from under-developed countries; the institution of a system of international grants for the training of technicians and technical instructors; arrangements for the interchange of technical personnel between different countries; the establishment of centres for field training; the organization of brief seminar courses and study tours; the publication of technical manuals and similar material; and

by arrangements to enable technicians from various countries to spend periods of study at the headquarters or regional offices of the various international organizations.

3. *Demonstration projects.* An especially useful type of training is afforded by the organization of demonstration projects. These may take many forms, ranging from demonstrations executed by single persons to highly complicated projects involving the development of a sizeable productive undertaking. The latter type not only provides a permanent improvement in the country where it is located but also serves to acquaint people in that country, and from neighbouring countries, with new possibilities and methods. Demonstration projects of this type, which have already been carried out in the fields of public health and in connexion with some educational, social, agricultural and statistical problems, have proved useful starting-points for the development and spread of improved techniques. These projects can doubtless be extended into other fields.

4. *Pilot plants.* The technology of the economically most advanced countries, both in agriculture and industry, is often designed for the special needs of mass-production economies based on huge domestic and foreign markets. This technology does not always have the same economic validity when applied to the more restricted needs of the less-developed countries; to meet those needs it must often be adapted to conditions in those countries rather than transplanted as it is. Such adaptation—the evolution of the processes and machinery required—would probably take a long time if left to the same influences by which the present technology used in highly developed countries evolved; only limited commercial possibilities would exist in many fields, the cost of development of modern equipment is high, and industrial or agricultural research laboratories geared to the task are lacking, especially in the under-developed countries. Provision of the initial investment for the development through pilot plants of the equipment and processes required could become one of the most important contributions to the development of industries specifically meeting the needs of under-developed areas. Such assistance might involve organizing and financing the necessary research, setting up experimental units to test out the processes or machines for small-scale production and constructing and testing working models. This type of work could be done by existing research laboratories, engineering firms and manufacturers of industrial equipment, who might work under contract for

some international organization, or by special research institutions established in collaboration with the Governments of under-developed countries. The results would be made generally available through publication, exhibition of models, and construction of demonstration plants.

5. *Dissemination of technical information.* Assistance can also be provided in the form of technical and scientific information. This assistance will be required by industrial and agricultural organizations or services and by technical research and teaching institutions, and will enable them to take advantage of recent developments throughout the world.

The appropriate distribution of books, periodicals and other technical information material will prepare a favourable background for the development programme. It will be an essential supplementary resource in nearly all enterprises and, in many cases, can be used with effect independently of such enterprises.

CHAPTER 5

Organization and finance

The Economic and Social Council in its resolution 180 (VIII) requested that the report submitted to it should make proposals concerning "ways of co-ordinating the planning and execution of the programme", and should also set forth methods (including special budgets) of financing the programme.

A. Organization

The general objective of co-ordination would be to ensure that the programmes of the several international organizations will effectively reinforce and supplement the economic development activities of the Governments concerned, that overlapping is avoided, that gaps are filled and that co-operative action is taken when needed. Effective co-ordination in carrying out expanded programmes of technical assistance will require the establishment or strengthening of working relationships (i) between recipient Governments and the international organizations, (ii) between these organizations themselves and (iii) between the "multilateral" programmes of these organizations and the "bilateral" technical assistance activities of individual Governments.

1. *Relationships between recipient Governments and international organizations*

Reference has already been made to the need for recipient Governments to give full, prompt and sympathetic consideration to the technical advice tendered by the international organizations, and to organize and maintain the administrative services necessary for the execution of the programme.

The extent and type of technical assistance to be provided will vary greatly in different countries and at different times. It is therefore impracticable to establish any uniform rules to govern the precise relationships which should exist between recipient Governments and the organizations providing assistance. The arrangements to be made

in each case will be a matter for agreement between the Government and the organization or organizations concerned. In some cases a general understanding with regard to the scope and purpose of the proposed co-operation and the financial arrangements involved will suffice. In others, because of the nature or extent of the operational responsibilities undertaken by the international organization or the financial commitments involved, the Government and the organization may find it desirable to conclude a formal agreement stating the terms on which the technical assistance is to be provided, including the obligations undertaken by each party.

The subjects to be covered by such arrangements will normally include the measures to be taken to ensure effective liaison and co-ordination between the administrative services of the country concerned and the international organization providing the assistance. They may also include provisions designed to contribute to the building up within the recipient country of national administrative services capable of carrying forward work initiated by the international organization. There may, for example, in cases where more than one government department is involved, be provision for the establishment of some national co-ordinating mechanism, such as an interdepartmental committee, in order to bring about the close co-operation between the administrative services concerned which may be essential for the effective and economical use of the assistance provided. The provisions that may be made for developing adequate national administrative services may range from the furnishing of advice on administrative procedures to the actual organization of joint operations on a major scale in which national officials work together with experts lent by the international organization until they are ready to take over full responsibility for the continuation of the work.[1]

[1] An interesting example of how such joint operations may be organized is furnished by the experience of several Latin-American countries with "joint fund agencies" set up in connexion with bilateral programmes of technical and other assistance. This type of agency administers a fund contributed for agreed purposes by the outside agency and by the host Government. The joint fund agency is legally and admininstratively a section of the appropriate Ministry of the host Government, on an equal footing with other branches of the Ministry but endowed with a special budget, part of which is contributed by the host Government and part by the outside agency, and the agency is headed by the chief of a technical team sent to the host country by the outside agency. A number of projects may be operated simultaneously, depending on the total budget at the disposal of the joint fund agency, the desires and needs of the host Government and the availability of local personnel to staff the projects. Each project is the subject of an agreement which has the force of a contract.

According to an account made available during the preparation of the present report, experience shows that under this type of arrangement the host Government

2. *Relationships between international organizations*

If assistance is to be supplied by several international organizations, if the contributions from these organizations are to interlock so as to achieve the maximum benefit for the development of the country concerned, and if duplication of effort, uncertainty as to competence and divergencies in national policies are to be avoided, careful attention must be paid to ensuring effective team-work among the experts representing these organizations working in the field.

At the international level there should be a central point at which:

(*a*) Each participating organization can inform the other organizations of requests to it for technical assistance;

(*b*) Important requests for technical assistance can be promptly discussed by the participating organizations;

(*c*) The participating organizations can consult before comprehensive missions and programmes of assistance involving several organizations are arranged;

(*d*) Programmes proposed and under execution by individual organizations or groups of organizations can be examined in relation to each other and, in the case of proposed programmes, before they have assumed final form;

(*e*) The participating organizations can exchange information on current developments in the field of technical assistance, including the progress of technical assistance rendered or projected by Governments and private organizations, and at which reports from the participating organizations and from Governments can be assembled;

(*f*) Background information relating to the needs and conditions of the various countries requiring assistance can be readily mobilized as and when required;

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is willing to assume a constantly increasing share in the financing of joint projects. Some of the reasons for this are: first, that the value of the work commends itself increasingly; secondly, that personnel are chosen solely for their technical suitability for the jobs to be done; thirdly, that national funds allocated to a joint fund agency are not subject to diversion from the original technical purposes for which they were provided; and fourthly, that the expenditure of funds is thoroughly planned ahead of time and is accurately accounted for afterwards. The joint fund agency provides a means of supplying technical aid at the rate at which it can be absorbed, utilized and integrated into the administrative system of an under-developed country. It makes possible the building up of a team of technicians who remain in the country long enough to become familiar with and to evaluate its special problems. At the same time, by providing effective in-service training of local technicians and administrative officers, it lays a firm foundation for the continuation of the work which the visiting experts have initiated.

(*g*) Periodic reports to the Economic and Social Council can be prepared.

For the purpose of the expanded programme it is proposed, therefore, that the Administrative Committee on Co-ordination (ACC) should set up its own Technical Assistance Committee (TAC) consisting of a representative of each participating organization.

In addition to the functions listed under (*a*) to (*g*) above, the TAC would have the functions in relation to the technical assistance programmes and special budgets of the international organizations set out in section B of this chapter.

A small and highly qualified staff would be provided whose full time would be available for the following duties:

(i) To convene and service the TAC and prepare committee documents;

(ii) To act as a clearing-house for information on technical assistance and in particular to collect and circulate to members of the TAC,

(*a*) Information regarding inquiries for technical assistance received by them,

(*b*) Programmes of the members of the TAC for technical assistance in the fields for which they are responsible,

(*c*) Reports on technical assistance rendered and projected;

(iii) To arrange for such preparatory studies in regard to requests and plans for technical assistance, as the TAC may request;

(iv) To prepare for the TAC, with the assistance of the organizations and Governments concerned, such periodic reports on the operations carried out under the expanded co-operative programme of technical assistance as may be necessary.

Appropriate arrangements would be made by the executive heads of the participating organizations for the assignment of members of their staffs to assist the staff of the TAC as necessary.

Organizations providing technical advisory services and assistance directly to particular Governments in matters falling within their competence would inform the TAC promptly in order to enable it to draw to their attention any wider considerations of which account should be taken affecting the problems of economic development in the country concerned.

3. *Relationships with programmes of bilateral assistance*

Organizational arrangements should ensure a proper co-ordination between the technical assistance supplied under the international programme and that furnished by one State to another under bilateral agreement. Such arrangements should:

(*a*) Facilitate the exchange of information and experience;

(*b*) Ensure that the greatest possible advantage is derived from co-ordinated efforts;

(*c*) Avoid as far as possible over-concentration of assistance in any given area;

(*d*) Ensure the most efficient use of the limited number of available technical personnel.

There would be great advantage, from this point of view, if Governments giving technical assistance on a bilateral basis, including that given to non-metropolitan territories, would supply relevant information to the various international organizations engaged in programmes of technical assistance. Recipient Governments would be expected to inform the international organizations concerned of assistance they are receiving from all sources, including that from inter-governmental organizations or private institutions.

B. Finance

Various methods of financing the programmes have been examined and although preferences for different methods of financing have been expressed by the Secretary-General of the United Nations and the executive heads of the specialized agencies, they have reached agreement on the proposals set out below:

(1) Each organization which considered it necessary would establish a special budget for technical assistance for economic development, and would invite its member Governments to make contributions to this budget over and above their contributions to its normal budget;

(2) Each organization would make agreements with its member Governments as to the currencies in which their contributions to its special budget would be made, and as to any conditions to be attached to them;

(3) Governments of recipient countries would normally assume responsibility for some part of the cost of the technical assistance with which they were provided, for example for local expenditures;

(4) The special technical assistance budget of the United Nations would be in two parts, covering respectively,

(i) A programme of technical assistance to be carried out by the United Nations itself,

(ii) A supplementary fund to be used by the Secretary-General, in consultation with the Administrative Committee on Co-ordination (*a*) to finance technical assistance projects to be carried out jointly by the participating organizations; and (*b*) to supplement the technical assistance budgets of these organizations when additional funds are required to facilitate the execution of essential projects. As in the case of funds provided under resolution 200 (III) of the General Assembly, this supplementary fund would not be used to finance the performance of functions or services which are a special responsibility of a specialized agency except in agreement with its executive head;

(5) The executive heads of the organizations concerned would consult together through the TAC before their proposed programmes of technical assistance and the relevant special budgets have assumed final form. The TAC would review these programmes and budgets in relation to the co-operative programme as a whole. On the advice of the TAC, the ACC would issue a report containing the proposed programmes and budgets, together with any comments it considered suitable. This report would be submitted to the Economic and Social Council and the General Assembly of the United Nations, and to the governing bodies of the specialized agencies;

(6) On the advice of the TAC, the ACC would each year submit a financial report to the Economic and Social Council and the General Assembly of the United Nations and to the governing bodies of the specialized agencies.

PART II

DETAILED PROPOSALS

CHAPTER 6

Introduction

Part II of this report describes the kinds of technical assistance which the Secretary-General of the United Nations and the executive heads of the specialized agencies believe their organizations can undertake to provide, if the necessary funds are made available, during the first and second years of "an expanded co-operative programme of technical assistance for economic development". Working together, they can, as chapter 3 of part I has indicated, provide or aid in the procurement of an immense variety of technical assistance separately or jointly in whatever way Governments may desire. Thus the proposals of the several organizations constitute a comprehensive plan.

Although the material here presented is, in most instances, in the form of projects which are described in some detail, it is clearly understood that the character, size, location and costs of the specific projects which will actually be undertaken will depend upon the requests received from Governments and on the resulting negotiations between those Governments and the international organizations concerned. The projects described are either extensions of technical assistance being currently provided, or are designed to meet accumulated requests which it has not been possible to satisfy, or derive from generally known needs. In due course the expanded programme will be based increasingly on specific applications from the countries desiring assistance; for the present, the projects described below must be regarded only as illustrations of what could be done in the various fields covered by the several organizations. The proposals of the various organizations set out in the following chapters are based upon their special knowledge and experience and on the results of consultations between them at the secretariat level: the executive heads of these organizations accept responsibility, however, only for the chapters relating to their own organizations. In many cases activities of the kinds described are already being carried on to a limited extent, and the desirability of an expansion of these activities

has been recognized by the conferences or governing bodies of the organizations concerned.

As has repeatedly been emphasized in this report development is a most complex process, affecting directly or indirectly every aspect of economic and social life. The various parts of this process and the various types of technical assistance necessary to further it cannot be isolated in separate compartments. They are constantly touching, overlapping and interacting.

The formulation and presentation of the expanded programme of technical assistance, however, is based upon the contributions which the different organizations can make to it. Such a division is not merely a matter of administrative convenience; there are practical reasons for adopting it. Each of the international organizations has established machinery and unique experience in certain fields: each of them has a staff of experts in its employ and has developed contacts which will enable it to secure additional specialists with minimum delay; each has made extensive studies of the needs of under-developed countries and of means of adapting available knowledge to meet those needs; and the policies of each one are directed by governing bodies on which experts of its member countries participate, including representatives of both the more and the less developed countries.

In all the discussions of this programme, however, the necessity for dealing with the complex problems of development as a whole and for co-ordinating activities in these various interrelated fields has never been lost from view. Each organization has recognized that its proposed programme must take full advantage of the programmes of other organizations and that many of their activities must be carried on jointly. These relationships have been pointed up in the course of the intensive discussions between the United Nations and specialized agencies covering all aspects of technical assistance for economic development. Certain changes have been made in the character and emphasis of individual programmes as a result of these discussions and provision has been made for permanent consultative and co-ordinating machinery. Therefore although subsequent chapters are presented as the programmes of particular organizations, a complex pattern of complementary, co-operative and combined projects is envisaged for the purpose of promoting sound and balanced development.

It should be emphasized that this kind of collaboration among the international organizations is not new. Despite the relatively short history of most of these organizations, they have an extensive back-

ground of co-operative activity. Typical of this form of activity are the arrangements between the United Nations and the Food and Agriculture Organization of which the joint FAO-ECAFE[1] and FAO-ECLA[2] working parties on agricultural requisites are examples.

WHO and UNESCO have worked together in a fundamental education programme of which health education was an important aspect. Field personnel of WHO and FAO are currently laying the basis for a joint project for malaria control and food production in South Asia. Personnel from WHO, FAO, the Fund and UNESCO have taken part in a comprehensive economic survey mission organized by the United Nations. The Bank and the Fund work closely together in making technical studies and in formulating recommendations for improvement of financial practices and achievement of financial stability in particular countries. Arrangements have been made in numerous cases for the seconding of personnel by one organization to another for a particular project, as for example the assignment of FAO experts to assist the Bank in studying the merits of agricultural projects involving investment.

The projected expansion of technical assistance and its extension into new fields will necessitate even closer co-operation between the United Nations and specialized agencies. Such co-operation is envisaged for many types of activity. Examples by no means exhaustive are the following: comprehensive technical assistance surveys to promote balanced development; the mapping and classification of resources; the management and use of water resources where power generation, flood control and navigation are involved as well as irrigation and drainage; the teaching of basic knowledge, skills and attitudes required for development including education for elementary health measures and in simple agricultural and mechanical techniques as well as literacy and migration and settlement programmes. These activities cut across a number of fields and would have to draw experts from several of the international organizations. It would be futile and wholly academic, however, to attempt at this stage to blue-print the organization of specific projects or the allocation of their costs. In some cases the organization of ambitious joint projects extending over a long period may be required. In others effective co-ordination can best be achieved by consultation among technicians

[1] Economic Commission for Asia and the Far East.
[2] Economic Commission for Latin America.

working in related fields. Successful collaboration must and will grow out of the practical requirements of specific cases.

Arrangements for joint activities may thus be worked out directly between the two or more organizations or in the case of projects requiring participation by several organizations and a high degree of integration special arrangements may be defined by the Technical Assistance Committee.

The estimated total cost of the technical assistance described by the several international organizations in the following chapters amounts to the equivalent of $35.9 million in the first year of the expanded programme and of $50.1 million in the second year divided between the United Nations and the specialized agencies as follows:

	First Year	*Second Year*
United Nations	$	$
Through United Nations itself	4,855,500	7,643,500
Through specialized agencies[a]	1,084,500	1,601,500
TOTAL	5,940,000	9,245,000
Specialized agencies		
International Labour Organisation	4,678,400	6,793,500
Food and Agriculture Organization	9,425,456	11,345,383
United Nations Educational, Scientific and Cultural Organization	6,150,000	10,705,500
International Civil Aviation Organization	516,200	1,007,400
World Health Organization	9,152,520	10,983,024
TOTAL, United Nations and specialized agencies	35,862,576	50,079,807

[a] Not included in the proposals of specialized agencies.

In so far as possible, the several organizations have used a uniform method of estimating the cost of the activities described based on their experience.[1]

It is of course clearly understood that the estimates included in this part of the report are and must at this stage remain very rough. They are not budget estimates in the usual sense of that phrase. They are designed solely for the purpose of arriving at an estimate of the

[1] In general it has been assumed that the personnel which will be required either in the field or at the headquarters of the several organizations would receive salaries ranging from $1,580 to $10,000 divided into three main categories with the averages in the respective categories being $2,500, $4,500, and $7,500. It has been assumed

order of magnitude of the expanded co-operative programme. It is essential that the funds appropriated during the first two years of the expanded programme should be made available to the international organizations in a manner which will provide them with the greatest flexibility possible in meeting the requests of Governments for assistance. Because of the special difficulty of predicting the extent to which different kinds of technical assistance will be requested and can be supplied during the first year of the expanded programme, it is important that the organizations be authorized to use during the second year any funds not expended at the end of the first year.

The programmes of the United Nations, the International Labour Organisation, the Food and Agriculture Organization, the United National Educational, Scientific and Cultural Organization, the International Civil Aviation Organization and the World Health Organization are set out in chapters 7 to 12 inclusive. Statements from the International Bank for Reconstruction and Development, the International Monetary Fund and the International Refugee Organization are included as chapters 13, 14 and 15 respectively.

In addition, there are two existing specialized agencies, the International Telecommunication Union and the Universal Postal Union, which have not participated in the preparation of this report. The International Telecommunication Union is the specialized agency concerned with telegraph, telephone and radio facilities and accordingly would be competent to provide technical assistance in these fields. Should the International Telecommunication Union, however, be unable to provide technical assistance in these fields, appropriate arrangements would have to be made for this assistance to be provided by the United Nations. A similar procedure would be appropriate in the case of the Universal Postal Union.

Finally, there are two specialized agencies, whose constitutions have been drafted by inter-governmental conferences but have not yet en-

that allowances will have to be paid to this personnel in accordance with the established practices of the several organizations and that the allowances would amount to approximately 33⅓ per cent of the total salaries paid. It has been further assumed that travel costs per person engaged in the expanded programme of activities will average $1,500 per year and that subsistence allowances for persons in the field would average $5 per day from international sources. An amount equal to 7 per cent of the total cost of activities has been allotted for administrative expenses and common services. The costs of fellowships and scholarships have been calculated at approximately $3,000 per fellow or scholar per year, covering travel, stipends, and other allowances. An attempt has been made to include the actual cost of all other items.

tered into force. These are the International Trade Organization and the Inter-governmental Maritime Consultative Organization. In each case the conference in question established an interim body—the Interim Commission of the ITO and the Preparatory Committee of the Inter-governmental Maritime Consultative Organization respectively. This report takes no account of and in no way prejudges the kinds and amounts of technical assistance, which it may be appropriate for these two organizations to provide.

In the case of the Inter-governmental Maritime Consultative Organization, its convention enumerates among the purposes and functions of the organization the encouragement of the general adoption of the highest practicable standards in matters of maritime safety and efficiency of navigation. These matters might be the object of technical assistance, more particularly in the form of advice given to Governments. In addition, a general function of the organization under the convention is to provide for the consideration by it of any matters concerning shipping that may be referred to it by any organ or specialized agency of the United Nations.

In the case of the International Trade Organization, economic development in general and technical assistance for economic development in particular were given an important place in the Havana Charter and in the other decisions of the Havana Conference. Accordingly chapter 16 contains a statement of the provisions of the Havana Charter, of the decisions of the Havana Conference and of the tentative conclusions of the second session of the Executive Committee of the Interim Commission set up by the Conference regarding technical assistance for economic development.

CHAPTER 7

Proposals of the United Nations

1. The United Nations programme of technical assistance for economic development is proposed as an expansion of the programme undertaken in accordance with resolution 200 (III) of the General Assembly. This resolution authorized the Secretary-General, in co-operation, where appropriate, with the specialized agencies, to carry out the following services upon request by Member Governments.

"(*a*) Arrange for the organization of international teams consisting of experts provided by or through the United Nations and the specialized agencies for the purpose of advising those Governments in connexion with their economic development programmes, the organization of such teams, of course, not to preclude the invitation of individual, or groups of, experts from the United Nations or from specialized agencies in connexion with problems in the fields of those specialized agencies;

(*b*) Arrange for facilities for the training abroad of experts of under-developed countries through the provision of fellowships for study in those countries or institutions which, in the particular fields of study, have achieved an advanced level of technical competence;

(*c*) Arrange for the training of local technicians within the under-developed countries themselves by promoting visits of experts in various aspects of economic development for the purpose of instructing local personnel and for assisting in the organization of technical institutions;

(*d*) Provide facilities designed to assist Governments to obtain technical personnel, equipment and supplies, and to arrange for the organization of such other services as may be appropriate in the promotion of economic development, including the organization of seminars on special problems of economic development, and the exchange of current information concerning technical problems of economic development."

2. The programme described in this chapter makes increased provision for the above services, adds certain supplementary services, and

provides for such equipment and supplies as may be necessary to carry out the various services. The estimated costs for the expanded programme are set out in the summary table at the end of this chapter. To the extent that these costs are met through the normal budget of the United Nations for the purpose of continuing activities authorized under resolution 200 (III), the amounts to be financed through the special budget for the expanded programme would be correspondingly reduced. The assumption has been made that costs payable in local currency will, as a rule, be met by the Governments of the under-developed countries receiving assistance; these costs have accordingly not been included in the estimates.

3. In accordance with resolution 200 (III), the United Nations programme is designed to offer a comprehensive range of facilities and opportunities to under-developed countries rather than actual plans for the development of these countries. The specific projects to be undertaken in the fields of activity of the United Nations will be worked out in consultation with the countries seeking assistance. Such concrete projects as are described in this chapter, therefore, are suggested for the purposes of illustration only.

In the execution of its programme of technical assistance the United Nations would make full use of the resources not only of the Secretariat at headquarters but also of the secretariats of the regional economic commissions. The regional secretariats would normally continue to receive requests for technical assistance from Governments within their regions and arrange for the provision of assistance either directly or through headquarters.

4. The reference to "questions of a social nature" in the Economic and Social Council resolution of 4 March 1949 is understood to mean that the programme must take account of: (*a*) the probable consequences of proposed economic developments in terms of the welfare of the population at large; (*b*) the social conditions, customs and values in a given area that will directly influence the kinds of economic development that may be feasible and desirable; (*c*) the specific social improvements that may be necessary in order to permit effective economic developments; (*d*) the social problems, particularly problems of dislocation of family and community life, that may arise as a concomitant of economic change. It is not understood that existing social programmes of the United Nations shall become part of the technical assistance programme for economic development, but rather that

through it there shall be such specific additional activities in the social field as are directly required for the economic development programme, to be carried out in close co-ordination with activities in the economic field.

5. The major types of services which it is proposed to make available under the expanded technical assistance programme may be summarized as follows:

(a) *Comprehensive exploratory surveys.* To assist under-developed countries in formulating their development programmes and determining the particular technical services they require;

(b) *Technical advisory services.* To arrange for the services of experts or teams of experts who will go to under-developed countries to assist them in the planning and execution of specific projects and in the improvement of their administrative and financial machinery as required for economic development;

(c) *Scientific and industrial research.* To assist under-developed countries, by scientific and industrial research, to overcome specific obstacles that impede their economic development and to exploit the resources of their region;

(d) *Training.* To assist under-developed countries in building up a domestic corps of technical and specialized personnel necessary for self-sustaining economic development;

(e) *Pilot and demonstration projects.* To assist in the carrying out of development projects that will serve as models to show how advanced techniques can be adapted and applied to the special circumstances of under-developed countries.

(f) *Dissemination of technical information.* To assist under-developed countries in obtaining technical information that is essential for their economic development.

6. Most of the services listed above are applicable to any or all fields in which technical assistance for economic development may be required. In many fields, however, there are specialized agencies with special responsibilities. It is accordingly proposed that the United Nations concentrate its activities in fields not so covered.[1]

[1] It is expected that when the International Trade Organization and the International Maritime Consultative Organization come into operation, they may be able to undertake some of the activities described in this chapter. The special positions of the International Telecommunication Union, the Universal Postal Union, the International Trade Organization, and the International Maritime Consultative Organization are set out in chapters 6 and 16.

(*a*) Perhaps foremost among these unassigned fields is the whole complex of activities related to the *manufacturing industries.* In one way or another, all under-developed countries need to expand and diversify their industries; they need assistance in determining the industries and industrial processes most suited to their resources and needs, in planning, constructing, equipping, managing and operating new industrial enterprises, and in introducing new machinery and techniques into existing industries. Similar assistance will be needed in connexion with the *extractive industries,* especially *fuel and metal* mining, where the application of modern techniques may result not only in augmenting the raw material supplies required for expansion of domestic industries but also in providing the exports needed to finance the external requirements of this expansion. Projects set out in a later part of this chapter illustrate specific ways in which it is believed the under-developed countries could be assisted in their efforts to intensify their industrialization.

(*b*) A characteristic obstacle to industrial expansion is lack of *mechanical power.* This lack of power often goes hand in hand with a lack of knowledge of possible resources (mineral, water or wind) for power production or of the most effective means of utilizing known resources. The United Nations should be able to arrange for such technical assistance as may be requested by under-developed countries to enable them to survey their resources, to choose the most suitable methods for the development of such resources as may be found and to proceed with the highly complex steps involved in the designing, construction, and maintenance of power plants and transmission systems. Where the production of power appears to depend on the *control and utilization of water resources,* under-developed countries may wish technical assistance to link the solution of their power problems with flood control, the prevention of soil erosion, the establishment of reservoirs for urban water supplies, improvement of inland water transport, and other related objectives.

(*c*) The fields of *inland road, rail and water transport* comprise another area in which action may be crucial for all phases of economic development. Improvements in the accessibility to raw materials and to markets and in the mobility of farmers and labourers will depend upon improved transport. Technicians and advisers can be provided to enable under-developed countries to survey their transport needs and possibilities, to appraise locally available construction

materials, and to improve and maintain their road, rail and water transport systems. Similar types of assistance may also be rendered in connexion with the establishment, improvement and maintenance of modern systems of *wire and wireless communications.*

(*d*) Development in all the above fields will require the use of materials, equipment, trained personnel and financial resources that are scarce in all under-developed countries. The most effective use of available means may require a careful over-all survey, followed by the formulation of long-term objectives and the allocation of resources to uses which are directly linked to these objectives. Few under-developed countries have thus far been able to carry out such over-all examinations and to evolve *comprehensive development programmes.* The United Nations, working in close collaboration with the specialized agencies, should when requested be in a position to assist under-developed countries in surveying and assessing their economic potentialities, in analysing the interrelated requirements of agriculture, industry, power, transport and other aspects of development, in establishing feasible targets, and in arranging for the properly phased expansion of the several branches of the economy by means of appropriate planning of investment and combined development of resources.

(*e*) Whether or not their development programmes are comprehensive, most under-developed countries require outside assistance in improving their *governmental administrative services.* Increasingly, Government services are essential for the *collection and analysis of statistical and economic data* required in development programmes, for the *formulation of economic and fiscal policies* and investment plans, and for the institution of measures to ensure that the benefits of development are equitably distributed among the entire population.

Through training programmes, expert advisers and assistance in the establishment of special institutes, it should be possible for the United Nations to help under-developed countries increase the efficiency of their administrative services, mobilize their financial resources, improve their systems of public finance and, in general, establish the economic and social climate essential for the promotion of economic development.

(*f*) Finally, under-developed countries may need assistance in their efforts to adjust the requirements of economic development to the traditions, customs, and habits of their peoples, and conversely

to adjust the social conditions and institutions of their peoples to the needs of economic development. A general understanding of the interrelationship between economic development and social development is an important requirement in any comprehensive programme. Under-developed countries may need assistance in analysing their *population* problems and in dealing with population movements; in devising appropriate means for introducing changes that are necessary to improve standards of living and enjoyment of basic human rights; and in strengthening their *social welfare services* to meet new demands arising from economic development. It is essential that proper measures be taken to ensure that economic changes do not in fact create social distress; that families in areas undergoing industrialization are properly *housed* and settled and that slums are avoided; that socially pathological conditions, such as delinquency and narcotic addiction, do not undermine the efficiency of the population. International organizations, able to draw upon the experience and cultural backgrounds of all their members, are perhaps especially qualified to supply outside technical assistance in these *social fields.*

7. Because problems of economic development are closely interrelated, many aspects of the fields described above are of direct concern to one or more specialized agencies. The co-operation of the appropriate agencies will therefore be necessary in such fields. For example, important aspects of resource surveying and of water control and utilization will be of concern to the Food and Agriculture Organization; similarly, housing will require the assistance of the World Health Organization for public health aspects; and practically all of the fields may be of concern to the International Bank for Reconstruction and Development, in connexion with pending or prospective application for loans. The separate cost estimates in this chapter indicate the instances in which there would be made available, from the special budget of the United Nations, funds required by specialized agencies to render necessary services in connexion with comprehensive surveys and other projects undertaken in co-operation with the United Nations. It is assumed that all such services as the Bank may undertake will be financed out of funds available to the Bank.

8. In preparing this programme, the Secretary-General has considered that the size of the programme will be defined not only by the funds

made available for it, but also by the rate at which the United Nations can effectively expand its facilities for providing technical assistance in the first two years of the programme. The rate of expansion in future years of the long-term programme will be based on the experience during these initial years.

9. The remainder of this chapter sets out in some detail the types of technical assistance, illustrated by projects, which could be provided by the United Nations upon request by Governments, with the co-operation, where appropriate, of specialized agencies.

Comprehensive exploratory surveys

10. Where specific needs for technical assistance are clear, it will be possible to extend the required assistance as soon as negotiations are completed and arrangements made. Unless adequate information is already available, however, an extended programme of assistance may often require a comprehensive exploratory survey, carried out by a team of experts supplied through the United Nations and specialized agencies.

The main purpose of such a survey would be to assist the requesting country in analysing its problems and in formulating a development programme that would define the most feasible methods of achieving improved living standards and set out the priorities to be accorded to different projects. The survey would indicate the ways in which various services available through the United Nations and the specialized agencies could be so utilized as to interlock and reinforce one another and provide maximum support for the country's own efforts at economic development. The international team of experts would work in close co-operation with the Governments of the country concerned, and would take account of the existing economic structure, the governmental machinery, the natural, human and financial resources of the country, the social institutions and values of the people, and other local characteristics bearing on economic development.

At present facilities exist under resolution 200 (III) for the organization of three comprehensive exploratory missions in 1949. It is suggested that four missions be provided for in the first year of the expanded programme, and five in the second year.

Available experience indicates that each mission might, on an average, comprise a total of eight to fourteen persons and last four to six

months (including time spent both in the field and at headquarters). The degree of participation of the various specialized agencies in comprehensive exploratory missions would depend upon the special circumstances of the area concerned.

The average cost for each mission, including expenses both in the field and at headquarters, is estimated at $100,000[1] The total costs of exploratory missions for the first two years of operation would thus be as follows:

	Number of missions	*Total cost*
		$
First year	4	400,000
Second year	5	500,000

Technical advisory services

11. It is anticipated that under-developed countries will require advisers, consultants and technicians in large numbers and in nearly every major field of economic, social and administrative activity related to economic development. In a great many cases, the needs for such services are sufficiently well known to permit immediate action; in others, exploratory surveys would indicate the needs. Experts or teams of experts might serve as technicians or supervisors working directly on a field project, for example, on the construction of a dam, or on a housing project; they might serve as advisers, attached for extended periods of time to different branches of the requesting Government, for example, in connexion with the organization of administrative services or the drafting of economic and social legislation based on international experience; they might serve as consultants for very brief periods on specialized aspects of development problems, for example, as statistical consultants on the initiation of a system of collecting data on production, or as engineering consultants in connexion with the introduction of certain industrial processes.

Fields in which technical advisory services may be requested from the United Nations are illustrated in paragraph 6 above. In certain cases the United Nations may arrange to send members of its staff on technical missions, but in the majority of cases, it will be necessary to arrange for the services of experts outside the regular staff.

[1] Of this amount it is estimated that, on the average, $33,000 would be required for allocation to specialized agencies out of the United Nations special budget, in order to enable them to extend necessary related services.

It is estimated that the cost to the United Nations for sending a technical expert to an under-developed country for one year will, on the average, be approximately $15,000. This includes salary, allowances and travel costs, central administrative costs and the costs of materials that may be required by the expert in the field, as well as the costs involved in the preliminary orientation of the experts to ensure that they are acquainted with the social, economic and cultural characteristics of the countries where they will serve. While the salaries received by the highly qualified experts may in many cases be considerably lower than the salaries they would normally receive, it is nevertheless believed that, as in the past, many eminent people will be willing to place their services at the disposal of the United Nations for the realization of international goals. The total costs to the United Nations for technical advisory services in the first two years of the programme are estimated as follows:

	Number of advisers and technicians (on a man-year basis)	Cost to the United Nations
		$
First year	60	900,000
Second year	100	1,500,000

Scientific and industrial research

12. It cannot be assumed that all development problems of under-developed areas can be solved by the application of existing techniques and knowledge. Indeed, some of the most critical problems may call for intensive scientific study. It is suggested that the United Nations and the specialized agencies assist under-developed countries in carrying out research on selected problems of critical importance to their economic development. Research centres might be established not only to study the chief conditions retarding the development of the area, but also to investigate possible means of exploiting more fully the various resources of the area. Assistance in research could also be provided by the sending of certain materials to research laboratories in more scientifically advanced countries for analysis and experimentation.

The United Nations would be concerned primarily with the application of scientific research to practical problems in fields described in paragraph 6. The co-operation of specialized agencies may often be required, particularly of UNESCO.

An illustration of the type of activity envisaged would be a research project on the possible industrial utilization of tropical vegetation. For instance, there appears to be enormous scope for experimentation in the use of bamboo and mangrove, and of many other profusely growing tropical plants, for the purpose of making wood pulp and textiles. In many tropical countries there are no adequate petroleum resources and the scope for research on petroleum substitutes also appears to be great. Yet relatively little investigation has thus far been made of the utilization of tropical raw materials for this purpose. Lacking adequate coal resources, many of these countries are progressively denuding their forest resources for fuel use. There is consequent need for research in the most efficient methods of preparing charcoal. There is also a great need for the development of methods of smelting iron ore with non-coking coal which is available in many countries. Research projects along these lines might be undertaken with prospects of fruitful results within a relatively short time.

It would appear advantageous to establish centres for industrial research in the utilization of raw material resources on a regional rather than a national basis. The United Nations, co-operating with the specialized agencies, might sponsor the establishment of such regional centres and the countries of the region should themselves be able to meet a substantial part of the cost. For example, they could provide the land, buildings, and the local personnel, and meet all costs payable in local currency. The United Nations would provide the experts that would have to come from outside the region and would pay for such equipment as might have to be imported into the region. However, it is thought that for many types of problems which are in most urgent need of investigation, elaborate and expensive equipment is not generally required. The foreign scientists and technicians could be replaced in time by nationals of the region who in the early years of the programme could get valuable training under the United Nations fellowship programme as well as in these regional laboratories.

In addition to research in the industrial exploitation of natural resources, the United Nations might render research services required in various other fields, including, for example, research on social problems, customs and institutions, which in certain under-developed areas are known to present the most formidable obstacles to economic development.

It is proposed that the following funds be allocated for scientific and industrial research:

	Expenditures $
First year	400,000[1]
Second year	500,000[1]

PILOT AND DEMONSTRATION PROJECTS

13. One of the most effective means of promoting economic development in under-developed areas may be through projects of limited scope which can serve as models for similar developments in other parts of the country or region concerned. Pilot and demonstration projects would be designed to show how modern skills and techniques could be adapted to the specific needs, resources and circumstances of the area in question. The following is an illustrative list of such projects:

(a) *Pilot plants for industry.* The industrial equipment and processes of the highly industrialized countries often tend to be the product of technical developments designed to meet the requirements of huge domestic and foreign markets. Such equipment and processes are not always equally economical when applied to the more restricted needs of the less-developed countries; to meet those needs the industrial technology of the highly developed countries may have to be adapted to local conditions rather than transplanted. It is therefore proposed that the United Nations undertake to assist under-developed countries in constructing pilot plants for the purpose of developing industrial processes, techniques and equipment specifically adapted to the needs and to the available raw materials and other resources of the area. This would ordinarily involve initial research on the use of local materials, the setting up of a small pilot plant for experimental purposes, and finally the construction and testing of actual working models. The United Nations could provide the experts and some of the equipment required for these purposes. Once a successfully operating small industrial plant was established, the cost of putting a process into commercial operation would have to be borne by other sources.

[1] Of this amount it estimated that, on the average, one-third would be required for allocation to specialized agencies out of the United Nations special budget, in order to enable them to extend necessary related services.

Pilot plant projects can probably best be carried out through arrangements with existing laboratories in more highly developed countries and with engineering and manufacturing firms which might operate under contract.

The specific fields in which development of processes and equipment suitable for under-developed countries is needed cover a wide area and include: the production of building materials; the manufacture of insecticides and fertilizers from locally available materials; food storage and preservation in tropical countries; utilization of wood waste for the production of animal feed; utilization of the by-products of chemical industries. (In connexion with projects for pilot plants, it may be desirable for the United Nations to establish a standing committee of industrial and engineering consultants.)

It is not possible to predict how long it would take to develop any given industrial process. However, it is estimated that the average cost of an industrial pilot plant (not including the site and buildings and other expenses to be borne by the Government of the country) would be approximately $125,000 per year until the project is completed. If it is assumed that three such plants would be started during the first year and that three more would be added during the second year (i.e. six would be in operation during the second year), the total estimates for industrial pilot plants for a two year period would be:

	Number of industrial pilot plants	Total cost
		$
First year	3	375,000
Second year	6	750,000

(b) *Combined development of resources.* The most effective use of the resources of a given area can often be made by combining the development of the several resources to achieve a variety of purposes. The development of the land resources could thus be designed not only to raise food but also to conserve water and to prevent soil erosion; the development of the water resources could be designed to provide electric power for industrial production and also to control floods and possibly aid navigation; the development of industrial facilities could take advantage of the available mineral and other raw material resources as well as the power that could be made available, etc. To demonstrate the possibilities of combined

resources development, the United Nations, in co-operation with specialized agencies, could assist Governments in the selection of small areas suitable for this purpose and in the planning and promotion of an integrated economic and social development.

A team of international experts would work with a local staff in the task of surveying and appraising resources and programming their use in relation to the needs of the area. They would advise on the various measures believed essential for a well-rounded development and would consider the feasibility of establishing different industrial and commercial enterprises; they would also suggest techniques of community organization and improvement in conjunction with the development of the resources. The United Nations and the specialized agencies would contribute only professional services and materials essential to the work of the technicians. Projects of this kind, carried out in a small area, should serve to stimulate similar projects in other areas and provide valuable experience and training for local personnel.

It is estimated that the average cost of such a project would be approximately $225,000[1] (excluding costs to the local government). The total costs of development projects for a period of two years are estimated as follows:

	Number of combined Resources development projects	Total cost
		$
First year	2	450,000
Second year	3	675,000

(c) *Demonstrations of road construction.* In under-developed countries having a critical need for improved road transport, demonstrations of road construction might be carried out by missions lasting approximately six months composed of a small group of highway engineers, familiar with technical problems and working conditions in under-developed countries. Working with local personnel, they would select an area for the demonstration, appraise local construction materials, and assist in the surveying, planning, and construction of new roads, or the reconstruction of existing roads.

[1] Of this amount it is estimated that, on the average, $112,500 would be required for allocation to specialized agencies out of the United Nations special budget, in order to enable them to extend necessary related services.

(d) *Demonstrations of natural resources surveying.* In many underdeveloped areas, no adequate appraisal of natural resources has ever been made. Careful surveys may reveal valuable unknown resources. Furthermore, without adequate surveying of resources, development projects, such as the building of dams or roadway systems, may result in costly mistakes.

A small team of experts supplied through the United Nations and specialized agencies, working with local personnel, could survey and map a limited area with respect to its land, water, minerals, geological structure, vegetation and other natural resources. The most advanced survey and cartographic techniques would be employed, including the construction of maps from aerial photographs.

(e) *Demonstrations of mass housing for industrialized areas.* Industrial development involves a new concentration of population in an area which, in most cases, is not provided with the appropriate housing to receive the influx. Slums may quickly develop, breeding disease, delinquency and other pathological conditions. The situation tends to be aggravated by the fact that the new inhabitants of the industrial community are often not equipped by tradition or habit to cope with the problems of mass living in their new environment. Housing difficulties may become particularly acute in tropical areas undergoing industrialization.

A team of housing experts might be dispatched to areas being industrialized in order to plan a model community, adapting modern techniques of mass housing and community planning to local conditions. Working together with local experts, they would appraise available construction materials, advise on the choice of sites and on sanitary measures, prepare designs and working drawings, supervise the construction of the first units and provide advice and guidance during the first months of tenancy. Thereafter, the local experts could take over, although it might be desirable to have one expert return after approximately a year's time to give advice on maintenance and other problems likely to arise.

It is estimated that demonstration projects in such fields as road construction, surveying of natural resources and mass housing would cost approximately $125,000[1] each for the personnel and equipment to

[1] Of this amount it is estimated that, on the average, $41,600 would be required for allocation to specialized agencies out of the United Nations special budget, in order to enable them to extend necessary related services.

be supplied internationally. The total costs for such projects for a two years period are estimated as follows:

	Number of projects	Total cost
		$
First year	3	375,000
Second year	5	625,000

TRAINING

14. One of the most obvious requirements for sound and lasting economic development is the formation in each under-developed country of a body of trained personnel. The long-term objective of any such programme must be to develop training facilities within the under-developed countries themselves, and emphasis must be laid upon training those who can in turn train others. The United Nations will be particularly concerned with assistance in the training of managerial and professional personnel in fields described in paragraph 6 above.

(a) *Temporary institutes, seminars or conferences.* A first step can be taken by the organization within under-developed countries of temporary institutes, seminars or conferences. These may be conducted for professional and governmental personnel from a single under-developed country or from a group of such countries in a given region. A small team of visiting experts would give intensive training in the application of modern techniques to the particular developmental problems of the country or region concerned.

An illustration of this type of service would be a temporary institute for training in population census and survey methods. Information on the size, structure and characteristics of a country's population is essential for the analysis of many economic problems of under-developed areas, particularly in relation to the nature and distribution of the available labour force, future growth in population, future needs for housing and education, standards of living, etc. A large number of under-developed countries have never yet taken a population census. Once a census has been taken, surveys using a small but representative sample of the population can be carried out on a wide variety of subjects.

Upon request, the United Nations might, therefore, in co-operation with appropriate specialized agencies, arrange for a team of experts to

organize a temporary training institute in population census and survey methods, adapting international standards to the particular circumstances and resources of the country concerned. The operation of such an institute in a particular locality would ordinarily involve the following steps: (1) survey of existing facilities and data; (2) initial training of local personnel in census methods, including the preparation of questionnaires, interviewing, processing and analysis of data, the use of tabulating machines, sampling methods and other statistical procedures; (3) planning, preparation and execution of a limited trial census and of a sample survey; (4) discussion and evaluation of the results of the trial census and the sample survey.

Similar institutes could be conducted to provide training in censuses of agriculture (as has already been done in co-operation with the Food and Agriculture Organization) or in the collection, analysis and dissemination of statistics on industrial production, trade, prices, cost of living, national income, etc.

In accordance with the needs of under-developed countries, other temporary institutes, conferences or seminars might be conducted in any of the fields of primary concern to the United Nations, as illustrated in paragraph 6; for example, in:

General economic development techniques, including problems of survey and appraisal of resources, setting of targets, allocation of resources, organizational and legislative requirements, administrative machinery, etc.;

Public finance, including techniques of budget planning, methods of taxation and debt management;

Social welfare services in connexion with economic development, including legislative and administrative measures to deal with problems of dislocation, social problems of industrialization, the organization of community services, problems of settling migrant families, prevention of juvenile delinquency in periods of economic and social transition, etc.

It is estimated that each such project would last approximately six months, including planning and travel time. Approximately three to six experts would be required (either regular staff members of the United Nations Secretariat or experts specifically recruited for the purpose), and approximately forty to eighty national or regional representatives would participate. Temporary institutes, conferences or seminars would be operated in close relationship with other types

of services. A temporary institute might become the basis for a permanent institute. Conferences or seminars might be held in connexion with pilot and demonstration projects, and they might also provide a valuable background for senior experts who would later go, on a fellowship basis, to more highly developed countries.

It is estimated that each temporary institute, conference or seminar would cost, on the average, $50,000.[1] Total estimates for a two-year period are as follows:

	Number of temporary institutes, seminars or conferences	Total cost
		$
First year	5	250,000
Second year	8	400,000

(*b*) *Permanent technical training institutes.* The very lack of industries in under-developed countries means that there is little opportunity for on-the-job training of future managerial and professional personnel. There are, furthermore, very few technical training institutes in these countries. Institutes that do exist generally lack the tools and the equipment needed to provide practical application of academic knowledge. International efforts can be made at once to build up the staff and equipment of these existing training institutes. Where new institutes are needed, it may be desirable to await the recommendations of an exploratory mission before they are established; it may often be appropriate to create facilities that could serve several countries of a region. In certain subjects it may be advisable to concentrate upon a single international institute.

A permanent *technological institute* would provide facilities for intensive training in mechanical, civil or electrical engineering, industrial chemistry, metallurgy, power generation, textile production, etc. It is proposed that, on the average, services amounting to $385,000[2] be allocated for assistance in the building up of an existing technological institute or in the establishment of a new institute. This allocation would be for experts and equipment provided internationally, but not for the costs of local technicians and of buildings which would

[1] Of this amount it is estimated that, on the average, $16,000 would be required for allocation to specialized agencies out of the United Nations special budget, in order to enable them to extend necessary related services.

[2] Of this amount it is estimated that, on the average, one-third would be required for allocation to specialized agencies out of the United Nations special budget, in order to enable them to extend required services.

be provided by the Governments concerned. It is further proposed that these institutes should receive support from the United Nations and specialized agencies on a diminishing basis over a period of perhaps five years in all and that during the second year this assistance should amount to $215,000[1] per institute. If two institutes are assisted in the first year and two more in the second year, the total estimated costs would be the following:

	Number of technological institutes assisted	Total cost
		$
First year	2	770,000
Second year	4	1,200,000

In addition to such technological institutes, assistance in the establishment or expansion of other permanent training institutes may be requested by under-developed countries—for example, training institutes in the *commercial and financial fields,* in *public administration,* and in *social welfare service* and social studies on problems directly related to economic development. It is proposed that total allocations of the following nature be made for such additional training institutes:

	Expenditures for miscellaneous training institutes
	$
First year	300,000[1]
Second year	450,000[1]

(c) *Fellowships and scholarships.* Pending the creation of more adequate training facilities within the under-developed countries, awards for training and study abroad constitute an important form of technical assistance. Fellowships would be granted to senior experts for a few months' study and observation of advanced techniques used in industrial, commercial and governmental establishments. Such fellowships would be available to persons who would already have had considerable experience in activities related to the economic development of their countries and who, after completing a period of study, would return to such work in their native countries.

Because many of the least developed countries may find it difficult

[1] Of this amount it is estimated that, on the average, one-third would be required for allocation to specialized agencies out of the United Nations special budget, in order to enable them to extend necessary related services.

to put forward candidates who would qualify under the fellowship programme, it is also proposed to organize a scholarship programme, designed to train students in the technical fields that especially need development in their countries. Students on scholarships would spend several years studying in technical training institutions of more highly developed countries.

In general, the United Nations would be concerned with fellowships and scholarships in the fields set out in paragraph 6 of this chapter. It is expected that wherever comprehensive exploratory missions are undertaken, they may provide valuable recommendations for the types of fellowships and scholarships best suited to the needs of the different under-developed countries.

It is estimated that fellowships for six months or less and scholarships for approximately a year will each, on the average, cost the United Nations about $3,500 (including travel, allowances, tuition, administrative expenses, etc.). The total estimated costs for the fellowship and scholarship programme in the first two years are as follows:

(i) *Fellowships:*

	Number of fellowships	Cost of fellowships
		$
First year	200	700,000
Second year	300	1,050,000

(ii) *Scholarships:*

	Number of scholarships	Cost of scholarships
		$
First year	200	700,000
Second year	300	1,050,000

(iii) *Fellowships and scholarships:*

	Total cost
	$
First year	1,400,000
Second year	2,100,000

(d) *Exchange of training opportunities among under-developed countries.* In many instances the facilities most useful to an under-developed country may be found not in highly developed countries but in countries of the same region which have faced and solved similar

problems with similar resources. Under-developed countries may thus be able to take advantage of each other's experiences by offering training facilities in the fields in which they have made the greatest advances and by seeking in other under-developed countries facilities in fields in which they have made least progress. Training exchanges of this kind can be most effectively organized by the secretariats of the United Nations regional economic commissions. For example, Ceylon, through the secretariat of the Economic Commission for Asia and the Far East, has offered facilities for training and research in cocoanut oils and fats, in which Pakistan and Cambodia have expressed an interest; China has offered in-plant training facilities in textiles manufacturing, in which Ceylon, India, and Pakistan have expressed an interest; India has offered facilities in crockery manufacturing in which Ceylon has expressed an interest. In such exchanges of training facilities, the work of the international organization consists primarily in making the necessary arrangements and in inspecting facilities, while the Governments exchanging the facilities bear the major costs. It is estimated that an expansion of these exchanges of training opportunities during the first and second years of the technical assistance programme would call for the following expenditures:

First year, $30,000; second year, $45,000.

Dissemination of technical information

15. The provision of technical information to under-developed countries through books, journals, pamphlets and other means will undoubtedly bulk large as a service to be rendered throughout the duration of the technical assistance programme. Under-developed countries will need technical information in many fields. A large amount of suitable material is already available, and can be procured and distributed as required. In other cases, however, it will be necessary to prepare material specifically adapted to the background and problems of under-developed countries. Four main types of projects are envisaged under the information services:

(a) *The distribution of existing scientific and technical literature* on subjects directly related to economic development. It is assumed that the actual machinery of distribution will be handled by UNESCO. The United Nations would be concerned with the selection and pur-

chase of technical books, periodicals and other literature in fields described in paragraph 6. The estimated costs are:

First year, $100,000[1]; second year, $200,000.[1]

(b) *The publication of an economic development bulletin.* It is proposed that this bulletin (after several trial copies in order to determine the most suitable content and form) be published quarterly. It might contain items and articles of the following nature:

(1) News on progress in economic development in different fields and in different countries. This would be based on information obtained from the secretariats of the regional economic commissions, from Governments, from United Nations field teams, and from other appropriate sources;

(2) Technological news—brief notes on techniques, materials, equipment, processes, inventions and research findings which seem important enough to be called to the immediate attention of those concerned with the economic development of under-developed countries;

(3) News on the activities of the United Nations and specialized agencies or other important international organizations in the field of economic development;

(4) Substantive articles dealing with fundamental economic and social aspects of development;

(5) Bibliographies and book reviews on selected topics relevant to economic development.

The following is an estimate of the yearly cost of such a quarterly bulletin:

First year, $60,000[2]; second year, $60,000.[2]

(c) *The publication of technical pamphlets,* designed particularly for under-developed countries. The following is an illustrative list of topics on which the United Nations might arrange for the preparation and publication of technical pamphlets:

1. A guide for making economic surveys of resources;
2. Techniques of market analysis adapted to needs of under-developed countries;

[1] It is estimated that 12½ per cent of these amounts would, on the average, be expended through UNESCO to cover distribution costs.

[2] Of this amount it is estimated that, on the average, $20,000 would be required for allocation to specialized agencies out of the United Nations special budget, in order to enable them to extend necessary related services.

3. Budget accounting and fiscal practices related to economic development;
4. Modern road building materials and how and where they can be used;
5. Methods of construction engineering suitable to tropical areas;
6. Techniques of community planning and improvement;
7. New methods suitable for small-scale production of industrial materials from agricultural waste products.
8. Small-scale manufacture of pigments and paints;
9. Low temperature carbonization of coal and wood waste;
10. Methods suitable for small-scale manufacture of fertilizers;
11. Methods of power generation from windmills and small hydraulic turbines;
12. Design and construction and operation of lime-burning kilns and furnaces;
13. Design, construction and operation of small-scale gas producers;
14. Methods of financing low-cost housing;
15. Methods of introducing the production of nutritive and remunerative agricultural crops in the place of opium, poppy, coca shrub, *cannabis sativa* and other products from which narcotic drugs are derived (to be prepared in co-operation with FAO and WHO);
16. Methods and results of experiments in changing social customs and habits.

The estimated cost of pamphlets to be issued by the United Nations is as follows:

	Number of pamphlets	Cost to the United Nations
		$
First year	10	100,000
Second year	20	200,000

(*d*) *A clearing house* for information regarding available technical services, equipment and research facilities. Although the United Nations cannot directly supply answers to most questions concerning industrial equipment, supplies, inventions, patents and other services available from various public organizations or private firms and laboratories, it should be possible for it to act as a clearing house which would direct requests to the proper places. The costs for such clearing house services are estimated as:

First year, $30,000; second year, $40,000.

SUMMARY TABLE OF PROPOSED UNITED NATIONS EXPANDED PROGRAMME OF TECHNICAL ASSISTANCE FOR ECONOMIC DEVELOPMENT

Types of technical assistance	Estimated expenditures through the United Nations		Estimated expenditures through specialized agencies[1]		Total estimated	
	First year	Second year	First year	Second year	First year	Second year
	$	$	$	$	$	$
I. Comprehensive exploratory surveys	267,000	334,000	133,000	166,000	400,000	500,000
II. Technical advisory services	900,000	1,500,000	—	—	900,000	1,500,000
III. Scientific and industrial research	267,000	334,000	133,000	166,000	400,000	500,000
IV. Pilot and demonstration projects						
A. Pilot plants for industry	375,000	750,000	—	—	375,000	750,000
B. Combined resources development projects	225,000	337,500	225,000	337,500	450,000	675,000
C. Miscellaneous demonstration projects	250,000	416,000	125,000	209,000	375,000	625,000
V. Training						
A. Temporary institutes, seminars or conferences	170,000	272,000	80,000	128,000	250,000	400,000
B. Permanent training institutes						
(i) Technological	514,000	800,000	256,000	400,000	770,000	1,200,000
(ii) Other	200,000	300,000	100,000	150,000	300,000	450,000
C. Fellowships and scholarships						
(i) Fellowships	700,000	1,050,000	—	—	700,000	1,050,000
(ii) Scholarships	700,000	1,050,000	—	—	700,000	1,050,000
D. Exchanges of training facilities	30,000	45,000	—	—	30,000	45,000
VI. Dissemination of technical information						
A. Distribution of technical literature	87,500	175,000	12,500	25,000	100,000	200,000
B. Economic development bulletin	40,000	40,000	20,000	20,000	60,000	60,000
C. Technical pamphlets	100,000	200,000	—	—	100,000	200,000
D. Clearing house services	30,000	40,000	—	—	30,000	40,000
TOTALS	4,855,500[2]	7,643,500[2]	1,084,500	1,601,500	5,940,000[2]	9,245,000[2]

[1] Amounts as required to enable specialized agencies to render services in projects undertaken in co-operation with the United Nations, such amounts to be made available through the special budget of the United Nations for technical assistance.

[2] To the extent that these costs are met through the normal budget of the United Nations for the purpose of continuing activities authorized under resolution 200 (III), the special budget would be correspondingly reduced.

CHAPTER 8

Proposals of the International Labour Organisation

Improved conditions of life and labour are both a prime objective of economic development and a means to its achievement. The success of development plans will be judged in large measure by the extent to which they raise the living standards of working men and women; and this success will itself depend in the last resort on the attitude and skill of the individual workers by whom the plans are executed.

The problems involved in the constitution and effective employment of a skilled and healthy force of workers, in enlisting their full co-operation in new tasks and in promoting their welfare and that of their families, are as complex as they are important. Technical assistance in this field, which is a central concern of the International Labour Organisation, is therefore an indispensable part of the expanded programme outlined in the present report.

Such assistance is already being given on a limited scale. With additional resources it could be greatly expanded. There is a long record of experience in dealing with labour and social problems in a wide range of environments; the results of this experience have been analysed and compared; in many cases standards of sound practice have been set up by the International Labour Conference or by other representative and expert bodies; and, in a number of countries, ILO experts have given assistance in the practical application of these standards. As a result there is available for the solution of the labour problems associated with economic development a body of technical knowledge and skill which can help the countries concerned to avoid costly mistakes, to adapt to their needs the methods which have proved most successful elsewhere and to develop new industries in such a way as to promote both the efficiency and the welfare of those engaged in them.

The following pages outline briefly the kinds of technical assistance which it is suggested the ILO should provide as part of an expanded programme. These proposals, like those put forward in other chapters of this report, are entirely tentative. The programme as a whole is still in an early stage; the necessary funds have yet to be provided; the work

contemplated could be undertaken only at the request of the countries concerned. Moreover, the proposals themselves have still to be considered by the Governing Body of the International Labour Office.

The proposals have been prepared by the Director-General of the International Labour Office on the basis of a general authorization given by the Governing Body to co-operate in the preparation, through the Administrative Committee on Co-ordination, of the comprehensive plan for an expanded co-operative programme of technical assistance for economic development envisaged by the resolution of the Economic and Social Council. In their present form the proposals take account of comments and suggestions made on the basis of earlier drafts by representatives of the Secretary-General of the United Nations and of the executive heads of the other specialized agencies. The proposals will be laid before the Governing Body, with which will rest the responsibility of deciding the scope and nature of the contribution which the ILO could make and the manner in which the ILO would be prepared to participate in the proposed programme.

The proposals cover the following fields:

I. The relation of economic development policies to labour income and employment;

II. Employment, training and migration;

III. Industrial relations, including machinery for the settlement of industrial disputes;

IV. Wages policy: systems of wage payment; machinery for the determination of minimum wage rates;

V. Industrial safety;

VI. Occupational health;

VII. Enforcement of labour legislation including labour inspection;

VIII. Employment problems of women and young workers;

IX. Development of labour statistics;

X. Social security;

XI. Co-operation and handicrafts;

XII. Employment, wages and conditions of work in agriculture;

XIII. Maritime problems;

XIV. Technical advice in connexion with specific industries;

XV. Labour and social problems of the indigenous populations of Latin America.

In the case of each field there is a brief description of the general nature of the proposed programme, followed by indications of its rela-

tionship to economic development, the regions to which it would apply, the projects it includes, the experience which qualifies the ILO to deal with the subjects covered, proposals for co-operation and co-ordination with the United Nations and the other specialized agencies, and a provisional estimate of the cost of the programme in its first and second years of operation calculated according to the standard methods adopted for the purposes of the present report.

It will be noted that the proposals are so designed as to be mutually complementary; many of the subjects covered are closely related and work done in connexion with each will be of assistance in dealing with others. In a number of cases, for example, assistance would be given in the organization of training facilities for administrative and technical personnel in the countries concerned; and in any country which wished to avail itself of such assistance in two or more fields at the same time the various training programmes would be organized on a fully co-ordinated basis.

At the end of the chapter the provisional estimates of the cost of the various proposed activities are brought together in a single summary table.

I. The relation of economic development policies to labour income and employment

General nature of programme

An analysis by experts, followed by consideration by a representative committee or conference, of the probable effects on the productivity, employment, income and welfare of labour of the various alternative policies which might be adopted to promote economic development in different regions. The conclusions reached would afford guidance to the Governments concerned and to the ILO and other expert missions called upon to advise on economic development policies affecting the productivity and welfare of labour. The programme would be completed within two or at most three years.

Relation to economic development

To the mass of working people in the under-developed countries the value of economic development will be measured mainly by the

extent to which it assures them steady employment and rising income. If they are to put forth their best efforts and if their full support is to be secured for the far-reaching changes in traditional ways of life which such development requires, they must be satisfied that the policies adopted are such as will bring them these desirable results. By throwing light on the nature of the problems involved and on the probable effects of different types of policies the investigations proposed in the present programme would assist the Governments concerned in framing their policies in such a way as to enhance labour productivity, to promote the full utilization of man-power resources with an occupational distribution which will facilitate balanced economic development, and to secure the necessary support from employers and workers for development policies.

Regions concerned

This project should cover all the under-developed regions.

Analysis of projects

The first stage would be the preparation of a series of factual and analytical studies on the basis of which policy recommendations could later be formulated. These studies would cover the following subjects:

(1) *Factors affecting the productivity of labour*

This study would begin with an examination of the existing levels of labour productivity in different types of industry and agriculture in the under-developed countries, and of the factors responsible for these levels and for differences between them. It would then discuss, on the basis of experience in the countries concerned and elsewhere, the methods by which productivity can be increased. These methods would include education and vocational training, the improvement of labour mobility, improvements in conditions of employment, techniques of industrial relations and the provision of suitable medical and other social services. The study would also examine the conditions necessary for larger-scale production and the types of improvements in tools, machines and other capital equipment which would be appropriate to different rates of capital formation or of foreign aid or borrowing.

(2) *Economic development and the general level of employment*

In under-developed countries the central problem of employment has traditionally been one of under-employment as distinct from the type of unemployment encountered in a modern industrial economy; but as economic development proceeds the latter is likely to emerge. The initial task of the proposed study would therefore be to analyse the essential nature of the employment problem in the different types of under-developed economies, the changes in the nature of that problem that may be expected to take place as development proceeds, and the type or degree of full employment which may appropriately be regarded at each stage as an objective of development policy. The study would then examine the problems involved in achieving and maintaining such full employment. It would examine, in particular:

(i) The effects of the direction and rate of development on the structure of industries and occupations and thus on labour requirements; the disintegration of traditional industries and its repercussions on employment; the problems of estimating labour requirements (numbers required in different occupations, industries, places and grades of skill) under different types of development policy; the possible methods of meeting such requirements;

(ii) The effects of different rates and directions of development on population growth and thus on the supply of labour;

(iii) The relation of the rate of change in the industrial and occupational structure of the economy to the over-all level of employment which can be maintained without inflation.

(3) *The relation of the rate and direction of economic development to labour income*

This study would analyse the effects on labour income of different types of development policy. It would consider, in particular, the effects of differences (*a*) in the rate at which development is pressed forward (including different degrees of emphasis on capital formation as against increased output of consumers' goods); (*b*) in the ways in which development is financed (including the various methods and sources of domestic financing and the different possible combinations of domestic financing and foreign borrowing); (*c*) in the relative emphasis placed on industrialization and on the modernization and de-

velopment of agriculture; and (*d*) in the choice and location of industries (small-scale *versus* large-scale, consumers' goods *versus* capital goods, different degrees of participation in and dependence upon international trade). This examination would be designed to lead to conclusions concerning the types of policies most favourable to the steady and sustained growth of labour income.

(4) *Wages policies and economic development*

This study would examine:

(*a*) The interrelation between the general level of wages and the rate and direction of development;

(*b*) The relative levels of wages (in different industries and occupations) appropriate to different rates and directions of development;

(*c*) The appropriate objectives of wage policy in different conditions of economic development and the implications of these for other fields of economic policy;

(*d*) The possible methods of adapting relative wages and the general level of wages to the requirements and objectives of development policies (general survey only: detailed analysis of the possible roles of machinery for determining minimum wage rates and of systems of remuneration would be undertaken as part of special projects in these fields: see sections IV and XII below).

An examination of the preliminary conclusions of these studies by a carefully selected group of qualified experts, including persons with suitable practical experience, might be a useful second stage in the procedure.

At a later stage policy recommendations based on the conclusions reached might be formulated by a conference or committee including representatives of Governments, employers and workers.

Such recommendations, together with the factual material and analytical studies on which they were based, would provide Governments of under-developed countries with information and guidance which they require for the framing of development policies but which are not now available. They would also serve as a basis for the advice which ILO expert missions to these countries, or joint missions including ILO experts, may be called upon to give both on the relation of development policies in general to labour income and employment and on the special industrial and labour problems which arise out of development programmes.

Experience of the ILO in this field

Certain of the problems involved in the framing of policies designed to assure steady employment and rising income have been the subject of preliminary studies prepared for and considered by regional conferences of the ILO in Asia, the Near and Middle East and Latin America, but the resources available have not permitted the more thorough analysis, taking into account the characteristics of different regions and types of economies, which is required as a basis for the formulation of specific recommendations. ILO missions, notably the mission to Greece, have been called upon to deal incidentally with these questions; and have been handicapped by the lack of such analyses and policy recommendations. Their experience, however, together with the work undertaken in connexion with the regional conferences, constitutes a useful preparation for the programme outlined above; and the execution of this programme would be further aided by the findings of the analyses and field missions which it is proposed should be undertaken in the field of employment, training and migration (see section II below), in that of systems of remuneration and machinery for the determination of minimum wage rates (sections IV and XII) and in a number of other fields covered by the present chapter.

Proposed co-operation and co-ordination with United Nations and specialized agencies

This project would be undertaken in the closest co-operation with the Department of Economic Affairs and the regional commissions of the United Nations and with the specialized agencies concerned, notably the International Bank for Reconstruction and Development, International Trade Organization, when it is established, and Food and Agriculture Organization, and the plans would be discussed at all important stages through the machinery of the Administrative Committee on Co-ordination.

Estimated cost

The programme outlined above would involve the sending of small missions of inquiry to several of the under-developed countries; the preparation of factual and analytical studies with the aid of information thus gathered; the convening of a small group of experts and of a

subsequent conference or committee including representatives of Governments, employers and workers, and the placing at the disposal of Governments, at a later stage, of the services of the experts who had taken part in the initial stages of the work. In each of the first two years four senior experts would be required for field work and one at headquarters, together with a total of three research and clerical assistants. The programme would be completed in two, or at most three, years.

The cost of the programme is provisionally estimated as follows: first year, $100,100; second year, $161,300.

II. Employment, training and migration

General nature of programme

The proposed programme on employment, training and migration envisages the provision of practical advisory and operational services which are necessary for the economic development of under-developed areas. These services include advice and assistance to Governments in connexion with:

(i) The development of employment service machinery, including techniques for collecting and analysing information on the demand for and supply of workers; the establishment or improvement of national systems of occupational classification and definition with a view to facilitating the filling of vacancies and the placement of workers in suitable employment; measures to increase the mobility of labour (occupational and geographic); the promotion of international co-operation among employment services (e.g., by establishing greater uniformity in occupational nomenclature);

(ii) The organization of vocational guidance and placement services for young workers;

(iii) The development of all types of vocational and technical training facilities for young and adult workers, including apprenticeship, the retraining of disabled persons, supervisory training and the training of instructors; and international co-operation in this field (e.g., the promotion of suitable opportunities for training abroad);

(iv) The organization of international migration for employment and land settlement to assist in developing the resources of under-developed areas, including both operational activities and the collection

and distribution of information on man-power surpluses for emigration and on deficits which might be met through immigration.

Relation to economic development

The lack of reliable information on labour and skill requirements and on the supply of labour and the absence or inadequacy of machinery for bringing persons and jobs together are major impediments to the economic development of under-developed areas. The shortage of skilled labour and of trained man-power of all kinds is a primary bottleneck in the development of the resources of these areas. Moreover, the lack of instructors qualified to train supervisors and other workers is a serious handicap to the organization of training and thus to economic development. The economic development of many of the under-developed areas would be accelerated by the immigration of skilled workers and technicians from abroad, while in sparsely populated areas large-scale immigration of workers for employment in industry and in agriculture is needed. Both these types of migration are now handicapped, however, by the lack of adequate information on labour and skill requirements and on conditions of employment and settlement, as well as by the lack of precise national economic plans to enable immigrants to be integrated in the labour force.

Regions concerned

The programme applies to under-developed areas in Asia, Latin America and the Near and Middle East, and at an appropriate stage would apply to Africa. To a limited extent, it applies to under-developed areas in Europe. It also applies to Europe as a source of emigration to meet the labour requirements of sparsely inhabited under-developed areas in other regions.

Analysis of projects

The following projects take into account the need to go beyond the initial advisory stage and are designed to give practical assistance in carrying out, as appropriate, the programme agreed upon with the country concerned.

(1) *Technical field missions*

Each field mission would, as appropriate, advise not only on what should be done in the various fields covered, but also on how to take

the action required and follow it up in practice. In most cases, therefore, the mission would stay on the spot for considerable periods in order to work with the Government officials concerned in giving effect to its recommendations.

The fields in which the missions would give assistance and advice would include

(*a*) The organization, operation and technical improvement of recruiting and placement services, in particular the public employment service; the development of adequate statistical and other techniques for collecting the information required by the employment service on labour and skill requirements and on the labour supply available; the improvement of its relations with employers and workers; the technical organization of placement; the occupational re-establishment of refugees and displaced persons; and the organization of systematic training for employment service staff;

(*b*) The initiation and development of specialized vocational guidance and placement services for young persons;

(*c*) The organization and operation of apprenticeship and other training for young persons and the relation of such training to general education, specialized vocational training for juveniles in rural areas, accelerated training of adults for industry, specialized training for agricultural occupations, handicrafts and small industries, specialized training for disabled workers, suitable forms of training for displaced persons, training of supervisors, training of instructors for all types of vocational training, and the development of opportunities for receiving training abroad;

(*d*) The appropriate use of foreign technicians and skilled workers and expert advisers for certain development projects and industries (e.g., transport, irrigation or hydroelectric projects) ;

(*e*) The co-ordination of employment, guidance, training and migration services, including services provided by voluntary organizations within the countries concerned and by international organizations.

In those countries of Latin America whose economic development programmes call for large-scale immigration from overseas the field missions could give advice on:

(*a*) Methods of estimating both the general absorptive capacity of the countries concerned for immigrants and their absorptive capacity and requirements in particular occupations and grades of skill;

(*b*) The steps to be taken before the various areas would be suitable

for the reception of migrants for employment or for settlement on the land;

(*c*) Techniques for the reception and deployment of such migrants;

(*d*) The role that such migrants could play in building up these areas;

(*e*) The special needs for the vocational training of such migrants;

(*f*) The extent to which co-operative organizations could give direct assistance in the whole process of resettlement and development;[1]

(*g*) The organization and operation in the areas concerned of settlement agencies established under proper safeguards to avoid exploitation.

In a number of Latin-American countries assistance could also be given in developing programmes for the effective employment and training of indigenous workers.[2]

(2) *Meetings of experts*

Meetings of experts on a regional or interregional basis would play a useful role in supplementing the work of the field missions, and in bringing together the persons in the regions most directly concerned with the application of the programmes agreed upon.

Meetings would be required, from time to time, to discuss problems arising in each major operating field (employment service, vocational training and migration) and examine the solutions proposed and to assist in relating the experience of other countries or regions to the particular needs of individual countries.

(3) *Training for instructors*

Training centres might be established in each of the regions for the purpose of training a sufficient number of instructors to initiate the various types of vocational training required to develop the necessary skilled labour force. It would be understood that the operation of the centres would as rapidly as possible be taken over by the countries of the region concerned.

A minimum establishment for an adequate regional training centre should provide for the training of approximately 100 persons at a time.

[1] See below (section XI) for particulars of projects concerning co-operative organizations.

[2] See below for special projects proposed concerning the collection of first-hand information on existing programmes for use of indigenous man-power and preparation in co-operation with Governments of monographs on the occupational distribution of indigenous man-power (section XV).

This would call for one staff instructor for each group of ten to twenty persons. It would be assumed that personnel from the region would also be attached to the centre so as to watch its operation and prepare themselves to take over its direction and to establish training centres as required in the individual countries of the region.

The continuation and ultimate use of the training centres for instructors would depend upon the recognition of their value by the senior administrative officials concerned with training in the various countries, and on the instructors, once trained, remaining at their posts and utilizing their training where it is needed. To this end, short conference courses for senior administrative personnel should be organized regularly in the training centres of each region to promote an understanding of the work of the centres and their actual and potential contribution to economic development, and to ensure full application of the training skills brought back from the centres.

(4) *Training for employment service staff*

Centres might be established in the Far East, Latin-American and Middle Eastern regions for the purpose of providing professional training for employment service staff. As in the case of the centres for instructors, it would be understood that the operation of these training centres would be taken over as rapidly as practicable by the countries of the region concerned. The centres would provide a variety of practical training courses, of varying duration, for newly recruited and experienced employment service staff of technical, executive and administrative grades, including:

(*a*) Initial training in basic principles of employment service organization and operation and for each major function, (e.g., techniques of interviewing, employers' relations, occupational analysis);

(*b*) Advanced training for newly developing functions of the employment service (e.g., youth guidance and placement, trade and aptitude testing for adults, selective placement for disabled persons);

(*c*) Refresher training on special subjects or special areas of employment service work (e.g., techniques of employment market analysis, inspection and supervision, and occupational testing in relation to employment counselling and guidance work).

A minimum establishment for an adequate training centre for employment service staff should provide for the training of 50-60 persons at a time, and would require expert teaching staff recruited from the

more experienced employment services of the world, and especially those with useful experience in specialized fields of employment service work. Personnel from the region would be associated with the training centres from the beginning, so as to assist in their development along sound lines adapted to the needs of the region and so as to prepare themselves to take over the direction of the centres at a later stage, as well as to initiate national schemes for the systematic training of employment service staff.

(5) *Periods of instruction or observation abroad*

As a complement to the provision of technical assistance on the spot, arrangements should be made for nationals of under-developed areas to visit, for purposes of instruction and practical experience, countries where the particular techniques required are more highly developed. Visits by officials of national administrations, by technicians, and by limited numbers of foremen and key workers in special industries, could be undertaken on the basis of payment of travel expenses and a living allowance (assuming their salaries continued to be paid during the period of training). In some cases provision for such visits might be made through an international fellowship programme.[1] Visits should be organized both within the countries of a region and where necessary from one region to another

(6) *Special publications*

There is a considerable amount of both general and technical material concerning all aspects of national man-power programmes, including legislation and regulations, policy and practical experience in dealing with particular problems, which would be of considerable use to Governments of under-developed countries as well as to many organizations and groups. This material is often only available in a limited number of copies and is not in languages suitable for use in the areas where development projects are to be undertaken. The ILO could edit and select such material as would be particularly suitable for reproduction with this particular purpose in mind.

In addition, the ILO might undertake the preparation and publication of a series of short handbooks or manuals adapted to the special needs of Asia, Latin America, the Near and Middle East and

[1] See chapters 7 and 10 of the present report.

Africa, on employment, training and migration questions. These manuals would deal, for example, with the techniques of occupational analysis, methods of transferring workers from agricultural to industrial pursuits, apprenticeship practices, the special problems arising in the training of migrants to fit them to the methods of new development areas and to adapt them to new agricultural methods, and measures to facilitate the adaptation of migrants to new conditions and methods of work.

(7) *Instructional materials*

In under-developed areas, particularly where the problem of illiteracy must be taken into account, training films, various forms of visual aids to teaching, mechanical equipment for training, psychological and trade tests and other instructional material can aid and expedite the development of vocational training and guidance services (including services for the adaptation of immigrants). Provision should therefore be made for the purchase or loan, and for the adaptation and translation as required, of necessary instructional equipment and materials. This project must be worked out in close co-operation with the United Nations and other specialized agencies (e.g., UNESCO) concerned with the supply of training and educational materials, including training films. The preparation of an international catalogue of training films, which the ILO has already undertaken, will provide a guide to the film material available for vocational training.

Experience of the International Labour Organisation in the field

The ILO has had extensive experience in dealing with the various aspects of employment, training and migration and in the last twelve months it has set up a practical programme for assisting Governments directly in dealing with their man-power problems. It has sent missions to a number of countries both to investigate the needs for aid and to assist Governments in developing their services, and it is now acquiring further practical experience through the operation of a field mission in Italy and the setting up of a field office for Asia and the Far East. Plans, including budgetary provision, have been made for the setting up of a man-power field office for Latin America which, if suitably expanded, would serve as an organizational centre for field missions for this region. International standards, on the basis of which

technical assistance and advice can be given, are available in the form of ILO conventions and recommendations relating to the organization of employment services, vocational training of young workers, and migration for employment. These standards, together with ILO publications and studies on the same subjects, have had a wide influence on the framing of national legislation concerning employment, training and migration.

Proposed co-operation and co-ordination with the United Nations and specialized agencies

At each level of operation, the man-power programme so far developed by the ILO has been worked out in close co-operation with the United Nations and with other specialized agencies. The same course would be followed in regard to the programme for under-developed areas. In the case of assistance and advice on large-scale immigration and land settlement projects, for example, the work would be carried out in close co-operation with FAO and WHO.

Estimated cost

The programme outlined above would involve the sending of field missions to the various regions concerned, the making available to Governments of the services of experts, the holding of meetings of experts, the organization of training centres in the various regions, and arrangements to enable nationals from under-developed countries to visit other countries for purposes of instruction and practical experience. It would also involve the publishing of informational material, including handbooks, and the supply of certain instructional materials, such as training films and visual aids for teaching, and some mechanical and other equipment required for training and for vocational selection. In the first year, twenty-seven senior experts, twenty-five assistants and a clerical staff of sixteen would be required for field work, together with four senior experts, two assistants and four clerical staff at headquarters; in the second year, thirty-three senior experts, twenty-nine assistants and twenty clerical staff for field work and four senior experts, four assistants and six clerical staff at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $1,170,500; second year, $1,567,400.

III. Industrial relations, including machinery for the settlement of industrial disputes

General nature of programme

Advice and practical assistance to Governments in connexion with problems of industrial relations, including methods of settling industrial disputes.

Relation to economic development

Satisfactory industrial relations are a basic condition of success in carrying out plans for economic development. The improvement of methods of work and production so as to secure maximum output requires collaboration among employers, technicians and workers; and one of the conditions of such collaboration is an adequate system of industrial relations including, in particular, machinery for the settlement of disputes, which ensures to the worker an equitable share in the product of the industry.

Regions concerned

Scope for useful action exists in Asia, the Near and Middle East, and in Latin America, particularly in those areas where industrialization is taking place on a substantial scale.

Analysis of projects

(1) *Technical advisory missions*

Technical advisory missions would be provided to give advice and assistance to Governments on:

(*a*) Techniques and methods for the settlement of labour disputes, including legislation and regulations concerning conciliation and arbitration; methods of securing effective co-operation between employers and workers; and the question of the right to organize, with special reference to the standards laid down in the Convention concerning freedom of association and protection of the right to organize adopted by the International Labour Conference in 1948;

(*b*) The organization of conciliation services, the duties of conciliation officers and methods of conciliation;

(*c*) The methods of procedure to be followed by arbitration courts

and other bodies in settling disputes and in investigating complaints.

In some countries, problems of a special nature may arise out of the employment of foreign technicians and foremen in charge of local labour, or the presence of foreign missions charged with the duty of giving assistance on the subject. The ILO could give advice as to the methods and procedures most likely to lead to the development of satisfactory industrial relations in such circumstances.

(2) *Training of personnel entrusted with the putting into application of systems of industrial relations*

In order to enable the conciliation and arbitration machinery and other industrial relations services referred to above to reach a high level of operating efficiency in the shortest possible time, the officials responsible for the operation of such services should be trained in the methods and procedures likely to prove most effective in promoting good industrial relations.

Provision would therefore be made for advice to Governments on the manner in which such training might be instituted, the aims which it should pursue and the general nature of the curriculum. Training might be given, at centres set up for the Asian, Near and Middle Eastern and Latin-American regions, by persons experienced in such matters recruited from the more industrially advanced countries already possessing well-established systems of industrial relations. The training would be supplemented by arrangements for the trainees to visit such countries in order to study at first hand their labour and trade union legislation, the functioning of their employers' and workers' organizations and the negotiations and general relations between them, and the operation in practice of services and machinery of the types mentioned above.

(3) *Personnel management*

Valuable increases in productivity have been obtained in a number of highly industrialized countries through the development of efficient methods of personnel management in industrial undertakings. Success in this field requires both that workers understand the functions of management and the necessity for increased production as a basis for higher wages and living standards, and that managements understand the needs of the workers. To assist in bringing about this understanding is one of the major functions of personnel management.

From the management viewpoint improved personnel management

involves the proper placing of workers through man-job analyses; efficient classification, and careful assignment; increasing the availability of employees for work by protecting their health and welfare, and minimizing absenteeism, through medical, safety, pension and related programmes; stimulating the workers' desire to produce by providing adequate incentives; increasing their capacity to produce through training based on their intelligence, interests and aptitudes; and utilizing workers fully on essential tasks. From the workers' viewpoint efficient personnel management involves the recognition of their needs for security; opportunities for advancement and increased earnings; just treatment as well as prompt and fair settlement of grievances; and a recognition of the importance of their role in production.

Provision would therefore be made for technical advice to national bodies prepared to sponsor personnel management programmes. Such advice would be based on studies of experience in countries where techniques of personnel management are most highly developed and would be designed to make such techniques available to those engaged in developing industry in other countries.

Experience of the International Labour Organisation in this field

The ILO is uniquely qualified for work in this field by its tripartite composition which ensures full participation of both employers' and workers' representatives on an equal basis in its policy-making bodies. International standards already adopted or at present under consideration by these bodies include statements of principles concerning various aspects of industrial relations which form a basis on which the national regulations of countries in the early stages of industrialization might usefully be founded. The ILO has already had considerable experience in the drafting of such regulations and has at its disposal comprehensive information on the experience of different countries in the field of industrial relations.

Proposed co-operation and co-ordination with the United Nations and specialized agencies

This question falls primarily within the sphere of action of the ILO, but such contacts as might be useful would be maintained with other organizations.

Estimated cost

The programme outlined above would involve the sending of advisory missions to a number of under-developed countries and assistance in establishing arrangements for training officials responsible for the operation of conciliation, arbitration and other industrial relations services, including visits to countries already possessing well-established systems of industrial relations. In the first year, eight senior experts, eight assistants and five clerical staff would be required for field work, and one senior expert, with one clerical assistant at headquarters; in the second year, thirteen senior experts, eleven assistants and seven clerical staff in the field, and one senior expert and two other staff at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $320,000; second year, $480,100.

IV. Wages policy: systems of wage payment; machinery for the determination of minimum wage rates

General nature of programme[1]

To provide technical assistance and advice to under-developed countries in the development of systems of wage payment adapted to their needs and in the establishment and operation, where appropriate, of machinery for the determination of minimum wage rates.

Relation to economic development

The project concerned with systems of wage payment would be designed to contribute to a solution of the vital problem of how to provide adequate incentives to increased industrial output. It would at the same time afford guidance on one of the methods by which practical effect could be given to the conclusions of the general study on wages policies referred to in section I above.

The project concerned with methods of wage determination is designed to assist the countries concerned in developing machinery capable of ensuring that the wage policies they follow are conducive to sustained economic development on a sound basis.

[1] The programme here outlined is concerned with industries and occupations other than agriculture. For projects relating to systems of remuneration and machinery for the determination of minimum wage rates in agriculture, see section XII below.

Regions concerned

The projects would apply to under-developed areas where industrialization on a substantial scale is planned or under way. The work on systems of wage payment would be planned with full regard to the different ways in which the problem of incentives presents itself in countries with different social traditions and in different stages of development.

Analysis of projects

(1) *Systems of wage payment*

Though some work has been initiated in this field by the ILO the amount of information available, both on traditional systems of remuneration in the under-developed countries and on experience with the adaptation to the needs of these countries of systems used in modern industry elsewhere, is not sufficient to permit the preparation in advance of detailed specifications for all stages of this project. Considerable preliminary investigation of the relevant economic and social problems of particular regions and industries would therefore form a necessary first stage. This investigation would involve visits by qualified experts to a number of the under-developed countries and to certain of the industrialized countries in which information is readily available on systems of wage payment which have been found suitable to the needs of modern industry.

At the second stage meetings of experts would be arranged after appropriate preparation to consider the systems of wage payment best suited to the needs of particular industries, including in particular the various branches of the textile industry, the metal trades, and, if possible, iron and steel, mining of various types, construction, petroleum and transport.

At a later stage, arrangements would be made to place at the disposal of the Governments of under-developed countries the services of small missions of experts or field teams who would be able, on the basis of the conclusions reached through the preliminary investigations and the meetings of experts, to supply technical assistance and advice on the design and introduction of systems of wage payment appropriate to the needs of newly established or expanding industries.

(2) *Machinery for the determination of minimum wage rates*

The project concerned with machinery for the determination of

minimum wage rates would include studies of the operation of different types of authorities which have been established for this purpose, with special reference to the principles and methods followed in determining wage rates for different groups of workers, to the arrangements made for the participation of representatives of employers' and workers' organizations in the determination of wages and to the methods of regulation which have proved most conducive to the development of independent industrial organizations to the point at which authoritative regulation can be replaced by free collective bargaining. On the basis of up-to-date studies of this kind and of experience already gained by the ILO in the course of a number of missions concerned with this subject, the ILO would be able to provide technical assistance and advice in the establishment and operation of wage-determining machinery appropriate to the needs of particular under-developed countries.

Experience of the International Labour Organisation in this field

Work on systems of wage payment has been initiated by the ILO in connexion with its work on non-metropolitan Territories and in connexion with the various industrial committees.

Certain general principles concerning machinery for the determination of minimum wage rates have been laid down by the International Labour Conference in Conventions and Recommendations. On the basis of these and of a number of studies made by the International Labour Office, ILO expert missions have on several occasions furnished assistance in the framing of wage legislation.

Proposed co-operation and co-ordination with the United Nations and the specialized agencies

In the provision of assistance and advice on these subjects in Territories with which the Trusteeship Council is concerned, the ILO would co-operate closely with that Council.

Estimated cost

The programme outlined above would involve considerable field work, including the collection of up-to-date information in a number of countries, the convening of small meetings of experts on systems of wage payment in certain industries, and the sending of advisory

missions or field teams of experts to the under-developed countries concerned. It would also involve the publication of information collected and of the findings of the meetings of experts.

For the first year, seven senior experts and four other staff would be required for field work, and one senior expert and two other staff at headquarters; in the second year, nine senior experts and five other staff in the field, and two senior experts and three other staff at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $185,800; second year, $305,000.

V. Industrial safety

General nature of programme

The furnishing of experts to consult with Governments and to take part in teams created by Governments to advise industrial undertakings on the use of safety techniques for the avoidance and elimination of industrial hazards; and the provision of technical assistance and advice to Governments on the framing and administration of industrial safety regulations; on the setting up of voluntary safety organizations enlisting the collaboration of employers and workers; on the organization of training facilities for supervisory staff concerned with safety measures; and on the preparation and execution of "propaganda campaigns" against industrial accidents, to be carried on throughout industry in the countries concerned.

Relation to economic development

The close relationship between industrial safety and productive efficiency has been clearly shown by the experience of practically all industrialized countries. Where safety provisions are inadequate, industrial accidents are a cause of severe losses in man-power and in production. Large numbers of workers, many of them highly trained and skilled and hence particularly valuable and difficult to replace, are killed, or are disabled for long or short periods of time. As a result the regular flow of industrial production is interrupted and large costs are incurred for medical treatment and compensation. These "direct costs" of accidents, moreover, are only a fraction of the total costs involved; the "incidental" or "hidden" costs of accidents (due to loss of time,

damage to machinery and equipment, spoilage of material, loss of production, failure to fill orders on time, etc.) are estimated to be about four times as much as the direct costs.

In the interests of productive efficiency, therefore, as well as in those of the workers concerned, it is essential that adequate safety measures should form part of every programme of industrial development.

Regions concerned

The programme would cover all of the countries in which industrial development on a substantial scale is under way.

Analysis of projects

It is generally recognized today that any system of accident prevention, to be effective, must secure the active and informed co-operation of all parties: government agencies, employers and workers (and their organizations); for this purpose, a great deal of educational work will be necessary, especially in countries in which the process of industrialization is just beginning or is still in an early stage. The projects outlined below consequently provide for such educational work as well as for assistance in the drafting of appropriate legislation and regulations and in the organization of administrative services adequate to ensure their application.

The programme would include the provision to the Governments concerned of technical assistance and advice in:

(1) The development of safety legislation and regulations based on the experience of other countries and on internationally approved standards and taking into account the specific conditions that exist in each particular country;

(2) The development of labour inspection services competent to supervise the enforcement of legislation on industrial accident prevention;

(3) The promotion of voluntary safety movements in which Governments, employers and workers would take an active part;

(4) The promotion of instruction in industrial safety in technical and trade schools and, where such schools do not exist, the organization of training courses in methods of preventing occupational accidents;

(5) The training of government industrial safety experts.

The types of assistance provided would include:

(1) The preparation and publication, in the various national languages, of specific model safety codes for different industries, based on the Model Safety Codes, Conventions and Recommendations adopted by the ILO;

(2) The preparation, in different languages, of simple safety manuals for issue to foremen and workers by the countries concerned;

(3) Advice and assistance in the organization of initial series of courses for training workers as safety inspectors or safety delegates, so as to form a nucleus of workers capable of "carrying the torch of safety" to their fellow workers in the industries concerned;

(4) Advice and assistance in the preparation of instructional and propaganda material in industrial safety, such as pamphlets, posters and films, in the various national languages;

(5) The arrangement of visits by officials responsible for safety measures in under-developed countries to countries with greater experience of the problems involved, for purposes of training and practical experience.

Experience of the International Labour Organisation in the field

In the field of industrial safety the ILO has framed international standards in the form of Conventions, Recommendations and Model Codes of Safety Regulations. It has published technical monographs on dangerous machinery, substances and operations, has disseminated safety information of all kinds through its periodical *Industrial Safety Survey,* has undertaken special research at the request of Governments, safety associations, trade unions, etc., and has maintained liaison with safety associations all over the world. On a number of occasions it has given technical assistance to Governments in drafting safety regulations, etc.

Proposed co-operation and co-ordination with United Nations and specialized agencies

This question is primarily one for the ILO but close contact would be maintained with WHO to ensure co-ordination with the relevant activities of that organization.

Estimated cost

The programme outlined above would involve a considerable amount of field work, the preparation and the publication in a num-

ber of languages of technical manuals, assistance in the preparation or obtaining of instructional and educational material and arrangements for a limited number of industrial safety officers from under-developed countries to travel abroad for training and experience. For the first year, fifteen senior experts, ten assistants and eight clerical staff would be required for field work, and two senior experts and three other staff at headquarters; for the second year, twenty-two senior experts, fifteen assistants and eleven clerical staff for field work, and two senior experts and five other staff at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $520,100; second year, $764,700.

VI. Occupational health

General nature of programme

The furnishing of experts to consult with Governments and to take part in teams created by Governments to advise industrial undertakings on occupational health problems; assistance and advice to Governments in the framing and administration of occupational health regulations, on techniques for identifying occupational diseases, on their etiology and prevention, and on factory hygiene generally.

Relation to economic development

An effective industrial health service contributes to productive efficiency by helping to keep workers in good health and by reducing the absenteeism and labour turnover caused by occupational diseases and accidents; it eliminates much litigation and reduces compensation expenses; and by offering opportunities for co-operative action on matters of common interest and concern it improves the relations between employers and workers. By providing health education it contributes to the improvement of home and community conditions. It also provides machinery for supplementing the findings of general health surveys by the collection, through repeated surveys covering the same group of workers, of reliable detailed information on pathological conditions.

Regions concerned

Scope for useful action exists in all under-developed regions, and

particularly in those where industrialization is taking place on a substantial scale. A separate treatment, however, may be required for each region concerned.

Analysis of projects

The programme envisaged would include preliminary surveys, advice on legislation, training of personnel, the provision of information to employers and workers, and continuing assistance in the application of the measures recommended.

(1) *Preliminary surveys*

The nature and extent of the industrial health provisions which are required in any particular area will depend on the existing health conditions and on the types of industrial hazards to which the workers are exposed. Exact information on existing health conditions and industrial hazards is therefore necessary as a basis for the planning and organization of health services. This information can be obtained only by careful on-the-spot study.

It is therefore essential to undertake preliminary surveys which would cover, in the first place, general health conditions, the public health facilities available and the availability of medical personnel (all of which, it may be noted, would appear to be primarily the responsibility of WHO). Secondly, the surveys should cover the following subjects, detailed information on which is needed in the formulation of programmes concerned specifically with industrial health: the availability of technical personnel capable of checking on the existence of health hazards in industry and on the application of health regulations; the adequacy of plant laboratories and similar industrial health facilities; the number, size and nature of industrial establishments and their types of hazards; the conditions of work; the percentage of women and young persons employed; the housing facilities available; and the legislation and regulations concerning these matters which are already in force.

Surveys of this second group of subject, which would be provided for under the present programme, would be made by units including, as appropriate, industrial physicians, engineers and chemists. The number and composition of units in each specific area would depend on such factors as the size of the area, the industries to be covered and the amount of information available on the subjects in question.

In some countries, notably in Latin America, only surveys of this second type would be required, as general health conditions have already been surveyed. It is evident from these that the main problem in these countries is to improve general health conditions by combating existing diseases, especially tuberculosis, and by improving nutrition, sanitary conditions and health facilities. The task of the industrial health services in these cases would be to improve conditions in mines and to set up nuclear public health services by extending plant health facilities to the families of the workers, especially in communities built up around isolated industrial establishments.

(2) *Technical assistance and advice*

Advice to Governments on the framing and application of industrial health legislation would cover: (*a*) conditions in workplaces (ventilation, illumination, sanitary conditions, workrooms, canteens, medical service, first-aid, hospital service, etc.); (*b*) methods of preventing occupational diseases, (notification, medical examination, change of employment, technical preventive measures); (*c*) systems of compensation; and (*d*) methods of inspection and enforcement.

To facilitate giving such advice, an up-to-date industrial health code would be framed on the basis of the experience of the industrialized countries but with such adaptations as may be necessary to meet the local requirements of the various under-developed countries and to permit of application under local conditions.

(3) *Training of personnel*

Assistance would also be given in the establishment and initial operation of schemes for the training of the personnel necessary for the application of industrial health measures. This personnel includes, in addition to medical and nursing personnel the training of which would appear to be a matter for WHO, technical inspectors, laboratory staff and welfare workers. In some cases the training could be completed in the country concerned, with relatively few foreign training personnel; in other cases an elementary training course might be initiated in the country concerned, with provision for more advanced training in a country possessing the necessary specialized institutions.

The initial task of the welfare workers would be to overcome any opposition of employers or workers to "new-fangled" ideas, especially ideas introduced by foreigners, by explaining the purpose and the methods of application of health measures.

(4) *Preparation of manuals and information material*

The programme would also include the preparation and the publication in appropriate languages of manuals on the principal types of industrial health hazards likely to be encountered in the countries concerned and on methods of dealing with them. Assistance would also be given to the national services concerned in the preparation, for the information of employers and workers, of suitable pamphlets and posters, and in the utilization of other media of information and publicity, including films and radio talks. The subjects to be covered in such informational material would include occupational hazards, non-occupational diseases and personal hygiene (respiratory infections, tuberculosis, cancer, venereal and heart diseases, heat-stroke, etc.). Provision would also be made for training in first aid.

Experience of the International Labour Organisation in this field

The experience of the ILO in this field has included the preparation of a number of technical publications, including an encyclopaedia dealing with all aspects of industrial health, the organization of conferences of experts on particular types of industrial health hazards and the framing of international standards concerning the protection of the health of workers. This work has been done with the assistance of the ILO's Committee of Experts on Industrial Hygiene, and the international standards have been adopted by the International Labour Conference in which employers and workers as well as Governments are represented.

Because of the active association of employers' and workers' representatives in these activities, the ILO is well placed to enlist the co-operation in newly-developed industrial health programmes of the parties most directly concerned, on whose active interest and support the success of such programmes must ultimately depend.

Proposed co-operation and co-ordination with United Nations and specialized agencies

The ILO would be prepared to envisage the suggested programme of industrial health being carried out under the joint sponsorship and control of the ILO and WHO.

If it should appear preferable to apportion between the ILO and the WHO responsibility for different sectors of the programme, arrange-

ments would be necessary to ensure close contact and collaboration at all stages in the development of the work.

Estimated cost

The programme outlined above would involve a considerable amount of field work, the issuance of special publications, the preparation and distribution of educational material, and arrangements for a limited number of occupational health officers from under-developed countries to travel abroad for training and experience. In the first year, twelve senior experts, nine assistants and seven clerical staff would be required for field work; and two senior experts and three other staff at headquarters; in the second year, eighteen senior experts, thirteen assistants and ten clerical staff for field work and two senior assistants and five other staff at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $430,500; second year, $636,600.

VII. Enforcement of labour legislation including labour inspection

General nature of programme

Assistance to Governments in the organization of methods and procedures for ensuring enforcement of labour laws and regulations, including more particularly the organization of labour inspection services and the technical training of labour inspectors.

Relation to economic development

Labour laws and regulations, which must accompany sound industrial development, cannot make their full contribution towards promoting and maintaining the productivity of industrial workers unless they are effectively administered and applied. This requires in particular the maintenance of efficiently organized labour inspection services adequately staffed to ensure enforcement and capable of advising management and labour concerning the most effective means of complying with legal requirements and of promoting the health, safety and welfare of workers.

Regions concerned

Scope for useful action exists in all under-developed regions and more particularly in those countries of Asia, Latin America and the Near and Middle East where industrialization is taking place on a substantial scale. A number of these countries are at present actively concerned with the organization of labour inspection services and the training of inspectors.

Analysis of projects

(1) *Regional training centres*

It is proposed to establish regional centres for Asia, Latin America and the Near and Middle East at which labour inspectors from the countries concerned would receive instructions in inspection methods and techniques and technical training in safety, health and welfare questions. For Asia and Latin America, the project would envisage the training of approximately 100 inspectors attending instruction courses of six months' duration in groups of twenty-five trainees at a time. For the Near and Middle East, the training of approximately sixty inspectors would be envisaged.

(2) *Technical advisory missions*

It is proposed to constitute teams of experts for Asia, Latin America and the Near and Middle East who would visit the countries concerned and advise the national inspection services on their organization and technical problems. The missions would comprise an expert in general problems of organization of inspection services and, as necessary, experts in industrial safety, industrial hygiene and special questions such as those relating to women and children or to particular branches of industry or industrial processes.

(3) *Seminars on technical problems*

It would be desirable to supplement the foregoing projects by the convening of technical seminars for inspection officials not available for training courses or concerned with specialized branches of inspection work. Such seminars, conducted by personnel drawn from the proposed technical advisory missions and training centres, would be organized in appropriate groups to consider technical problems of industrial health, safety and welfare, or problems relating to special cate-

gories of workers or to particular branches of industry or industrial processes.

(4) *International exchange of trainees*

As necessary and desirable, provision should also be made to supplement the training projects proposed above by arrangements to enable a limited number of inspection officials to be sent to other countries, either in the region concerned or elsewhere, as trainees and observers, in order to draw upon the experience of other inspection services in the solution of problems raised by new industries.

(5) *Inspection manual*

It is proposed to compile and publish in appropriate languages a basic manual for the use and guidance of labour inspection officials. This manual, based on the best inspection methods and procedures developed in national services with long experience, would include material dealing with administrative instructions and practices, inspection procedures in respect of safety, health, hours, wages, the employment of women and young persons, etc., and the maintenance of employment records. The manual would also include sets of sample poster and record and administrative forms.

Experience of the International Labour Organisation in this field

The ILO has adopted international standards in the form of a convention on labour inspection in industry and commerce and two major recommendations dealing with the organization and functioning of labour inspection services. It has held regional conferences of labour inspectors in Europe, America and Asia to exchange experience and discuss the technical problems involved in their work. In addition it has, on a number of occasions, given technical assistance and advice to Governments in the organization of their labour administrative and inspection services.

Proposed co-operation and co-ordination with the United Nations and specialized agencies

This question falls primarily within the sphere of action of the ILO, but such contacts as might be necessary would be maintained with other organizations.

Estimated cost

The programme outlined above would involve considerable field work including technical advisory missions and the organization of regional training centres and of seminars on technical problems. It would also include the preparation and the publication in appropriate languages of an inspection manual; and the including of arrangements for a limited number of inspection officials from under-developed countries to travel abroad for training and experience. For the first year, six senior experts, three assistants and three clerical staff would be required for field work, and one senior expert, with a clerical assistant, at headquarters; for the second year, eight experts, six assistants and five clerical staff for field work, and one expert and two other staff at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $316,700; second year, $474,400.

VIII. Employment problems of women and young workers

General nature of the programme

In areas in which a substantial number of women are employed on a wage or salary earning basis or in homework, special problems arise in connexion with their vocational guidance and training, their placement, their protection against conditions of employment prejudicial to their health, well-being and efficiency (e.g., excessive hours of work, night work and work during periods immediately preceding or following childbirth) and their general welfare. While the general measures contemplated in the other projects outlined in this chapter would cover women as well as men, special provisions will be needed in most of these areas if women's skill and capacity are to be developed and utilized effectively.

Special provisions will also be needed to eliminate child labour and to recruit, protect and train young workers.

The present section is concerned with the provision of technical assistance in dealing with the special problems of these two groups of workers.

Relation to economic development

Many of the women now employed in under-developed countries are either engaged in heavy or unskilled labour or are struggling to

perform semi-skilled or skilled tasks with inadequate preparation. Technical training is urgently required if these women are to make their full contribution to increased production and so achieve higher standards of life. Moreover, as economic development progresses an increasing number of women are likely to be employed in agricultural, industrial or commercial undertakings and also in home trades. The increased employment of women and the improvement of their technical qualifications can make an important contribution both to economic development and to better living standards, provided the necessary measures are taken to safeguard their welfare.

The gradual elimination of young children from the labour force and the provision of proper training and protection for young workers are essential elements in any programme designed to raise both the technical efficiency and the future health and welfare of the population.

Regions concerned

The special services provided for in this programme will be required in practically all of the under-developed countries. Both the nature of the problem and the services required will however vary in different cases.

In Asia, for example, greater emphasis must be placed upon special services for the vocational training, counselling and employment of women in India and Pakistan, than in Burma and China where women are traditionally employed in more skilled occupations. Special services for women will be particularly necessary in the countries of the Middle East where segregation of women has been most highly developed and persistent, but again, differences, both in the degree of industrialization and in religious and social traditions, will affect the character and extent of the services needed. Even in Latin America, where the problem of utilizing the potential capacity of women workers is in large part, though not entirely, related to the degree of industrialization, special attention to the needs of women for technical and vocational training and for skilled guidance and placement are called for.

In the case of young workers, while considerable progress has been made in recent years in developing legislation to regulate the labour of young children in large-scale industry in certain countries, such as India and Pakistan, such regulation is still lacking in the case of most of the smaller industrial undertakings, non-industrial enterprises, commerce and agriculture; and general provision for the vocational and

technical education of young persons has still to be made in most under-developed countries.

Analysis of projects

(1) *Women workers*

Technical advice and assistance would be given both in adapting general legislation and administrative arrangements to the needs of women workers and in designing such special provisions and services as may be necessary. The fields covered would include:

(i) *Vocational training, counselling and placement*

The general objective would be to develop services adapted to the special needs of women workers rather than to set up separate services, except as these latter prove to be essential. Special attention would be given to the inclusion of women in all training programmes and in meetings of experts.

(ii) *Wage determination*

Advice and assistance would be given in the extension to women workers of machinery for the determination of minimum wage rates and in the adaptation to women's work of systems of remuneration calculated to contribute to increased efficiency.

(iii) *Industrial safety and occupational health*

Assistance would be given in establishing the special programmes of research or investigation and the special clinics or facilities for prevention and treatment which will frequently be required for women workers. In areas, especially in sections of the Middle East and Latin America, where traditional attitudes of protection for women tend to lead to general restrictions upon their employment, rather than to investigation and reduction of particular occupational hazards, special attention would be given to the safety measures required to make possible the more extensive employment of women as industrial development proceeds.

(iv) *Enforcement of labour legislation and labour inspection*

While it must not be assumed that labour laws can be applied effectively to women workers only by women inspectors and administrators, it remains true that women are an essential part of all inspection and enforcement agencies in the industrially advanced countries and that a lack of qualified and experienced women officials in such services is

a serious handicap in most of the industrially less advanced countries. Special attention would therefore be paid in all training programmes, meetings of experts, and other forms of technical assistance in this field to the character and qualifications of personnel required to deal with the particular needs of women workers.

(v) *Social security*

One of the outstanding needs of women workers in all the less advanced countries where low standards of living prevail, and the employment of women is therefore closely related to the poverty of the masses of the people, is for adequate systems of maternity protection, with maternity leave and maternity benefits so organized as to reach the working women requiring such protection. Attempts in many countries to make such services a charge upon employers have led to the discharge or avoidance of employment of the women concerned; and experience has shown conclusively that such protection is in fact effective only if organized under broad schemes of health insurance or medical care financed from public funds. Special attention would therefore be given to this subject in developing schemes of social security appropriate to the needs of the under-developed countries.

(vi) *Co-operation and handicrafts*

Throughout the less developed areas of the world, especially in the countries of Asia, the Middle East and Latin America, the part played by women in the handicraft and cottage industries is very great. Women, moreover, are frequently employed as industrial home workers, often under exploitative conditions of work and wages. Special measures are required for the protection of women workers in such industries, not only in the interests of the women concerned, but also for the maintenance of standards in factory employment, and for the retention on an economically sound basis of such handicrafts as the countries concerned may wish to preserve. Assistance would therefore be given in the devising of such measures.

(vii) *Agriculture*

Special measures will also be required in many cases for the training, employment and protection of women workers in plantations and in other forms of commercialized or semi-commercialized agriculture; and also for women employed under a system of family contract and therefore not listed as individual employees, or falling outside existing systems of labour law.

(2) *Young workers*

While the progressive adoption of modern techniques, plant and machinery may be expected to aid in the elimination of young children from the ranks of large-scale industries, positive programmes for the vocational guidance, training and placement of young workers and for the extension of administrative agencies and procedures to ensure their normal and healthy development through adolescence to adulthood will be greatly needed. The value of an integrated programme for young workers, covering most if not all of the fields listed above, has been recognized in the industrially more advanced countries and the technical assistance to be provided in under-developed areas would be based wherever possible on a similarly integrated approach.

In the cases both of women workers and of young workers the programme would include the preparation and publication of technical manuals and special reports where these may be required.

Experience of the International Labour Organisation in this field

The ILO has ever since its inception been concerned with the preparation of International Labour Conventions dealing with the protection of women workers and has prepared a number of reports and extensive studies covering legislation and practice in these matters and discussing the problems involved. Technical advice and assistance in dealing with problems of women's employment have been provided to many countries, in recent years particularly to under-developed countries. The ILO is therefore well prepared to undertake an expanded programme of technical assistance to Governments in this field.

Some fifteen out of the total of ninety ILO conventions have been devoted to questions concerned with the employment of young workers and technical advice on these questions has been provided by the ILO to a number of countries. The resolution on the Protection of Children and Young Workers, adopted by the International Labour Conference in 1945, supplies a broad statement of principles, particularly with reference to the elimination of child labour and the protection of young workers, which can serve as a general guide or standard for such work.

Proposed co-operation and co-ordination with the United Nations and specialized agencies

This field of activity falls primarily within the competence of the

ILO. Close co-operation would however be maintained with the United Nations, particularly as regards child and family welfare programmes and the general status of women, with UNESCO as regards the educational basis for technical and vocational education, with FAO as regards conditions of employment in rural areas and with WHO in relation to health matters, in particular maternity protection.

Estimated cost

The programme outlined above would involve the placing of technical advisers at the disposal of Governments, the preparation and publication of technical manuals and the making of arrangements for the training of national officials. In the first year, three senior experts and three other staff would be required for field work and one senior expert and one clerical assistant at headquarters; in the second year, four senior experts and four other staff for field work, and one senior expert and two other staff at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $121,600; second year, $166,500.

IX. Development of labour statistics

General nature of programme

The provision of technical advice and assistance to Governments in regard to the organization, development and technical improvement of the collection, tabulation and analysis of labour statistics, including in particular, statistics of employment and unemployment, wages, cost of living and family living studies.

Relation to economic development

An indispensable adjunct to the economic development of underdeveloped areas is the establishment of statistical services necessary to furnish the means of knowing what is going on, the promising lines of development to follow, and the results of economic development. The four types of labour statistics mentioned above are the prime requirements in the field of labour statistics. In some of the underdeveloped countries or areas no such statistics are available and in many others the development of labour statistics is only in a very early stage.

Regions concerned

The programme would apply to all under-developed regions.

Analysis of projects

(1) *Development of national statistical services*

The purpose of this project would be to render technical assistance and advice in the setting up and organizing of services for the collection and publication of labour statistics in countries or areas where these statistics are inadequate or do not yet exist. The work would fall in three stages: first, a survey of the needs for such statistics as compared with the country's existing resources in statistics and statistical personnel, as a basis for developing a programme suited to the country's requirements; secondly, the development and putting into operation of a detailed plan for the collection of the labour statistics that are needed; and finally, at an appropriate interval after the plan has been put into operation, a review of its working with a view to advising on methods of ensuring its effective application.

The methods to be followed in carrying out the projects would depend on the extent to which it seemed practicable and advantageous, having regard to the scope for action in the regions concerned, to combine the proposed work in the field of labour statistics with assistance being given by other international organizations in the development of other types of statistics. So far as possible, arrangements would be made for the use by experts belonging to different organizations of common facilities and services, possibly in jointly operated field centres located in each, or at least in four, of the major regions noted earlier in the chapter. From these centres, technical experts and advisers might be sent to the different countries or specific areas to survey the needs for statistics and to assist in setting up statistical services. Each centre would need to have specially qualified experts on the types of statistics required in the particular region, with appropriate language and other qualifications.

The primary task of the individual experts or teams of experts who would be based on the field centres would be to make, in close consultation with the existing national statistical services, a thorough survey on the spot of the problems encountered in the field of labour statistics by each of the countries concerned and of the resources available, with a view to recommending a programme for the development

of the statistical services along lines appropriate to the needs and the practical possibilities of the country concerned. The implementation of the programme would, of course, be the responsibility of the Government concerned, but it might often be desirable to make available for a period of several months the services of an expert who could render continuing technical assistance and advice on the problems encountered in the initial organization and operation of new services. Arrangements might also be made where appropriate for such experts to return for a brief period after the new services had been in operation for some time, in order to advise on any further measures which might seem desirable.

(2) *Training courses for labour statisticians*

The second project would consist in setting up a training programme for labour statisticians. This again would be developed for the principal regions where such technical training would be most useful. It would require specially qualified experts to give training courses in the different specialities so that local officials taking the courses would obtain practical as well as theoretical training adapted to their future work in the field of labour statistics. The training centres would be associated with the field centres described above, with a view to the utilization of the field centre personnel, in part, as experts to supplement those of the training centre.

The training courses would be open to members of the statistical staffs of Governments of the region concerned, and to students desirous of perfecting their knowledge of statistical techniques with a view to entering the service of their Governments. It would be desirable, if possible, to associate this training with practical experience in a statistical office located at or near the centre.

As in the case of the field centres, arrangements would be made whenever possible to arrange the training courses in methods of labour statistics in the closest co-operation with similar activities sponsored by other international organizations.

Experience of the International Labour Organisation in the field

International standards for the various types of labour statistics have been drawn up by successive International Conferences of Labour Statisticians convened by the ILO. On the basis of these standards, of the work of its Committee of Statistical Experts and of the detailed studies which the International Labour Office has made of the meth-

ods utilized in different countries for the collection and analysis of labour statistics, the ILO is well equipped to recommend methods and techniques appropriate to countries in different stages of economic development. It has indeed had considerable experience in such work, having at different times sent missions of statistical experts to a number of countries to survey their needs for labour statistics and to make detailed recommendations on methods of meeting those needs.

Proposed co-operation and co-ordination with the United Nations and specialized agencies

As has already been suggested, there would appear to be considerable scope for joint or co-operative action by the ILO, the United Nations and other agencies in the development of statistical services in the under-developed countries. In the carrying out of the projects outlined above every endeavour would be made to develop such collaboration to the fullest possible extent, both as a means of keeping administrative and other expenses to a minimum and in order to ensure the development of a properly integrated programme of economic and social statistics.

Estimated cost

The programme outlined above would involve the sending of technical advisers to a number of countries, the organization of training courses and the making of arrangements for statistical trainees to obtain practical experience abroad. Provision is made for the preparation of necessary informational material and publications. In the first year, four senior experts, three assistants and two clerical staff would be required for field work, with one senior expert and one clerical assistant at headquarters; in the second year, six senior experts, five assistants and three clerical staff for field work, and one senior expert and two other staff at headquarters.

The cost of the programme is estimated as follows: first year, $156,300; second year, $231,400.

X. Social security

General nature of programme

The provision of technical advice and assistance to Governments in regard to the framing and administration of all branches of social

security legislation, including benefits for injury during employment, for sickness, maternity, invalidity, old age, death, unemployment, and family allowances. Such advice and assistance would include specialized advice and assistance in connexion with the actuarial and general administration of social insurance, the organization of medical care services, and the medical aspects of the rehabilitation of disabled workers.

Relation to economic development

Social security systems constitute a necessary accompaniment to any programme of economic development. No country of industrial importance at the present time has failed to establish a more or less extensive system of social security, and, broadly speaking, the scope and content of the system are correlated with the progressive industrialization of the country. The reason is evident enough: the industrial wage-earner, much more than the rural worker, is menaced by destitution in case of sickness, unemployment or old age, and, in order to attract under-employed workers from rural areas into industrial employment, at least a minimum programme of social security must be afforded. In India, for example, such a programme has been considered indispensable in order to induce rural workers to settle permanently in the towns and so to build up a stable force of industrial labour. At a later stage, it becomes necessary to introduce into the rural areas also appropriate measures of social security in order to check an unduly heavy migration into the towns. In view of the recognition, now widespread, that social security is a realizable objective, it is indeed impossible to establish satisfactory industrial relations without the backing of a social security system.

Finally, the value of an adequate and generally available medical care service in maintaining the health and productive capacity of the workers, whether in industry or in agriculture, should by no means be under-estimated.

Regions concerned

The following countries are known to be seeking technical aid in the field of social security at the present moment: Bolivia, Burma, China, Ceylon, Colombia, Egypt, El Salvador, India, Iran, Israel, Nicaragua, the Philippines and Turkey.

At a later stage it may be expected that assistance will be needed by

other countries in Africa, the Near and Middle East, Asia and Central and South America.

Analysis of projects

The process of introducing in a given country a social security programme covering one or more risks may be broken down into three phases: (1) ascertainment of the type of programme suited to the country's immediate or impending needs and ability; (2) drafting the programme; (3) drafting regulations and setting up administrative machinery. All three phases call for technical aid derived from the experience of countries where similar programmes have been in operation for several years. The three phases are closely linked together. The second follows from the first, and is executed with the fullest possible consideration of the problems that it will present for the third. Consequently a single policy must dominate the process throughout.

The first phase neccssitates a survey of relevant factors and circumstances in the country: its present and probable future industrial development, financial resources, social traditions, literacy, medical facilities, etc.

The second phase involves a knowledge of the comparative anatomy of social security legislation, and the ability to select and combine provisions so as to form a programme which is both adapted to the peculiar circumstances of the country and, by generally accepted criteria, likely to prove technically satisfactory.

The third phase requires a great deal of technical knowledge, very careful attention to detail, and organizing ability. This part of the process involves such essential operations as the registration of contributors, the establishment of sets of forms, special accounting procedures, actuarial preparation and supervision, the establishment of procedure for the settlement of disputes, and the complex of provisions relating to the organization of the medical care service.

Those countries which have, as yet, no social security programme will of course need technical aid in carrying through all three of the phases just described. Certain other countries having an incomplete or out-dated social security system, will need such aid, though in a lesser degree, when planning the extension or amendment of their system. Some again will want merely to revise and improve certain features of their administration.

The first two phases always necessitate field work of an extensive rather than an intensive character. The third, on the other hand, should not in all cases involve sending a mission of experts, since endeavour should be made to economize the time and heavy cost of such missions by holding regional or international training courses, by the production in the languages of the regions concerned of handbooks on the problems involved and by making full use of the possibilities of study fellowships.

(1) *Field work*

The survey of the social security needs and possibilities of a country and the drafting, in outline, of a suitable social security programme can only be performed by a small and carefully selected team of experts working on the spot in close consultation with the responsible national officials and representatives of workers', employers' and other interests. Such a team should, if possible, include an expert from the ILO staff, an actuary and, in certain cases, a medical officer with appropriate experience.

The final drafting of the legislation, the preparation of regulations and the setting up of the administrative machinery should, where possible, be entrusted to national officials who have received the necessary instruction. Nevertheless, for certain countries, the task may prove too difficult and it would then be necessary to send one or more experts on mission for a period of perhaps six months, in order to establish proper procedure for the registration of the insured population, keeping accounts of contributions and benefits, compiling statistics, and the organization of medical care.

(2) *Training courses*

Organization of training courses to be attended by officials of countries introducing social security schemes or desiring to improve their social security administration in such fields as accounting, medical care organization, collection of contributions, filing systems, statistics. The teaching material would include the national monographs and the handbooks referred to below. A course would last from three to six months and would be followed by a period of practical training of one to two months in a country with a well organized social security system.

(3) *Instructional handbooks*

Preparation in three languages (English, French and Spanish) of monographs on administrative practice of social security in selected countries with typical systems, reproducing forms, registration cards, medical cards, insurance cards, etc., to assist national authorities in drawing up regulations for the operation of social security schemes and in the establishment of the administrative services required.

The countries on the systems of which such monographs might be prepared include, e.g., Denmark, Finland, France, Italy, Norway, Poland, Switzerland, United Kingdom, Brazil, Chile, Mexico, Uruguay, United States of America, Australia and New Zealand.

On the basis of these monographs on administrative practice, a series of handbooks on technical matters could be prepared by experts of the highest standing. These would elucidate the nature of the problems to be solved and illustrate the different approaches to their solution. The national monographs would supplement these handbooks on points of detail. These handbooks, four to five in number, should be published, not only in the official languages of the ILO, but also in the languages of such countries as need the technical advice —for example, in Arabic and Chinese.

Experience of International Labour Organisation in this field

ILO missions have assisted at one or more stages in the development of social security schemes in the following countries: Cuba, United States of America, Venezuela, Turkey, Ecuador, Bolivia, Chile, Costa Rica, Mexico, Canada, Haiti, Greece, Iran, Ceylon, Philippines, Portugal, Rumania, United Kingdom, India, Egypt, Colombia, El Salvador, France and Czechoslovakia.

It will be observed that several of the countries just enumerated figure in the list, given in an earlier paragraph, of countries known to be now seeking technical aid. The explanation is that, in some instances, the assistance given by the Office has been confined to the earlier phases only of the introduction of a social security system, while in others the assistance now required relates to a new branch of social security, such as pension insurance or unemployment insurance. Again, it must be remembered that, in the course of the twenty-five years during which the Office has been active in the social security field, developments in technique and policy have taken place which call for the progressive adaptation of national legislation.

The International Labour Conference, on the basis of studies prepared by the International Labour Office, has adopted, in the form of Conventions and Recommendations, international standards covering each branch of social insurance; and technical Committees attached to the Office have formulated guiding principles on various technical aspects of social insurance. In 1944, the Conference, by its Recommendations on Income Security and Medical Care, pointed the way for the revision of pre-war legislation in conformity with the new idea of social security which was then taking shape. The Office, therefore, is well equipped to base its advice to Governments on the latest advances made by the different countries in the various branches of social security.

The Governing Body of the ILO is advised on social security questions by a strong international Committee of Social Security Experts, which includes, not only the directors of social security departments in some twenty countries, but also representatives of the Inter-American Committee on Social Security and the International Social Security Association. The fullest possible use of this Committee and the two organizations mentioned will be made in working out the details of the programme of technical aid, especially as regards the recruitment of experts and the preparation of the handbooks envisaged above. Indeed, the Committee already envisages that the question of the training of the technical staff of social security administrations will figure on the agenda of the next meeting, at the beginning of 1950.

Proposed co-operation and co-ordination with the United Nations and specialized agencies

This work would be done in close co-operation with WHO, so far as the medical services of social security schemes are concerned.

Estimated cost

The programme outlined above would involve the sending of expert survey and advisory missions to a number of countries, the organization of training courses for national officials and arrangements to enable a limited number of them to study in other countries. It would also include the preparation and the publication in appropriate languages of monographs and handbooks on administrative practice of

social security in selected countries. In the first year, fifteen senior experts, twelve assistants and eight clerical staff would be required for field work, and two senior experts and three other staff at headquarters; in the second year, twenty-two senior experts, eighteen assistants and twelve clerical staff for field work, and two senior experts and five other staff at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $639,100; second year, $944,300.

XI. Co-operation and handicrafts

General nature of programme

Advice and assistance to Governments and co-operative bodies in the development of co-operative methods of organization.

Relation to economic development

Co-operative organizations can play an important part in promoting a satisfactory adjustment between new industrial development and the traditional organization of economic life.

The search for institutions capable of immediate adaptation to urgent needs of economic development has led the public authorities in many countries (e.g., India, Burma; Egypt, Iran; Argentina, Brazil; and British, French and Belgian colonial Administrations), to study and encourage the application to their own requirements of different forms of co-operation which have been successful elsewhere.

The identity of interests between co-operative institutions and the people they serve has enabled Governments in various under-developed countries to use them with confidence and with a minimum of supervision and administrative expense as channels of distribution (e.g., of producer credit, as in Chile and Siam; of raw materials and equipment for industrial co-operative groups, as in China and India; of agricultural requisites, as in Egypt and Cyprus; of rationed consumer goods, as in Peru and the Philippines) and of produce collection (as in Brazil and Nigeria).

Experience has also shown that co-operative societies set up to serve particular economic purposes (such as the consumer co-operatives of Ceylon, the credit co-operatives and industrial co-operatives of China, and the colonization co-operatives of Colombia and Siam) can be main-

tained on a permanent basis, thus ensuring continuity of effort after the initial development phase. Co-operative institutions may furthermore provide the means of spreading technical information and formulae for improving methods of work and production among peoples with at present more or less primitive economies, and may even play a part in man-power organization (as is being done by the formation of labour-contracting co-operatives in Burma and India). By raising productivity in this way they can make more gradual, and less liable to give rise to hardship and unrest, the process of transition from a handicraft to a modern industrial society.

Regions concerned

The areas in which the ILO could usefully deploy further resources in respect of co-operation are Asia, the Near and Middle East, Latin America and Africa. Co-operative organizations and cottage and handicrafts industries were the subject of resolutions adopted by the Preparatory Asian Regional Conference and the Regional Meeting for the Near and Middle East (1947). The agenda for the Fourth Labour Conference of American States (Montevideo 1949) and the Asian Regional Conference (1950) both provide for consideration of these problems. Examination of the subject at these conferences may be expected to stimulate requests for technical assistance from Governments, a number of which are already drawing upon the ILO for information on particular aspects of co-operative activity.

Analysis of projects

The principal need in these regions is for advice and guidance either on the setting-up of co-operative organizations where they do not exist or on the extension of existing but simple types of co-operatives into more advanced and complex economic activities, and on methods to solve the shortage of trained personnel both for interested Government departments and for co-operatives themselves.

It is therefore proposed that the following projects should be undertaken in each region:

(1) Mapping out of the general factors affecting co-operative development, to determine which types of co-operatives might be best suited to the particular conditions of each region or country;

(2) Provision of advice on the adaptation of known forms of co-

operation to such conditions, and on the organization, constitution and administration of appropriate co-operatives;

(3) Provision of assistance in the framing of schemes for the teaching of co-operation and the training of co-operative staffs (including arrangement of facilities for training key workers in co-operative institutions of other countries);

(4) Provision of guidance generally in the planning, launching and implementation of co-operative development schemes.

These projects would entail field investigation and promotional work by qualified experts, backed by central research and advisory services.

Among the specific forms or uses of co-operative organization upon which the projects could be aligned in connexion with economic development schemes in the countries concerned, are:

(i) The grouping together of self-employed workers in certain types of scattered industry, e.g., cottage industries and handicrafts, which can play a considerable part in supplying needs of locally-manufactured goods, into units of suitable size to enable them to secure the benefits of larger-scale organization and operation, while permitting industrial decentralization. The organization and extension of cottage and handicraft industries on a co-operative basis occupy an important place in various industrial development schemes, particularly in Asian countries. Thus, the Indian Government has set up a national Cottage Industries Board, which among other things has decided upon co-operative organization as the starting point for the modernization and expansion of India's cottage industries and their integration into the industrial system as a whole. Handicrafts and small-industry co-operatives—together with other kinds of co-operative activity—have also been indicated as the means of grafting modern productive techniques on to the traditional communal form of work among the indigenous populations in Latin America, thereby facilitating their assimilation into the modern economic process;

(ii) The organization of wage-paid workers into labour-contracting co-operatives (especially in the building and public works industries and certain large-scale agricultural occupations), or, where capital is available, into workers' productive co-operatives (e.g., in light industries, particularly those concerned with consumer requirements), with a view to developing a more stable labour force, stimulating the acquisition of skill and improving output;

(iii) The supply of credit on reasonable terms to producers, both artisanal and agricultural, to combat exorbitant interest rates and consequent indebtedness, and to provide funds for productive purposes;

(iv) The supply of tools, machinery and raw materials, in order to augment output, facilitate the application of modern techniques and reduce production costs;

(v) The marketing (and processing) of produce, to facilitate the fullest possible collection, standardization and sale of surplus output, and to co-ordinate in technical and economic respects the small productive units with a view to reducing their general costs;

(vi) The distribution of commodities to consumers through channels rationally adapted to their needs and under their own control, thereby reducing distribution costs;

(vii) The installation of colonists, settlers and immigrants. Experience has shown that there is a fruitful role for co-operative activity in allotment and land-leasing, the consolidation of holdings, land-improvement and irrigation, in electricity, in transport, small-scale manufacturing and handicrafts, in better-living and health co-operatives, in addition to credit, supply and marketing co-operatives;

(viii) Finally, the use of co-operative organization to improve the conditions of work and life and consequently the productivity of the urban working class in countries with nascent industries, and of populations with under-developed economies. It is recognized that welfare work has an important bearing upon the stability and productivity of labour. In this connexion, various forms of co-operative activity can be more widely applied on the basis of experiments already made, e.g., urban thrift and credit, food supply, housing, health, insurance and cultural and recreational amenities. Again, particularly in Asia and Latin America, the assimilation of what is variously described as "aboriginal" or "indigenous" populations—amounting in some cases to a considerable proportion of the total able-bodied population—into the modern economic system, can be facilitated by the application of carefully adapted co-operative techniques. Experiments in this direction are being made, e.g., in certain parts of India.

Experience of the International Labour Organisation in this field

The ILO has for thirty years served as a clearing house for information on co-operative organizations, and as a centre for developing con-

tacts between such organizations. It is accordingly equipped with comprehensive data on co-operative problems and experience, and has well-established relations both with Government institutions concerned with co-operatives and with co-operative organizations themselves, throughout the world. It has frequently been consulted by such bodies on specific co-operative problems and has undertaken technical missions in Morocco, Iran, India and Ceylon with promising results, as well as shorter field investigations in Pakistan, Burma, Siam and the Philippines.

Proposed co-operation and co-ordination with the United Nations and specialized agencies

Close contact is already maintained with FAO to ensure co-ordination of the work of the two organizations in respect of co-operation. Similar contact with other international organizations will be established as required.

Determination of the exact nature of this collaboration would be the subject of further consultation with the agencies concerned. In the case of agricultural co-operation, for example, consideration would be given to the possibility of undertaking jointly with FAO field work concerning joint-farming co-operatives or agricultural credit and supply co-operatives. Practical collaboration might also be established between ILO and UNESCO concerning "mass education," the former supplying data and advice on the teaching of co-operation for use as part of a programme of basic education sponsored by the latter.

Estimated cost

The programme outlined above would involve investigations and advisory missions in a number of under-developed countries by qualified experts with practical experience in co-operative organization, the development of training facilities (including arrangements for training key workers in co-operative institutions in other countries) and the preparation of necessary publications. For the first year, six senior experts, three assistants and three clerical staff would be required for field work, and one senior expert and one clerical assistant at headquarters; for the second year, eight senior experts, five assistants and four clerical staff for field work, and one senior expert and two other staff at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $199,500; second year, $286,700.

XII. Employment, wages and conditions of work in agriculture

General nature of programme

Assistance and advice to Governments on methods of affording security of employment and livelihood to agricultural workers; on the effects on work incentives and opportunities for job advancement of different systems of land tenure, ownership and remuneration; on wage policy and methods of wage regulation; and on such matters as hours of work, rest periods and holidays, the protection of young workers and the conditions of accommodation and other facilities required for health and efficiency.

The programme would be complementary to the assistance, proposed elsewhere in this chapter, in the organization and initial operation of the employment service and vocational training facilities required to adapt the agricultural labour force to new production techniques (section II above); in the planning of land settlement schemes (section II); in establishing social security services appropriate to agriculture (section X); and in applying co-operative methods to agriculture (section XI).

As a basis for the provision of the assistance contemplated in the present programme, the special problems of the countries concerned would be studied by missions of experts including persons familiar with relevant experience in other countries. Where appropriate, small meetings of experts would be convened to consider and make recommendations, for the guidance of field missions, on specific problems common to a group of countries in similar stages of economic development.

Relation to economic development

Such assistance, together with the assistance in related labour problems of agriculture proposed elsewhere in this memorandum, by increasing the mobility, adaptability, skill and productivity of the labour force and by offering greater incentives to workers and stimulating management to introduce labour-saving methods, would raise the output, earnings and living standards of the workers concerned,

would enable the labour requirements for expanding agricultural production to be met by the fuller and more continuous employment of fewer workers and would thus release labour needed for the development of new industries.

Regions concerned

In all of the under-developed countries the great majority of the population is engaged in agriculture. The programme would therefore apply to all these countries but would have special relevance to those countries and types of agriculture in which wage-paid labour is an important factor.

Analysis of Projects

(1) *Security of employment and livelihood for agricultural workers*

This project would be concerned with two closely inter-related problems of great importance to most under-developed countries; the protection of the agricultural worker from the insecurity associated with the abandonment of traditional family holdings or communal organization and the commercialization of agriculture; and the full utilization of the farm labour force.

The commercialization of agriculture greatly increases its vulnerability to price fluctuations; and employed workers, as well as owners and tenants, suffer the consequences of this instability. The problem is particularly serious when, through the sale of family or tribal lands and the breakdown of communal organization, the workers have nothing to fall back upon. While the principal responsibility for providing assistance and advice in dealing with this problem would rest with FAO, provision would be made in the present project for surveys of the part which co-operative methods, of the types referred to in section XI above, have played in this connexion and for the giving of assistance and advice in the utilization of such methods for this purpose.

Full utilization of the agricultural labour force, involving the elimination of chronic under-employment and the minimizing of seasonal unemployment, is essential both to the attainment of maximum output and to the raising of rural and urban living standards. Special attention would therefore be paid to methods of providing more continuous employment (e.g., through the diversification of farm production), wider job opportunities (e.g., through the development of rural industries, and the improvement of transport facilities

to improve the mobility of labour) and small land holdings affording part-time occupation.

(2) *The effects on work incentives and opportunities for advancement of different systems of land tenure, ownership and remuneration*

Systems of land tenure go far to determine the opportunities for job advancement and thus the degree of incentive to enter agricultural employment, to work hard and to acquire new skills. The systems of remuneration associated with different types of tenure also have an important influence on incentives to work. Where conditions are such that, by increasing his output and his skill, the farm worker can improve his earnings, his standard of living and his occupational status, the progress of economic development is likely to be more rapid than where such opportunities and incentives do not exist.

Studies would therefore be undertaken of the effects on work incentives and job opportunities of different systems of tenure, ownership and remuneration, and of the role which may be played in this connexion by co-operative methods, with a view to providing Governments with information, and equipping field teams of experts to advise, on the types of arrangements best calculated to encourage effort, initiative and the acquisition of new skills.

(3) *Wage policy and methods of wage regulation*

In many under-developed countries wage regulation can make a definite contribution to the solution of farm labour problems. Farm workers are generally unorganized; in many cases high birth-rates in rural areas, combined with lack of opportunities for alternative employment, create a buyers' market in respect of labour; and in certain cases the bargaining power of farm workers is further weakened by special factors. As a result, farm wage rates generally compare unfavourably with those in industry. In these circumstances the raising of wage rates by effective regulation can serve both to combat exploitation and to stimulate the introduction by management of more efficient and labour-saving methods of production. At the same time, especially if combined with appropriate controls over advances and payment in kind and with improvements in housing and other facilities, it can help to eliminate some of the major causes of rural indebtedness and to retain or attract the necessary number of skilled workers capable of working with mechanical equipment and taking

part in the application of modern techniques of farming and soil conservation. In certain cases the introduction of systems of payment by piece rates, with appropriate safeguards (including guaranteed minimum time rates), may provide the necessary incentive to increased output at harvest time and other seasonal peaks of employment when speed of work is particularly important.

Arrangements would be made, therefore, to provide technical assistance and advice in the establishment of wage-fixing machinery for agricultural workers, in the drafting of legislation for the protection of wages (including the regulation of advances and of payment in kind), in the organization of effective measures of enforcement and in the devising of suitable systems of incentive payments for farm workers.

(4) *Conditions of employment in agriculture*

Provision would also be made for assistance and advice in the framing and application of policies concerning such matters as hours of work, rest periods and holidays, the protection of young workers and the conditions of accommodations and other facilities needed to promote the health and efficiency of the agricultural worker.

Experience of the International Labour Organisation in this field

The ILO has undertaken extensive studies of the topics listed. Certain of these topics have been or will shortly be considered by its Permanent Agricultural Committee, by regional conferences of the ILO in Asia, the Near and Middle East and Latin America, or by the International Labour Conference. Some of them have also been dealt with to a limited extent by ILO expert missions which have been called upon to give advice to under-developed countries.

While these activities have constituted a useful preparation for a more extended programme of technical assistance in this field, more detailed and extensive factual studies would be needed as a basis for the development of such assistance on a larger scale.

Proposed co-operation and co-ordination with the United Nations and specialized agencies

The scope for effective action in many of the directions proposed above will be closely conditioned by the progress achieved by the

countries concerned in related fields the primary responsibility for which rests with the Food and Agriculture Organization. Both in the further elaboration and in the execution of the projects outlined, therefore, the closest contact would be maintained with this organization. Special consideration would be given to the possibility of organizing joint or closely integrated programmes of action in related fields.

Close contact would also be maintained with the relevant organs of the United Nations, including the regional commissions.

Estimated cost

The programme outlined above would involve certain preliminary investigations, the convening of small meetings of experts to consider specific problems common to certain groups of countries, the publication of the conclusions reached and the furnishing of technical assistance and advice. In the first year, five senior experts and four other staff would be required for field work, with two senior experts and one clerical assistant at headquarters; for the second year, seven senior experts and five other staff for field work and two senior experts and three other staff at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $201,700; second year, $302,400.

XIII. Maritime problems

General nature of programme

Assistance to Governments in framing and administering schemes for improving the conditions of work and life of seafarers.

Relation to economic development

A number of under-developed countries are taking active steps to create and strengthen merchant marines. While this is clearly of value for the economic development of these countries, it is particularly important, in order to avoid unfair competition in this essentially international industry, to secure from the outset the application of good standards of employment conditions for the men who man the ships.

Regions concerned

Primarily South East Asia, the Far East and Latin America.

Analysis of projects

The most urgent project relates to the recruiting system in India and Pakistan, where a constant surplus of seafarers exists. The problem involves weeding out men who are too old or physically unfit, introducing a reliable system of registration of seafarers and establishing special employment offices for the hiring of seafarers in a manner which will ensure regularity of employment. Only when this has been done will it be possible to introduce appropriate arrangements for the protection of these workers against the risks of their employment.

Secondary, but also urgent, problems are the improvement of accommodations and welfare facilities on shore (hostels, clubs, etc., primarily for the seamen of the countries concerned, but also for visiting seafarers), the development of training schemes for officers and ratings, improved medical care and hospital facilities, and the provision of increased office accommodation and greater amenities in shipping offices where men are signed on and off.

These needs exist to a greater or less degree in most of the Far Eastern countries and to a lesser extent in some of the Latin American countries. It is suggested that the ILO should be more fully equipped to give expert advice for the improvement of these conditions. For this purpose further surveys should be made of the conditions on the spot and remedial measures should be discussed by qualified missions with representatives of Governments, shipowners and seafarers. This task is closely related to the programme concerned with employment, training and migration (section II above) and would draw on its resources in such matters as the training of staff.

Experience of the International Labour Organisation in this field

The ILO has framed a comprehensive code of international standards in the form of Conventions and Recommendations dealing with the conditions of life and work of seafarers. The Joint Maritime Commission, which consists of shipowners' and seafarers' representatives, and has a record of useful work for seafarers since 1920, is in a position to give authoritative advice on all such questions. It would doubtless

be possible to count on the co-operation of representative shipowners and seafarers in missions to carry out certain parts of this project.

Proposed co-operation and co-ordination with the United Nations and specialized agencies

Close contact would be maintained where appropriate with the Transport and Communications Commission and regional commissions of the United Nations, with the World Health Organization and with any other specialized agencies which might be concerned.

Estimated cost

The programme outlined above would involve the furnishing of technical assistance and advice by teams of qualified experts, including representative shipowners and seafarers; provision is also made for necessary publications. For the first year, three senior experts and three other staff would be required for field work, and for the second year five senior experts and five other staff; in both years, one senior expert and one clerical assistant would be required at headquarters.

The cost of the programme has been provisionally estimated as follows: first year, $99,800; second year, $149,800.

XIV. Technical advice in connexion with specific industries

General nature of programme

In cases in which industrial development is largely concentrated, for the time being, in one or a few major industries the types of assistance proposed in earlier sections of this chapter may with advantage be provided in the form of an integrated programme keyed to the special needs of those industries. In drafting those sections, therefore, it was assumed that the services of a general character therein proposed would be supplemented where appropriate by integrated programmes of this kind. It is with these programmes that the present section is concerned.

Relation to economic development

By contributing to the solution of labour problems and the raising of productive efficiency in certain industries of special importance,

programmes of this kind would facilitate industrial development in its early stages and help to create conditions favourable to the sound growth of additional industries.

Regions concerned

Programmes of this kind would be developed as required to meet the special needs of particular countries in each of the under-developed regions.

Analysis of projects

Integrated programmes of technical assistance and advice would be developed as required in respect of one or more of the following industries: inland transport; coal mines; iron and steel production; building, civil engineering and public works; the textile industries; the metal trades; petroleum production and refining; and the chemical industries.

The subjects covered by the programmes would include the recruitment and training of labour, conditions of employment, industrial relations including methods of settling industrial disputes, measures for the promotion of industrial safety and health, housing and welfare facilities, and social services.

The assistance and advice to be provided would include assistance of the various types referred to in earlier sections of the present chapter.

The range of subjects to be dealt with, the composition of expert missions and the other services to be provided in each case would depend on the industries to be covered and other special circumstances of the country requesting the assistance.

Experience of the International Labour Organisation in this field

For each of the industries listed above the ILO has a tripartite committee, composed of representatives of Governments and of employers' and workers' organizations, which holds regular meetings to consider the specific problems of the industry concerned. As a result of the work of these committees and the extensive relations which the ILO maintains through them with industrial circles in the countries in which these industries are most developed, there is available a fund of experience and expert knowledge which should prove of considerable value to countries in an early stage of industrialization.

Proposed co-operation and co-ordination with the United Nations and other specialized agencies

Close contact and collaboration would be maintained with the regional commissions of the United Nations, with the ITO when it is established, and as appropriate with the International Bank for Reconstruction and Development.

Estimated cost

The programme outlined above would involve the sending to the countries concerned of teams of experts qualified to advise on the problems of particular industries. Provision is made also for necessary publications. It is estimated that during the first year four senior experts and three other staff would be needed for field work, and during the second year, six senior experts and five other staff; in both years, one senior expert, with one clerical assistant, would be required at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $116,900; second year, $173,100.

XV. Labour and social problems of the indigenous populations of Latin America

General nature of the programme

The factual information available on the present economic and social conditions, and in particular on the employment and occupations, of the indigenous populations of Latin America, which is essential to the elaboration of effective programmes of action for the improvement of those conditions, is fragmentary and inadequate. Detailed quantitative and descriptive data on the occupational distribution of the indigenous populations of Latin America, their characteristic forms of economic organization and their vocational training facilities and problems would therefore be collected as a basis for giving practical advice to the Governments concerned.

Relation to economic development

Indigenous peoples in many countries of Latin America constitute the bulk of the national populations and indigenous workers form a

great portion of their available man-power in agriculture, mining and home industries. The study of their technological conditions and requirements, has, therefore, special significance in respect to economic development schemes in these countries.

Region concerned

Latin America.

Analysis of projects

(1) Collection of first-hand information on existing programmes for the improvement of the economic and social status of indigenous populations in Latin America and their results, and on experiences elsewhere which may be of interest to Latin-American countries, with special reference to more effective utilization of indigenous man-power through the development of training schemes and the adoption of other measures for integrating that man-power into the framework of the national economies;

(2) Preparation, in co-operation with the Latin-American Governments concerned, of monographs on the occupational distribution of their respective indigenous populations designed as background information for the work indicated under (1);

(3) Carrying out in selected areas of a limited number of field studies on the economic and technical problems involved in the modernization of some of the typical indigenous artisanal occupations; particularly home weaving (access to raw materials, credit, techniques of fabrication, marketing, etc.). (Projects of this kind have already been initiated on a very limited scale by the *Instituto Nacional de Prevision Social* of Ecuador, the *Instituto Peruano de Artes Manuales,* the *Instituto Indigenista Nacional* of Guatemala and the *Corporacion Argentina de la Tejeduria Domestica*);

(4) Carrying out of field studies on the possibility of adapting general economic development and welfare schemes to the economic, social and cultural characteristics and conditions of indigenous groups, with special reference to the fields of activity outlined in the preceding sections of the present chapter. Examples: (*a*) adapting modern producers' and consumers' co-operative methods to the traditional agricultural and pastoral Indian *communidades* and to Indian artisan groups; (*b*) adapting general social security schemes to the economic

characteristics of indigenous rural groups; (*c*) adapting modern industrial safety methods to conditions in high altitude mines, and providing instruction to Indian workers in the proper use of safety devices (along the lines suggested by the Peruvian law 10,833 of 10 March 1947);

(5) Technical advice to Governments on the basis of the information collected.

Experience of the International Labour Organisation in this field

The conditions of indigenous populations have been discussed at all the Labour Conferences of the American States Members of the International Labour Organisation and have been the subject of extensive studies by the International Labour Office. The question constitutes a special item on the agenda of the Fourth Conference to be held in Montevideo in April 1949. The Governing Body of the International Labour Office has recently established a Committee on Indigenous Labour designed primarily to enable Latin-American countries to draw on the experience of each other and of countries of other continents in handling such problems.

Proposed co-operation and co-ordination with the United Nations and specialized agencies

Close contact and collaboration would be maintained with relevant organs of the United Nations, including the Economic Commission for Latin America, and any other international or inter-American agency that may be concerned.

Estimated cost

The programme outlined above would involve field investigations in several Latin-American countries concerned, the publication of the results of these investigations and the furnishing of advice to Governments. For the first year, three senior experts and three other staff would be required for field work, and in the second year, five senior experts and five other staff; in both years, one senior expert, with one clerical assistant, would be required at headquarters.

The cost of the programme is provisionally estimated as follows: first year, $99,800; second year, $149,800.

PROVISIONAL FINANCIAL ESTIMATES

Summary table

		First Year $	Second Year $
I.	Relation of economic development policies to labour income and employment	100,100	161,300
II.	Employment, training and migration	1,170,500	1,567,400
III.	Industrial relations, including machinery for the settlement of industrial disputes	320,000	480,100
IV.	Wages policy: systems of wage payment; machinery for the determination of minimum wage rates	185,800	305,000
V.	Industrial safety	520,100	764,700
VI.	Occupational health	430,500	636,600
VII.	Enforcement of labour legislation, including labour inspection	316,700	474,400
VIII.	Employment problems of women and young workers	121,600	166,500
IX.	Development of labour statistics	156,300	231,400
X.	Social security	639,100	944,300
XI.	Co-operation and handicrafts	199,500	286,700
XII.	Employment, wages and conditions of work in agriculture	201,700	302,400
XIII.	Maritime problems	99,800	149,800
XIV.	Technical advice in connexion with specific industries	116,900	173,100
XV.	Labour and social problems of the indigenous populations of Latin America	99,800	149,800
	TOTALS:	4,678,400	6,793,500

CHAPTER 9

Proposals of the Food and Agriculture Organization

General introduction

Resolution 180 (VIII) of the eighth session of the Economic and Social Council on "Technical Assistance for Economic Development" calls for a "comprehensive plan for an expanded co-operative programme of technical assistance for economic development." The Food and Agriculture Organization is primarily concerned with providing technical assistance to its member Governments in nutrition, agriculture, fisheries, forestry and rural welfare.

The projects submitted do not constitute an inclusive list but are rather a series of concrete examples of fields of activity of FAO in which technical assistance is needed for economic development. These fields necessarily cover a wide range because needs differ among regions and countries. Any given project might be carried out at a given time in only a few places.

For the most part the projects submitted would make possible an enlargement and acceleration of the programme of development and improvement already initiated by FAO. They are closely related to the present working programme with this main difference—the programme now underway can include little continuing assistance to individual Governments in connexion with particular programmes whereas the proposed supplementary projects will concentrate on this much-needed kind of aid. Practically all the projects reflect recommendations and proposals made at various times by sessions of the FAO Conference.

Particular countries in which the projects proposed will be carried out are for obvious reasons not specified. This is not because FAO does not have information regarding the areas where improvements in production and other practices could be most quickly and effectively introduced. Specific locations are not given because of the conditions under which the organization operates. Governments must ask for or

be willing to accept technical aid from FAO before any work can be started. The organization must also be sure that the Government concerned will carry through necessary collateral action to ensure that the technical aid will be fully effective. Moreover, naming specific countries in the present stage of these proposals might invite invidious comparisons or pressure for aid from other sources.

Dealing as it does with a great many specific technical fields, this chapter perhaps fails to give sufficient emphasis to the fundamental planning work of development programmes. Any programme of development in one country or region must not only be internally well-rounded, taking into account nutrition, health, welfare, education and other factors as well as production technology; it must also be shaped in relation to the rest of the world. Finally, it must at some stage begin to pay its own way, which means that in the long run the external financing must come from increased exports or savings in imports. Thus, decisions on many development projects will rest on knowledge of, and ability to interpret, competitive advantage, trade trends, and the production plans of other countries.

These internal and external problems would arise even if possibilities for national economic expansion were unlimited. In fact, they are limited, often sharply, in terms of the skilled technicians and financial resources available. Priorities will have to be invoked in most cases. The necessity for such choices emphasizes the need for accurate knowledge of national and world resources and for effective programme planning. In other words, the work of FAO in promoting the development of national plans in food and agriculture, in analyzing their relation to the general economic programmes of Governments, and in collecting and analysing world-wide economic and statistical data in all the fields of FAO activity is a necessary foundation for specific projects for economic development.

These continuing services of FAO provide a framework for integrating technical projects into the broader economy of countries, regions, and the world. This work will undoubtedly need to be expanded in various ways if the programmes here outlined are put into effect. By the same token, the developments proposed by FAO in relation to food, agriculture, forestry, and fisheries will need to be closely integrated with developments in industry, trade, and other fields which would be primarily within the competence of United Nations organizations other than the Food and Agriculture Organization.

A. Agriculture

INTRODUCTION

Farmers everywhere are concerned with the same elements of production—soil and water, crop plants and animals, pastures and feed-stuffs, insects and diseases, tools and materials, and some source of power, whether muscle or machine.

The elements are fundamentally the same, yet they vary enormously in character over the world. Many a farmer in the under-developed countries has nothing to work with but a small patch of soil, a wooden plow, one or two hoes, spades and sickles, a small supply of none-too-good seed saved from the last harvest, and, if he is lucky, a part interest in the ownership of a water-buffalo. This is a far cry from the farmer in the highly developed country who has a tractor, truck, and other complex and efficient machines, barn and workshop, fertilizers, insecticides, seed of the best known varieties of plants, good breeds of livestock, news and market reports by radio, and a research station and extension service not many miles away.

The one cannot catch up with the other quickly; it will take many years of step-by-step progress. Yet great advances in production can be made by comparatively elementary improvements—better hand tools, better bred seed, the use of crop rotation, a little fertilizer if possible, some insecticide and a hand duster, means of reducing the worst animal disease ravages, maybe a simple pump for irrigation. And most important of all, sound advice and assistance from an extension worker or someone else near at hand who knows about the practical application of modern developments in agricultural science.

In many cases, such improvements as those could increase production 10 or 20 or 50 per cent in a relatively short time and so provide more and better food for millions of hungry human beings. They are the first steps. The bigger developments in farm mechanization and other large-scale advances will follow. But some of them, such as projects for irrigation, soil conservation, reforestation, and land settlement will necessarily go along side by side with the elementary improvements.

The projects that follow deal with both kinds of advances, the small and simple and the beginnings of the larger and more complex. In practice, they can hardly be separated if the problem of agricultural improvement in under-developed areas is viewed as a whole.

The proposals are grouped under the headings of land management,

crop production, livestock production, and Government services. Training and education, which is basic in most of the work, is not segregated under a separate heading as in other sections of this report but is included in individual projects in the various fields.

Many other projects described in other sections of the report are intimately related to these projects for agricultural production development, notably the proposals concerned with extension work, co-operatives, rural industries, credit, and marketing.

LAND MANAGEMENT

A-1. Irrigation and drainage, conservation and use of water

Situation

Over a large part of the world's agricultural areas there is not enough water (and at some times in some places there is an excess) for the best growth of crops and production of livestock. A greater improvement in world production could be brought about by irrigation, drainage, stabilization of ground water levels, and other means of bringing water to land and controlling it than by any other one group of measures.

FAO has given considerable attention to these problems. For example, two specialists on irrigation and drainage were sent to the Near East, one being subsequently retained for six months by the Egyptian Government and also employed by the International Bank to advise on irrigation in Lebanon. Four specialists stationed in China have given technical assistance on a series of practical projects, and another spent several months in Greece advising on an irrigation and drainage programme. One went to Peru at the request of the International Bank to advise on an important irrigation project now underway. The missions to Siam and Poland dealt with irrigation and drainage problems.

Project

It is proposed that in the first year the organization provide twenty experts to assist member Governments on specific projects for irrigation, drainage, and other water-control measures, including demonstration of small irrigation equipment such as pumps. In the larger projects, the desirability of dealing with the water problems of entire river basins, even if they cut across national boundaries, would be stressed. The

advisory work would include assistance in setting up agencies and institutions for the conservation and utilization of water, organizing courses in agricultural engineering subjects in appropriate colleges, providing facilities for advanced training and for exchange of information among experts.

The projects would be carried on in each country for a period up to five years. The costs for the first two years would be approximately as follows:

Estimate of cost

First year, $361,380; second year, $601,280.

A-2. Managing soils for permanent production

Situation

Improper use and poor management have damaged soils in many areas, especially where slopes are steep, rainfall is scanty, or some other unfavourable factor makes management difficult. Under proper management, however, soils that have been in use for thousands of years are now more productive than ever. If modern knowledge of the proper use and management of soils were universally applied, similar results could be achieved practically everywhere.

The object of soil management is to develop and maintain the full capacity of the soil for retaining moisture, air, and minerals for the use of plants. Management is a complex problem involving many elements, including the use of chemical and organic fertilizers, lime, and other corrective substances, correct tillage methods, crop rotation, control of weeds, proper use of irrigation water, and adjustment of land use to the characterization of soil and slope.

The work of FAO in soil management has included assistance in surveying fertilizer needs in Latin America and in South East Asia, provision of a specialist in fertilizer manufacturing for China and in soil conservation for Italy, the calling of a conference in Italy of soil conservation specialists from eight European countries, the making of recommendations on the soil management problems of Near Eastern countries, the issuing of publications on soil conservation and on the correction of soil salinity, and the preparation by widely-known experts of a practical guide to better soil management and use of fertilizers.

Project

It is proposed to expand the programme on soil management for

sustained high production, with special emphasis on the training of technicians. The project would include assistance in organizing facilities for training soil scientists in their own and other countries and for the instruction of students in schools and colleges of agriculture; the holding of international and national conferences on recent scientific advances; assistance to Governments in organizing agencies to deal with soil management programmes; and advice and assistance for extension agencies conducting such programmes.

Estimate of cost

First year, $188,820; second year, $225,820.

A-3. Expanding the use of improved farm implements and machinery

Situation

One of the most fundamental means of improving the efficiency of agricultural production in many countries is to make better implements and machines available to producers. Where the introduction of large-scale power machinery would not be economically or even physically possible, much can be accomplished by improving and extending the use of better hand tools, animal-drawn implements, and using simple machines designed to increase production efficiency.

The number of public institutions that have applied scientific methods to the problem of developing farm machinery and implements is comparatively small, even in the countries where machinery is most extensively used. Qualified experts are correspondingly few. It is partly for this reason that some countries have made costly errors in attempting to introduce and use unsuitable farm machinery, or have been unable to make proper use of good but unfamiliar machines.

FAO has co-operated with the regional economic commissions in surveying the needs for imported tractors and other farm machines in Latin America and the Far East. FAO experts on the use of farm machinery have been sent to Poland and China, where they advised the Governments on the use of machinery and trained drivers and service men.

Project

It is proposed to expand the programme of assisting member countries to improve and expand the use of implements and farm machinery and train additional farm machinery personnel. The work would

include demonstration of suitable tools, machines, and appliances; advice on the setting up and equipping of institutions for improving machinery and tools, and agencies for servicing farm machinery; drawing the attention of manufacturers to the need for more machinery of improved design adapted to local conditions; and help in developing extension advisory work and organizing courses in agricultural schools and colleges.

Estimate of cost

First year, $347,380; second year, $486,940.

A-1. Mapping and classification of land and water resources

Situation

Partly as a result of costly mistakes in agricultural settlement and land use, the attention of agricultural experts has been increasingly focused in recent decades on the problem of improved use of land. Many measures have been developed to ensure sustained production—measures applicable both to new settlement and to lands already occupied.

In any comprehensive programme of improved use of land and water resources in a given area accurate mapping and classification facilitate many types of development and better land use. If not already available, basic land survey maps and topographic maps, obtainable by aerial photography and ground surveys, will be needed, showing forests, pastures, cultivated land, and other natural and man-made features. Soils should be mapped and classified in whatever detail is necessary, and measurements made of stream flow, rainfall, and related facts. Substantial losses have occurred, particularly in irrigation development, which could have been avoided if such surveys had been made.

Wherever practicable, this mapping and classification might well be conducted for a river basin as a unit. Information should also be collected and analysed on farm, forest, and pasture management as practiced in the area.

With these facts available, maps and other material can be prepared classifying land and water resources according to what is judged would be their most productive, practical and permanent use on the basis of present knowledge.

The cost of such work is small compared with the cost of the mis-

takes it can prevent and remedy. Maps and surveys are important in connexion with many projects in the under-developed countries—for example, the planning of major irrigation, drainage, and other engineering projects; the carrying out of soil conservation measures; forest development and management, including reforestation; range land management; providing improved roads, electric power, and better marketing facilities for rural areas; and identification and registration of rights in land as a basis for agricultural credit, improved taxation, land transfer, and other purposes.

Project

FAO has made modest beginnings on a programme of mapping and classification of land and water resources. However, the number of specialists available in under-developed countries is far too small to do all that needs to be done in this field. For this reason the proposed expansion in the programme, which would necessarily be gradual until more Governments are in a position to undertake such services, would stress the training of specialists in participating countries. The project would include aid to Governments in setting up agencies for land mapping and classification, advice and assistance in projects connected with development programmes, aid in organizing and conducting training courses, and international and national meetings of experts.

Estimate of cost

First year, $305,680; second year, $312,680.

CROP PRODUCTION

A-5. Production and distribution of seed

Situation

In many countries little or no attention has been given to the use of better seed, which is one of the quickest and most effective means of increasing food production. It is conservatively estimated, for example, that if the best varieties of rice now available, or easily obtainable by simple selection, were generally utilized, yields could readily be increased by 10 per cent, enabling millions of people to get more food. The same is true of various other crops grown in the Far East, the Near East, and Latin America.

The chief factors necessary for wider use of improved plants are

adequate facilities for conducting reliable comparative tests, and Government-sponsored programmes for getting enough pure seed produced and into the hands of farmers.

FAO has done some work in this field. Seed of corn hybrids was supplied to certain experimental stations in Europe and the Near East through FAO in 1947 and 1948 for testing. These hybrids were carefully selected, and data on their adaptation to various climatic zones were supplied to the co-operating stations in each country. The tests should be continued and expanded to include other countries, especially in Latin America and the Near East.

Seed of improved varieties of many other crops also is now being supplied, but this work has only begun and no comprehensive studies of crop or varietal adaptation have yet been made.

Project

It is proposed that this programme be expanded, with three main objectives: (*a*) supplying seed of various crops and of improved varieties for experiment and widespread testing; (*b*) using the data obtained from these and other sources in a world-wide study of crop and varietal adaptation; (*c*) assisting Governments in developing seed production and distribution policies and programmes which will make it possible for farmers to obtain good seed in adequate quantities with a minimum of difficulty.

A survey would be made to determine where improvement in pure seed production and its distribution to farmers is most urgently needed. Expert assistance would be made available to Governments in developing workable seed programmes, incorporating the features that have been found of greatest value. Experts would be sent to assist Governments in developing standards of crop inspection and seed certification; organizing comparative tests of varieties; devising plans for the production, inspection, storage, and resale of pure seed in adequate quantities; and providing for the maintenance of foundation seed stocks which are true to type.

Estimate of cost

First year, $92,710; second year, $131,670.

A-6. Improvement of rice varieties

Situation

A fungus disease, *Helminthosporium,* and an insect pest which at-

tacks the rice plant (rice borer) are both extremely destructive over most of the rice-growing area of south-east Asia. The disease can probably be eliminated by the development of resistant varieties; it is also worth while to attempt breeding varieties resistant to the insect, since there are no other known methods of control. In addition, many of the local strains (land-races) of rice, of which there are thousands grown in the region, can be replaced by higher yielding sorts if plant breeding is undertaken on a substantial scale. The probability is that in many cases production could be increased 50 per cent by the use of improved varieties alone.

The objectives can be accomplished only by co-ordinated effort on the part of plant breeders in association with scientists in related subjects—agronomists, plant pathologists, entomologists, specialists in field plot techniques, cereal chemists, and others.

Much valuable work in rice breeding has been done in India, China, Japan, the Philippines, and most of the other rice-producing countries. A search has been made for plants resistant to the rice borer but without success. The entire staff of the Institute for Rice Breeding in India is at present working on *Helminthosporium*. A co-operative project among the countries of south-east Asia would facilitate solution of this problem and development of varieties better adapted to a wide variety of soils and climatic conditions.

Project

Working with the Governments concerned, FAO would mobilize the plant breeders and certain other plant scientists (agronomists, plant pathologists, etc.) of the region in a concerted attack on some of the most urgent rice improvement problems. A conference of these scientists would select the most important objectives, agree on plans and techniques, and allocate the year's work. Three or four groups of research workers might be formed, each group concerned with a different soil-climatic zone. All scientists would work in their own laboratories, where they would be visited and assisted to the extent necessary by FAO experts, who would serve in general as co-ordinators of the project.

It is proposed to organize a team of ten such experts consisting of plant breeders and scientists in related subjects.

Estimate of cost

First year, $182,560; second year, $188,560.

A-7. Production of grasses and legumes

Situation

In most countries in the temperate zone forage plants are a cornerstone of sound farming systems, and the leguminous species are especially important. Great advances have been made in these countries, and also in those in drier climates where irrigation is available, by the application of improved methods of ley farming and the use of improved strains of grasses and clovers.

In tropical countries and also in arid regions or unirrigated areas with an extended dry season, there is an acute lack of suitable fodder plants, especially in certain seasons, and this is often the major factor in limiting the production of livestock.

In some cases experiments have been carried out with certain local species of these plants or with a small number of foreign species, such as kudzu or lespedeza, but they have been on too limited a scale. There is little co-ordination between such work in one country and that in another.

If the limited resources of the countries that are concerned with this problem were brought together and a system of free interchange of available plant material were organized, much greater results could be obtained without greatly increasing the scale of the work or the expenditures involved. It is worth pointing out that in Australia, where there are hundreds of species of native grasses and legumes, certain leguminous species like subterranean clover introduced from outside have been so successful that the Australian Government has sent a botanist to South America to collect as wide a range of such species as possible for testing under Australian conditions. By combining in a co-operative effort, other countries might do similar work.

Project

It is proposed that FAO should:

(*a*) Survey the experimental work in progress in the main areas concerned, principally Central and South America, the Mediterranean and adjacent areas, and certain countries in the Far East.

(*b*) Assist Governments by sending forage crop experts who would visit experiment stations to facilitate the work and advise on methods of experimentation with new grasses and legumes. These are highly technical procedures acquired only by years of experience and entirely different from those employed with cereal crops. It is proposed that

one expert be employed full-time in each of five regions—Latin America, other Southern Hemisphere countries, Europe, the Near East and the Far East.

(*c*) Sponsor a reporting system whereby each country would supply data to FAO on any species, local or imported, found to succeed there, with information on the soil, climatic and other conditions to which it was found to be adapted. The characteristics and performance of these species and varieties of grasses, legumes, and other forage plants would thus be systematically recorded. Many of the contacts made in the course of the proposed work with genetic stocks would serve as starting points for the organization of this forage plant service.

(*d*) Obtain seed supplies of promising species from each country and distribute them for testing in other countries with somewhat similar growing conditions.

(*e*) Analyse, collate, and publish the results and make recommendations for further lines of development.

Estimate of cost

First year, $101,670; second year, $154,820.

A-8. Chemical control of crop insects and diseases

Situation

Annual crop losses caused by insects and diseases are enormous. Effectively combating even a few of the most destructive requires the services of many experts and technicians and the use of much equipment, from simple hand sprayers and dusters to elaborate power-operated machines. The work must be backed by continuous research and experiment.

In most under-developed countries, the necessary knowledge and equipment for crop disease and insect control are inadequate or almost entirely lacking. In many cases, control methods are known that could be applied if insecticides, fungicides, and equipment were available. In other cases—for example, the rice stem-borer—adequate control measures remain to be discovered.

Reduction of these huge losses would probably contribute as much as any one factor to improving the food supply in many under-developed countries. In any development programme, a good deal of attention should be given to this aspect of production.

Other projects in this report are directly or indirectly concerned to some extent with plant disease and insect control, notably those on extension services, rural industries, co-operatives, and the proposed plant disease and insect reporting service. The key to real progress, however, is strengthening and expansion of services in this field within the countries themselves. This means particularly a large increase in the supply of trained technicians.

Project

It is proposed that FAO obtain the services of five entomologists, five plant pathologists and ten field technicians for the first year to expand and speed up work in this field. These men would be made available to member Governments to advise on specific problems in the control of an insect pest or disease causing heavy losses and to aid member Governments in setting up effective pest and disease control organizations. While working in a country they would provide training for technical workers through field demonstrations of materials and equipment and otherwise assist in the organization and expansion of training facilities.

Estimate of cost

First year, $314,640; second year, $450,200.

A-9. Control of locusts

Situation

Locusts are a special and major threat to food production in many areas and on practically every continent. No one country can solve the problem of control alone; international action is required on a regional basis. Locusts breed in isolated areas from which they fly long distances, frequently across national boundaries. There are several different species of economic importance, differing in behaviour and other characteristics.

Locusts have been intensively studied in two areas—the Middle East, where the desert locust predominates, and western United States and Canada, where non-swarming locusts are the main species. As a result of considerable research, much basic information is available on the biology of the different species in these areas and on methods of control. In several other areas, however—Central America, for example—nothing is known as to where the locusts originate, knowledge of con-

trol methods is very limited, there is no organized co-operation among countries, and few experienced technicians are available.

A Locust Control Survey Centre in Nairobi was recently organized by the United Kingdom for the study of migratory locusts in Africa. There are anti-locust organizations in South America, Central America, and the Middle East, but only one of these is active at present.

In relation to the magnitude of the problem, the work done by FAO has been very limited. An international technical meeting on Moroccan Locust Control Problems will be held by FAO in September or October 1949, probably in Rome or Ankara, and will include representatives from countries of southern Europe and the Near East. In preparation for this meeting an FAO staff entomologist spent three months in Lebanon, Syria, Turkey, and Iraq in 1948 studying all aspects of the locust problem. In Guatemala and Costa Rica, where a destructive plague of locusts was in progress, the staff entomologist spent six weeks in 1948, advising and assisting working parties in the use of effective control methods.

Project

It is proposed that FAO expand the work on locust control by (*a*) sponsoring regional meetings primarily to obtain agreement between Governments on specific proposals for co-operation in all necessary measures to deal as effectively as possible with the locust problem in Central America, South America, the Middle East, the Far East, and the Mediterranean countries of Europe; (*b*) providing expert assistance to Governments, and to such regional organizations as may be set up, by helping to organize locust surveys and research work, and by advising on the techniques of locust control; (*c*) providing assistance, for the most part in the course of field operations, in the training of technicians, including demonstrations of equipment and materials; and (*d*) participating actively in regional meetings of scientific and technical personnel.

Estimate of cost

First year $114,190; second year, $210,600.

A-:10. Infestation control in stored grain

Situation

The present annual loss of stored grains and edible legumes through-

out the world is estimated at about ten per cent of the total crop, or an amount equal to that which enters world trade—losses caused almost entirely by insects, rodents, and fungi. These losses can be vastly reduced by controlled drying of grain before storage, suitable methods of storage, and the application of approved methods of pest control, including sanitation and the proper use of chemicals.

In many countries, particularly in the tropical and sub-tropical areas, storage facilities for grain are non-existent or hopelessly inadequate, and losses are high. Improvement and enlargement of facilities are long term objectives requiring considerable investments of capital for construction materials and equipment. On the other hand, much of the present knowledge of insect and rodent control needs only to be applied or suitably adapted in order to give immediate benefits in the saving of grain.

FAO has been directing attention to this problem for three years by convening international meetings, publishing information on the subject, and sending a specialist to several countries to assist in control measures. The organization is beginning a co-operative demonstration project in Costa Rica in 1949. All known methods of control adapted to that country will be utilized, and the results of the demonstration should be highly useful to other countries with similar climates.

Project

Unless the work of infestation control is pushed forward much faster than at present, it would take many years to reduce current losses appreciably. It is therefore proposed to expand the demonstration project during the first year to include four additional countries in the Far East and Latin America. One expert would be sent to each country. They would assist in organizing and applying measures for the control of insects, rodents, and fungi to achieve safe storage, disseminate information regarding the adaptation and practical application of modern methods of infestation control, and hold meetings to acquaint technicians with the newer developments. The estimated cost includes small equipment for demonstration purposes.

Estimate of cost

First year, $85,710; second year, $131,670.

A-11. Reporting service on plant diseases and insect pests

Situation

Several of the more advanced countries have Government departments responsible for reporting on the incidence of plant diseases and insect pests. Such a service furnishes a sound basis for control and preventive measures of all kinds. The information is obtained through a field staff of plant pathologists and entomologists, or by trained observers, usually persons attached to agricultural colleges, experimental stations, or other institutions. Such a service requires an organization staffed by competent technical personnel. Without it, there is constant danger of introducing or spreading plant diseases and pests that cause enormous losses—a danger that is now greatly increased by modern transportation facilities and the growing trend toward introducing new and improved varieties of crop plants in under-developed countries.

Many countries have no reporting service and frequently no record of the insects or plant diseases occurring within their boundaries. The lack of such information makes it very difficult, not only for the country concerned to institute adequate control measures but for other countries to set up effective quarantine regulations. If a Government desires, for example, to prevent the entry of the downy mildew disease or leaf smut of rice, the effectiveness of a quarantine will depend on knowledge of the distribution of these diseases outside the country.

There is at present considerable interest in regional international conventions for the adoption of uniform plant quarantine regulations. Such a convention has recently been approved in Africa and another is in prospect in Asia. FAO has made a general survey of quarantine regulations, which showed that they are lacking particularly in underdeveloped countries. Some have no regulatory legislation at all, others have some regulations but no enforcement, and still others have legislation inadequately drawn or unsound. An essential step in establishing agreements as those now proposed is a world reporting service covering the incidence of diseases and insect pests of economic importance and outbreaks of disease or infestation in previously free areas. A request for such a service on a world basis was made by the fourth session of the FAO Conference held in Washington in 1948.

Project

It is proposed, therefore, to make FAO experts available to aid Governments in developing national reporting services for plant diseases and pests and to assist in the training of the necessary technicians to carry out the work.

This project would eventually be an undertaking of considerable magnitude, requiring an effort on the part of FAO to establish co-operative arrangements with all Governments. It would begin, during the first two years, with three specialists at FAO headquarters and four in the field to assist Governments. Since the staff at headquarters would be expected to expand and the outside work gradually to decrease, additional personnel for the central office could be recruited from the field staff.

Estimate of cost

First year, $110,450; second year, $116,450.

ANIMAL PRODUCTION

A-12. Animal breeding

Situation

It is estimated that on a world scale livestock production could be increased by at least 25 per cent in ten years if modern breeding methods were generally applied. A very high proportion of the animals now on farms are uneconomical from the standpoint of production. Better-bred animals would not only produce more but make much more efficient use of animal feedstuffs, generally in short supply. In general, the problem is not one of introducing new breeds into a country; in fact, large sums have been wasted in costly efforts of this kind. What is usually needed is to improve local animals, which are already adapted to the environment, by selection for improved production or other needed qualities. In many cases, the necessary knowledge for carrying out such work is lacking. International co-operation is necessary also in exchanging information on the suitability of types and breeds for different regions and purposes as well as on methods of breeding.

FAO has done a limited amount of work in conducting regional meetings of specialists in Europe for exchange of information on

techniques and methods of breeding, and it is collating and disseminating information from member countries on breeds of cattle.

Project

The project envisages an expansion of this work by providing eight experts to assist under-developed countries in working out programmes for the improvement of livestock through breeding and in getting the programmes under way; to facilitate further exchange of information among countries especially within more or less homogeneous regions; and to conduct meetings of technicians along the lines of those that have already been so successful. The project would be carried on mainly in the countries of Latin America, Africa, and the Far East, where there is the greatest scope for improvement and where present limitations of FAO resources have precluded doing much work connected with animal breeding. In addition, some work could be continued in parts of Europe along the lines of that already carried out with UNRRA transfer funds, which will not be available after 1949.

Estimate of cost

First year, $180,120; second year, $189,120.

A-13. Increase of animal production by improved feeding methods

A great amount of animal feed is now wasted by incorrect feeding practices, which also result in losses in reproduction, in draft power, and in production of milk, eggs, meat, wool, and hides. The increase in livestock products that would result from the widespread use of good feeding practices is hard to estimate but in certain under-developed areas it would probably amount to at least 50 per cent. In some under-developed countries, oilseed cakes are used as fertilizer when they could be used to feed animals, with little ultimate loss of their fertilizer value. In other cases where there are surplus feeds rich in protein, modern feeding methods would greatly increase livestock production. Again, much of the value of fodder is frequently lost through poor methods of drying or silage making. Pasture and range management, too, can be greatly improved, and adequate use of cover crops for soil improvement and conservation can be fitted into livestock production programmes.

FAO has disseminated information on methods and techniques of animal feeding and held technical meetings of specialists for exchange of information and experience. Experts have assisted countries in the Far East, the Middle East, and Europe, on these problems, and technical advice has been supplied through publications.

Project

It is proposed to expand this work by providing six experts on full time and ten on part time to advise and assist Governments in the Near East, the Far East, Latin America, and parts of Europe in surveying and analysing the present situation and determining the most economical and rapid ways of increasing efficiency of production by better use of feedstuffs. The work would deal mainly with range and pasture management (tying in closely with the project on production of grasses and legumes), conservation and preservation of fodder, and efficient feeding methods for maximum utilization of by-products where available.

Estimate of cost

First year, $260,270; second year, $268,270.

A-14. Poultry Improvement

Situation

Countries in the Far East and in certain other parts of the world depend mainly on poultry and poultry products for their animal protein, in which their diet is very short. By the application of improved methods of breeding and selection, production could be increased by more than 100 per cent, with very little increase in feed requirements. Some countries, particularly in the Far East, lack experts with the knowledge required to put a poultry improvement programme into effect, although a certain amount of work is being done in small, isolated areas which has proved the practicability of such programmes.

Some work in this field has been done by FAO in China with UNRRA transfer funds, including the carrying out of an effective programme in the area around Nanking, but limited finance and personnel have so far precluded any other activities.

Project

It is proposed that three experts be made available to assist member Governments in the Near East, the Far East, and Latin America to

develop poultry improvement programmes, mainly by organizing demonstrations and instruction in poultry breeding and feeding. (Stress would be placed on methods of feeding designed to prevent the possibility that increased poultry production would reduce the quantity of cereals for human food.) The basic work, which should result in an immediate and large increase in production, probably could be accomplished in three years.

Estimate of cost

First year, $70,230; second year, $74,230.

A-15. Animal disease control

Situation

A large part of the world's potential animal production is lost each year through livestock diseases. This not only directly reduces supplies of badly needed animal protein foods, but also affects crop production by crippling or killing a large number of draft animals. The greatest losses occur in the under-developed countries. In spite of a shortage of trained personnel for animal disease control work, not only in these countries but available from the outside, it would be possible to put into effect quickly certain control programmes that would make a great difference in livestock production. Better control of certain particularly serious diseases in countries where they are endemic would also help to protect other countries to which these diseases might spread. An example is Teschen disease which caused the loss of 1,500,000 pigs in Czechoslovakia last year but has not yet become widespread in other areas.

FAO veterinarians have assisted Governments in parts of Europe and in the Near East and the Far East to develop animal disease control programmes and given advice and instruction on the use of new developments and techniques. The most notable project has been the fairly extensive programme for control of rinderpest, originally begun in China (see project A-16 Rinderpest eradication). Practically all of this work has been done with UNRRA transfer funds, which will no longer be available after the end of 1949.

There is need for joint work with WHO on the control of diseases affecting both human beings and animals, in particular brucellosis, tuberculosis and schistosomiasis.

Project

Because of the great need and urgency of continuing and enlarging the work on control of such serious livestock diseases as brucellosis, foot and mouth disease, mastitis, cattle tuberculosis, liver fluke, pleuropneumonia, and Newcastle disease of poultry—to cite only a few—it is proposed that more specialists be made available to expand the kind of assistance to Governments that has already been given with marked success. If there were enough qualified experts to meet the demand for this kind of service, this project could be initiated on a large scale. A realistic estimate, however, indicates that it would be difficult to obtain more than a comparatively small number in the near future. The proposal, therefore, is to start the work with twelve specialists who would be assigned to countries requesting assistance in Latin America, the Near East, and the Far East. Essential equipment would be provided in a limited number of centres, and the work would be analogous to that described under project A-16 (Rinderpest eradication).

Estimate of cost

First year, $257,570; second year, $282,570.

A-16. Rinderpest eradication

Situation

Rinderpest, the major livestock disease in Africa, Asia, and the Far East, accounts for the loss of at least two million head of cattle annually. This results in a reduction not only in the supply of meat and dairy products but also in crop production in general in the Far East, because of the importance of cattle and buffaloes in this area for draft purposes.

An eradication campaign involves three steps—development of vaccines, production and use of vaccines, and the adoption by Governments of national and international control measures—which together could wipe out the disease in five to ten years, the length of time depending on the forces available for the work. International control measures are necessary to co-ordinate the national programmes so that eradication measures can be carried out effectively and economically.

Until 1948, no cheap, readily usable anti-rinderpest vaccine was

available. In that year, FAO technical officers, working with the Government of China, improved the techniques for the production and practical field use of avianized vaccine (developed in chicken eggs) and worked out a new lapinized vaccine (developed in rabbits). These vaccines have been successfully applied on a substantial scale in China. In October 1948 an international meeting of experts on rinderpest, held in Nairobi, Kenya, concluded that with the effective and cheap prophylactics now available, "the eradication of rinderpest is a practical possibility and should be carried out without further delay."

Measures were taken at the Nairobi meeting to co-ordinate national programmes for rinderpest eradication by the Governments and representatives of colonial Powers in Africa. A similar meeting will be held in 1949 in South East Asia to organize a concerted plan for the eradication of rinderpest on the basis of the new methods.

Within the limits of the UNRRA transfer funds, which will cease at the end of 1949, FAO has given assistance to countries in the Far East in the development of the techniques of production of rinderpest vaccines and the organization of field programmes for rinderpest eradication. In 1950, the organization will continue to facilitate exchange of information on research work in the control of this disease, but because of the cessation of UNRRA funds, further assistance to certain of the countries lacking experts cannot be given after 1949. This will seriously reduce the supply of vaccines to carry on the work. Although the various strains of virus have been distributed to the countries troubled with rinderpest, in many cases they need assistance in the production of vaccines and the development of field programmes.

Project

Under this project, FAO experts would be made available to assist Governments in the local production of vaccines; to provide to a limited number of control centres essential equipment not available in local production, such as freeze-drying equipment, grinding equipment, and other minor laboratory items; to organize a series of short courses in the field for local officials and technicians; and to assist in an advisory capacity in the organization of field programmes.

It is proposed to send ten full-time experts during the first year to six or eight member countries in Africa and in Asia and the Far

East to carry out the project. It is anticipated that this programme, with the assistance of FAO experts, would be carried on by Governments after the first two years, excepting in countries, such as Ethiopia, which do not have the necessary number of qualified technicians to be taught the production techniques. In these cases, the FAO experts would be needed within the country until the programme of virtual eradication had been completed, a matter of approximately five years.

Estimate of cost

First year, $298,680; second year, $203,680.

GOVERNMENT SERVICES

A-17. Aid in developing agricultural research and educational institutions

The growth of facilities for agricultural research and education in under-developed countries will necessarily be, and in most cases should be, a gradual process.

Elaborate research and educational institutions such as those now operating in the more highly developed countries were not created overnight. They grew bit by bit. So they will in other parts of the world.

This is all the more reason for starting promptly and starting right. There is a long way to go and much to be done.

In every country where agriculture is important, research and education related to agriculture are *ipso facto* important. This elementary fact is not always understood.

The research need not be "fundamental". That kind of work can be done elsewhere, for the time being. But even to take the developments made in one environment and adapt them to another requires careful and competent experimenting if costly failures and disappointments are to be minimized.

Nor need the education, for the time being, be too advanced. Rather, in each country it should fit the conditions peculiar to that country. One trouble with training students too exclusively abroad is that they sometimes learn much which applies remotely or not at all at home.

The stage of growth of Government agricultural research and educational institutions varies greatly in the less developed countries. Some have well established systems; others have hardly made a beginning.

In both extremes, and in the stages between, there is a need and demand for expert advice and assistance from countries that have had long experience in building up such institutions. Much can be accomplished by furnishing this guidance, since it is hardly possible to conceive of agricultural progress in any country today without the stimulus and support of sound Government research and educational services.

Qualified experts capable of giving advice in the broad aspects of developing and improving research institutions, agricultural colleges, and agricultural secondary schools are not common, however. FAO proposes, during the first year of a programme of assistance in this field, to provide only five persons. The importance of their services to Governments will be in inverse proportion to their small numbers.

The project should be expanded as rapidly as is feasible after the first two years.

Provision would be made in the project for the training of persons in the under-developed countries who would be engaged in this work, and for the holding of necessary meetings of specialists.

Estimate of cost

First year, $121,190; second year, $148,150.

TRAINING AND EDUCATION

Work in training and education in various fields of agricultural science is not placed under a separate heading but is included in the descriptions of the individual projects. See projects A-1 *Conservation and use of water,* A-2 *Managing soils for permanent production,* A-3 *Expanding the use of improved farm implements and machinery,* A-4 *Mapping and classification of land and water resources,* A-12 *Animal breeding,* A-13 *Increase of animal production by improved feeding,* A-14 *Poultry improvement,* A-15 *Animal disease control,* A-17 *Aid in developing agricultural research and educational institutions.*

AGRICULTURAL STATISTICS

See project F-1 *Improving Government services in agricultural, forestry and fisheries statistics,* under the heading "Economic and statistical services".

AGRICULTURAL EXTENSION

See project E-1 *Extension and related educational services* under the heading "Rural institutions and services".

AGRICULTURAL MARKETING AND REGULATORY SERVICES

See project F-4 *Marketing of agricultural products* under the heading "Economic and statistical services".

AGRICULTURAL CREDIT

See project F-3 *Credit systems for agriculture, forestry, and fisheries* under the heading "Economic and statistical services".

B. Forestry and forest products

INTRODUCTION

About 30 per cent of the land of the world is used for forests. Properly managed, forests can provide a permanent and steady flow of fuel, building material, pitprops, railroad ties, raw material for paper, and chemically derived wood products which will total at least twice the present world output. They can guard against erosion, protect the headwaters of rivers to minimize floods and the silting of channels and croplands, and regularize the flow of water needed for agriculture and industry.

Neither the productive nor the protective values of forests are being fully utilized in most countries. In fact, much of the current use of forests is needlessly damaging or destroying these values. Attempts to use land suited only for forests as crop and range lands are perpetuating practices which have damaged great areas of land, rendering them no longer useful for any purpose.

To protect, restore, and use forest assets must be part of any sound programme of economic development. The surest way to realize that a forestry programme will pay is to appraise the true loss in the permanent wealth of a nation if such a programme is not put into effect.

An enduring programme involves, first of all, appraising the resource and planning its orderly development. The basic methods of conservation for permanent use must be determined and put into effect. The newer technologies of using wood must be applied according to the conditions in each country. Government services must be built up to provide leadership and direction. People must be trained to do the technical work. And the conservation and development projects

must be so conceived and carried out that they will complement one another and make a balanced whole.

B-1. *Forest inventories*

Situation

Rational development of forestry and forest industries cannot be planned or carried out without an appraisal of the resource. This appraisal is made by means of forest inventories. Many countries lack the technical knowledge and skills to plan and execute the basic inventories required before better management and use of forest resources can be undertaken. The carrying out of inventories is especially urgent for the great untapped forest resources of Latin America, Africa, and Asia. Where economic development is in its early stages, the standards of accuracy, and therefore the costs of inventories will be lower than in areas where development is far advanced, but it is imperative to make a beginning.

The most economical and expeditious way to make forest inventories is through air photography plus the necessary supporting ground work and sampling. The work is highly technical. A great deal of experience has been accumulated within the past few years by a few Governments and several commercial air companies. This experience is now being analysed by FAO to determine the most suitable combinations of methods and standards of accuracy for forests in different parts of the world.

Project

The project will consist in providing outside technical and expert services to countries most in need of basic inventories, in order to determine the areas to be mapped and inventoried, to draft specifications as to the degree of detail required, to plan the work schedule, to estimate costs, and, if necessary, to aid the country to obtain the most advantageous contract with a commercial company equipped to do the desired work. It will also be necessary to arrange the technical training of local personnel, and the establishment of governmental machinery to carry on inventory programmes without regular outside assistance.

In general, a comprehensive inventory project will require from two to five years for completion. In the first year five FAO experts and

their assistants would be sent to countries in Latin America, Africa and Asia.

This project is closely related to A-4, *Mapping and classification of land and water resources.*

Estimate of cost

First year, $137,060; second year, $160,226.

B-2. *Planning forest development programmes*

Situation

The collection of forest inventory data is only a necessary preliminary to planning and executing an orderly programme of development. This process requires special skills, and in about thirty-five countries both the programme and the skills to develop it are lacking. The problem is one of bringing together and taking into account all the information available so that the total development may be planned as a whole rather than as a disconnected series of separate and unrelated projects. Separate forest development projects are often very important and need careful attention, but unless they are interrelated in a general programme they are almost certain to leave margins, fringes and patches of forest with no provision for utilization.

Orderly methods of planning forest development have been worked out in several countries, and with suitable adaptations they can be applied to under-developed areas.

Project

It is proposed to make FAO experts available to assist Governments in this work. In the first year five experts and their assistants would be sent to countries in Latin America and Asia. The major aspects of development on which they would advise Governments would be: planning for the assembling of all pertinent data on the country's forest resource, costs of exploitation and conversion of timber, markets for the resulting products, available means of transport, etc.; planning the layout of operating units so that in the aggregate they would eventually encompass the whole utilizable area, while each individual unit would be adapted in size to the methods of exploitation and conversion best suited to the particular case; and drawing up specifications for the exploitation and conversion methods to be used.

The programme should be carried out on an increasing scale, as

more countries are ready to accept and utilize expert assistance. In most of the countries concerned the programme planning process will need to continue as further information and experience accumulate. It will thus involve training of local officers to take over after the FAO experts have completed the initial task. In many countries it will also involve setting up or expanding Government services to make provision for the continuation of the planning functions.

Estimate of cost

First year, $94,310; second year, $110,590.

INCREASED PRODUCTION

B-3. *Reforestation demonstration projects*

Situation

In many countries there is a great need for reforestation. For example, water flow throughout the year is needlessly unstable, alternating between floods and serious lack of water, because the headwaters of streams have been denuded of natural forest cover. Soil conservation and development of water resources in such areas depend upon reforestation for effectiveness. In some countries, again, the planting of forests, especially of fast-growing species, is urgently needed to provide wood for fuel. This is especially the case where mineral fuels are not available and such substitutes as dried animal manure are widely used. The need for both these types of forests is so great that the immediate problem is to set up selected demonstration projects as a nucleus for more extensive developments later.

A great deal of research and experience has accumulated bearing on these problems, and it would be possible for FAO to give sound advice to Governments on the carrying out of successful demonstration projects. The 1950 budget provides only for continued assembly and analysis of pertinent research and experience and does not include provision for assistance to individual countries.

Project

The project would consist of installing demonstration projects in selected headwaters areas, and in selected areas where fuelwood forests are needed. The FAO services would include, in each case, assistance in planning the demonstration projects, selection of suitable

sites and tree species, locating sources of seed, assistance in applying nursery and planting techniques, and application of methods of protecting plantations. (Organizing and conducting training schools is covered under the heading of "Training and education".)

All of the countries of the Near East and many of those in Asia and Latin America are in need of one or the other of these reforestation programmes, and in a number of cases both types are needed. It is proposed that the project be initiated in six countries during the first year. It should be carried on an increasing basis and pushed as rapidly as countries are prepared to inaugurate demonstration plantings. The work will naturally be tied in with other development programmes for water conservation and use and for the development and protection of agricultural lands. It will also be closely associated with projects described elsewhere for the setting up or expansion of Government services in forestry.

Estimate of cost

First year, $111,110; second year, $130,920.

B-4. Logging and transport

Situation

In both the Eastern and the Western Hemispheres there are immense areas of virgin forests which are inaccessible because of lack of transportation facilities — railways, waterways, and roads. With such facilities, large parts of these untapped stands of wood could be exploited relatively easily and economically. It is of great importance that forest development be included as part of general transportation planning by any agencies concerned with this field.

In forests already in use, and also in inaccessible forests, the most immediate way to increase timber production is to introduce modern logging and transport equipment. In all but a few highly developed countries the felling and hauling of roundwood is done in the most primitive ways by hand and by draft animals. These methods are expensive and result in great losses. Much valuable timber remains on the ground because of inadequate facilities for removal. The transportation of the roundwood which is removed takes so long that the wood deteriorates considerably through rot and other causes.

Mechanized logging equipment has now been developed and successfully introduced in several countries, and practically all other

countries are anxious to transform their antiquated logging methods.

In Europe, FAO has initiated action designed to enable a number of producing countries to obtain modern logging equipment in connexion with the so-called "timber loan project". Investigations of needs for forest equipment have been initiated in Latin America and in the Far East. A catalogue of equipment, by types and sources, is in preparation.

Project

The proposed project consists of four phases or steps. The first would be the creation of a centralized pool of up-to-date information on all types of modern logging and timber transport equipment, including cost, availability, and special suitability to various conditions. The second phase would be the sending of experts to various countries to study and advise on (*a*) the possibilities for development of transportation by road, water, and rail, (*b*) equipment needs, and (*c*) potential markets.

The third phase would be the introduction of modern logging methods under the supervision and with the advice of qualified experts. It would be desirable to establish in each country one or more demonstration areas for the training of local workers and engineers in the use of the new equipment.

The fourth step would be the application of modern logging and transport methods to the opening up of hitherto inaccessible forests. This is a comprehensive planning operation. It is proposed that FAO make available for the transportation phase experts and junior assistants for twelve months in each of three countries; for the logging phase teams of three experts—a forester, a logging engineer, and a sawmill expert—for a period of six to twelve months, to advise member Governments on these operations.

This would be a continuing programme and would be carried out on an expanding basis.

Estimate of cost

First year, $332,600; second year, $381,660.

B-5. Forestry combinates

Situation

The widespread introduction of forestry combinates could make a major contribution to improved forest practices all over the world.

A forestry combinate consists of a fairly large forest area intensively managed for sustained yield and so connected with a set of integrated forest industries that almost the entire forest crop is converted into useful products, leaving only a very small amount of waste. A judicious combination of modern forest industries should make it possible to use as much as 80 to 90 per cent of the annual cut, compared to the present average yield from forest operation of 20 to 30 per cent. In this way, a very substantial increase in production could be achieved without the need to raise annual depletion. This would both increase the amounts of timber, pulp, and other products available for consumption and make it possible to add new products, such as wallboard, plastics, protein feed, and liquid fuels.

Forestry combinates are operating in a number of European countries and are beginning to be introduced in North America. No two are alike since local conditions determine the size of the forest area and the types of industries included.

FAO has been investigating the economic and technical aspects of forestry combinates for some time and has discussed with the Economic Affairs Department of the United Nations and with the International Bank the possibility of undertaking a joint study.

Project

The proposed project for enlarging and accelerating this work would be carried out in three stages:

(*a*) To determine the economic and technical possibilities and the limitations of forestry combinates, FAO would obtain the full-time services of three outstanding technicians, as well as the advisory services of ten consultants, who would be requested to investigate in detail and report on the experiences of various countries. If possible, engineers would be employed to work out standardized plans and cost estimates for three basic types of forestry combinates adapted to temperate softwood forests, temperate hardwood forests, and tropical forests;

Within eight months from the beginning of this investigation a draft report should be presented to an *ad hoc* committee of experts for review and advice. This committee would include members of FAO's Committees on Wood Chemistry and on Mechanical Wood Technology;

(*b*) While the report was being prepared, experts would be sent to various regions to investigate possible locations of forestry combinates in under-developed countries;

(*c*) After these two stages were completed, three demonstration areas or plants—one for each typical environment—would be established. It should be possible to begin this work in 1951. Setting up a demonstration combinate would involve other international agencies besides FAO, since the area to be opened up and settled might run to 100,000 to 500,000 hectares. Land would need to be cleared for farms, homes built for several thousand workers and their families, and industries organized. Thus the final phase would be a major joint project necessitating capital investment. It is believed that the preliminary investigations would lead to the selection of demonstration projects which would be commercially sound.

Estimate of cost

First year, $142,210; second year, $164,890.

IMPROVED TIMBER UTILIZATION

B-6. Timber Preservation

Situation

Each year there are heavy losses of standing and felled timber and of timber in service in the open, particularly in tropical and sub-tropical regions, caused by dry rot and decay because of climatic conditions, and by insects. Where preservation and protection measures are not taken or are inadequate, losses are extremely high. The situation could be vastly improved by applying present-day knowledge of preventive methods. FAO has directed attention to this problem and its Committee on Wood Technology has carried out an extensive study of applicability and efficiency of a large number of wood preservative treatments, and of appropriate methods of kiln drying and seasoning.

Project

It is proposed during the first year to make three experts available to advise Governments desiring technical help in introducing suitable methods of kiln drying and seasoning, and in organizing and applying measures to combat dry rot, fungal decay and insect attack on standing, felled, and serviced wood.

Estimate of cost

First year, $111,050; second year, $133,340.

B-7. Industrial conversion plants

Situation

In most of the countries which produce timber, conversion is made by tens of thousands of small mills working with archaic machinery and by inefficient methods. Thus much potentially usable timber is wasted, the costs of the material produced are needlessly high, and the product is not fully standardized and therefore not fully acceptable to potential purchasers. The growing shortage of sawlogs makes radical changes in conversion methods imperative.

In some countries, efficient sawmilling plants have been designed and tested, and information on this subject is being assembled by FAO. Feasible changes would consist in the introduction of efficient modernized bandsaws and the use of thinner saw blades, better designing of mills, and adapting sawing practices to the qualities of the species used. In some cases replacement of numbers of scattered sawmills by fewer modern installations will also increase useful recovery of products.

In most countries mechanical means of conversion other than sawing—for example, the manufacture of plywood—are not in use despite the fact that in the more highly developed countries great progress has been made in such types of conversion. Wider adoption of some of these methods would make timber available for many new uses.

The application of modern chemistry to the conversion of wood resulted among other developments in the building up of the pulp and paper industry. In many countries with forests suitable for pulp and paper, however, chemical conversion plants have never been introduced. A wide variety of other chemical industries have now been developed which convert low-grade wood into plastics, liquid fuels, synthetic boards, textiles, and feedstuffs for animals. These types of conversion have not been tested or introduced in the less developed countries. Information on the various forms of chemical conversion is being assembled and analysed through the FAO Committee on Wood Chemistry, which is composed of world experts.

Project

It is proposed to expand the work of FAO in giving advice and assistance to Governments on the development and improvement of

facilities for mechanical and chemical conversion of wood. The work would include determining the products that could be advantageously produced, working out specifications for plants, estimating costs and returns, and putting authorities in touch with potential suppliers.

In the mechanical conversion field, experts would be made available during the first year to survey existing methods and to advise Governments on feasible improvements.

Similarly, the experts would be made available during the first year for work in the field of chemical conversion. This work would be done under the guidance of the Committee on Wood Chemistry, which would be expanded to serve as the central advisory body on the introduction of modern developments in all parts of the world.

A special phase of this work would be an investigation of the technology of turning wood waste into feed for livestock in areas where a shortage of feedstuffs exists and wood waste is available.

The project on industrial wood conversion should be expanded as rapidly as more Governments are prepared to utilize such assistance.

Estimate of cost

First year, $248,740; second year, $293,310.

B-8. More rational use and marketing of timber

Situation

Little is known of the technical qualities and usefulness of certain timbers, chiefly in tropical and sub-tropical regions. This is one of the main reasons why some large potential timber resources are not utilized. The lack of international standardization of timber grades and specifications stands in the way of many commercial operations and a world-wide expansion of the timber trade. Standardization of mechanical methods for timber testing is an important prerequisite to that end. Further research and standardized nomenclature of tree species and timbers would help to draw much more of this timber into commercial use and form a basis for a profitable industry to some exporting countries, as well as improving the supply situation for importing countries.

Since the end of the war, Governments have also turned their attention to the rationalization of the use of wood. The possibilities in this respect are considerable; for example, in the United Kingdom improved design and rational use of substitute materials have reduced

the amount of wood per dwelling unit from a pre-war average of four standards to 1.6 standards. It is believed that the judicious application of economies in wood use could reduce Europe's timber requirements by some 15 to 20 per cent without deterioration in the quality of houses or packaging materials.

When timber is used as fuel, the introduction of modern wood-burning stoves, which are capable of raising heating efficiency 600 to 700 per cent, could be of considerable importance.

Prior to the war various organizations had taken the first step towards standardizing timber tests, grades, specifications, and nomenclature. This work is now being carried out by FAO's Committee on Wood Technology, which is recognized as the international authority in this field.

As a result of its activities, an international agreement on standardized sizes of test specimens is expected this year, and the standardization of all testing methods, sizes, specifications, and nomenclature is being studied by the Committee.

Rationalization of timber consumption and manufacture is under study by the Timber Committee of the Economic Commission for Europe.

Project

It is proposed (*a*) to aid groups of countries to organize co-operative research on the qualities of unknown tropical or sub-tropical species through forest products laboratories; (*b*) to continue work until agreement on timber testing methods can be secured; (*c*) to undertake further studies for the standardization of timber grades, specifications, and nomenclature of trade names on a regional basis, the aim being international agreement on all those issues; and (*d*) to continue investigations in the five major regions of the world on methods of saving wood used in construction and as fuel and to aid in the adoption of methods proved to be effective.

The first step would involve the employment of two experts working for a period of about one year to organize and supervise the testing of little known wood species in the laboratories to be set up in tropical and sub-tropical regions.

Additional technical officers with junior assistants would be needed to accelerate and complete the studies required for further agreements on standardization of tests, grades, specifications, and terminology

of wood. This preparatory work would be followed by international conferences, and subsequently by the working out of the various agreements involved.

In the case of regional studies of economies in the use of wood, FAO would make experts available for advice and assistance to Governments.

Estimate of cost

First year, $130,530; second year, $158,840.

CONSERVATION

B-9. Protection of timber resources against fire and insects

Situation

Many countries do not have an adequate organization for the control of forest fires. In some the losses due to fire are several times as great as the amount of wood utilized. Moreover, in many of the same countries tree-killing insects, their destructive power often stimulated by forest fires, cause important additional losses of timber. Plans and organization for forest insect control are thus co-ordinate with those for fire control in programmes to halt severe losses. Most of these countries lack sufficient trained personnel to plan and organize programmes of fire and insect control.

In several countries, notably the United States of America, forest fire and insect control has been brought to a high degree of effectiveness. With respect to the former, available information is being assembled and analysed by FAO and will be published as a guide for applying effective methods in countries which do not have adequate fire control organization.

Project

It is proposed to make FAO experts with junior assistants available to assist Governments in planning an initial organization of fire control systems and establishing the necessary Government services. This work would include determination of areas subject to fires, causes of fires, prevention methods, systems of detecting and reporting fires, types of tools and equipment to be used, methods of determining fire damage, tactical methods of fire suppression, etc. For the insect control phase, experts will appraise the severity of the problem, set control

units, advise on techniques and organization of control, and estimate costs and returns of control.

Estimate of cost

First year, $124,060; second year, $148,270.

B-10. Conservation of forests by improved protective measures and forest practices and stipulations for timber contracts

Situation

In many countries the basic measures of soil protection and maintenance of desirable types of trees, and the forest practices necessary to obtain the maximum use of forest areas, are not used. Expert assistance is required to determine the effectiveness of the present practices, ascertain the changes required to protect the forests and soils, and specify the exact steps and utilization practices and the changes in equipment, etc., which will have to be adopted.

Also, in these countries the common practice of selling standing timber without stipulations to conserve the forests results in great damage and loss of available timber, as well as damage to the productivity of both forests and soil. In conserving forests and making full use of the timber, attention must be paid to the percentage of total timber stands to be removed; the amount of each tree to be removed as controlled by height of stump, size of top, etc.; methods of felling and skidding to safeguard standing timber; protection against fire; measures to prevent erosion; measures for enforcement. Regulatory legislation and standard contracts required for effective use of timber and forest land are lacking particularly in countries of Latin America, Africa, and Asia. In these countries there is also need for local technicians to draw up such measures and to enforce them.

Project

It is proposed that FAO make available experts to carry out surveys, where necessary, to determine the specific practices and measures to be followed for conservation of forests. The organization would also make experts available in selected countries to assist Governments in drawing up suitable forms of contracts and regulatory legislation for the particular forest types and utilization operations. (Some of this work will naturally follow on that of the specialists making the surveys.)

Estimate of cost

First year, $76,360; second year, $88,390.

STRENGTHENING FOREST SERVICES

B-11. Forest service organization

Situation

Between twenty-five and thirty countries lack or have inadequate Government forest service organizations. Any expanded programme of forest development will necessitate establishing and strengthening such national agencies.

Project

It is proposed to make FAO experts available to assist Governments in planning and establishing effective forest service organizations. Most of the Governments of Latin America and several of the Governments of Asia and the Near East are in need of this type of service.

The work would consist of providing advice and assistance on such matters as formulating the necessary national legislation, outlining the structure of the organization, setting up qualifications for officers, estimating costs, and identifying sources from which qualified personnel might be obtained.

This programme should be expanded as rapidly as more countries are prepared to accept and utilize such assistance.

Estimate of cost

First year, $65,200; second year, $75,310.

B-12. Initial programme of research in forestry

Situation

Research in a considerable range of applied sciences and techniques is basic to progress in forestry, as it is in agriculture and other fields. Many countries do not have organized forest research programmes or the research work is extremely limited. FAO systematically obtains information about research programmes and organization, and will be able to give sound advice on the setting up of such services.

Project

It is proposed to make experts available to assist Governments in

planning and organizing initial forestry research programmes.

The work would include determining the most urgent projects on which first attention should be centred; setting up working plans for each project; aiding in the selection of suitable personnel and of locations for research centres; and assistance in obtaining technical literature.

Estimate of cost

First year, $54,920; second year, $63,500.

TRAINING AND EDUCATION

B-13. Organization of forest schools

Situation

Without competent leadership and direction under professionally qualified men, the development of national forest services and forestry programmes can hardly be expected to be satisfactory. In about twenty countries there is no professional forest school, and access to suitable schools in the same region is often difficult or impossible. Training in forest schools of the north temperate zone is seldom fully satisfactory when service is to be in a very different zone, such as the tropics or sub-tropics. Provision of suitable professional training facilities regionally and nationally is, therefore, of great importance.

Project

It is proposed to make FAO experts available to assist Governments in planning the initial organization of forest schools. For this purpose the first-year programme should cover about six countries or groups of neighbouring countries.

The work would consist of assistance on such problems as formulating the initial curriculum, preparation of lists of teaching material, determining qualifications of the teaching staff and sources from which such a staff might be recruited, and estimating costs.

The most widespread need for forest schools is in South America. Several countries in Asia also lack such facilities.

Estimate of cost

First year, $38,640; second year, $59,500.

B-14. Training courses

Situation

In addition to forest schools there is need in many countries for relatively brief special training courses in various aspects of the forestry work discussed in this report.

Forest programme: Planning and development of forest programmes demands specialized training which can best be given in each country, since the programmes must be closely related to local conditions.

Reafforestation. To conduct successful reafforestation programmes also necessitates skill in a number of specific techniques.

Forest fire control. Today, this is another specialized field for which key personnel needs to be trained.

Forest inventories. The transfer of data from air photography is a highly specialized undertaking, and personnel must be trained in the necessary skills as well as in other aspects of forest survey work connected with the making of inventories.

Project

It is not at present possible for FAO to carry on work in individual countries in organizing special training courses. The need will be urgent, however, if forest development programmes are undertaken on any large scale. It is proposed therefore that experts in forest inventory methods (including air-photograph interpretation), programme planning, reafforestation, and forest fire control be recruited for temporary periods of service in under-developed countries to assist in setting up and conducting training courses in these fields. Thereafter the number would increase as more Governments became interested in extensive forest developments.

Estimate of cost

First year, $119,930; second year, $155,470.

B-15. Fellowships and scholarships

In many countries there is an urgent need for well trained senior officers in the Government service capable of directing forest programmes. The technical training of these high-level administrators can often best be accomplished at suitable institutions in the countries with highly developed forest services. The UNESCO publication,

Opportunities for Foreign Study, indicates that a number of scholarships are available, but more should be provided in the specific fields of greatest urgency and importance to the under-developed countries.

It is proposed that nine fellowships be established for study in forestry, to be available for selected candidates with proper qualifications from under-developed countries establishing or improving Government services in forestry. FAO is prepared to furnish advice and assistance in the choice of suitable schools and courses of study.

This programme should be carried on on an expanding scale as rapidly as educational opportunities can be provided.

Estimate of cost

First year, $10,480; second year, $49,480.

FOREST BASE MAPS AND INVENTORIES

See project *A-4. Mapping and classification of land and water resources,* and project *B-13. Training courses.*

C. Fisheries

INTRODUCTION

There is little definite information on which to base an estimate of potential increases in fish production, but they could undoubtedly be substantial without detriment to resources. There is also room for very great improvements in the quality of fisheries products. But to achieve these increases and improvements on any extensive scale in fisheries is peculiarly difficult. The industry is made up mainly of many individual units. Most fishermen are poor. Government fisheries services, except in a few cases, are rudimentary or non-existent. The use of age-old techniques is the rule rather than the exception, modernization being largely confined to a few countries. The industry bristles with unsolved problems and unanswered questions in production and marketing, technology and economics.

Prior to the setting up of FAO, no organized attempt had been made to deal with these problems on a world scale. The organization has therefore had to begin at the beginning. The most urgent needs are for the development of forward looking policies on the part of Governments and the necessity for well serviced administrations for

the execution of them. In addition, and growing out of this, there is the need for direct technical advice in response to requests by Governments, the training of many more technicians, more opportunities for technical education of fishermen, improvements in marketing, and the systematic collection of facts not now known about the world's fisheries resources.

In the economic development of under-developed countries, fisheries can play a considerable part in many cases. The limiting factor is the lack of trained personnel, and training and education is therefore placed first in the projects that follow.

C-1. Training and education

(*a*) Interchange of fisheries workers

Situation

Lack of knowledge of recent developments in gear, boats, processing, and distribution methods is a deterrent to expansion of fisheries in many parts of the world. Greater opportunities should be provided for suitable personnel who could subsequently be used in the vocational training of their fellows, such as foremen, managers, and leaders of groups, and in some cases fishermen, captains, to visit other countries to see at first hand how fisheries techniques have developed in the past several years.

The possible effect on fisheries production of the application of techniques from one area to another area is demonstrated by the introduction of the purse seine in Norway. This seine was first developed in the United States of America, and since its introduction into the Norwegian fisheries it has accounted for a sizable part of the annual catch. The Danish seine, so called because it was first used in that country, has now been adopted all over the world, and has proved to be a very efficient gear for certain types of fisheries. There are many other such examples where efficiencies have been increased by the method of copying.

Project

It is proposed that FAO assign experts to work out arrangements for international exchange of personnel, including assistance in organizing the necessary technical programmes. Certain bilateral arrangements already in existence would need to be expanded to enable workers of a member country to visit any other country where knowledge of new fisheries techniques could be gained.

National FAO committees or other appropriate bodies might select candidates for exchange and arrange for the incoming workers. Financial obligations of FAO would include salaries of experts to direct the programme and travel and subsistence expenses of these experts and of the workers during the exchange period.

It is believed that after four or five years Governments might be ready to meet the total cost of the exchange of workers.

Estimate of cost

First year, $98,594; second year, $98,594.

(*b*) Expanding basic training facilities

Situation

Only a few countries have any facilities for training fisheries workers, and these are sufficient to meet only domestic needs, not those of less developed areas. At present there is little incentive for expansion of facilities because of the specialized nature of the subjects and the limited demand in any one country for trained people. One way of changing this situation is co-operative action on an international level. Such action would depend first upon an exchange of opinions and ideas amongst educators as to the nature of the training necessary, and second upon the pooling of certain educational resources and services to make a single worthwhile effort instead of many smaller or partial ones which might not be as effective. Possibly two such groups could be organized, one, for example, in the northern and the other in the southern hemisphere.

Project

It is therefore proposed to expand training facilities by first obtaining a concert of opinion as to the fundamentals of the training required. This would call for consideration by universities and other scientific institutions which would examine the question of international training in fisheries affairs. This could be done most efficiently by selecting one or more of the existing institutions for expansion in and perhaps modification of their curricula. FAO would initiate and service such consultations, and when the programme had been decided upon, would endeavour to supply special lecturers who would give short series of lectures in their appropriate field on the ap-

plication of economics, statistics and technical matters as practised in fisheries. Such lecturers might be recruited from senior Government officials and other informed persons outside the universities themselves. FAO might also assist in a more permanent staffing of the project by contributing towards the establishment of special professorships. The sum devoted to the lectureships and the more permanent assistance would be $20,000.

Two consultants would be sent by FAO to visit Governments and institutions with a view to laying the groundwork for the proposed co-operative international training programme, and to produce such interchange of opinion as was necessary.

Another part of this project would consist of the establishment of thirty-six scholarships for study in appropriate schools of fisheries biology, technology, economics, statistics and administration. While there are many universities and training centres that now provide courses in fisheries biology, the number is much smaller in technology, and there are no institutions at the moment that are dealing with fisheries economics or fisheries statistics. Thus, it is likely that scholarship holders would, in the early stages of these subjects, need to go to countries where the fisheries services are highly developed and study these subjects under guidance at first hand. Thus gradually trained candidates would become available to Governments for building up the administrative services that are necessary for a high degree of development.

Estimate of cost

First year, $189,854; second year, $189,854.

C-2. Development of national fisheries services

Situation

Fisheries make valuable contributions to the food supply in many under-developed countries but there are considerable possibilities for expansion. Surprisingly little attention has been paid by Governments to the development of the industry, however, and few countries have adequate fisheries administrations. As in the case of agriculture, modernization and expansion depends to a large extent on adequate Government services in research and other fields.

Project

FAO supplies statistical and technical services on fisheries to member

Governments, but at present is able to give little direct aid in introducing and improving national services. It is proposed that work in this field be expanded by making it possible for certain officials of a Government to survey the administrative methods used by other Governments who have had to evolve systems to deal with somewhat similar situations. Conversely, specialists in fisheries administration would be secured for short periods to assist Governments in the application of fisheries administrative methods. In consultation with the officials of the host Government, they would assist in analysing resources, defining problems, and drawing up plans for national services. In some cases this might take the form of training courses for officials who are charged with the task of administration.

The shortage of trained fisheries personnel is a limiting factor in this programme, but it is estimated that three experts might be obtained in the first year. The project would be related to that for international post-graduate training in fisheries proposed in the section on training and education.

Estimate of cost

First year, $78,928; second year, $78,928.

C-3. Expansion of fisheries advisory services

Situation

FAO receives many urgent requests for direct technical advisory services in connexion with fisheries problems which the organisation is unable to meet with its limited budget and staff. These requests are for assistance in such fields as surveys of fishing resources, the design and construction of refrigeration and ice making facilities for fisheries production and preservation, reorganization of marketing facilities including improvements in the handling, processing, and distribution of fish, and the introduction of improved statistical systems.

Thus, a balance between production and consumption often depends upon the application of special knowledge in one or more of these fields, but the organization has up to now found it impossible to meet the requests made of it.

Project

It is proposed that FAO expand its advisory services to meet such demands by sending fisheries experts for temporary assignments to assist under-developed countries in solving problems mainly in fisheries

technology and biology. It is estimated that fifteen experts on a part time basis (the equivalent of eight at full time) would be needed for this work, with an additional technician assigned full time at headquarters. There would be a need for such assistance over a number of years.

Estimate of cost

First year, $152,598; second year, $152,598.

C-4. Experimental fishing craft

Situation

Fishing methods vary widely in different parts of the world and have, as a rule, been evolved locally. Little is known about the possible effectiveness of many of these methods in other parts of the world. Without experiment, it is impossible to know whether a practice suited to conditions in one country would be suited to those in another. For example, several attempts, involving considerable investments, to introduce certain North American and Mediterranean fishing methods into Latin America failed completely.

In many of the less developed regions, little is known of the potential fisheries resources because no extensive commercial fishing operations have been attempted. Biological expeditions have often shown the species of fish present, but not whether they are available in sufficient quantities for commercial exploitation. It is generally agreed that such information can be obtained only by experimental fishing, but so far little work of this nature has been carried out.

Experimental fishing to test methods and explore resources must be planned and carried out carefully. Chances of success are small unless the craft and gear selected are suited to the particular fishing methods being tested, to the waters being fished, to the personnel obtainable, and to other local conditions. Often, fishermen experienced in the techniques being tried should be brought in for shorter or longer periods of time. The investment is relatively heavy and the results uncertain. Nevertheless, in many well developed countries where experimental fishing has been carried on by Governments or through Government support, the experiments have served as an incentive to industry to enter the field, and highly productive commercial fisheries have been developed.

Project

Similar methods can be useful in under-developed areas under expert guidance. Where a Government or group of Governments co-operating in a region decide to carry out an experimental fishing project to study the possibility of developing resources through new or modified techniques, it is proposed that FAO make expert assistance available. Under carefully controlled conditions, grants would also be made to defray certain of the expenses involved in the acquisition of necessary equipment such as an experimental vessel. Where such work was undertaken by a Government in an area covered by a Regional Fisheries Council, the advice of that body would be sought.

Estimate of cost

First year, $591,670; second year, $91,670.

C-5 Fish production in small bodies of water

Situation

Surveys recently conducted by FAO show considerable possibilities for further developing fish production in small bodies of water inland or near shore. In some regions where pond fisheries are intensively exploited through the use of fish culture practices, production reaches 4,000 pounds an acre a year. Large yields have been attained in Germany and eastern European countries. The Malayan States have increased production by importing fry by air from China.

Often these local fisheries resources can be developed in regions to which salt water fish cannot easily be transported without refrigeration or processing. Also, they are frequently in areas where the food supply is notably lacking in animal protein—for example, Siam and Haiti. In addition to making a direct contribution to food supplies, pond fisheries give useful employment to agricultural workers on small holdings.

Fish culture of this type aims at obtaining the maximum yield of fish from the body of water under management. Methods employed vary with the geographical location, but practices contributing to high production include stocking with suitable species, preventing overpopulation, fertilization of ponds, feeding of fish, and control of aquatic plants.

FAO has had some experience with pond fish culture practices. A special fisheries mission sent to Siam studied fish cultural practices there and made recommendations for improvements. The FAO fisheries officer in the Far East has given much attention to the fish cultural methods in this area. An FAO fisheries biologist in Haiti made recommendations for fish culture practices to increase the production of fish in the Caribbean area. But more than this is necessary in order to produce tangible results.

Project

If the Governments concerned are willing to make such programmes part of their policy, and gradually to introduce the necessary administrative measures, it is proposed to send one fisheries biologist to each of four selected areas, in the Far East, the Near East, and the Caribbean region, to assist Governments in making surveys looking toward the development of pond fisheries resources, to help set up and demonstrate fish hatcheries and pilot projects, and to assist in the recruitment and training of local personnel.

Estimate of cost

First year, $96,410; second year, $96,410.

FISHERIES CREDIT

See project F-3 under the heading "Economic and statistical services".

FISHERIES MARKETING

See project F-4 under the heading "Economic and statistical services".

FISH PROCESSING

See project D-1 under the heading "Nutrition and food management."

D. NUTRITION AND FOOD MANAGEMENT

INTRODUCTION

In a broad programme to develop the human and material sources

of under-developed countries nutrition is of central importance. Objectives for food production in a given country must be founded on knowledge of the existing consumption levels, dietary habits, and nutritional requirements of the country. Practical measures to improve nutrition such as supplementary feeding of school children need to be initiated and developed; people need to be taught better dietary habits and better methods of food preparation; and the use of foods made available by advances in food technology should be encouraged. All this involves in particular the creation of effective nutrition advisory services in the under-developed countries, the training of expert personnel, and the encouragement of research on specific nutrition problems of national or regional importance, including especially studies of the nutritive value of local foods.

FAO has been concerned with these matters since its foundation. The proposals put forward here represent an extension of existing activities.

D-1. Nutrition advisory and research services

Situation

In most countries satisfactory nutrition services do not exist at the present time. FAO has assisted certain countries—including Greece, in which assistance has been provided for a fairly prolonged period—to establish such services on a permanent basis, and other countries in need of similar assistance have requested that FAO provide it.

Project

It is proposed that in the first year FAO should provide nutrition experts for six countries in different regions, including Europe, the Far East, and Latin America, the number being increased to ten in the second year. These experts would remain in each country for a year, or longer if necessary. They would assist countries to plan food production programmes designed to meet nutritional requirements, and the training of local workers to staff permanent nutrition services would be among their most important responsibilities. In addition to the experts sent to countries for a period of a year or more, six other experts would be made available for shorter periods to help Governments to deal with special problems and programmes in the field of nutrition, such as diet surveys, the training of nutrition workers and workers in fields closely associated with nutrition, and the organization of supplementary feeding programs. Some supple-

mentary feeding programmes should be designed to increase the utilization of cheap and nutritious products such as dried skimmed milk, which can be produced in greater quantities for export in certain countries with well developed dairy industries.

This work would be carried on in close collaboration with the World Health Organization, which is directly concerned with nutrition in relation to health and the prevention of deficiency diseases. The functions of the FAO and WHO workers would be complementary and would not overlap. The work would also be co-ordinated with that in agricultural extension and home economics discussed elsewhere in this report.

FAO has co-operated closely with the United Nations International Children's Emergency Fund (UNICEF) and has advised the latter on the technical aspects of supplementary feeding programmes in different countries. Some of the experts employed on the project for nutritional advisory and research services would provide technical assistance to UNICEF, should this be needed, in addition to their services to Governments.

Estimate of Cost

First year, $186,535; second year, $240,463.

D-2. Aid for nutrition research

Situation

FAO conferences, commissions and committees have drawn attention to various problems in the field of nutrition on which research is urgently needed. Many under-developed countries and regions have nutrition problems of local significance which call for study and research. Nutrition research institutes and laboratories which are ready to undertake such research already exist in some of the under-developed countries, but they are often handicapped by lack of funds, laboratory equipment, adequate library, and scientific literature.

Project

It is proposed that funds be devoted to supplying these needs, great care being taken in the selection of countries with institutes or laboratories suitable for assistance. The selected institutions should be those in a position to study the problems of a group of countries or a whole region rather than a single country.

Estimate of cost

First year, $170,159; second year, $95,159.

D-3. Training and education

Situation

Trained nutrition experts are needed in the under-developed countries, both for research and for practical work. Among the important responsibilities of visiting technical experts will be that of training personnel who can carry on the work of the visiting experts after the latter have left the country. Apart from training obtained in this way, other steps should be taken to ensure an adequate supply of trained nutrition workers.

Project

Training of individual workers. FAO should assist workers in the under-developed countries to obtain training in nutrition in suitable centres. About fifteen workers should be helped to obtain such training annually. This project is closely linked with project D-1 through which nutrition advisory services would be provided to under-developed countries.

Estimate of cost

First year, $67,598; second year, $67,598.

Training courses. Three training courses in nutrition, lasting about three months each, would be organized during the first two years at suitable centres (one in the first year, two in the second). Instruction in nutrition would be combined with field activities and the courses would be designed to equip students for practical work. Visiting and local experts would be responsible for the teaching. It is expected that the students would attend at the expense of their Governments. Further courses will be organized in subsequent years in accordance with needs.

Estimate of cost

First year, $54,197; second year, $66,827.

D-4. Food preservation and processing

Situation

Lack of suitable methods of preserving food causes very large waste

in many under-developed areas. Some of the methods used also result in the loss of a large proportion of the nutritional value of foodstuffs. Many countries need technical assistance to introduce and adapt improved techniques. Seasonal shortages of certain foodstuffs could be greatly ameliorated by the use of suitable methods of storage and preservation.

The problem is particularly pressing in the following fields.

Cereal technology. Cereals form the bulk of the diet in most of the under-developed regions. Improvement in the nutritive value of cereals as consumed is a matter of great importance to a large part of the world's population—especially so where the diet is limited in variety. It can be brought about by improved methods of processing, in particular in the milling of grains, and the treatment of the final product by the addition of nutrients or by special methods such as parboiling of rice. The reduction in the loss of essential nutrients in the milling of cereals by methods now widely used is particularly important.

Fruits and vegetables. Considerable losses of seasonal foods such as fruits and vegetables can be avoided by better methods of canning and drying, already well known in some countries. In some instances, waste can be prevented through refrigeration. The processing of these perishable foods would lead to the establishment of local industries. Developing such industries would often call for setting up small demonstration plants, for which outside technical advice will be needed.

Home preservation of food. Information on home preservation of foods would be largely disseminated through the extension and advisory services in each country, but technical experts would be required to assist Governments in the adaptation of modern methods to existing conditions and in the improvement of methods already in use.

Development of foodstuffs as partial alternatives for milk. In many countries, particularly in the Far East, there is need to develop partial alternatives for milk so as to help provide a better balanced diet. A great deal of work has been done on the development of easily emulsifiable powders made from soybean and other pulses. Technical as-

sistance is required in some countries to introduce such foodstuffs or extend their use and to develop fully satisfactory products through further research, including consumer tests.

Fish liver oil. In some areas fish liver oils rich in Vitamin A are wasted, despite the fact that vitamin A is particularly badly needed to improve diets. There is need for technical assistance in appraising potential local sources of supplies and studying technological and economic aspects of the production of suitable preparations rich in vitamins. This work would need to be followed by technical assistance in developing actual production.

Food yeast. Carbohydrate material of various kinds which is of little value in human nutrition can be converted into food yeast rich in protein and vitamins of the B group. Food yeast has been successfully produced on a factory scale in the West Indies. Its production is most feasible and economical in countries in which there is a surplus of molasses. Technical aid is needed in determining the possibilities of production and developing them to the practical stage.

Fish and fish products. A number of special methods of handling and treating fisheries products to produce nourishing foods have been traditional practices in the Far East. From what is already known of these methods it appears that they are unusual and valuable but could be greatly improved, that they could usefully be introduced into certain other areas, and that with further experimentation present methods might lead to the development of related processes.

With technical advice and some financial assistance, research institutions in certain countries in the Far East could develop or expand technological experiments looking toward improved methods of fish processing, and demonstrations and instructions aimed at introducing useful methods into other areas could be organized. The work would consist of practical experiments with the object of improving methods of preserving and using fish in the Far East and should be carried on in close co-operation with regional fisheries councils.

Milk and milk products. Too large a part of the world's available milk supply is wasted by inefficient methods of handling and processing or by failure to make the best use of such nutritionally valuable products as skim milk. FAO is working with the International Children's Emergency Fund in Europe, providing technical assistance to

Governments on improved methods of handling and processing dairy products. There is need for similar assistance in Latin America and in certain countries in the Far East. This work should be co-ordinated with projects on breeding and feeding of livestock, with a view to a general increase in the volume of dairy products.

Project

This project proposes the provision of twelve experts on food technology, covering the aspects listed. They would advise Governments on recent techniques and developments, help in planning the application of new methods or improving older ones, and assist in establishing and strengthening Government services in these fields. The project would thus be closely associated with work on marketing and on extension and advisory services. It would be concerned especially with community and other large-scale processing. Advisory aid on pilot plants to bridge the gap between research work and its application on a commercial basis might be needed. For fish and fish products, advisory and some financial assistance might be required in expanding research laboratories.

Estimate of cost

First year, $227,250; second year, $380,273.

E. Rural institutions and services

INTRODUCTION

Much progress in production can be made through the widespread adoption of comparatively simple improvements. But frequently there is a wide gap between the trained technician with the knowledge and the small farmer. As long as this gap remains, there is little or no response from producers to the opportunities that science makes possible. The problem is to use and develop rural institutions and provide services which make the knowledge and experience of the technicians or administrators available to meet the requirements of production and rural welfare at the farm or village level.

Education suited to the needs of rural people is necessary both to persuade them to adopt and to show them how to use new methods. Rural leaders must be trained, existing institutions used and strengthened, and new organizations developed where required.

The problem of increasing production and improving distribution of food and other basic products demands combined action in many

fields. Projects proposed here deal with a few of the most important extension services, rural industries, co-operatives, and community demonstration centres.

In all of this work, not only must such aspects of human welfare as nutrition and health be stressed—which would often involve co-operation with other international organizations; even more important, the cultural background of populations must be taken fully into account. It will determine both the rate of advance and the nature of the objectives in each case. If new methods of production are to be learned, they need to be fitted into—or grow out of—customary patterns of life, which change only slowly. It is neither possible nor desirable to superimpose the ways of life of one people upon another people. Unless this is understood, efforts to bring about material progress may well create more problems than they solve and bring an endless train of social troubles in their wake.

E-1. Extension and related educational services

Situation

Bridging the gap between the knowledge possessed by scientists and technicians and the practices of producers requires efficient extension or advisory services and related educational activities. The work is important not only in agriculture but also in forestry and fisheries. Since efficiency in production is influenced by living conditions, successful extension work always includes programmes for the education of farm women in home management, nutrition, child rearing and other home problems. It provides training also for rural boys and girls —a particularly important point in the less developed areas not only because the young people begin work early in life but also because they are often more alert, more eager to learn and able to lead toward new ways, than are their elders.

The form of organization of extension services most suitable for any country will depend of course on general social conditions and organization, levels of literacy and education, the advanced teaching and research institutions and experiment stations with which working relations can be established, related Government services which can be drawn upon, and other conditions.

An efficient service will consist of a nucleus of agricultural home economists and other specialists, who serve field workers in daily contact with farmers and their families.

FAO has under way a programme, for assisting member Governments to train agricultural extension workers and set up or improve existing agricultural extension organizations. Meetings of specialists are planned for Europe and for Latin America in 1949, and similar meetings will be held in other regions. Two specialists in agricultural extension organization and methods worked in China as members of the FAO agricultural advisory group assisting the Chinese Government.

Project

It is proposed that the FAO programme of assisting Governments in under-developed countries in the organization and improvement of agricultural extension work be considerably expanded. Specialists would be sent on request to give guidance on effective extension methods and procedures, community survey and organization, the training of extension workers, and administration of extension services. They would assist Governments in strengthening an existing service or planning and setting up such a service if none now exists. Where appropriate, the programme would also cover forestry and fisheries.

Training would be provided by helping to organize courses in agricultural colleges, and other suitable institutions, arranging meetings and short courses for practising extension agents, consultations with extension workers in the field, and arrangements for bringing workers to countries where extension methods are highly developed. Proposals for fellowships in phases of agricultural extension are made in the section on training and education.

Estimate of cost

First year, $194,858; second year, $344,678.

E-2. Training and education

Workers concerned with extension and other types of educational activity, with the development of co-operatives, and with rural industries need to study successful projects of the same sort not only in the more highly developed countries but also in countries with problems and conditions similar to their own.

It is proposed that training fellowships for periods of six months or in some cases longer, be granted to workers in such fields to study and participate in significant developments in other countries. Special attention would be given to persons engaged in field work.

FAO has obtained information on a number of valuable developments in all the principal regions of the world, and further information of this kind is constantly being assembled. It would be necessary to work out suitable arrangements with institutions in each region for resident study and work by trainees.

Estimate of cost

First year, $44,482; second year, $59,482.

E-3. Community demonstration centres

Situation

Improved methods of production and processing need to be adapted to local conditions and demonstrated in community centres by local people if they are to be widely used. Such a centre would ordinarily include practical demonstrations not only of agricultural production but of processing and other rural industries. It would provide an object lesson proving what can be done and showing how. It would furnish leadership and training. It would provide instruction in nutrition and the cooking and preservation of food; encourage the development of co-operatives and other forms of organization; be a centre of contact between extension agents and farmers; and it might also include community projects in improved housing, sanitation, water supply, and other preventive health measures.

Project

FAO has not yet undertaken any field work of this type, but it is in touch with a number of successful projects which can be used as examples and drawn on for advice and assistance.

It is proposed that three community centres be established, the land and capital equipment being provided by the host country or by a group of participating countries within a region. Each centre would be used to demonstrate techniques and provide training in order to make possible the establishment of additional centres by the country or countries concerned. Each would work in close co-operation with existing Government services, especially the advisory agricultural extension services.

The technical staff at a centre would include an agricultural specialist with broad training and experience, an extension worker capable of selecting and training rural leaders, handicraft and rural in-

dustrial specialists according to local conditions, a social scientist familiar with the country and region to develop community relations, and others as needed.

In the first year one centre would be established and in the second, two more. Provision would be made for scholarships to permit training at the centres.

The co-operation of ILO, UNESCO, and WHO would be sought in carrying out the project.

Estimate of cost

First year, $134,116; second year, $366,458.

E-4. Rural industries

Situation

Rural or small scale industries are the chief means, in more than half the world, for primary processing of agricultural, forestry and fishery products, for manufacturing farm supplies, tools, and equipment, and for processing food and manufacturing other consumer goods.

These industries are characterized chiefly by an artisan type of production involving a large input of labour, a small input of equipment, and the use of traditional processes and methods. The adoption of improved equipment and technology, and larger units of production utilizing simple machines is taking place at a painfully slow pace. Moreover, processing of products is incomplete and limited. The use of inadequate and unsuitable equipment causes great spoilage, impairs quality, raises costs, and favours adulteration. Resources that could be used to process raw products, manufacture farm supplies, preserve and improve foods and manufacture consumer goods are frequently left unused in the presence of extensive unemployment or seasonal under employment.

Full use of existing resources, known techniques and simple but modern equipment in rural industries could materially increase production per worker and raise standards of living.

Two of FAO's rural industries officers have advised countries on their processing problems and have gathered a large amount of information on equipment, but the work that can be done in this field is extremely limited in relation to the need.

Project

Under-developed countries have few specialists in the development of rural industries. FAO's proposed expanded programme in this field would therefore consist in sending experts on request to help train suitable personnel in organizing, operating, and supervising various types of rural industries; demonstrating equipment and processes at special national and international meetings; assisting Governments with advice and guidance on setting up institutions and Government services for developing rural industries; and advising on finance and marketing and types of organization. The programme would include development of such industries as the following, exclusive of those connected with food preservation and processing, which are discussed in the section of this report dealing with nutrition and food management:

Processing primary raw products. Cleaning of grains and seeds, extraction of oil from oil seeds, oil refining, processing tea, coffee, and cocoa, cotton baling, cotton ginning, cotton seed delinting, wool washing and drying, decorticating hard fibres, curing and tanning hides.

Manufacturing consumer goods. Weaving (cloth and rugs), knitting by machinery, shoe making and leather products, furniture making, glassware, pottery and porcelain, brush making, rope and bag making.

Manufacturing producers goods. Bone grinding for fertilizer and feed, lime burning, mixing fertilizers, can making, building materials such as composition boards, farm tools, simple farm machinery and other farm equipment, brick making, harnessmaking, wood and metal working, wood bearings, lubricating oil reclaiming.

Development of rural amenities. Rural roads, water supply, night soil disposal, sanitation and drainage.

Estimate of cost

First year, $212,266; second year, $303,380.

E-5. Co-operatives

Situation

Co-operatives and other forms of voluntary association among producers and consumers can be extremely effective aids in the carrying out of programmes for development and improvement. Many times, for example, the existence of a co-operative has made the difference between a profitable and an unprofitable operation to producers. There

are several types of such organizations—single-purpose and multi-purpose co-operatives, village societies, corporations, informal associations, and others—covering many different fields, including marketing, purchasing supplies, and the provision of credit; management of irrigation, drainage, and soil conservation projects; controlling diseases and insects, improving crop plants and breeds of livestock, keeping dairy production records, purchasing and using machinery, and operating small industries; medical care, housing development, sanitation, and water supply.

There is a persistent demand for more advice and assistance in connexion with co-operative organization than FAO has been able to give. One expert has gone to a few member countries; a meeting of workers in co-operation is to be held in the Far East in 1949 and one is planned for the Middle East in 1950. Some advisory work has been done in connexion with farmers' organizations for irrigation and drainage of land.

Project

It is proposed that FAO make more specialists available to assist Governments in developing co-operatives and related types of organizations of farmers. They would be especially concerned with the selection of the right type of organization for particular conditions and needs, the problem of efficient management and operation, the development of good leadership, the training of workers in this field, and the difficult fiscal, legislative, and legal problems often connected with co-operative organization. FAO would in this project collaborate with ILO.

Estimate of cost

First year, $129,208; second year, $238,434.

F. Economic and statistical services

INTRODUCTION

In more advanced countries collection and analysis of important facts relating to food and agriculture are such familiar activities that

they often are taken for granted. This does not hold for the less-developed countries; in many of which, so fundamental a basing point as an agricultural census may be either poorly developed or non-existent. Under these circumstances, the basic facts are lacking for the formation of practicable goals for agricultural development.

Thus, one of the fundamental needs in programmes for developing agriculture, forestry, fisheries, or rural industries is creation or improvement of Government services for taking censuses, collecting and issuing current statistics, and analysing the facts obtained.

In addition to providing a general basis for development, skilled work in statistics and economic analysis often must be brought to bear on particular problems or sets of problems, such as strengthening credit facilities, improving marketing conditions, fostering co-operatives and small industries for specific purposes, or appraising the economic feasibility of particular development projects. In particular, development projects that call for investment require analyses to show whether the additional production that can be obtained will justify costs, whether markets can be found for the additional product, and how the proposed development activity fits into the general economic position of the country.

F-1. Improving government services in agricultural, forestry, and fisheries statistics

Situation

FAO assembles and publishes statistics on agriculture, forestry and forest products, and fisheries, but at present few countries can supply all the data needed for an adequate world-wide reporting service. The under-developed countries for the most part have very inadequate information on their production, consumption and trade. Thus statistical compilations on a world basis today are generally inadequate, with information from many countries missing entirely and that from some others inaccurate or incomplete in varying degrees.

As part of its regular services, FAO endeavours to strengthen statistical work in member countries through visits by staff members, distribution of publications, correspondence, schools and conferences. Efforts on this line need to be enlarged and accelerated.

Project

More than thirty countries, particularly in Latin America, south-

eastern Asia, the Near East and Africa require technical aid (*a*) in the conduct of the 1950 world census of agriculture, and (*b*) in the improvement of current statistics.

(*a*) Widespread participation in the 1950 world census of agriculture would not only provide an inventory of the world's agriculture in the post-war period but also give a base from which annual statistical services may be developed. Even broader opportunities will be offered in countries which would take a concurrent census of forestry and forest products. At least thirty countries which are seriously considering the taking of a census do not now have adequate technical staff for this work. Making available technical assistance would greatly facilitate the planning, conduct, and completion of census programmes and the processing and publication of the results.

It is proposed that for the first year ten technicians trained in census work be assigned full-time to areas where their service is most urgently needed. In addition, two experts in forestry and forest products census work should be available for three to six months' assignments in countries particularly needing their help. After 1952, the work on the census is expected to taper off.

(*b*) Many countries will need additional assistance in developing their programmes for current agricultural reporting to the point at which they can meet minimum needs for national and international programming. It is proposed that sixteen technicians be made available during the first year to assist Governments in developing this work, of whom three would have special experience in forestry and forest product statistics and three in fisheries statistics. These technicians would be assigned for appropriate periods—generally from four months to two years—to countries requesting aid.

After the first two years of the project emphasis would move rapidly from census work to current statistics.

Estimate of Cost

(*a*) For world census:

First year, $233,304; second year, $233,304.

(*b*) For current agricultural statistics:

First year, $254,120; second year, $254,120.

F-2. Aid in establishing goals for production, consumption and trade

Situation

Formulating goals for production, consumption and trade in relation to farm products, and to some extent those of forests and fisheries, has become a well established procedure in highly developed countries. Such goals are used in planning national and international programmes. They are invaluable in working out a co-ordinated national programme of development.

To formulate goals for the year ahead and for longer periods requires specialized skill and experience not now available in most under-developed countries. FAO is doing as much as possible within its present resources to help member countries work out practicable goals according to a reasonably uniform pattern. Aid is being given through visits of headquarters staff and officials of regional offices, special meetings, and correspondence. But the regular FAO programme cannot provide for the advisory service to individual Governments that is required if the work is to be accelerated.

Project

Assistance would be given by teams of experts familiar with methods used in countries which have carried out such work. In general, each team would consist of three persons, trained respectively in statistics, economic analysis, and the technical aspects of production. Wherever possible the work should be done in consultation with nutrition and rural welfare experts. A team would stay in a country from six to eighteen months as necessary. Their first task would be to assemble available information and to assist in its interpretation as an aid in determining the most urgent problems and in formulating desirable and feasible goals of production, consumption, and trade. They would also assist in formulating national programmes for reaching these objectives. An important part of the work would consist of training national officials in the methods necessary to continue this activity. Relatively brief return visits might be required to assist Governments in carrying out their plans.

For the first year the teams of three persons would be made available on request to as many as five Governments at a time. On the average they would be expected to remain in each country for a year. As this service demonstrates its value, the number of requests is

expected to increase rapidly and the number of experts should be twice as large in the second year as in the first.

Estimate of cost

First year, $289,642; second year, $553,664.

F-3. Credit and insurance systems for agriculture, forestry and fisheries

Situation

Experience in the more highly developed countries has shown that credit and insurance requirements for most agricultural enterprises and for the smaller fisheries and forestry enterprises differ widely from the commercial and industrial needs that are served by conventional systems. For example, farm mortgages and farm production loans often need to be handled by credit and insurance institutions, established particularly for that purpose.

In many countries the only sources of credit for production, especially for the small farmers, are unregulated money lenders whose terms of lending are often predatory, or large commercial banks unaccustomed and ill-adapted to making loans to food and agricultural producers. Where this situation has been improved it has usually been through the establishment of new credit institutions especially devised to meet the production credit needs of the small producers. These arrangements have included co-operative organizations, public corporations sponsored by or acting more or less independently of Governments, and Government credit institutions.

More than thirty countries need to establish or further develop their credit and insurance facilities for smaller scale food and agricultural enterprises.

Project

The establishment of public and private farm credit and insurance services requires detailed knowledge in the fields of appraising farm properties, economic trends in agriculture, the relation of crop periods to loan periods, and special risks. In the case of fisheries, attention must be given to the mobility of craft and gear, the need for extensive maintenance in order to preserve their value, and the risk of damage or destruction to which all technical equipment is exposed. Such specialized knowledge of needs must in turn be related to knowledge of general banking principles.

It is proposed that FAO make experts available for periods of six months to a year to make surveys of credit and insurance needs, develop plans for agricultural and other specialized credit organizations—public, private, and co-operative, promote the necessary technical and policy consultation, and organize training facilities for persons who will administer programmes. Consultants with specialized knowledge of particular kinds or aspects of production might also be needed, usually for shorter periods. After suitable systems had been established return visits for consultation might be required.

For the first year FAO should obtain the full-time services of ten experts, six of whom would have experience in agricultural credit and insurance, two in fisheries and two in forestry, to work in eight countries. The second year the number of experts should be increased to fifteen.

Estimate of cost

First year, $174,035; second year, $234,889.

F-4. Marketing of agricultural produce

Situation

In many under-developed countries the methods of bringing food and other agricultural produce to market at prices fair to producers and consumers are seriously inadequate. Inefficient marketing organization, lack of market information and inadequate methods of storing, packing, and transportation result in large losses which, in turn, increase the prices of the goods that ultimately reach the consumer. This situation holds at present levels of production, and if unchanged it will result in even larger wastage when output is increased. In fact, in many areas the problem of marketing additional supplies is more complex than that of getting them produced.

Project

FAO proposes to expand its work in assisting member countries to improve methods of marketing agricultural commodities. Governments requesting such aid would be given expert assistance in creating or strengthening market news services and in evaluating potential markets for their produce. Assistance would also be made available for establishing or expanding inspection and regulatory services, improving practices and methods of grading, improving primary process-

ing, packing, storage, and transportation, and organizing markets and marketing facilities for domestic and foreign sales. In some countries the methods by which prices are established and the ways in which consumer demands are influenced need to be thoroughly examined to ensure full use of potential production increases.

Improvements in marketing must be associated with efforts to improve farm production. The objective is to provide a larger volume of produce of uniform quality at reasonable cost. In addition to sending technical advisers who might remain in a country for some time, provision would also be made for conferences at which marketing officials in a region could jointly study new developments and their application to local conditions.

Much of the improvement in marketing would be closely related to the development of rural industries to improve primary processing and to the work of other international organizations concerned with programmes for general economic development, particularly the development of transportation.

Estimate of cost

First year, $205,674; second year, $428,682.

F-5. Technical Training and Education

Situation

The general shortage of trained professional personnel in agricultural statistics and economics and related fields in the underdeveloped countries has limited the ability of Governments to deal with problems of domestic and international trade and production and price programmes, including appraisal of the economic factors involved in specific development projects. It has also contributed in some cases to the adoption of price and foreign exchange control policies which have reduced both food production and export sales. The same deficiency has prevented some Governments from supplying information and analyses necessary for the appraisals of world farm production and trade programmes which FAO furnishes as part of its services to member Governments.

Project

(*a*) *Statistics.* It is proposed to expand the training schools in statistics along lines already successfully developed by FAO, providing

more help to Governments in improving their agricultural statistics. Work done in Latin America and in the Near East in 1948 has shown that such training fills a clearly defined need and the requests from Governments in southern Europe and in Asia for similar assistance attest to the needs in countries in these areas as well. Governments that have participated have expressed the desire that in the future this activity be enlarged beyond the scope planned for 1949.

The duration of a training course would be three to four months in some cases; in others, four to six-week "clinics" would be arranged to provide means of meeting special needs common to a number of countries in an area. Following the pattern already established, these training schools would be developed in close co-operation with the United Nations, the Inter-American agencies, private organizations concerned with statistics, and local university and Government statistical services. Experts recruited to form the faculties of the schools would remain in the region after the close of the training school in order to visit individual countries and help the students to put into practice the new methods learned, and also to assist them in developing local in-service training programmes for workers who could not participate in the training schools.

Estimates of cost

First year, $167,080; second year, $167,080.

(*b*) *Economics.* It is proposed to institute *ad hoc* training schools (short courses) in agricultural economics. These would be designed to provide practical methods for the analysis of economic developments for purposes of policy, operations, and the formulation of governmental programmes. Much of the work of economic analysis in underdeveloped countries now lacks significance for development programmes because of lack of basic training. The proposed schools would help to make this work much more effective.

The agricultural economics training schools would be set up in co-operation with universities or other suitable training or research institutions in selected regions. The schools or courses would run for periods of six weeks to four months. Subjects covered would include analysis of economic problems of farm production, marketing, and domestic and foreign trade; methods of developing agricultural plans and programmes; methods of appraising the economic feasibility

of development projects; pricing problems and methods; and specific case problems of the countries or regions concerned.

The schools or courses would be open to officials or research workers who are engaged in, or being trained for, participation in Government programmes and activities directly related to the fields of activity of FAO, and to workers or students who expect to teach agricultural economics.

The resources of the United Nations, Inter-American agencies, and governmental and provincial agencies concerned with agriculture would be drawn on to supply instructors. Experts recruited for the training would be enabled to visit different countries after the formal training course to help students apply the methods learned to their own problems, and to assist them in organizing similar training courses for other workers.

The estimated costs cover the salary and travel of experts participating as instructors, the preliminary work of organizing the schools, and the subsequent follow-up work. It is assumed that co-operating Governments and host institutions would cover most of the expenses for buildings, local personnel, and other incidental expenses, and provide some of the staff. No provision is made for travel and subsistence of the students.

Estimate of cost

First year, $73,610; second year, $73,610.

F-6. Interchange of teachers and experienced workers

It is proposed also that suitable experts with teaching experience be sent by FAO to selected institutions in the under-developed countries for periods of three to six months, to give lectures and assist in the practical training of undergraduate and postgraduate students in economics and statistics. Universities and training centres in the developed countries would benefit from the fact that their staff members would gain a direct familiarity with problems in under-developed areas which they would be able to use in their own work. It is anticipated that after two years the need for financing such arrangements would be reduced since they would more frequently be made directly by the countries concerned.

Estimate of cost

First year, $69,558; second year, $69,558.

F-7. Fellowships

It is proposed that twenty-five fellowships be granted to officials and students who are engaged in training for governmental work in the field of agricultural economics and that of agricultural statistics. Candidates should have appropriate educational and other qualifications and must agree to return to their appointments in the home country at the end of the training period.

Estimate of cost

First year, $109,260; second year, $109,260.

FOOD AND AGRICULTURAL ORGANIZATION TECHNICAL ASSISTANCE PROGRAMME OF ESTIMATES

	Total	
	First year	Second year
	$	$
Agriculture	3,393,250	4,176,710
Forestry and forest products	1,827,200	2,173,700
Fisheries	1,208,054	708,054
Nutrition and food management	705,739	850,320
Rural institutions and services	714,930	1,312,432
Economic and statistical services	1,576,283	2,124,167
TOTAL	9,425,456	11,345,383

CHAPTER 10

Proposals of the United Nations Educational, Scientific and Cultural Organization

Introduction

The Executive Board of UNESCO warmly welcomed the resolution of the Economic and Social Council on technical assistance. It saw immediately the contribution which UNESCO might make to any extended programme of technical aid, and, in March 1949, passed the following resolution:

"*The Executive Board:*

"Having heard the report of the Director-General:

"1. *Welcomes with satisfaction* the resolution of the Economic and Social Council, dated 4 March 1949, on technical assistance with a view to economic development;

"2. *Is pleased* that the Economic and Social Council, in paragraph 5 (1) of that resolution, recognized the need to give special attention to the social questions which directly condition economic development, no technical progress being of lasting effect unless it is accompanied by corresponding social and cultural progress;

"3. *Hopes* that the financial resources put at the disposal of the United Nations and specialized agencies will be comparable to the essential needs of the States concerned;

"4. *Approves* the means of action listed by the Director-General in document 15 EX/3 as revised in the light of the Board's discussions, which form a useful basis of negotiation for the discussions to be held by the various committees and commissions of the United Nations;

"5. *Requests* the Director-General to take account of the observations submitted by the members of the Board at its fifteenth session, particularly as regards the collaboration of the States benefiting from the carrying out of the plan and the very great flexibility with which the plan must be executed, since that is an essential factor in the economic and social development of these States;

"6. *Recommends* that the administrative problems raised by the execution of a concerted economic and social plan should be solved by the co-ordination of projects and not by the setting up of new administrative machinery, which might impair the efficient working of the organs responsible for applying it;

"7. *Asks* the Director-General to communicate document 15 EX/3 revised, to Member States with the request that they hasten to send the Secretariat their comments on the projects contained in this document; and

"8. *Requests* the Director-General to report to the Executive Board in due course in order that the latter may have time to consider the concrete proposals which will have to be submitted to the fourth session of the General Conference."

The programme set out in this chapter is based on the Executive Board's policy decisions, but it must be emphasized that pending a decision by the General Conference, the programme is provisional, and is intended primarily as a basis for discussion.

PART ONE

Technical aid within UNESCO's existing programme

UNESCO's plans for an extended programme of technical assistance to under-developed countries can best be understood after a brief survey of some of the more important work of this type already being done in 1949. The division of topics is that followed in UNESCO's 1949 programme and does not correspond to the division by projects adopted in the plan in part two below.

I. EDUCATION

1. *Consultative educational missions*

Three educational missions are on the programme for 1949.

(*a*) *Subject: literacy campaign.* (Mission already completed.)

(*b*) *Subjects: elementary, secondary and fundamental education.* (Mission now in progress.)

(*c*) *Subjects: elementary, secondary and technical education.* (Mission planned to begin in August.)

2. *Seminars*

Two seminars on fundamental education, each of six weeks duration, are planned for 1949:

(*a*) *Latin-American seminar*
Topic: literacy campaigns. July-August.

(*b*) *Asian seminar*
Topic: adult rural education, including literacy, health education and education for small-scale industrial development. November-December.

3. *Pilot projects*

In the Haiti pilot project the initial surveys have been completed and the initial difficulties overcome. During 1949, it is planned to make the Gosseline Valley in Haiti a demonstration area in fundamental education, a training centre for rural teachers, and a production centre for educational materials.

4. *Preparation of materials for fundamental education*

An experimental centre for the preparation of educational materials for adults has been set up in China in conjunction with the Chinese Mass Education movement.

5. *Clearing house activities*

UNESCO has set out to become a clearing-house for information on such topics as: fundamental education in all its branches; the organization and financing of school systems at all levels; school buildings and equipment; educational statistics; adult education; higher education; text-books and audio-visual aids both for children and adults; and the training of teachers. Developments in 1949 include a quarterly bulletin on fundamental education (in English, French and Spanish), a monthly bibliography and abstracting service on fundamental education, and a series of monographs on topics related to fundamental education. Plans are made for travelling exhibitions of teaching materials and for the publication of teachers' guides for use in educationally under-developed areas.

6. *Conferences*

A world conference on adult education is being organized by UNESCO to take place in Denmark in June. It will cover work in under-developed areas as well as in more developed countries.

II. SCIENCE

1. *Field science co-operation offices*

Four such offices are on the 1949 programme. They are situated in the following areas: Middle East—Latin America—South Asia—East Asia.

These offices are fitted to supply scientific and technical aid in the form of:

Scientific literature (books, papers, photographic copies, microfilms, etc.);

Equipment and material;

Scientific and technical information, and ideas and suggestions on specific problems in the region;

Visits and missions from technicians and scientists from other countries;

Fellowships for study in other countries, for the scientists and technicians of the area.

2. *Scientific apparatus information service*

This service provides information on the existing apparatus and instruments that can be commercially bought for use in research, teaching and production. A large amount of such equipment has been actually bought by the service for distribution in war-devastated areas. This activity can be extended as a form of technical aid to under-developed areas.

3. *Scientific literature service*

This service, which possesses much information on books and periodicals, abstracting journals, and indexes of all kinds, can furnish this information on request and can establish lists of scientific documents relevant to the specific problems of the areas.

4. *Popularization of science and its social implications*

UNESCO is experimenting with the use of media of mass communications (discussion pamphlets, radio broadcasts, films, temporary exhibitions), as well as with science clubs, for diffusing scientific and technical knowledge among all classes in the community, so as to increase the understanding of scientific and technical advances. For example, during 1949 it will begin the publication of a quarterly

bulletin on the social implications of science and technology. The experience gained in this work will be of direct value in campaigns for making the people of under-developed areas understand and sympathize with the scientific and technological aspects of development schemes in which they will be involved.

5. *Special regional institutes*

UNESCO's programme provides for assistance in the formation of scientific institutes devoted to the study of problems of development in specific regions. An example is the Hylean Amazon Institute, whose full operation now awaits only the ratification of its constitution by two of the member States. Its programme includes surveys of resources in the region, and research, leading towards the development of the region socially and economically. Other institutes are in the planning stage: one on the arid zones and one on applied mathematics and the training of computation specialists.

III. FELLOWSHIPS

UNESCO's own fellowship programme is closely related to the special projects for which the Organization is responsible. Fellowships, that is to say, are specifically given in areas and for purposes determined in large part by the needs of the UNESCO programme as a whole. For example, an increasing number of fellowships are being given in the field of fundamental education, and the third session of the General Conference instructed the Director-General to intensify the fellowship programme in under-developed areas and Trust Territories.

In addition, UNESCO has set out to get an all-over picture of the world position with respect to fellowships. It has, for instance, made itself responsible for the publication of the Fellowship Handbook. In 1949 Volume I and Supplement of *Study Abroad, International Handbook of Fellowships, Scholarships and Educational Exchange* was published, listing over 16,000 opportunities for study abroad from thirty-four countries. In the autumn of 1949 Volume II will be published listing facilities available for 1949-50 together with information on international training schemes, developed in collaboration with the International Labour Organisation. These handbooks also contain analyses of various programmes and problems related to the

movement of scholars, scientists, technicians or students from country to country. This experience enables UNESCO to render advisory services to Governments and to other organizations on problems of international education exchange.

IV. MASS COMMUNICATION

Surveys have been made, on the one hand, of the world's needs in the sphere of mass communications, and, on the other, of the resources available in certain areas to meet those needs. Specialists have been sent to survey the needs for press, radio and film equipment and facilities in forty-three countries affected by the war or for other reasons under-developed. Two volumes, *Report of the Commission on Technical Needs in Press, Radio and Film,* Parts I and II, have already been published. They set out the existing position in detail, and will be basic to the use of mass media in economic development schemes in any of the countries surveyed.

UNESCO has also undertaken the complementary task of listing films, film-strips and relevant publications available to meet some of the needs, and of collecting information on the supply, quality and cost of various types of equipment. Fellowships have been given to persons working in the mass communication field in some of the countries surveyed.

V. SUPPLY OF BOOKS AND PERIODICALS

1. *Clearing house for publications*

UNESCO acts as a clearing house for information on such questions as the international exchange of publications, the free distribution of surplus or duplicate stocks, and book distribution. The *UNESCO Bulletin for Libraries,* published monthly since April 1947, in English and French, conveys information essential to libraries throughout the world.

2. *Book coupon scheme*

The UNESCO Book Coupon Scheme, launched in December 1948, assists libraries in soft currency countries to acquire publications from hard currency areas. Already a number of under-developed territories benefit from this project.

3. *Bibliographical service*

UNESCO is engaged in the promotion and organization of bibliographical services with particular reference to the needs of libraries and institutions in regions lacking adequate information on available literature.

It should be clear from what has preceded that UNESCO has had a considerable amount of experience in the giving of technical assistance to under-developed countries. Part two will be concerned to show how the existing programme of UNESCO can be expanded to meet the needs of a major scheme for assisting economic development in such areas.

PART TWO

Plan for extended programme

Under any extended programme of technical assistance it will be for the recipient countries to determine in what particular fields they want help. It would, therefore, be difficult if not indeed presumptuous for UNESCO at this stage to lay down a specific programme of projects that it would undertake if given the necessary additional funds. All that can be done is to state:

A. The general fields in which UNESCO is competent to give technical assistance, and in which experience has shown that under-developed areas are likely to ask for help, and

B. The methods which UNESCO is ready to use in the giving of such assistance.

It will be for each country to ask for technical assistance in any of the given fields. UNESCO and the Government concerned will then determine the best methods to use in giving that assistance. Since it is rather easier to predict the methods to be used than the fields to be covered, it has been decided to present the financial estimates and the total volume of work to be undertaken in terms of methods rather than of fields.

SECTION A: Programme presented by fields

The fields in which UNESCO believes itself competent to offer technical assistance to under-developed areas are given below. In each case brief notes are given on UNESCO's past experience in the field,

and on the methods that would appear most readily applicable. For a description of the methods it will be necessary to refer to Section B. This kind of presentation inevitably leads to a certain amount of repetition, but it is the only way of relating methods to fields, and in the end is probably simpler for the reader.

I. TECHNICAL EDUCATION

Any economic development scheme that sets out really to help an under-developed country to do something for itself will, sooner or later, lose its impetus if it does not incorporate a scheme for educational development. Most economically under-developed countries have inadequate systems of education, and few of them will be able, without technical help from outside, to keep pace with the demands for skilled personnel that a successful economic plan will create.

The first educational demands from economic development schemes are likely to be for technical education. Help and advice will be asked for at all levels from training in elementary handicrafts to the education of engineers and other specialists in technological institutes. Many under-developed countries have no knowledge, personnel or traditions with which to build up a technical school system adequate to their growing needs, and want help in such matters as: organization, finance, buildings, equipment, text-books and technical periodicals, staffing, the training of teachers, curricula, teaching methods, the use of audio-visual aids and the integration of technical schools with industry. They also need advice on the complex and delicate relationships between technical schools on the one hand and secondary schools on the other; for in many countries a formal and academic secondary school system is the chief obstacle to the development of a good system of technical education. UNESCO is qualified to advise on the establishment within the education system of laboratories and "shops" for the practical training of engineers and other higher technical staff, and on their relationships to universities.

Technical education is a field which UNESCO shares with the United Nations and with other specialized agencies. Certain topics, such as apprenticeship, obviously fall within the competence of the ILO: UNESCO just as clearly must be prepared to give advice on the technical education that takes place within the school and university systems, and on the relationship of technical education with the elementary or fundamental education on which it is based.

Methods: Use of exploratory missions, teams of advisers, field science offices, fellowships and general clearing-house services. (See B below.)

Past experience: UNESCO's past experience in this field is not as extensive as in many others, but it includes the organization of missions covering technical education, and the giving of advice through field science offices. It is also conducting an extensive survey in the teaching of science, and has given assistance to technical schools in war-devastated areas.

II. ELEMENTARY EDUCATION

It is stressing the obvious to say that technical education worthy of the name is impossible unless based on efficient and wide-spread elementary education. A modern elementary education system is a complex structure, and few under-developed countries are capable of profiting, without expert help, from the hard-won experience that other countries have gathered in this field over the past hundred years. They commonly need advice, not only on such relatively concrete matters as school buildings and equipment and school administration and finance, but also on the more subtle problems that arise when a community begins to change its way of life and when a school system tries to break away from sterile formalism and to adapt itself to those changing needs. Many under-developed areas are in desperate need of assistance on teaching methods, text-books, curricula and the training of teachers. It is rare for a narrow and formal school system to produce educators who are capable, unless helped from the outside, of adapting their schools readily to the changing demands of the economic and social system.

Methods: Exploratory missions, advisers, fellowships, training and production centres, seminars, publication of teachers' manuals and reviews, distribution of books and materials.

Past experience: UNESCO is the only organization operating in this field, and has had experience in it with practically all the methods mentioned immediately above.

III. FUNDAMENTAL ADULT EDUCATION

But economic development schemes can rarely afford to wait for a new and educated generation to grow up. An attempt must be made

to educate adults. We are immediately faced with the fact that some two-thirds of the human race are unable to read and write. Whilst bare literacy is not the end, and may not even be the beginning, of education, yet the printed word is one of the most potent means of conveying ideas and of stirring the sleeping minds of a people. The mind of the illiterate is often closed to ideas that may be essential to economic and political development. We know, however, that literacy campaigns have often failed, not through lack of enthusiasm, but simply through lack of knowledge on the part of the organizers. Great advances have been made during this century in methods of literacy teaching, but so slow and uncertain is the spread of educational methods that many literacy campaigns are even now making use of methods that were out of date thirty years ago. Technical assistance would, in most cases, save time, money, and dreary, wasted effort.

Mere literacy teaching is not enough: education must also develop, in both children and adults, the knowledge, the skills, and the attitudes of mind that are essential in any under-developed community that has to preserve its values and learn to control its own affairs during a period of rapid economic expansion. With UNESCO must lie some of the responsibility for ensuring in any community a reasonably balanced development.

UNESCO is prepared to offer advice and assistance on fundamental education services generally. Since its establishment, it has tried to make itself competent on such matters as the conducting of literacy campaigns for the improvement of health, of agricultural methods and soil conservation, and of local crafts and small-scale industries; the production and use of books, films, film-strips, exhibits and radio programmes adapted to use in such campaigns; the educational possibilities of libraries, co-operative enterprises and community centres; and the methods of conducting social surveys preparatory to over-all community projects.

A word, perhaps, is needed on UNESCO's interests in the field of health, agriculture and rural industry. Any educational campaign among adults in an under-developed area must of necessity deal with these matters. Even a pure literacy campaign will succeed only if it gives the people a reason for wanting to read and write; and the hope of using the newly-acquired skill to improve their material conditions, is, for most people, a very strong motive. So UNESCO

will, in many of its adult education activities, be dependent upon the close co-operation of sister organizations with special competence in health, agriculture and industry. In return, UNESCO hopes to be able to assist other organizations with the educational techniques and materials needed for their work.

Methods: Exploratory missions, advisers, fellowships, seminars, demonstration areas, publications, research exhibitions and clearing-house services.

Past experience: UNESCO's experience in this field is wide. It has sent exploratory missions and advisers, organized pilot projects, conducted seminars and conferences, produced exhibits and publications and carried on extensive clearing-house services.

IV. PRODUCTION AND USE OF MATERIALS FOR EDUCATION AND MASS COMMUNICATIONS

In all of these fields of activity mentioned above, as well as in some of those that follow, there is a serious need for research into the use of books, films, film-strips, the Press and the radio, in the service of economic development schemes. These are powerful media, which have, up to the present, been very largely neglected for this purpose. Even the printed word has only in relatively rare instances been adapted to the needs of under-developed peoples; the number of really good books and pamphlets specially written for them is surprisingly small. In the case of more recently developed mass media, the situation is worse. Rural communities in under-developed areas all too often have to make a sorry best of films and radio programmes designed for sophisticated city audiences. Difficult though the problems involved may be, schemes of economic development cannot afford to ignore such potent weapons lying half-ready to hand, to be used for good or ill by anyone who will take the trouble to work out the techniques of adapting them to the conditions in under-developed rural communities.

The use of the book, the press, the film, the film-strip, and the radio in teaching the knowledge and skills necessary in any scheme of economic development is relatively simple, though little enough work has been done on it in under-developed areas. These media, however have a more wide-spread use than this. If any new economic scheme

is to succeed in an under-developed country, it is quite essential that the general public sympathizes with the end in view and with the means to be adopted. The film, film-strip, and radio seem to be ideally adapted to the purpose of winning popular support in under-developed communities. But the techniques involved are extremely difficult: even the adaptation of the press to the needs of the barely literate is by no means simple. Most under-developed countries will need outside assistance if they are to make much progress in the use of these media.

Methods: Advisers, research and production centres, demonstration areas, seminars and other training methods.

Past experience: UNESCO is making collections of books and pamphlets produced throughout the world for use in under-developed areas, and is already supporting two relatively small-scale regional experiments in the production of books, films and film-strips for fundamental education campaigns.

V. TECHNICAL NEEDS FOR PRESS, FILM AND RADIO

Many under-developed countries, however, have more material difficulties to overcome before they can make full use of mass media. They lack the equipment, materials, and personnel to develop the use of the press, film and radio in the service of economic development and education. Many of them have most inadequate resources in such materials as paper and film stock, and such equipment as flat-bed presses, linotype machines, typewriters and linotypes with letters in the alphabet of the country, radio transmitters, radio recording equipment, radio receiving sets, cine-cameras, and film projection apparatus. Most of them lack experienced technical and professional personnel. Many of them lack information about sources of supply of the kinds of materials and equipment suited to their needs, and about methods of training personnel.

Methods : Missions, advisers, and fellowships.

Past experience: UNESCO has made special studies in forty-four countries to obtain information on the operation and needs of the press, film and radio. It has also gathered information on sources of supply of material and equipment and on methods of training avail

able in the more highly developed countries, and has given information on these matters in response to requests.

VI. TRAINING OF TEACHERS AND OTHER PERSONNEL

UNESCO's most extensive contribution to economic development will almost certainly be in the training of workers from under-developed countries in the fields of education, science, and the educational uses of mass media. In fundamental education, for example, the number of really skilled persons in the world is pathetically inadequate; and, in technical education, even the most advanced countries are dangerously short of teachers. The supply of scientific workers for under-developed countries is equally insufficient for the task ahead. The same applies to trained librarians and documentalists. When we turn to the radio and the film we find even fewer people with the knowledge and skill to use these media effectively in the service of economic development.

An under-developed country can scarcely hope, without assistance from the outside, to make much progress towards meeting its needs for educators, scientists, and technicians. It is for this reason that schemes of training loom large in UNESCO's plans for technical assistance. Nearly every international organization will need to make plans for training schemes within its own field of competence. UNESCO will have the additional duty of being a centre of information on training techniques in general.

Methods: Training centres, fellowships and scholarships, seminars and symposia, demonstration projects, scientific and industrial institutes.

Past experience: UNESCO's experience covers: seminars, symposia, fellowships, demonstration areas, production centres, and the establishment of one regional institute.

VII. PLANNING AND ORGANIZATION OF RESEARCH AND TRAINING LABORATORIES

Economic development is bound up with technical development and cannot be considered as durable if it is not backed by a certain amount of scientific and technical research. This research serves a double

purpose: *first,* it provides for the necessary adjustment and amendments to established techniques so that they can be applied successfully under new conditions; *secondly,* the research laboratories provide the best kind of training for the highest technical staff and for future professors and teachers in higher technical education.

The organization, equipment and programmes of the laboratories must be very carefully planned by a team of specialists. If they are to be effective and permanent, they must be started by a team of skilled scientists, whose services must be made available over a considerable period.

Methods: Advisory missions, field science offices, fellowships, scientific and technical research institutes.

Past experience: UNESCO's field science offices have already, within the limits of their powers, given advice on the organization of research laboratories. The Scientific Apparatus Information Service has provided extensive information on research apparatus to meet local needs and on its availability (catalogues, description, prices). The Reconstruction Department has bought and shipped apparatus in large quantities.

Scientific information

Programmes of economic development will create a growing demand, in under-developed countries of the world, for scientific information and liaison services. These can be most easily provided by international organizations. Information will be requested on scientific material of all kinds, including material needed for scientific and technical teaching at every level and material for research laboratories. There will also be a demand for information on scientific literature, and in most cases for the supply of scientific books and journals and for advice on library methods. These services will keep scientists and research workers within the regions in contact with recent developments in their respective fields throughout the world.

A scientific information service has a second function, that of helping the general public in an area to a deeper understanding of the scientific principles and practices that will play an increasing role in their lives as the economic development scheme progresses. Without some such education in the meaning and place of science in everyday

life, the inhabitants of an under-developed area are unlikely to be willing and intelligent participants in development schemes based on technical advances. Exhibitions, pamphlets, science clubs and the like, will be amongst the methods used.

Methods: Field science offices, distribution centres for books and periodicals, advisory missions, publications and exhibitions.

Past experience: UNESCO has had useful experience in these matters, through its field science offices and its division for scientific literature. The book coupon scheme has served the same purpose.

VIII. REGIONAL PROBLEMS RAISED BY INDUSTRIAL DEVELOPMENT

For many countries economic development means some measure of industrialization making for a more complete use of all possible natural resources. The earliest secondary industries to be developed will, in general, be those based on mining and agriculture. To be really effective such industrialization necessitates an inventory of all the available natural resources, backed up by a systematic study of the special problems encountered in each type of area. In most of the under-developed areas there are as yet no systematic inventories of the potential industrial resources. Very often, local authorities have neither the technical means nor the money to undertake this work. In co-operation with the United Nations and with other specialized agencies, UNESCO could arrange for scientific personnel to participate in missions organized to study and list these natural resources. With the help of such missions local authorities could proceed with plans to develop these regions.

Economic development naturally produces quite different problems in different areas. These areas can be classified in a small number of basic categories. The important problems peculiar to each type of region need an all-over scientific study in order that its economic development can be founded on a really solid basis of technical knowledge. We can classify the regions as: the arid zone, the humid tropical zone, the high altitude plateau, and the coastal region. In each case it will be necessary to make a study of the conditions of human and animal life, of the production of energy, of hydrography, of the use of vegetable and mineral resources, and of the relation of each of these fields to all the others. Such studies could best be made in institutes

peculiar to each type of region. UNESCO could be responsible for the initial organization and operation of such institutes. They could be used for the training of specialists who could eventually take over the direction of the institutes.

Methods: Exploratory missions, advisers, field science co-operation offices, institutes of technical and scientific research, symposia, fellowships.

Past experience: UNESCO took the initiative in the establishment of the Hylean Amazon Institute, the research programme of which will be directed towards the development of a region which has all the characteristics of a tropical humid zone. Through its Field Science Offices, UNESCO has been able, in some cases, to help solve special local industrial problems. The preliminary steps towards the establishment of an international council for engineering science have kept UNESCO in close contact with problems of this type.

IX. PROTECTION OF LOCAL CULTURES

Technological development of under-developed areas can create dangerous social, cultural and political problems if it is not planned and controlled with a sensitive understanding of human values. The danger of standardization—even when there is no conscious will to impose it—is inherent in many schemes of development. But there are other and far greater dangers, against which even the most disinterested international project is no safeguard.

Unless education accompanies technological development programmes, the cultural values of a country are almost necessarily undermined, and the cultural values of the nation or nations giving the assistance are subtly substituted for them. But not any or every form of education will avert this evil. Even education can be a disruptive force unless it is geared to the cultural and social needs of a particular people. Otherwise, it can lead merely to the creation of a class of uprooted intellectuals.

Every society is a living unity: all its institutions are interrelated. Progress or growth implies the co-ordinated adaptation of institutions to new conditions or needs. To introduce new ways of life or arbitrarily discard old ones without taking into account the problem of re-adapt-

ing the whole society does not lead to progress. It is more likely to lead to a statement of mental confusion.

History furnishes dramatic examples of societies thrown into upheaval—sometimes with grave consequences for the whole world—by unbalanced programmes of industrialization. The gravest examples come from lands where what was mistakenly assumed to be "progress" was brought from without.

Such examples make it obviously necessary to associate with projects of economic development specialists with experience in anthropology and sociology. Their advice will help to ensure that the economic development scheme conforms to the way of life valued by the people themselves. The assistance of social scientists is obviously not enough in itself to enable a scheme to avoid all the risks inherent in major social change, but at least it gives some hope that these risks will be considerably reduced. Their help will be particularly effective if it is understood that their services do not dispense with the necessity for the closest possible contact with those persons in the local population who are best able to interpret the national culture. One of the main functions of the social scientist, indeed, will be to make sure that the opinions of such people are given the fullest consideration.

When a mission is sent to survey the technical needs and problems of a given country, in response to its request for technical assistance, an expert should be included on the team to conduct on the spot a survey of the cultural and sociological factors involved and to call attention to the sociological implications of the projected assistance programme. The primary function of this expert should be to advise on protecting the native culture, as the protection of national cultures is one of UNESCO's duties.

In addition to protecting the native cultures, the services of experts can often be useful in stimulating local industries based on native arts and crafts. Technical assistance need not and should not be a one-way process. The under-developed areas have much to contribute to the rest of the world, not only through increased production in the economic field, but in the cultural field as well. Already there is a considerable market in the industrialized countries for the products of artists and craftsmen in certain of the under-developed areas. This market could be greatly expanded if native artists and craftsmen were taught to adapt their traditional techniques and designs to fit trade needs in the industrialized countries, without at the same time lower-

ing the artistic quality of their works. Preserving them not only helps protect the culture as a whole, but also conserves a potential economic resource and ultimately makes available to members of other cultures valuable items in the general cultural heritage of mankind.

For these reasons, the anthropologist adviser attached to field teams should be supported in some cases by experts in the arts and crafts with practical knowledge of their commercial application.

Methods: Use of sociologists and anthropologists and authorities on native arts and crafts as members of exploratory missions and as advisers to Governments engaging in economic development schemes.

Past experience: Through its activities in the field of the social sciences UNESCO is in permanent contact with national and international organizations of anthropologists, sociologists, and other social scientists. It has also been concerned with studies on the relationship of technology to social tensions, which involve many of the problems that will be encountered in economic development schemes. UNESCO has already carried out three intensive anthropological surveys of the type referred to above, and proposes to publish a monograph on survey methods.

SECTION B: Programme presented by methods

This section sets out the methods UNESCO is able and prepared to use in giving technical assistance in the foregoing fields. It also shows the rate at which UNESCO estimates it can extend its programme during its first two years of operation under the proposed technical assistance plan. Budgetary figures are given for this extended programme.

The speed with which the existing programme can be extended during the first two years depends upon three factors:

(*a*) The requests for help received from under-developed countries;

(*b*) The total amount of finance available;

(*c*) The speed of recruitment of trained staff.

Of these factors, the first is relatively unpredictable, the second will gradually become clear over the next few months, and only the third permits of a reasonable estimate being made at the moment.

Because of the number of unpredictable factors, it is difficult to

present a conventional programme and budget with definite commitments and definite limits. It has been thought wise, therefore, to try to reduce the various forms of UNESCO's technical assistance to units, each of which can be given a price. The size of the unit chosen is, of course, sometimes rather arbitrary, and the accuracy with which the unit cost can be calculated varies with the experience of UNESCO in each particular type of activity. For example, one fellowship for six months constitutes an obvious unit, and its average cost is accurately known; but the size and cost of an educational or scientific mission will vary with the demands in each case.

Yet, in the present state of uncertainty of the whole scheme, it seems desirable to attempt to define and price certain unit projects of technical assistance. The number of such unit projects than can be undertaken in the first two years is dependent upon the three limiting factors mentioned above. Once the composition and cost of each unit project is fixed, however empirically, it will be possible to combine such units into a composite plan of any given scope and cost. This method has its obvious limitations: for example, it gives insufficient recognition to the fact that the co-operation of other organizations in each of the projects is essential to their success. But, at the present stage of deliberations, it seems necessary to provide data in a form that will enable units to be built up into structures of varying sizes and shapes. At a later stage, an effort must be made to show the organic relationship between parts that are here, it must be admitted, too mechanical and fragmented. An attempt is made in the following pages to arrange UNESCO's proposed unit projects under a form of classification comparable to that used by the other organizations.

Although the choice of units necessarily involves an element of the arbitrary, their size is based on UNESCO's past experience. We know, for example, that a field science office, to be effective, cannot drop below a certain size, and an international education seminar, in our experience, operates best when the number of participants is somewhere between forty and eighty. For each unit project we shall give in the text: the composition and size; a rounded figure of unit cost; an estimate of the number of units that can be undertaken in each of the first two years; and a statement of the degree of co-operation that will probably be needed from other organizations.

In the table at the end of this chapter, the same material is

summarized under the same headings, from the financial point of view. We have thought it wise to give separately for each unit project the cost of:

Technical personnel for field and headquarters; allowances; travel and subsistence; printing and publications; grants for training; technical meetings; central administrative and common services.

I. EXPLORATORY MISSIONS

In a few cases an exploratory mission may be the only form of technical aid required by a country. This type, however, will be the exception. In general, an exploratory mission will be a necessary precursor of a wider programme of technical aid. Even the mission itself will, in general, need to be prepared for by a visit to the country concerned of an experienced and all-round man, who will be able to assess the type and size of the mission to be recommended.

UNESCO advisory missions may be in the fields of science, education or mass communications: the principles are the same in all three cases. The use of the term "UNESCO mission" by no means precludes the possibility of joint missions with other agencies. Indeed, it is hoped that joint or co-operative missions will be not uncommon. Although wide variations will occur, we have, in both types of case, based our unit costs on the assumption that the UNESCO component of the average mission will involve the services of five specialists (including one social scientist) and two assistants for six months in the field.

We have also assumed that UNESCO will be responsible for the fees and travel expenses to and from the country of these seven people. Although the proportion of costs borne by the country concerned will vary from case to case, we have gone on the assumption that, in general, the country will be responsible for all the expenses incurred within its own borders. The "unit cost" given here is the total cost for the project. The component elements of the "unit cost" are shown separately below.

Exploratory missions (Education, science or mass communications)

Unit project. A team of five specialists and two assistants for six months; plus all related costs.

Total unit cost. $64,000.

Number of units. First year, 6; second year, 8.

II. ADVISORY SERVICES

Temporary services

The most direct and immediate form of technical assistance that UNESCO can offer to any country is to lend the services of advisers and consultants within its field of competence. The term "adviser" needs to be broadly interpreted here. The specialist in question may give advice at the administrative level, or he may, at the request of the Government, be directly responsible for establishing a new type of institution (e.g. a teacher training institution or a scientific laboratory) and guiding it for its first year or two of life. Assistance might range from the loan of a single expert for six months to the sending of twenty or thirty teachers or scientists or technicians for a period of two to three years. Development can sometimes be speeded up enormously by the employment, at the critical moment, of a "cadre" of skilled foreign specialists. The number needed to produce sufficient impetus will vary from case to case. We have assumed a unit of six specialists, with two assistants, for a full year. More than one such unit will be necessary in very many cases, and two years is often little enough to show definite results in such kind of work. It is expected that, in general, the local expenses of any advisory team will be borne by the country concerned.

Permanent regional services: Field Science Offices

There is another type of advisory service that UNESCO is prepared to give in addition to missions or consultants sent for a limited period to under-developed countries. Experience has shown that the Field Science Offices, already established in four regions, could, if they had sufficient resources and staff, be very effective in the distribution of scientific and technological information to all kinds of local institutions, governmental as well as private. For an economic development programme, these offices duly enlarged, and others of the same type would play a capital role as a form of *permanent* advisory service covering a wide field of subject-matter.

A Field Science Office will act as a clearing house on scientific and technical matters required by development schemes in its region. Its functions will include:

(i) The supply and distribution of:

(*a*) Scientific literature in the form of original journals and papers, microfilms and their reading machines, photostats, and all kinds of documentation;

(*b*) Essential scientific equipment and materials;

(*c*) Scientific information already existing on problems arising in the region;

(*d*) Ideas and suggestions which might be obtained from the centres of science and technology in the advanced countries to meet specific problems in the region;

(ii) Arrangements for exchange of scientific correspondence and manuscripts, scientific papers, articles, and reviews for publication;

(iii) Provision of scientific advice, when required, to Governments of the region; and collaboration with bilateral scientific missions, scientific attachés, and Government service scientists who may be working in the region;

(iv) Facilitation of visits (which may be of short duration) by eminent scientists, and encouragement of all plans for international collaboration in research and co-operative expeditions;

(v) Co-operation with other specialized agencies.

Fellowships

Since the essence of any technical assistance scheme at the national level is that it should be self-liquidating, it is necessary that all foreign advisers or specialists provided by UNESCO should have local understudies whom they can prepare for taking over full responsibility within a given time. It would seem desirable that these understudies, to develop confidence and breadth of view, should have an opportunity for observation and study overseas. We are suggesting, therefore, that, for every "unit" of four foreign advisers sent to a country, provision should be made for, say, six fellowships to enable nationals who might be expected to replace them to visit other countries for an average of six months each. The cost of these fellowships is shown under section III. "Training".

Cost of unit projects

(a) *Temporary services*

Unit project. Six specialists, with two assistants for one year, plus all related costs.

Total unit cost. $138,000.

Number of units. First year, 5; second year, 10.

(b) *Field Science Offices*

Unit project. Field office of five senior staff with technical assistance and clerical help, plus all related field and headquarters costs, for one year.

Total unit cost. $140,000.

Number of units. First year, 2; second year, 6.

III. TRAINING

The methods most commonly used by UNESCO in its training programmes will be the following.

(a) *Training grants: fellowships and scholarships*

Training grants will be necessary in connexion with most of UNESCO's projects in under-developed countries, in order to ensure trained personnel within the countries concerned to take over responsibility for the programmes as external assistance is withdrawn. UNESCO fellowship schemes will be selective in character and related to specific projects, and will not duplicate fellowship schemes already undertaken by Governments. In this chapter an effort is made to state the probable number of fellowships that should be associated with each unit project. The total figure for fellowships, however, is given in the table in this section, rather than being distributed by projects.

In general, fellowships in this programme will be of the type developed by the United Nations and the specialized agencies, and will be intended to enable qualified experts to observe developments abroad within their own fields of specialty. The terms of the fellowships with respect to stipends, conditions and financial participation by Governments will be those already agreed upon by the United

In some areas where facilities for general secondary and higher education are very inadequate, UNESCO will have peculiar responsibility for training grants of a rather different type, which might be conveniently called "scholarships". They will be for persons initially less well qualified than fellowship holders and will be, in part, intended to bring young persons in under-developed areas to an educational level where they can take advantage of specialized training facilities offered by one or other of the organizations. Scholarships will normally be given for longer periods than fellowships, but the stipend and travel costs will be lower, so that the unit cost will be practically the same.

1. *Fellowships*

Unit project. One fellowship for six months, plus related overhead costs.

Unit cost. $3,500.

Number of units. First year, 215; second year, 430.

2. *Scholarships*

Unit project. One scholarship for one year, plus related overhead costs.

Unit cost. $3,500.

Number of units. First year, 50; second year, 100.

(b) *Seminars and symposia*

1. *Seminars*

Quite the most effective short-term training method that UNESCO has yet developed is the international seminar. Between forty and eighty participants from many countries are brought together for six weeks to work on a limited topic with the assistance of from four or five subject-matter specialists chosen by UNESCO from countries that are well qualified in the field in question. If full value is to be got from a seminar, it is essential that UNESCO have a considerable period to prepare materials and to stimulate preparatory work in the participating countries. It is also important to plan follow-up activities when the participants return home. Countries are encouraged to send to seminars participants with wide experience, some seniority in their respective services, and prospects of being in a position of influence on their return.

The seminar method is particularly valuable in fundamental education, because there is as yet no firm and acknowledged body of knowledge and skills that can be handed on by more traditional teaching methods. The problem often is to adapt methods and materials developed in one area to another area where conditions are very different. The seminar, with its combination of subject specialists and of practitioners with local experience is ideally adapted to this purpose.

In general, UNESCO plans, in any scheme of seminars, to be responsible for: preparatory work at the international level; fees and expenses of subject-matter specialists on the seminar staff; living expenses of participants; publication of reports and other materials produced at the seminar; and a travel equalization fund to assist the more distant countries with the travel expenses of their participants.

Unit project. A seminar lasting six weeks with sixty participants and a staff of six, including related costs as itemized above, headquarters costs and publication of reports.

Unit cost. $111,500.

Number of units. First year, 4; second year, 6.

2. *Symposia*

In the field of higher technical or scientific matters, the seminar is not so effective. It has to be replaced by a symposium, in which ten to fifteen high-ranking specialists meet to discuss intensively a very limited problem. The meeting is attended by up to thirty scientists and technicians of less experience who, in fact, come to learn. It is a method well adapted to introducing high-level skills to a relatively undeveloped area, and to stimulating the introduction of new techniques and practices.

The duration of a symposium is generally from two to three weeks. The period of preparation is long—in the order of six months— and a number of specialized reports and papers have to be written on a fee basis.

Unit project. A symposium lasting two weeks with forty participants with twenty reports and papers, including related headquarters overhead costs and publication of some of the reports.

Unit cost. $89,500.

Number of units. First year, 2; second year, 4.

(c) *Experimental or demonstration projects in fundamental education*

The demonstration project is particularly valuable in fundamental education. In a country that has either a very rudimentary or a very formal school system, and has had no experience of education for total community development, it is practically impossible to explain what is meant by "fundamental education". A demonstration area serves the threefold purpose of providing a living example of education in this wider sense, of developing methods and materials adapted to the local situation, and of training local personnel.

A demonstration project may be designed to show the use, under local conditions, of some special method or medium in the education of children or adults. It is expected, however, that the typical demonstration project in fundamental education would be much wider in scope, and would be concerned with the use of education to improve the general conditions of life in a limited area. (UNESCO's Haiti pilot project is a case in point.) In such a project, the co-operation of other specialized agencies (particularly FAO and WHO) becomes essential at an early stage. The ideal demonstration project, indeed, would be a joint or co-operative enterprise.

The fact that such a demonstration project covered a wide range of human activities should not mean that it would be carried out on a very elaborate scale. If too much money were spent on it, it would lose most of its value, since it could not become the type for the remainder of the country. In most cases, a demonstration project, of the over-all type, in fundamental education would need to be preceded by a survey of the area by a team of at least three specialists. The average project within a limited area would probably involve the full-time services, in the first year at least, of four or five foreign specialists and teachers.

The Government concerned would be expected, in general, to provide local staff and meet most of the local costs, but it would, in some cases, be necessary for UNESCO to provide demonstration equipment and materials that could not be purchased locally.

Unit project. Survey plus demonstration materials and staff, together with headquarters cost.

Total unit cost. $100,500.

Number of units. First year, 3; second year, 6.

(d) *Regional training and production centres*

In all fundamental education campaigns, there are invariably two dominant needs:

(*a*) An adequate number of staff trained to handle problems that extend far beyond the class-room and lecture hall. Even when there are trained teachers available, they need special additional training before they are of much use in a campaign that aims to educate the whole population of an area in skills as widely separated as literacy, the care of children, and rational methods of agriculture. No one who has not tried to find staff for such purposes can be aware of the terrible scarcity of skilled persons for the work;

(*b*) A plentiful supply of books and audio-visual aids adapted to the needs of children and adults in under-developed areas. One instance may suffice. One of the greatest needs of newly-literate adults throughout the world is for a plentiful supply of books and periodicals with an adult content and yet with a simple vocabulary and syntax. No country has an adequate supply of such reading material, and in many under-developed countries it is almost completely lacking. The books should deal with such practical matters as health, diet, methods of agriculture, useful crafts and the care of children, as well as with the traditional culture of the area concerned. The preparation of such material is peculiarly difficult and, without assistance from outside, few under-developed countries are in a position to make much progress with it. What has been said of books applies almost equally to films, film-strips and radio-programmes. Material prepared primarily for cities and highly developed countries is too complex and moves too rapidly for people in the rural areas of under-developed countries.

UNESCO plans to help meet the needs, for both personnel and materials, in regional combined training and production centres. The unit suggested is a training staff of five and a production staff of twelve (five for publications, five for films, and two for radio), with the necessary clerical assistance. There will, of course, be some over-lapping of functions between the two staffs, and workers from the region concerned will co-operate with specialists from outside the area. The suggested production staff will be sufficient for a modest but effective output of publications, posters and wall-charts, film-strips, silent films, and radio scripts and recordings.

The centre will be established in a country that has made some progress with fundamental education, but it will draw its students from all the countries in the region that have common problems, and, where possible, a common language. The countries concerned will be expected to help meet most local costs, and UNESCO will be responsible for the salaries of foreign staff, the costs of some of the equipment, and the living expenses of the trainees.

The plan is to take semi-trained workers in fundamental education into the centre for a period of nine months. If they have already had some experience, it should be possible in that time, to give them an understanding of the basic principles and practices of this broader type of education. The course will include local field work for all trainees; and provision will be made for up to one-third of them to travel abroad during the last three months of the course. This will enable trainees with special needs to broaden their experience by doing field work in other countries, or to do intensive practical work in such fields as text-book production, film-strip production, or broadcasting. All trainees could be expected, on return to their own countries, to try out in practice the materials produced at the centre.

It is estimated that the centre can handle sixty trainees each year. They will be given fellowships to enable them to take advantage of the scheme. Additional grants will be necessary in the case of the trainees spending the final three months in other countries.

The production centre will operate in close conjunction with the training centre, and each will give liveliness and reality to the other. The production centre will need specialists in simplified book production and lay-out for books and wall-charts, in cartoon and diagram design, and in script writing for and the production of film-strips, films, and broadcasts. The combined staff will need to include specialists in literacy and languages, in education, in health and agriculture, and in methods of using audio-visual materials and apparatus. A small amount of specialist equipment will have to be supplied. This equipment will include a hand-printing press, cameras, photographic dark room equipment, film-strips and film projectors, radio receivers, and, perhaps, simple transmission and recording material.

The co-operation of FAO and WHO would be necessary for the full success of such a centre.

Unit project. One combined training and production centre with a professional staff of seventeen with the necessary assistance. Intake

of sixty trainees per year, for a nine months', course: twenty of them to travel abroad in the last three months of the course. Headquarters overhead costs included.

Total unit cost. $496,000.

Number of units. First year, 2; second year, 4.

IV. SCIENTIFIC AND TECHNICAL INSTITUTES

Scientific and technical research related to economic development and the training of highly specialized staff can best be performed by special institutes devoted, each within its special field, to the application of scientific discoveries to regional conditions. The staff of an institute will have to be international at the start, but progressively more use should be made of local staff, partly trained in the institute itself. Finally, the institute will act as a centre of diffusion of scientific ideas.

As the conditions of economic and technical development repeat themselves frequently in regions far distant from one another, some of the institutes will have to be constituted as chains of stations with or without central control. Exchange of information and staff between stations will ensure their tight collaboration. It would be inadvisable to separate the more purely scientific laboratories from the technological ones, since each gives meaning to the other.

A fellowship programme will be operated in connexion with each institute.

An institute will include:

(*a*) Laboratories for basic research;

(*b*) Technological laboratories;

(*c*) Units for the experimental application of discoveries under industrial conditions;

(*d*) A training unit.

Unit project. One institute as defined above, including initial equipment, professional, technical and clerical staff, and related headquarters costs.

Total unit cost. $349,500.

Number of units. First year, 3; second year, 4.

V. MISCELLANEOUS SERVICES

(a) *Distribution of educational, scientific, and technical books and periodicals*

The work outlined above demands an adequate supply of books and periodicals, which are quite essential to all educational and scientific activities. The figures already given, however, do not include the cost of providing the books and periodicals necessary for the work of the missions, training centres, institutes and demonstration areas. In addition, a large number of publications will need to be distributed to agencies of all kinds active in the development programme. Apart from the actual cost of the books, many countries will need assistance in the selection and purchase of publications.

Within the framework of an economic development scheme, UNESCO is prepared to provide the following services:

(*a*) Bibliographical and general information services concerning sources of supply, methods of distribution, library methods, and reproduction (photostats and microfilms) of materials that are out of print;

(*b*) Assistance with the procuring of publications through the Book Coupon Scheme. Participation in the Book Coupon Scheme will enable soft currency countries, which possess adequate funds in their own currencies, to purchase, with coupons bought with their currencies, publications from hard currency areas. The scheme will be self-supporting, in the sense that every country will pay for its purchases in one currency or another; but it will be necessary to provide a hard currency reserve and to make some provision whereby soft currencies accumulated through the sale of book coupons can be used for other purposes within the framework of the technical assistance programme. Countries with freely convertible currencies will need only the services mentioned under (*a*) above;

(*c*) Purchasing and distribution services.

In some cases publications will have to be given free of cost, or funds will need to be provided to enable countries to make necessary purchases. It is estimated that, within the framework of the programme outlined in this chapter, a sum of $500,000 a year will be required to meet the cost of gift publications. To make this distribution

effectively UNESCO will have to organize systems of block purchase, transport, and local distribution. This machinery for distribution could be placed at the disposal of any organization wishing to make use of it.

Unit project. Field staff and materials for one regional distribution centre; supply of publications for free distribution; necessary headquarters overhead costs.

Total unit cost. Distribution centre, $47,500; books for free distribution from one centre, $100,000.

Number of units. First year, 5; second year 5.

(b) *Publications*

Incidental to its general clearing house services in education, science, and mass communications, UNESCO will continue to publish pamphlets and monographs on subjects of direct interest to countries engaged in economic development schemes.

One need which UNESCO finds it difficult to meet under its normal budget is for a periodical teachers' review catering specially for inadequately trained teachers in under-developed areas. Even under the most favourable of circumstances it will be a long time before teachers in such areas will be adequately equipped for their work, and able by their own efforts to keep abreast of modern developments. An unpretentious review, containing simple and concrete suggestions on teaching methods and materials would help to improve the teacher in service. It is probable that, quite apart from differences of languages, the same review would not be acceptable without major adaptations, to every under-developed area. Several editions will eventually be needed to serve different regions.

Unit project. Quarterly review on teaching methods and materials for teachers in an under-developed region.

Unit cost. $41,000.

Number of units. First year, 4; second year, 9.

SUMMARY TABLE OF ESTIMATED COSTS[a]

	Unit costs $	First year No. of units	First year Total cost $	Second year No. of units	Second year $ Total cost
I. Exploratory missions	64,000	6	384,000	8	512,000
II. Advisory services					
(a) Temporary services ...	138,000	5	690,000	10	1,380,000
(b) Field Science Offices .	140,000	2	280,000	6	840,000
III. Training					
(a) Training grants					
1. Fellowships	3,500	215	752,500	430	1,505,000
2. Scholarships	3,500	50	175,000	100	350,000
(b) Seminars and symposia					
1. Seminars	111,500	4	446,000	6	669,000
2. Symposia	89,500	2	179,000	4	358,000
(c) Experimental or demonstration projects	100,500	3	301,500	6	603,000
(d) Regional training and production centres ...	496,000	2	992,000	4	1,984,000
IV. Scientific and technical institutes	349,500	3	1,048,500	4	1,398,000
V. Miscellaneous services					
(a) Distribution of books and periodicals					
1. Distribution centres	47,500	5	237,500	5	237,500
2. Books and periodicals for distribution	100,000[b]	5[c]	500,000	5[c]	500,000
(b) Publications	41,000	4	164,000	9	369,000
			6,150,000		10,705,500

[a] References in left hand column refer to section B of part two of this chapter.
[b] Per centre.
[c] Number of centres.

CHAPTER 11

Proposals of the International Civil Aviation Organization

Introduction

Economically under-developed countries characteristically lack adequate means of transport. Any programme to expand the economic life of these countries and to develop fully their natural resources must take into account as a prerequisite the improvement of transport and communications, which are the arteries of commercial intercourse. The task of constructing an adequate system of roads and railroads in most under-developed countries will take years to complete and will frequently encounter topographical difficulties such as jungles, mountains, deserts and water barriers as well as rigorous climates. If economic development is to proceed without loss of time, if new sources of wealth are to be tapped and men and materials transported to places difficult of access, it will be desirable in studying the means of transport best suited to particular areas to take into account the contribution air transport can make to these ends.

Up to the present time, ICAO has been mainly occupied with the establishment of world-wide standards and procedures, which touch all aspects of safety in the operation of civil aircraft, and the necessary ground facilities to support civil aviation. The international standards affect the practices adopted by Governments in regulating their civil aviation. It is desirable that the States should so far as possible bring their national practices into conformity with the standards laid down internationally. This principle in fact forms the keystone on which the Convention on International Civil Aviation rests.

ICAO, as the body responsible for drawing up the basic code of international practice on all matters pertaining to civil aviation, is well equipped to assist the States in implementing this code. Depending upon the need of States, such assistance could take a number of forms as set forth in the projects below. It is not intended that ICAO should embark on projects connected with the actual operation of airlines or

the training of flying personnel to qualify for licences, although in the latter case aid could be given to States in organizing training programmes for this purpose. The type of assistance proposed in the following projects arises naturally out of the normal work of the organization, and if adequate funds are made available for this purpose, the execution of such projects would go far to realize a basic objective of the Convention, which is to "meet the needs of the people of the world for safe, regular, efficient and economical air transport".

The budget estimates for ICAO's expanded programme of technical assistance have been drawn up with reference to the capacity of the organization to absorb additional responsibilities for technical assistance without sacrificing efficiency either in the regular programme of the organization or in the expanded programme. As the first year of operation would be largely experimental, the estimates amount to approximately one-half the sum budgeted for the second year.

I. Air transport surveys

1. *The problem*

The first problem in improving transport in under-developed countries will be to take stock of their existing links of transport, to ascertain how far these links meet the demands placed upon them by present or anticipated economic activity, and to prepare recommendations for their improvement, expansion and integration, together with an estimate of the cost of such improvements. Transport surveys should take into account the special advantages of each type of transport in the light of the countries' needs, the relative cost of each type, the various purposes to be served by each and the respective contributions each can make to the economic and social well-being of the countries. Air transport surveys should normally be a part of a general transport survey, although they might be undertaken separately if desired. It should be noted that transport surveys may sometimes be conducted more effectively when the problem is not limited to a particular country but extends over several countries or an entire region.

2. *The project*

It is proposed that the transport surveys be made by experts supplied by the competent international organizations, among which ICAO

would be responsible for supplying aviation experts to deal with air transport questions. In the event an air transport survey is made alone, ICAO would be solely responsible for the conduct of such a project. Air transport surveys would have two main aspects, one economic and the other technical. On the economic side, air transportation economists would study the factors affecting the establishment of air routes—the existing and potential flow of traffic, the seasonal variation in traffic, the relations between the national routes and regional and world route patterns, and the type of service and frequency of operation best suited to meet the needs of the country. On the technical side, the survey would include a study of the number and types of aerodromes needed; the air navigation facilities and ground services essential to serve the proposed air routes; the meteorological, geographical and aeronautical factors and limitations of the proposed air routes.

3. *The Budget*

First year, $82,000; second year, $164,000.

II. Technical assistance on design, construction and installation of facilities

1. *The problem*

In most under-developed countries, aerodromes and air navigation facilities, where they exist, will be found inadequate to serve the domestic, regional and international air traffic which the economic development of those countries will engender. Air transport surveys will furnish a general idea of the ground installations required to serve the proposed air routes but the problem of installing these facilities will call for the advice of experts in their design, siting and construction. Under-developed countries may not have such experts and they may, therefore, wish to avail themselves of the services of ICAO. Where local engineers and experts are available, advice of ICAO experts may be expected to be of considerable assistance by reason of their familiarity with established standards and their objectivity.

2. *The project*

It is not visualized, where a country has decided to proceed with a

programme of technical assistance, that ICAO would be asked to take responsibility for the actual construction of airports, radio stations and other air navigation facilities, although the possibility of such a request cannot be altogether ruled out. Instead, the normal procedure anticipated would be some arrangement whereby ICAO would supply consultants at the request of a Government to collaborate in the preparation of specifications and the arrangements for construction. Subsequently, these consultants might be asked to remain at the site during the course of construction, to ensure that the specifications were being met and the facilities were installed as efficiently and economically as possible.

3. *The Budget*

First year, $108,200; second year, $216,400.

III. Technical advice on operational standards and organization

1. *The problem*

Under this category two types of problems are envisaged. The first arises from the unique degree to which civil aviation requires standardization and uniformity in the operational practices and regulations adopted by various national authorities. ICAO has since its inception concentrated on the problem of securing international agreement on the standards and procedures applying to all the technical and some of the economic aspects of civil aviation. The translation of international standards and procedures into national operations, especially the operations of the under-developed countries, calls for a major effort to secure their implementation by these States. The second aspect is concerned with organizational problems of the civil aviation authorities in under-developed countries. On this point ICAO has already given some technical assistance by furnishing advice to under-developed countries on the drafting of their national air laws and regulations to ensure air safety, the orderly development of economic air transport and conformity with international agreements.

2. *The project*

Technical advice on operating standards would call for a study in

the first instance of the actual performance of personnel in under-developed countries operating air navigation facilities and services, the rendering of advice to these countries on the modification or improvement of these services to conform with international standards and procedures, and the interpretation and application of the standards and procedures to local problems. So far as the organizational elements are concerned, it is anticipated that technical advice would be given to the national civil aviation departments on air law, statistical procedures, the preparation of aeronautical maps and charts, the drafting of standards for licensing personnel and aircraft, the establishment of procedures for investigating accidents and the organization of search and rescue facilities.

3. *The Budget*

First year, $67,000; second year, $134,000.

IV. Training

1. *The problem*

The complexity of civil air operations demands a concomitant technical skill and reliability on the part of the personnel and equipment on the ground. The personnel furnishing ground services in the under-developed countries often need further training to permit safe, efficient and economic operation of air transport. Even where the standard of performance is high, the rate of technical progress makes it necessary that the benefits of new technical developments be brought to the under-developed countries and applied to their operational practices. The problem demands the careful selection of trainees having a natural aptitude for this work or some related experience for the jobs in which they will be trained. The second essential element is the provision of training experts capable of analysing, in collaboration with the local educational authorities, the needs of particular countries, prescribing the most satisfactory courses of instruction to fill these needs, and the best techniques and materials of instruction. The problem is one that would vary considerably from country to country, and the techniques to be employed would also vary accordingly. In some cases it would be found that the problems could not be dealt with

satisfactorily by confining them to individual countries, and it might be desirable to deal with them by training personnel of two or more countries or a whole region.

2. *The project*

Since the training project must be designed to fit the basic needs of the under-developed countries, it would be necessary to study these needs carefully before embarking on a particular form of training programme. In some countries or possibly groups of countries, it would be desirable to open or further develop technical schools offering courses in the various techniques required by civil aviation. The primary role foreseen for ICAO would be the setting of standards for training, encouraging the establishment of schools and the co-ordination of methods and curricula followed in the schools through seminars and courses of instruction for those responsible for training. On-the-job training and demonstration projects may also be used where desirable. In some instances it may be desirable to send local personnel to foreign technical schools to be trained for higher posts or to other national civil aviation departments where they may gain practical experience; for these purposes a number of fellowships would be necessary. ICAO will consult with the ILO wherever appropriate to ensure co-ordination of their respective training programmes.

3. *The Budget*

First year, $259,000; second year, $493,000.

GRAND TOTAL COST EACH YEAR FOR ALL PROJECTS

First year, $516,200; second year, $1,007,400.

CHAPTER 12

Proposals of the World Health Organization

Note. This chapter is a condensed and synoptic abstract of part of the WHO document, *Official Records of WHO,* No. 18, "Programme and Budget Estimates for 1950". This document presents the regular operating programme and the supplementary operating programme of WHO for 1950, with the attendant budget estimates, as approved and forwarded to the Second World Health Assembly by the Executive Board of WHO. This chapter, which refers only to the supplementary operating programme and budget of particular significance to under-developed areas, should be read, so far as possible, in conjunction with *Official Records of WHO,* No. 18, to which it is cross-indexed throughout, and where fuller details can be found. (This number of the *Official Records* has already received full distribution through the United Nations.) The heading of each subject dealt with in this chapter contains a reference, in square brackets, to the relevant page of the *Official Records of WHO,* No. 18, and the paragraph numbers given in this section are the same as those used in that document. It is trusted that this will make cross-reference easy.

It should be noted that the provision made in the budget estimates for administrative expenses (which will be found at the end of the programme statement) is here shown as arrived at and approved by the Executive Board of WHO. This provision differs from that indicated in the footnote on page 48 (chapter 6).

Attention is drawn to the references in this chapter which deal with a combined action programme of FAO/WHO to increase food supplies and improve standards of health in under-developed areas.

INTRODUCTORY STATEMENT BY THE DIRECTOR-GENERAL

1. A NEW OUTLOOK

The peoples of the world must do more than attempt to protect their health and well-being by defensive measures. A new outlook is necessary. Only a well-planned, integrated and well-executed attack will even begin to solve the enormous health problems facing the peoples of the world. Therefore, the proposed programme and budget

for 1950 is based on the progress which it is believed can be made through the World Health Organization in 1950 towards meeting the needs of health in the world. Indifference, inertia and resistance hamper and sometimes completely defeat even carefully constructed and thoughtfully presented programmes for improving existing conditions. But if we, as the experts in health, fail to develop and advocate the most far-sighted and sound programme that we are capable of producing, for improving the health of the peoples of the world, then we shall have failed in our responsibility "to take all necessary action to attain the objective of the Organization".

The programme proposed for 1950 is to be regarded as the initial or short-term portion of a long-term programme designed to implement the objectives of the Constitution of the World Health Organization, having in mind the functions as stated in that document, and the social, economic and technical circumstances prevailing in the world. The programme is specifically designed to operate within the context of these economic and social circumstances, and towards their speedy amelioration. Experience of previous health organizations, the Interim Commission, WHO in its initial period (September to December 1948), and the relevant developments in and resolutions of the other specialized agencies and the United Nations have been fully drawn upon, so as to produce a realistic and feasible programme integrated within itself and appropriate to the needs, although not adequate in size. As far as possible, it has been drawn up so as to be complementary to the aims and programmes of other international bodies and of the national public-health administrations of the world. Full account has been taken of new techniques, material and organizational, now available for the task at hand. The programme is large, but it is only a fraction of what is required for an optimum contribution to human betterment and mutual understanding, or for a contribution in any way proportionate to the needs and the available techniques.

1.1. Attitude of the public-health officer of today

Public-health officers have long affirmed that economic development and public health are inseparable and complementary and that the social, cultural and economic development of a community, and its state of health, are interdependent.

The practical application of these axioms has so far been the ex-

ception rather than the rule. Investment has been largely directed to immediately visible and tangible objectives such as capital equipment, often to the partial or even complete exclusion of comparable investment in the preventive and curative measures which are in the long view more important and necessary. If the right to health, which is indistinguishable from the most fundamental of all human rights—the right to life—is to be guaranteed, the relative scales of investment must be revised. Governmental responsibility for the health of the people is now recognized in all progressive States. Large and increasing investment in the health of the peoples of the world during the immediate future is recognized as essential by all public-health officers, sociologists and economists.

The WHO programme for 1950 is based mainly on co-operative projects of advisory and demonstration services, with special reference to under-developed and undeveloped areas and to areas devastated or partially crippled by the war. The success of these services will stimulate further investments by national, international and private agencies throughout the world. Just as investment in the health of the people has always paid much wider dividends than were envisaged at the time, so it can be expected that these demonstrations, not only of world solidarity but also of the feasibility of the attainment by all peoples of the highest possible level of health, will convince the world of the necessity for still greater investments which will lead to further dividends in productivity, social stability, mutual understanding and economic development and regeneration which can only be dimly forecast at the present time.

In other words, this programme of work is an application of the attitude and viewpoint of the public-health officer of today confronted with the implementation of the tasks before the World Health Organization. Fully aware of the economic, psychological and social aspects of his problems and of the remarkable scientific and organizational techniques immediately available for the prevention and elimination of a considerable number of the diseases which afflict a great proportion of mankind, he knows that he can, by application of these techniques and attitudes, make a real contribution to the speedy arrival of man at his true estate, when he will no longer be the slave of his environment.

It is well known that the major problem facing the world is that of securing adequate food production in relation to an increasing

population. A vicious circle prevails in wide and potentially fruitful areas, where the farmer is able to produce only a small proportion of his normal quota because of poor husbandry and a galaxy of preventable diseases. If the farmer has good health and improved agricultural techniques, his productivity will rise very rapidly and this vicious circle will be broken. Increased national income will make possible still greater investments in health work and agricultural improvement; the standard of living will rise and social and other tensions will fall. This is demonstrated by the much higher yield, agriculturally and industrially, of the dweller in countries which are more fortunately placed from the point of view of climate and the incidence of endemic diseases and parasites. This is not the only reason for the difference in output, but it is one which is always grossly underestimated. Projects for industrialization feature largely in the plans for the development of under-developed and undeveloped areas, but this industrialization can be and should be founded only on a healthy and enterprising population. Otherwise, the consequent migration to the cities will leave only the dregs of a partially sick people to till the fields, and the same vicious circle will recommence.

For all practical purposes, the means at present available make possible the elimination of many reservoirs of pestilential diseases. But these means are not universally available, and indeed, are not usually available to the areas where they are most needed. This is true whether these means are technical skills or the more recent achievements of pharmaceutical and chemical science. This maldistribution must be rectified, and that can be done only by substantial investment.

The technical services and other functions of WHO are fully provided for in the proposed programme. Indeed, they are essential to the major projects. The individual specialties are also separately provided for. In many cases it is necessary to collect data on the existing position so as to develop a thorough knowledge of the problems and techniques in each field; in this way, the skills, needs and resources in that specialty can be properly deployed either as part of a major project or individually.

A number of other activities, which are mentioned in the Constitution, require further reconnaissance—accident prevention, dental hygiene, physical culture, and others—so that the means available and the reasonable requirements in each case can be integrated into short-

term or long-term future plans of WHO. This reconnaissance also is provided for in the programme for 1950.

1.2. Programme of work as evolved in the light of this attitude

1.2.1. *Elimination of reservoirs of communicable disease*

The expenditure by Governments on quarantine measures, which are now regarded as being at best not particularly effective, is high and the losses in trade, in ship-time and in the time of quarantine officers, who could be better employed in positive health measures, are enormous. If adequate sums were spent on the planned elimination of reservoirs of communicable diseases, quarantine would become largely unnecessary. The attendant benefits to trade and the reductions in governmental expenditure and in inconvenience to travellers would be vast.

The communicable diseases referred to include cholera, diphtheria, dysentery, enteric fever, malaria, certain parasitic diseases, pertussis, plague (as a disease of man), relapsing fever, smallpox, tuberculosis, trachoma, typhus, venereal diseases, worm infestations and yellow fever. It is not to be assumed that endemic foci of all these can be speedily or even easily eradicated. They are all susceptible to elimination in varying degree, depending on the investment available, the present state of knowledge and the availability of the current effective weapons.

The lines of approach to the elimination of foci of certain of the conditions mentioned will be found in the details of the proposed programmes below. As and when effective and economically justifiable measures for the elimination of other contagious diseases become available, they will be recommended.

This section of the programme is both short-term and long-term and will be directed to areas susceptible to the "elimination approach" as soon as these are ascertained.

1.2.2. *Measures to be taken to promote positive health*

In this category are the following projects:

Maternal and child health and welfare, mental health, health education of the public, nutrition, occupational hygiene and many other

health projects of wide social significance such as housing and town planning in general.

It is seen that these measures promoting positive health in addition to being long-term objectives in themselves are necessary complements to the other projects included in the programme.

1.2.3. *Individual projects*

The individual projects—malaria, plague, venereal diseases, maternal and child health and the others—are not only complementary to the demonstration areas [1] (which are after all integrated combinations of some or all of them), but are also planned as services to Governments to assist them in building up strong public-health administrations, to implement the objectives of the WHO Constitution and to serve special needs of populations of all countries.

1.2.5. *Methods and means of implementing the programme*

Under this heading are grouped those activities which, although projects in themselves, are basically techniques and are not only necessary to the successful implementation of projects but also ends in themselves. These are therefore necessary and valuable, externally and internally.

Public-health administration (organization of the care of health),

Environmental sanitation,

Technical training of medical and auxiliary personnel: standards of technical education and training, fellowships and study-tours, exchange of technical personnel and measures to relieve the world shortage of nurses and auxiliary personnel.

Reference has been made above to the importance of public-health administration and it will again be referred to below in the consideration of the guarantees which may reasonably be required to ensure success for projects to improve the world's health.

1.2.6. *Health demonstration areas*

It is planned to establish health-demonstration areas in 1950. This is a new programme with the primary object of demonstrating and developing in the relevant contexts the methods of achieving the

[1] See item 1.2.6.

fuller concept of the Constitution, the attainment by all peoples of the highest possible level of health.

Each such demonstration area will be designed to be as complete as possible. All component parts will complement each other, and full account will be taken of the social and economic development of the inhabitants of the area, the scientific and organizational techniques available, and the strengthening of national and local public-health administrations concerned. The programme will be carried out in co-operation with the national and local health administrations and will provide valuable information on the methods necessary for satisfactory utilization of recent advances in health work in the circumstances of the area.

The greatest importance is attached to these health-demonstration areas, not only as immediate measures which will greatly benefit the health of the inhabitants of the areas concerned, but also as patterns for the future. They will demonstrate to Governments and the world in general the economic value of well-planned and far-sighted measures to improve the health of the peoples of the world.

1.2.8. *Supplies and their importance*

Experience has shown that work projected under decisions of the Health Assembly and the Executive Board is often completely sterile, and in some cases impossible, unless certain necessary supplies are available. It is a fact that in many countries penicillin, DDT and certain vital equipment are not available and cannot be made available from local sources or purchased with local currency. When WHO undertakes or stimulates extensive projects for control of malaria or plague, cholera or venereal diseases, to name only a few activities, some supplies should be furnished. These supplies are required not only for the demonstration teams of WHO, but in many cases to make it possible for the country to continue the implementation of the programme after the WHO demonstration team has moved on to other areas or countries. It is to be expected that the ultimate increase in the productivity of the country, its industrial development or revitalization will make possible either purchase or manufacture of these necessary supplies in the future. Without such provision of reasonable quantities of supplies, the Governments concerned cannot be expected to carry to full fruition the programmes initiated by WHO.

Governments will be expected to pay for these supplies wherever possible. In some cases this payment would take the form of a credit, to the account of WHO in the national bank, in the local currency, representing the cost of the supplies received. WHO could then or thereafter use these local currency resources for a number of important purposes. These funds would be used to finance fellowships from neighbouring countries, to purchase other services available in the country and of which WHO has need, or for local health projects approved by WHO.

1.2.9. *Other supplies for which no specific provision has been made in this proposed budget*

It is recognized that there are many areas and countries in the world in which the major need is for medical supplies rather than for technical services alone. Some countries, although possessing the necessary technical services, are unable to cope with many of their public-health problems because of the lack of adequate medical and sanitary supplies. This need results from the general economic situation and the lack of the currencies necessary to procure supplies available only by import.

Although no budgetary provision has been made in the proposed programme and budget for 1950, Governments are urged to give very careful consideration to this serious and frequently critical need. Should they decide that direct action should be taken by WHO to alleviate this condition, consideration may be given to adding to this budget such additional amounts for 1950 as are considered proper.

1.3.1. *Responsibility of Governments for continuing investment*

All of these projects are co-operative, and one form of co-operative responsibility will be a reasonable and continuing investment of local currency by the Government concerned. It has usually been the practice of the World Health Organization to expect that all local expenditures which can be met by local currency or services should be provided for by the Government concerned, and this will normally be insisted on in the future. This is a minimum responsibility. In addition, it will be reasonable to expect that a Government co-operating in these undertakings will make adequate budgetary provision for their continuation to a satisfactory conclusion, or for their

permanent integration within its own health programmes after the withdrawal of the staff provided by WHO.

Failure to agree to these eminently reasonable prerequisites may render a Government ineligible for participation in WHO's projects.

1.3.2. *Public-health administration*

It is clear that the status of the national public-health administration in any area chosen for action by WHO will have a considerable bearing on the chances of success, short-term and long-term, of such action, and also on the cost of carrying it out. The Organization should be satisfied that the public-health administration of the area is technically and administratively equipped to co-operate in the projected programme and to carry it on effectively after the withdrawal of the WHO staff. An agreement will be entered into for implementation of the agreed programme. The Organization will offer the country concerned advice, administrative techniques and facilities for setting up a satisfactory administration either before establishing the programme or at least as a prerequisite part of it. The section of public-health administration will serve Governments requesting aid in the organization of public health, and will make studies and collect information so as to be able to provide the advice requested, in full knowledge of all the available techniques and the relevant environments, economic, cultural, administrative and social.

1.3.3. *Proposed agreements with co-operating Governments*

Agreements, to be drawn up after consultation with other agencies having experience in this field, are necessary from the point of view of good management and necessary financial controls within the Organization and also so that the position of WHO's experts in the field shall be defined. They will provide for the considerations raised in 1.3.1 and 1.3.2 above.

7.4. Advisory and demonstration services to Governments

7.4.1. *Health-demonstration areas* [*page 55*]

7.4.1.1. *The problem and its significance*

Today a major preoccupation of many Governments and international agencies is the urgency and importance of the planned

development of under-developed and undeveloped areas. The interdependence of any such planned development and adequate health measures is freely recognized A major problem is how to bring to the peoples of these areas the benefits of modern medical science and public-health organization in a form suited to their social, economic, cultural and biological environment and to the potentialities of the area. In general the major diseases which cripple the populations of these areas are the diseases most susceptible to the "eradication approach"—for example, malaria, relapsing fever and plague (as a disease of man). The significance of a solution of these problems cannot be underestimated, since without such a solution a considerable part of the development work, on which so great hopes are pinned by many peoples and Governments, will be severely prejudiced.

Another facet of the same problem is how best to bring the services, at present available to the peoples of more fortunate areas and responsible for much of the recent improvements in their health, to the peoples of these under-developed and undeveloped areas; for example, the techniques used in maternal and child health work, health education of the public, occupational hygiene and other measures to promote a positive state of health. A further problem is how to encourage sufficient investment to ensure satisfactory and adequate health measures.

7.4.1.2. *The method to be adopted*

These problems can be solved by health-demonstration area programmes, which are planned without a definite time-limit, but which will, as far as possible, include objectives with a prescribed time-limit. The programmes will be carried out in co-operation with, and in order to stimulate and strengthen, the national and local health administrations concerned. They will encompass the whole field of preventive "eradication" and the longer-term measures for the promotion of health which are appropriate to the circumstances of the areas selected. These various types of services and techniques will be integrated one with the other, so that maximum advantage is taken of the catalytic effects of one measure on the others. For example, it will be desirable to select an area where there is at least one major problem (such as malaria) which is susceptible to the "eradication" approach. It would be unwise to deal with malaria alone without seizing the opportunity presented by the relatively speedy and tangible results of

an anti-malaria campaign to instal the longer-term campaigns for the promotion of positive health. The latter campaigns, although unable to show such immediate and tangible results, are of no less significance to the health of the population; moreover, it would be uphill work to re-create the opportunity presented by the wide public support aroused for such work by an anti-malaria campaign. It will often be possible to deal with more than one major problem at the same time in the same area, e.g., malaria and plague; and such opportunities will be taken. Because of the accumulation and demonstration of administrative and organizational experience, and the obvious financial advantages, this combined and integrated approach has much to recommend it.

The areas in which this work will be carried out in 1950 will be carefully selected, in close co-operation with the regional organizations, the health administrations of the countries concerned and with the United Nations and relevant specialized agencies. The following factors will be taken into account in selecting the areas:

(1) The area should be reasonably typical of conditions prevailing in many parts of the region;

This is necessary in order that the experience gained and the results demonstrated shall have value as guides and incentives for other areas and countries;

(2) There should be one or more reservoirs of readily controllable communicable disease;

(3) Agreement on full co-operation with the national and local public-health administrations is essential. The stimulation and strengthening of the local and national health administrations will be regarded as a major factor;

(4) Improvement of health will be reflected in increased productivity. A potentially productive area will be more desirable than one which is unlikely to show a rise in productivity. If more areas were available, this factor would not have so much weight.

7.4.1.3. *The work to be established in 1950*

(*Note.* Much preliminary work will have been done in 1949.)

(1) Careful selection of the areas in which these health demonstrations are to be carried out.

(2) Assessment of the health needs and the available resources.

(3) Assessment of the environment, with health, cultural, social and economic factors taken into account.

(4) Development of a programme of action designed to fit the context.

(5) Commencement of operations with both short- and long-term objectives.

(6) Continuous analysis and appraisal of progress made and results obtained. This information will show gains in health, attendant economic advantages and new organizational techniques involved, with evaluations.

(7) Adaptation and application of this experience and information for the benefit of other areas, countries and health administrations.

(8) In operating these areas, the work will be carried out in co-operation with the health staff of the area and country concerned. Fellowships will be granted, not only to members of these staffs in order that they may be well fitted to work on the project, but also to medical and auxiliary personnel from analogous areas. The latter will thus be able to observe, and participate in, the demonstrations in progress and become familiar with the techniques applied and evolved and with the results achieved within the demonstration area. They will then be in a position to carry that knowledge back to their own areas or countries.

(9) The budget estimates for the health-demonstration areas have been developed on the theory that this completely integrated type of approach to the health problems of the world is somewhat different from the approach to the usual advisory and demonstration project. The former approach makes it necessary to provide estimates for the entire cost of such a project from WHO funds. Such items as rentals of space and equipment, travel and transportation within the country and full *per diem* allowances for the team members have been included. These additional expenditures are necessary because, while many countries will contain areas ideal for projects such as those envisaged, many of them might not be in a financial position to make a contribution to the project. Also, since this programme is a departure from those hitherto sponsored by WHO, it must be started in areas where the best results are expected to be obtained, exclusive of any other considerations concerning its location.

The value and importance of each of these areas rests as much in its capacity to provide knowledge, experience and tangible results for the benefit of all analogous countries with similar problems, as in its capacity directly to benefit the country in which the area is situated. Hence, the selection of an area should not be influenced by considerations of whether or not the country concerned can contribute financially to the project.

(10) The requirements in terms of personnel, supplies and equipment for each health demonstration area cannot be accurately determined at this time, and will vary essentially according to the circumstances in the area selected and the plans made to meet these circumstances.

The estimated cost of the project of health-demonstration areas is as follows:

First year, $1,140,340; second year, $1,368,408.

7.4.2. *Malaria* [*page 58*]

7.4.2.1. *The problem and its significance*

Despite modern methods of malaria control and the progress in eradication of the disease already achieved in a few countries, malaria still causes hundreds of millions of cases of preventable illness and millions of unnecessary deaths. Still endemic in the majority of underdeveloped tropical and sub-tropical countries, it takes its toll of victims particularly in infancy and early childhood; on the other hand, owing to the great morbidity, the disease decreases the productive labour of adults, thus adversely affecting the production of food. Moreover, malaria often precludes immigration and the agricultural and industrial development of large areas which would otherwise be productive. The opening up of new areas for agriculture, and the setting up of irrigation schemes often increase malaria in the countries concerned, thereby handicapping progress.

From the point of view of agriculture, malaria creates two separate types of problems. The first type exists where malaria is endemic in a thickly populated area already under agricultural occupation; there the effect of the malaria is to sap the energy of the working population, and to increase, often at critical periods, the number of days on which the worker is incapacitated by ill-health. The second type of problem

exists where malaria is preventing the development of an area otherwise suitable for agricultural development.

No precise data are so far available with regard to the loss of production caused by malaria. Data on the direct costs of malaria to the people concerned indicate that the cost of modern malaria control would be only a fraction of what the people actually pay in cash for being afflicted with the disease. Malaria in a given country also represents expenses for their countries; every product imported into any country from a malarious country is more expensive on account of malaria.

Ten years ago the control of rural malaria (for, of course, malaria is a rural disease *par excellence* and therefore vitally affects food production) was such an expensive undertaking that it could only be applied on an experimental plane. It was economically feasible to protect 100,000 persons in a town, but it was not feasible to protect the scattered rural population of the villages. Today, it costs about the same amount to protect 100,000 persons, whether they live in towns or in hamlets.

Residual insecticide spraying campaigns, primarily meant for malaria control, have an extremely important bearing on mortality and morbidity caused by insect-borne diseases other than malaria. Such diseases are particularly prevalent in under-developed territories with poor hygienic conditions.

7.4.2.2. *Work previously accomplished*

Many efforts have in the past been devoted to the problem of malaria.[1] It is pointed out that the control of malaria would not only save lives, reduce morbidity, improve general health and raise the living standard of the malarious countries. Such control would also contribute to the expansion of the world's food supply thereby illustrating one of the principles of the WHO Constitution, which states that "The achievement of any State in the promotion and protection of health is of value to all". As a consequence, in the present situation with the population of the world increasing at a rate greater than ever (now estimated at 25 millions per year) while food production lags behind, world-wide control of malaria appears to be almost an emergency measure. It is a boon for mankind that, in this very period, we have at last the means of controlling rural malaria on an economical basis.

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[1] *Official Records of WHO*, No. 18, page 59.

FAO is keenly interested in the control of malaria as related to agricultural production, and active co-operation in this field between the two organizations has already been achieved.

7.4.2.3. *Statement of objectives*

7.4.2.3.1. *Long-term*

The ultimate aim for the World Health Organization can, and should be, the eradication of malaria from the world. That malaria eradication is possible has already been shown in some countries which are approaching this goal. The greater the number of countries achieving the eradication of malaria infection within their own borders, the less will be the danger of re-introduction of the sources of malaria infections. If an effective campaign of malaria eradication were to take place simultaneously in all the malarious countries of the world and were to be maintained for several years, human malaria would disappear. If the practical difficulties of such an enterprise may appear overwhelming, it is at least possible to isolate the endemic foci of malaria in the less accessible areas of the tropical continents, and, pending final eradication, to proceed to the development of the areas where malaria has been controlled. Africa is the continent which, when redeemed from malaria at least in its areas favourable to settlement and development, would represent an enormous asset for the welfare of mankind. Of course, any continent-wide anti-malaria campaign ought to be accompanied by measures directed against other major endemic or epidemic diseases.

Malaria control must be looked upon not only from the standpoint of health but also from that of the increase in the food supply which would result from the elimination of this serious and world-spread cause of rural morbidity. The attention of FAO is fully oriented towards this goal; its co-operation has already been secured in the malaria-control demonstration projects of the 1949 programme. But a larger plan of co-operation with FAO should be envisaged. It is probable that WHO and FAO will then join efforts for a broad programme of over-all rural rehabilitation of large areas, of the order of at least ten million acres, to begin with. The control of malaria and other diseases prevailing in these areas, the improvement of nutrition and environmental sanitation, together with agricultural, economic and sociological ameliorations could bring about such an increase of pro-

duction as might indeed be of real significance to the whole picture of world food supply.

7.4.2.2.2. *Immediate objective*

The immediate aims are: (*a*) to encourage and help Governments by proper assistance to control malaria through modern methods, with a view to stimulating them to control the infection on a nation-wide scale; (*b*) to show that control can be achieved within the budgetary possibilities of the country; (*c*) to show the indirect benefits derived from malaria control, both with regard to public health in general and to increased agricultural or man-labour production.

The training of personnel and the organization of anti-malaria services would be the necessary prerequisites for short-term, and even more for long-term objectives.

7.4.2.4. *Work to be accomplished in 1950*

7.4.2.4.2. *Methods*

To attain the short-term objectives for 1950 and to prepare the ground for the long-term objectives, the following measures are suggested:

(1) To continue providing the requesting Governments with expert advice on malaria by sending them consultants;

(2) To continue for the second year the malaria-control demonstrations by teams which were carried out in 1949, with the co-operation of FAO (some of which teams benefited in 1949 from UNICEF's financial assistance);

(3) To undertake new demonstrations in under-developed territories;

(4) To procure supplies for countries not in a position to get them and which are willing to carry out campaigns in co-operation with WHO to intensify the training of personnel and to set up training facilities in areas not yet provided with them[1];

(5) To carry out research on, and to attack the problem of, African malaria with a view to opening up the continent to large-scale development;

(6) To plan and carry out, in collaboration with FAO, broad-scale

[1] *Official Records of WHO*, No. 11, page 58.

programmes of malaria control, public health improvements and of over-all rural rehabilitation in large under-developed areas.

7.4.2.5.3. *Broad-scale projects of malaria-control and over-all rural rehabilitation of under-developed areas to be carried out in collaboration with FAO*

Such a project is designed for under-developed areas. It will aim not alone at controlling malaria and at increasing food production, but at raising all health and agricultural standards. This project would be planned and carried out over a period of five years or more. The estimates have been based on a single area of about ten million acres of agricultural land inadequately cultivated by people ridden with disease, particularly malaria.

7.4.2.6. *Training*

In South East Asia a revival of the League of Nations Singapore malaria courses will be arranged. Similar training courses will be organized in Africa, for medical officers, engineers and sanitary inspectors. Existing institutes carrying out training in malariology, in Asia, Europe and Latin America should be financially and technically assisted by WHO.

7.4.2.4.3. *Research special project*

An experimental project of vector-species eradication in Central Africa in the absence of natural barriers could be started in 1950 under the auspices of WHO.

7.4.2.6.5. *Malaria conference in equatorial Africa*

If it is agreed that the further development of this continent is desirable, one of the first problems to solve is that of an anti-malaria policy for equatorial Africa. It is suggested that WHO convene a malaria conference in Africa, in which all the outstanding experts of African malaria, chiefs of malaria services of the continent (North Africa excluded) and experts of FAO would participate. The conference would decide on the best methods of control applicable in various areas, and on the priority of the areas in which large schemes should be undertaken; therefore, the collaboration of FAO on agricultural development would be necessary. It is further intended that the conference would deal not only with malaria, but also with trypanosomiasis, both of men and cattle. Among the experts budgeted for, it is assumed that one-third would be trypanosomiasis experts.

The estimated costs of the malaria programme is as follows:

First year, $739,725; second year, $887,670.

7.4.3. *Maternal and child health* [*page 65*]

7.4.3.1. *The problem and its significance*

The infant mortality rate has for many years been used as a yardstick by which the health of a population is judged. Today it varies from below 30 per 1,000 live births in some countries to over 300 in others. In many other places, figures are either absent or completely unreliable; it is usually found that such places have a high infant mortality rate.

It is sometimes forgotten that the most widespread and the most serious ill health is not due specifically to tuberculosis, malaria, cholera, typhus or indeed to any other single factor, but to a concatenation of circumstances which result from dirt and ignorance. Food production does not improve only by destruction of weeds. Health will not improve greatly only by attacking diseases.

Successful work for maternal and child health is based on teaching people what they can do for themselves. Those carrying out such work can co-operate with the agricultural and animal husbandry departments to ensure that improvements in nutrition take place in the homes; with departments of education, social welfare and sanitation to improve the standard of living.

This function of medicine—the positive and educational—has in the past been relatively neglected. There is need for great expansion and experiment in making healthy living acceptable and available to large masses of humanity. It would seem scarcely justifiable to undertake measures to ensure that more children will live, unless we make efforts at the same time to ensure that their life is worth living.

7.4.3.2. *Work previously accomplished*

International organizations, such as the League of Nations, ILO, UNICEF and the United Nations (Department of Social Affairs), have been responsible for a considerable volume of work for children.

7.4.3.2.5. *WHO maternal and child health section*

The First World Health Assembly authorized the establishment of a section on maternal and child health, and the appointment of an expert advisory committee.

7.4.3.3. *Objectives*

7.4.3.3.1. *Long-term*

The objectives adopted by the First World Health Assembly were as follows:

"To assist Governments in developing services and facilities that will assure adequate maternity care, the best possible chance of survival to infants, and to all children normal physical growth and development, mental and emotional health, and freedom from preventable disease; to pool adequate knowledge, acquire new facts, develop standards of care and distribute information in respect of all relevant matters; and to co-operate with other agencies on joint undertakings which apply knowledge and techniques in the field of social and biological sciences and of education to problems of maternity and child health."

Within these over-all objectives, it will be the purpose of WHO to give high priority to providing assistance to countries and to areas within countries where programmes are under-developed and undeveloped, especially where high infant mortality rates indicate greatest need, and to attempt to meet the wants of any country for assistance in special aspects of the total programme.

The programme will be one of active field service, including longer-term field demonstrations and shorter-term visits by consultants.

In accordance with the requests of Governments, this assistance may be in the form of:

(1) Demonstrations of health services for mothers and children, preferably in conjunction with demonstrations of general health services or of some other type of special programme, such as malaria or tuberculosis control;

(2) The assignment of visiting consultants to advise on special aspects of the programme, including maternity care, care of newborn infants, health services to infants, pre-school and school age children, immunization programmes, nutrition, school meals, mental health and child guidance, and so forth.

(3) The dissemination of information on all aspects of maternal and child health and welfare to territories requesting information;

(4) A training programme to increase substantially the supply of qualified personnel for the maternal and child health field, both ad-

ministrative and field workers in the medical, nursing and related auxiliary fields.

7.4.3.3.1.2. *Collaboration with other specialized agencies*

It is important that WHO should maintain close and permanent collaboration with other specialized agencies concerned with the well-being of children. Collaboration with ILO, FAO and UNESCO is of particular importance. Such collaboration has already been started and will be one of the long-term objectives of WHO.

7.4.3.3.1.3. *Collaboration with non-governmental organizations* [1]

The contributions of international voluntary organizations to the field of child health and welfare are great. Continued collaboration between the maternal and child health section of WHO and such organizations as the International Society for Child Welfare, the League of Red Cross Societies and the World Federation for Mental Health is an essential in the best interests of children and of international action on their behalf.

7.4.3.3.2. *Immediate objectives*

The maternal and child health section of WHO will be strengthened in the immediate future so that the opportunities that already exist for providing service to Governments will be utilized in the development of the long-term programme.

To enable WHO to provide the necessary assistance called for through the maternal and child health section, not only must there be some increase in the ability of the section to provide the services of visiting consultants in 1949, but in 1950 there should be a further substantial increase.

7.4.3.4. *Work to be done in 1950*

7.4.3.4.2. *Methods*

The Expert Committee at its first meeting made many recommendations for the work of the maternal and child health section; these recommendations are embodied in its report.[2] The following methods of carrying out the programme are discussed therein in some detail:

(1) Collection of information;

(2) Distribution of information;

[1] *Official Records of WHO*, No. 18, page 68.

[2] *Ibid*, No. 19.

(3) Training, fellowships and study-tours;
(4) Expert advice to visiting consultants;
(5) Demonstration teams and demonstration areas.

It will be advisable to send maternal and child health demonstration teams into some under-developed countries. It will be preferable to attach a pediatrician or a public-health nurse to other teams, or to form joint teams.

The estimated cost of the maternal and child health programme is as follows:

First year, $740,590; second year, $888,708.

7.4.4. *Environmental sanitation* [*page 72*]

7.4.4.1. *The problem and its significance*

7.4.4.1.1. *Urban and rural sanitation and hygiene*

Somewhat more than three-quarters of the population of the world, covering vast areas in all regions, are still the victims of diseases resulting from poor excreta disposal, unsafe water supplies, uncontrolled insects and inadequate protection of milk and food. In these areas, despite the great progress in medical and public-health technology, morbidity and mortality rates from typhoid fever, dysentery, cholera, hookworm, typhus, plague and other resultants of poor sanitation are at far higher levels than have been experienced in more favoured countries since 1900.

No permanent advances in the general health programme can rest upon a substructure of poor sanitation. Any improvement in the disposal of excreta, in the protection of drinking water, in the destruction of the fly and the mosquito brings health and social advantage to man, woman and child.

More return per unit of expenditure is obtainable by sanitation than by almost any other activity. Even in large urban centres in some parts of the world, the typhoid fever death rate still exceeds 20 per 100,000. The problem quantitatively is essentially an urban rather than a rural one in far too many areas.

A literally appalling toll of lives of infants under one year of age occurs in great populations of the world because of poor disposal of excreta, the prevalence of flies, the hazards of milk and food.

Endemic cholera remains one of the great vestigial hazards of the

Eastern world, although long "built-out" of more favoured countries of the West. This disease and plague remain eternal threats to the life and economy of millions throughout many regions.

Schistosomiasis, after malaria, is perhaps the most widespread debilitating disease in many parts of the world. Of the twenty million inhabitants of Egypt, thirteen million have been affected. Since land workers are particularly liable to infection, as in the case of malaria, hookworm, etc., this disease has the effect of reducing the productivity of otherwise fertile land. Egypt alone has spent over $6 million to control this disease during the last five years. China, the Middle East, Africa and South America likewise have great stakes in the solution of this problem.

Most of the problems here listed can be solved only through improved water supply, disposal of excreta, fly control, etc.—through all of the techniques commonly designated under the term environmental sanitation, namely, an adjustment of the environment for the prevention of disease. The techniques involve education of public and government, salesmanship, training of professional workers, ingenuity in the development of fiscal methods and of demonstration areas, provision of expert advice, dissemination of simple technical literature, establishment of clearing-houses for technical data and like measures.

Because the factors involved in the transmission of these diseases are so familiar, the tendency has been to overlook their significance in many areas. The familiar and the simple tend to become the neglected. Unfortunately, it has also been tacitly assumed that to accomplish many of these environmental adjustments will require inordinate amounts of capital expenditure. Experience in the last ten to twenty years in many areas has disclosed, however, that community systems for water supply and sewerage are frequently cheaper for a population than the previous loosely and unsafely afforded individual services. For example, it has been demonstrated in Mexico, in the Amazon Valley, in Venezuela and elsewhere that the cost of a community water or sewerage system, both for capital and operation, was in many cases only 20 to 30 per cent of the cost of carting water for sale into the village square. Similar demonstrations are now being carried out in some parts of China.

The imagination and the ingenuity of workers in these fields in using local materials, in creating pooled resources for financing

projects at low interest rates, in adapting designs to the customs of local populations are the significant contributions which WHO may well make in many areas of the world.

One of the keystones of such a programme, of course, is in education and demonstration. Nowhere in the world has sanitary progress been made except through the long conversion of the public to a change in practices within the family and on a mass basis. Public education must go on unceasingly and must be adapted to the place, the customs and the time. It is no answer to the problems of sanitation to say that people are unprepared for the new or for the transformation of the old. In this field, a primary function of WHO is one of education, of preparing people for change in their sanitary practices.

7.4.4.1.2. *Housing, town and country planning*

Standards for good housing in rural as well as urban areas must be developed. Technical advice in town and country planning for modern needs will be required.

7.4.4.2. *Work previously accomplished*

There is a long history of international technical assistance in this field, and of work planned, principally by the League of Nations.

7.4.4.3. *Objectives*

7.4.4.3.1. *Long-term*

7.4.4.3.1.1. *Urban and rural sanitation and hygiene*

(1) Provision of technical advice on urban and rural sanitation and hygiene problems.

(2) Assistance in dissemination of information on recent progress in urban and rural areas.

(3) Promotion of sanitary conditions and adequate health care for urban and rural populations.

(4) Co-operation with other organizations working on the cultural development of urban and rural areas (FAO, UNESCO and others).

(5) Participation in the organization of professional and sub-professional training courses.

(6) Close co-operation with other sections, in dis-insectization projects.

7.4.4.3.1.2. *Housing, town and country planning*

Advice on housing hygiene and the hygiene of towns and rural areas in tropical regions.

7.4.4.4. *Work to be accomplished in 1950*

7.4.4.4.2. *Methods*

7.4.4.4.2.1. *On urban and rural sanitation and hygiene*

Collection and distribution of information. Participation in demonstration areas.

7.4.4.4.2.2. *On housing*

Advice on housing hygiene in tropical regions.

7.4.4.5. *Advisory and demonstration teams*

Provision of technical advice, through advisory and demonstration teams and consultants to Governments, is planned.

It is intended that each team should consist of one category I and one category II staff member. During 1949 teams have been at work in China and Ethiopia. There will certainly be continuing requests from countries for this type of demonstration and advice.

It is realized that two teams per region will be insufficient. Wherever malaria teams or other "eradication" teams are in action, environmental sanitation teams will be added to complement their tasks.

7.4.4.5.1. *Courses*

Training courses conducted in strategic areas within Europe, the Eastern Mediterranean, Africa, southeast Asia, the western Pacific and the Western Hemisphere would provide the necessary trained personnel to understudy WHO demonstration teams, and to demonstrate and teach within their own countries.

7.4.4.5.2. *Special project*

7.4.4.5.2.1. *Demonstration district in rural area*

Hygiene in rural areas has its specific problems. In many places the productivity of the rural population is hampered by diseases which could be prevented if the necessary sanitary measures were applied.

In a demonstration district all problems of environmental sanitation have to be dealt with, and the problem of rural housing should be

studied. The essential elements of the project are the prevention of the spread of disease by water, food and other means; improvement of the water supply, the disposal of refuse and other wastes; fly control and other steps to prevent disease. Measures of general hygiene and public education, as well as maternal and child care, will inevitably figure among the preventive measures.

It is planned to select a rural area where this important demonstration can be conducted in 1950. The guiding principles in the selection of this district are that its population should not exceed 100,000 inhabitants, that the district should be relatively underdeveloped and its sanitation problems typical for rural areas. Local understudies will be attached to the demonstrations, and fellowships will be awarded to personnel from other countries for study on the spot.

7.4.4.5.3. *Haiti project*

WHO will have the responsibility for handling the health problems in the combined United Nations-UNESCO-WHO project for Haiti.

7.4.4.5.4. *The Hylean Amazon project*

WHO will be responsible for the health problems in connexion with the Hylean Amazon project. Although no definite programmes have been developed, provision has been made in the budget for the estimated requirements to be met by WHO.

As the United Nations proposes to conduct three missions in 1949 of the same type as the 1948 Haiti mission, provision is made for the participation of WHO, which will certainly be asked to provide advice on the health problems of the study area.

The estimated cost of the environmental sanitation programme is as follows:

First year, $795,575; second year, $954,690.

7.4.5. *Mental health* [*Page 77*]

7.4.5.1. *Mental health problems and their significance*

7.4.5.1.1. *Prevailing situation*

A community's conception of mental health develops in accordance with its socio-economic progress; the less advanced the com-

munity, the cruder will be the prevailing conception. Indeed, at the lowest level of development no conception of mental health exists, and only mental ill-health in its most flagrant forms is recognized, i.e. the more flamboyant psychoses and grave cases of mental defect. From this point the conception progresses to include recognition of the transient or milder psychoses, the higher degrees of mental defect and the grosser forms of psychoneuroses. Later, the grosser forms of character disorder, i.e., psychopathic personalities, are also identified.

7.4.5.1.2. *The economic significance of mental ill-health*

From the economic point of view, even on the basis of the crudest clinical conception of mental ill-health, its overt cost is considerable. The inhabitants of prisons probably cost more to maintain than those of moderately well-developed mental hospitals and, as opposed to their complete dependence if left to their own devices in the community, mental defectives under colony conditions have demonstrated their capacity for, as an example, agricultural productivity.

A broadening clinical conception also shows that psychoneuroses are a source of considerable productive loss, even in communities at a low level of socio-economic development.

Unfortunately, for two main reasons the true incidence of morbidity arising from these conditions cannot be obtained through administrative channels. In the first place undergraduate medical education is in general inadequate in this field, and diagnosis is therefore not usually completely reliable. In the second place, many patients, and not a few physicians for that matter, look upon such a diagnosis as a stigma to be avoided. The only statistically planned investigation by clinical sampling of the incidence of psychoneurosis in an industrial community is that recently carried out by the United Kingdom Medical Research Council, which demonstrated that in the factories surveyed these disorders caused a loss of productive time slightly greater than the common cold. The extent to which this finding is typical of industrial communities in under-developed areas is unknown; but even allowing for wide variations, it demonstrates a general order of productive loss which, together with the cost of treatment and other social services, involves society in a high hidden cost.

The higher levels of mental defectives are also responsible for a similar problem. As a community develops in techniques and social

complexity, such individuals have increasing difficulty in finding a vocational and social role within their capacity. Apart from the productive loss which this entails, this difficulty is a most potent cause of mental instability and behaviour disorders in this group. In an industrial area, this problem may arise among considerably more than five per cent of the community. The problem is not only one confronting highly-developed industrialized countries, but is of particular importance to under-developed countries entering the stage of industrialization. The transition from a rural to an industrialized community inevitably creates such problems, and does so at a period of development during which the community's mental health facilities are inadequate to recognize the nature and origin of the problem, let alone to advise on its solution.

The lack of trained personnel in the field of mental health also leads to a failure to recognize many of the other psychological factors which obstruct progress in an under-developed country. As an example, one may cite the reputation which the inhabitants of some of those countries have for "laziness and fecklessness". There is considerable reason to believe that this reputation arises, in fact, from the effect upon adult behaviour and capacity of three main factors: chronic malnutrition, chronic endemic disease and the local pattern of child rearing. Dr. C. D. Williams, for instance, has recorded the extreme indulgence of the Gold Coast woman toward her infant, and her complete withdrawal of that indulgence on the birth of another child. Unless the findings of child psychiatrists working elsewhere are completely awry, factors of this type must, by their effect on adult personality structure, play a large part in obstructing the development of individuals and communities in under-developed areas.

The psychological obstacles suffered by the inhabitants of under-developed areas are not the only ones which retard their socio-economic progress; efforts to put at the disposal of these countries more advanced knowledge and practices from elsewhere are often frustrated by a lack of psychological and social skills on the part of those attempting to bring this knowledge to the community. This is particularly so when attempts are made to change behaviour in relation to the upbringing of children, the production and consumption of food, and all matters relating to "the home", such as housing sanitation. Behaviour of this type springs from deep psycho-

logical roots and is not susceptible to modification by didactic means.

This type of obstacle to progress in achieving a healthy environment is, however, of much greater economic significance in an underdeveloped community than in one which is well developed. Whereas in the latter it leads to difficulty in achieving refinements in an environment which is already generally favourable, in an underdeveloped community such an obstacle may frustrate the attempt to take the first step toward mitigating an environment which is grossly unfavourable to health.

7.4.5.3 *Objectives*

7.4.5.3.1 The programme must devote itself to the most urgent tasks in the field of mental health.

One point in this connexion is of particular importance. Although the spontaneous development of mental health work in those countries where it has reached an advanced level has in the past followed one general pattern, this is neither the inevitable nor necessarily the most fruitful pattern. It is very probable, for instance, that the planned application of preventive measures at an early stage of a country's development, rather than allowing them to develop spontaneously much later, as has happened in the past, would considerably reduce the need for the great expenditure which the intermediate phases entail and would also help to curtail many of the psychological obstacles to the country's development.

7.4.5.3.2.1 *Collection of data on the existing position*

The stages which mental health work has reached in communities at different levels of socio-economic development show even wider disparities than in general health matters. An essential first step, therefore, is the collection of information on the extent to which mental health problems have been assessed and provided for in different areas. The type of information will range from comprehensive statistics covering all aspects of this type of morbidity, to data of an extremely crude type in the least-developed areas.

A similar compendium of data is needed on the distribution of therapeutic and preventive facilities and also on educational facilities for work in the mental health field. The greatest importance is attached to this item of the programme, since sound intelligence compiled from all possible sources will enable development of the

programme in later years to be conducted with a rising level of efficiency, particularly in the field of training.

7.4.5.3.2.2. & **7.4.5.**4.2.2. *Reconnaissance of neglected problems in the mental health field*

Mental hygiene has developed predominantly in an urban setting; in comparison, little is known, of the mental health problems of rural communities and the necessary preventive measures. In order to apply existing knowledge most efficiently in a rural setting, surveys of typical rural communities in areas of different levels of socio-economic development are an essential first step. Multi-disciplined teams would be sent to rural communities in areas at different levels of socio-economic development and in different parts of the world. They would be responsible for making a general survey of local mental health problems, to assess the extent to which, and the means by which existing knowledge can be applied to their prevention and solution.

Similarly, in urban communities certain segments of mental health work are much more developed than others. Preventive mental health work has made a much greater impact, for instance, on the family and the school for infants than it has on the university and the industrial unit. Surveys of the mental health problems of the two latter types of community are essential to assess the extent to which knowledge obtained by such little work in this field as has been done is of universal application, and the best means of applying it.

Such knowledge as does exist has been derived from the study of highly industrialized countries. The problems created, or likely to be created, by the rapid emergence of industrialization in a country at a low level of socio-economic development have not yet been studied. This programme proposes that they should be, in order that preventive action may be taken at a stage before these problems become magnified, rather than later having to face the necessity of providing therapeutic facilities on a large scale, as has been the case in highly industrialized countries. Teams would be sent to industrial communities in different areas to assess the incidence of psychoneurotic disability. These teams would combine this study with a more general survey of mental-hygiene problems in the industrial group concerned.

Although the work done in the industrial field is little enough, even less has been done in the field of student mental hygiene in universities. Yet the individual in the student stage of his development is in a

plastic phase in which incipient mental health problems may often be dissipated by skilled help and their incidence much reduced by preventive measures. The establishment of higher education facilities is an essential step in the progress of a country at a low level of socio-economic development. This programme therefore proposes that the mental hygiene problems of students should be studied in the setting of such a country, since all previously existing knowledge has been derived from well-established universities in countries at a high level of development. This project would be not only a reconnaissance but also a demonstration.

7.4.5.3.2.4. & **7.4.5.**4.2.4. *Public-health administrators*

Psychological resistance faces the public-health administrator throughout all his professional attempts to modify human behaviour and environment. Methods of equipping him to understand and deal with this resistance need to be devised and incorporated in the public-health syllabus.

There is also considerable variation in the degree to which the public-health administrator in different parts of the world has been equipped by education to apply in his community the principles of mental hygiene. There is a need for considerable cross-fertilization in this field. The travelling seminar and demonstration method would be applied.

Mental health workers

In many countries there are very few fully trained psychiatrists (the basic mental health worker), let alone the other members of the team necessary to apply the more developed conception of such work (psychologists, psychiatric social workers, and nurses). Long-term training facilities, (e.g. under the fellowship programme) are essential for such countries, but in the meantime there is an urgent need for immediate facilities for short *ad hoc* education in this field (e.g. by means of travelling seminar teams).

Those to whom the seminar was available would vary in profession and status according to the level of development in the area concerned. In a country with no psychiatrists or psychiatric nurses, for instance, the aim might be to make available to the general physician and the general nurse those rudiments of the knowledge necessary for the handling of psychiatric cases, in order to enable the country to begin

to move from the "custodial" to the "therapeutic" phase. In a more advanced area, the aim would be to make more recent developments available to those who had already had a considerable level of expertise. Some seminar teams of this type would be chosen so that they were also capable of functioning as demonstration teams.

Related professions

The lawyer, the school teacher and members of various other professions are often involved in handling individual psychiatric problems. In only a few areas does the education of these groups assist them in the understanding of this aspect of their work. The long-term need is the inclusion of such knowledge in the professional syllabus, but on the short-term basis in areas where the need is great much can be done by travelling teams to conduct seminars and demonstrate methods.

In addition, the fullest use would be made of the fellowship programme. The method of utilization of this programme would take into consideration the level of development of the country concerned. To send a worker from India for two years to study the Rorschach test, for instance, would probably be less fruitful from that country's point of view at this stage than to send six doctors without previous psychiatric experience to work in a well-developed hospital for psychotics for a period of four months. Preferably both long-term and short-term fellowships should form part of a planned and integrated programme covering psychiatrics, psychologists and psychiatric social workers and nurses. In the mental health field, approximately fifty fellowships of six months' duration would be necessary in 1950.

The estimated cost of the mental health programme is as follows:

First year, $725,370; second year, $870,444.

7.4.6. *Venereal diseases* [*page 86*]

7.4.6.1.1. Limitations of present statistical experience with venereal diseases on a world-wide basis are reflected in the wide range of estimates of the extent of the problem.

Syphilis estimates range from a minimum of 20 million to 100 million or more cases. Estimates for gonorrhea are two to three times higher. Mortality rates for syphilis, recorded in only a few countries, range from 0.8 to 210 per 100,000 population. The rate is vastly higher

in under-developed areas, where limited information is available. World mortality from late manifestations of syphilis is estimated at a minimum of some two million cases yearly. The proportionate infant mortality from congenital syphilis in under-developed areas is sometimes observed to be more than 10 per cent.

In some European countries, on the North-American continent and in Australia, a basic control structure permitted some measure of intensification of the control of venereal diseases during and following the Second World War.

Since 1946—a peak year for incidence in many countries—the incidence of venereal diseases has dropped in Australia, the United States of America, Canada, the Scandinavian area, and certain other countries. This decline has been most marked for gonorrhea, presumably because of the wide availability of penicillin for the treatment of gonorrhea in these and some other countries, and is less marked for syphilis, in the treatment of which penicillin has not been widely employed except in North America, the United Kingdom, and recently in Poland.

Isolated declines in incidence and prevalence of venereal infections, discernible in some countries following the war, do not play an appreciable role in perceptibly shrinking the great over-all reservoirs of venereal infections in other regions in the world.

The importance of dealing with congenital syphilis under maternal and child health programmes is evidenced by available data, as is the desirability of continued activities in combating pre-natal and infantile syphilis as part of broader programmes.

7.4.6.1.2. *Opportunities*

A whole series of discoveries and critical evaluations of old principles and methods of approach to venereal disease control resulting from the war presents opportunities for the future, thus emphasizing the timeliness of substantial action by WHO in this field. Defensive measures, arising out of conditions which prevailed until a few years ago, have been definitely abandoned in favour of a more aggressive approach. The most significant development has been the advent of penicillin, a powerful new weapon in the prevention and treatment of venereal diseases. The introduction of abbreviated methods of treatment, the shortening of the infectious stages of disease and the curtailment of opportunity for transmission indicate that this is a highly

favourable moment for setting the venereal-disease control forces into motion on a larger scale. Gonorrhea has lost much of its capacity for injury, while the minor venereal diseases have shown a satisfactory response to anti-biotic and chemo-therapy. In early syphilis penicillin has provided an ambulatory public health tool offering a degree of large-scale control previously unobtainable, in terms of population groups as well as the individual. The significance of penicillin in the treatment of congenital syphilis and as a preventive non-toxic weapon in pre-natal syphilis—permitting healthy infants to be born in perhaps more than 95 per cent of the cases regardless of the trimester of pregnancy in which therapy is applied—emphasizes the contribution which penicillin therapy for venereal disease can make to maternal and child health programmes.

So long as the therapeutic agents on which reliance is being placed continue to be effective, progress in control of the communicable stages of venereal diseases can be rapid. Action now through public health, scientific and other measures in each country, and internationally, would bring results that would contribute most fully to reducing and perhaps eliminating reservoirs of venereal infections.

7.4.6.1.3. *Relationship of venereal diseases to production, industry and loss of man-power*

From the point of view of public health and socio-economic importance, syphilis is the outstanding infection among the venereal diseases. According to Beerman (1940) the cost of syphilis in labour lost in industry (man hours alone) approaches 100 million dollars yearly in the United States of America. In the United States also the cost of the national "curative" programme was estimated at from 12 to 25 million dollars, and the cost of blindness from syphilis at 10 million dollars per year.

Less than ten years ago, the direct *per capita* "cure" cost ranged from $25 to $50 per patient for fresh infections (Moore). The *per capita* cost of treatment of early syphilis, based on penicillin, has become significantly cheaper.

7.4.6.3. *Statement of objectives*

7.4.6.3.1. Long-term objectives have been laid down in the 1950 programme of WHO, generally with a view to obtaining a practical degree of venereal-disease control in each country and control of the

spread of disease from country to country. Major emphasis has been placed on syphilis in its early communicable stages and on gonorrhea. The "minor" venereal diseases have been considered in their order of relative importance or where special circumstances obtain.

Advances in control methods, including mass case-finding, epidemiological contact work and abbreviated ambulatory-treatment methods based on penicillin, have accelerated the tempo with which results can now be obtained. This approach will be co-ordinated with health education, maternal and child health programmes and the social and welfare work carried out by the United Nations and other international and national organizations. Programmes jointly administered with agencies working in the fields of tuberculosis, malaria and public health are visualized wherever desirable.

The collateral effect of penicillin therapy in Bejel, yaws, and certain other infections prevalent in tropical and sub-tropical areas is not under-rated. Furthermore, in conjunction with the efforts necessary to redeem from malaria the areas favourable to settlement and development in Africa, in recognition of that continent's potentiality in terms of industrial and agricultural production, an organized approach will simultaneously be made to attack the significant reservoirs of syphilis in that region.

7.4.6.3.2. *Immediate objectives*

The immediate aims of the WHO are: (*a*) to encourage and assist Governments in initiating venereal-disease control programmes in areas without such programmes, and in strengthening the organization of venereal-disease control services in other areas—wherever possible in co-operation with other organizations; (*b*) to make possible the continuation of wider programmes where WHO/UNICEF activities have been established in order to ensure enduring health benefits from them; (*c*) to strengthen the serological laboratory services of countries, where necessary, and otherwise to carry forward the international serodiagnostic standardization programme of the WHO; (*d*) in co-operation with other international organizations to establish a basis for implementation of a revised Brussels Agreement in an effort to control the spread of disease by maritime personnel, migratory and other groups from country to country; (*e*) to show the direct and indirect socio-economic and public health benefits of working towards the long and short-term objectives outlined.

The organization of venereal-disease control services and the training of personnel to work in this field is a requisite for the short-term objectives, the attainment of which will be the basis for carrying out the further objectives.

7.4.6.4. *Work to be accomplished in 1950*

7.4.6.4.2. *Method*

To attain the short-term objectives and to establish a basis for work by WHO towards its long-term objectives, the following methods will be used: the provision to Governments of advisory and demonstration services and fellowships, and the continuation of expert-consultant activities and demonstrations started in 1949; the intensification of advisory services and launching of new demonstrations in 1950, particularly in under-developed areas; the augmenting of supplies for teams and the provision of supplies to countries where local teams or trained personnel are available; and the advancement of local approved demonstrations and local or national venereal-disease control campaigns, including the continuation and expansion of UNICEF pre-natal and infantile syphilis programmes.

As a special undertaking, WHO plans to participate in a scheme for the eradication of endemic syphilis in the area of Bosnia-Herzegovina, Yugoslavia. This participation is based on the scientific, national and international interest attached to the project, and on the existence of areas of high endemicity in Asia and Africa.

7.4.6.4.2.1. *General approach*

7.4.6.4.2.1.3. *Advisory and demonstration services. Continuation of 1949 programmes*

Teams. Three WHO teams will be in the field by the end of 1949, four or five in 1950. On the basis of the accepted policy for field operations, it is expected that the activities of imported personnel will be gradually taken over by local understudies. A full-time WHO consultant will in some cases remain in charge of operations. WHO may furnish supplies for the continuation of operations if these cannot be obtained through governmental sources because of the lack of the necessary currencies or the absence of local production. The demonstration area will be extended through allocation of the original team to the adjoining areas wherever possible.

The Expert Committee has indicated the desirability of allocating additional WHO teams to tropical and sub-tropical areas. Such allocations will be made in 1950 in the eastern Mediterranean area, where a preliminary survey of the problem has been carried out by WHO in 1948 and 1949. Other teams will be allocated to South East Asia and Latin America to meet the requests of Governments in these regions.

Consultants. In 1949 it is anticipated that expert consultants will operate in the western Pacific, South East Asia, eastern Mediterranean and the Western Hemisphere. They will study the needs of Governments and secure requests for assistance under the WHO programme, initiate local demonstrations and follow up WHO or WHO/UNICEF joint programmes. It can be confidently expected that requests for expert advice and other services will be received from Governments on a larger scale in 1950 and 1951.

Supplies. The limited availability and inequitable distribution of penicillin is one of the outstanding restricting factors in venereal-disease control, which consumes a large proportion of penicillin.

Experience with penicillin therapy in syphilis has to a very great extent been accumulating on the American continent, in England, and recently in Poland. The limited experience with the drug in syphilotherapy in Europe and the slight knowledge of its use in many other areas where much syphilis exists, as well as the rapid developments and introduction of highly efficient new repository penicillin preparations, have led to controversial opinions regarding the status of syphilis treatment. The Expert Committee therefore felt that the opportunity should be taken to establish pilot projects in some countries, in order to enable them to gain experience in penicillin therapy for syphilis. Under the WHO fellowship scheme, a number of physicians are acquiring skill in clinical and other aspects of venereal-disease control. Lack of penicillin may make it impossible for them to employ the new methods and techniques when they return to their home country.

The realization of the general need for wider availability of penicillin is to some extent the basis for the preventive-syphilis projects for pregnant women and for children which are financed by UNICEF. Responsibility for their technical aspects rests with the Joint WHO/UNICEF Committee on Health Policy and with WHO. During 1950

such programmes and similar ones should be initiated in additional countries. Under the over-all allocation already made for such schemes by UNICEF, WHO should contribute to the expansion of such projects, in terms of organization, personnel, penicillin and supplies needed for the adult population.

Establishment of pilot demonstrations in the eastern Mediterranean south-east Asian and western Pacific regions is planned for 1950. The Expert Committee on Venereal Diseases has recommended that demonstrations of this kind be extended to other countries in the Far East. Similar recommendations were made by the WHO Expert Committee on Maternal and Child Health at its first session. WHO will participate in these schemes, by assisting the Governments and by providing drugs and equipment for the diagnosis and treatment of the adult population not otherwise covered by the demonstration projects.

7.4.6.4.2.2.2. *An international-port demonstration and investigation project*

Efficiency in industry can be increased and labour loss due to venereal diseases can be reduced through well planned venereal-disease control work.

Such work is of particular significance for the maritime industries because of the high prevalence of venereal disease among maritime personnel—a result of the special hazards to which such groups are exposed in overseas ports—and because of the reflection of such work on the operating efficiency of merchant fleets, and on the hauling of material and food supplies to needy countries all over the world.

The ILO, which has been specifically interested in this question since 1926, has pronounced its willingness to extend its activities in this field in collaboration with WHO, both with regard to the establishment of international health regulations for venereal diseases, as decided by the Health Assembly, and also in actively participating in the work of the WHO/ILO Joint Committee on Hygiene of Seafarers. The Executive Board of WHO, at its second session, approved the report of the second session of the *Ad hoc* Expert Committee on Venereal Diseases,[1] including the recommendation for the establishment of a port demonstration and investigation project in 1950.

The Committee on Venereal Diseases also recommended that a

[1] *Official Records of WHO*, No. 15, page 18.

regional approach should be made to venereal-disease problems arising along inland waterways and rivers, or around circumscribed sea-basins bordered by several countries.

The estimated cost of the venereal-disease programme is as follows:

First year, $340,480; second year, $408,576.

7.4.7. *Tuberculosis* [*page 96*]

7.4.7.1. *The problem and its significance*

7.4.7.1.1. *Epidemiological considerations*

The world-wide nature of the tuberculosis problem requires no emphasis. During the period of the Interim Commission, data concerning the incidence of infection, morbidity and mortality from tuberculosis were collected from many countries. It was found possible, in appraising the severity of the problem, to place a reasonable degree of confidence in the official statistics of about thirty countries.

It has not been possible to estimate death rates for other countries, or even to classify those countries as having low, medium or high prevalence rates. Nevertheless, there is evidence from many areas on morbidity and infection, and these admittedly slender guides have been of some value in estimating what the toll of the disease may be in countries for which official mortality rates are either unavailable or unreliable.

Not only the absence of data but also the unreliability of much of the existing data makes estimates of the death rates of many countries purely speculative. In more than one country in the world in recent years, carefully planned surveys of infection and morbidity rates have shown clearly that the incidence of clinically significant tuberculosis is far in excess of that which would be compatible with the officially reported death rates for the same communities.

Mortality rates alone can lead to highly erroneous conclusions. It is submitted that when, in addition to such surveys, an analysis is also made of the economic life, habits, nutritional standards and other environmental factors, and when the racial composition of any community is studied in the light of the known behaviour of the more susceptible races under modern and social conditions, there may then be ample guides to vindicate the acceptance of an authorita-

tive medical opinion of the morbidity and mortality rates for tuberculosis in these communities.

It will still be necessary for teams of experts to undertake epidemiological surveys and demonstrations in certain areas, not merely with the object of reducing morbidity, but in order that mortality rates may be more precisely ascertained. Mortality rates which are obviously erroneous are not merely a source of confusion in attempting international comparisons, but may even tend to retard the progress of anti-tuberculosis measures in the countries in which they originate, since they produce a false impression of the severity of the problem and mislead administrators, who tend to base both administrative and financial plans for future action on the information which they may receive from their own statistical authority.

A WHO chart[1] summarizes the data available for seven "continents," North America, Europe, Oceania, the USSR, Latin America, Asia (including China) and Africa. The figures given reflect what is believed to be the toll of tuberculosis among the people of these continents. It will be noted that lower and upper limits have been suggested for Europe, Oceania, Latin America, Asia and Africa.

By comparison with the gravity of the problem in Asia, Africa and certain parts of Latin America, tuberculosis is a minor problem for Europe, North America and Oceania. The outstanding fact, however, is that even in an age when mortality rates are falling in most places, tuberculosis still takes approximately five million lives every year throughout the world.

7.4.7.2. *Work previously accomplished*

In tuberculosis, UNRRA made valuable contribution especially in Poland, Czechoslovakia, China and Greece, countries into which considerable consignments of supplies (X-ray and hospital equipment and surgical instruments) were sent. Late in 1946, however, UNRRA's programmes virtually ceased, and its duties in most fields were handed over to the Interim Commission of the World Health Organization, together with the sum of one and a half million dollars, to complete certain of the health and medical relief activities which had been initiated by UNRRA.

The steps which WHO has taken to fulfil its function as adviser

[1] *Official Records of WHO*, No. 16 page 11.

to the world on tuberculosis are given in the Director-General's report for 1948.[1]

Since the spring of 1948, WHO has worked closely with UNICEF, particularly in connexion with the mass tuberculin-testing and BCG vaccination scheme, which was originally sponsored by the latter organization.

7.4.7.3. *Objectives*

All countries were invited to submit to WHO their requests for 1949 in order that some idea could be forthcoming of the nature of the field services required, especially with regard to demonstrations in X-ray work, tuberculin testing, BCG vaccination, special forms of therapy, and in fellowships.

There will, no doubt, be need for such emergency or "immediate" services for a year or two. On the recommendation of the Expert Committee on Tuberculosis, moreover, these emergency demonstration services will be so planned as to form the beginning of a long-term programme for each country requesting such services.

In other words, WHO will point the way and will lead some of the less developed States some steps on the journey; but the final goal must always be reached by the endeavours and continued efforts of the nationals in their own lands.

It would appear that the transition from short-term to long-term policy in tuberculosis must be gradual. To expect the under-developed areas to succeed where many of the more advanced countries have failed would be unreasonable.

7.4.7.4. *Work to be accomplished in 1950*

7.4.7.4.1. The Executive Board of WHO at its second meeting accepted responsibility for the promotion of medical research in the BCG campaigns. The sum of 100,000 dollars was allocated for this purpose.

7.4.7.4.2. *Methods*

Assistance will be given to under-developed areas by the provision of information and advice, demonstration teams, demonstration areas, fellowships, training schemes, diagnostic surveys, the continuation and expansion of the BCG services started by UNICEF, and by provision of certain essential supplies to encourage local effort.

[1] *Official Records of the WHO*, No. 18, page 98.

The estimated cost of the tuberculosis programme is as follows: First year, $540,460; second year $648,552.

7.4.8. *Public-health administration* [*102*]

7.4.8.1. *The problem and its significance*

As with other institutions in organized society, the scope and organization of public-health services, as well as their relative importance and role in the life of a nation, depend largely on its social, economic and cultural development and on its political structure. These services are also influenced by national traditions. The development of scientific bases of medicine and hygiene, on the one hand, and the development of social science and scientific organization on the other, however, more precisely determine the position of the public-health services in the fulfilment of their task, which is to use the products of science and organization in the interests of the health of the entire population. The knowledge, art, technique and practice of this utilization constitute our modern public-health services, which are as "scientific" as they are "administrative" and "social" in their character and approach. With the rapid advance by the medical, natural and social sciences, the scope of the public-health services increases or should increase with equal rapidity.

Progress in public health will consist in the improved utilization of technical methods, the broadening of the field of activities and the increasing co-ordination of all factors contributing to the promotion of health.

Since inequality in the development of national services clearly and directly affects the world's health, a general improvement in health services is an international responsibility; and the establishment of recognized minimal standards for health services will soon be recognized as a subject of international concern. Several problems in public health require particular attention, among them the organization of medical care, nursing, the construction and administration of hospitals, medical rehabilitation and industrial or occupational health services. Information on the most effective methods applied in these

branches of health care in comparable environments must be collected and be made available as and when required.

Special problems arise in connexion with WHO's collaboration with the Trusteeship Division of the United Nations and with the United Nations Special Committee on Information from Non-Self-Governing Territories. United Nations is concerned, under the provisions of the Charter, in raising the health standards of the population of these Territories, and WHO was instructed by the First World Health Assembly[1] to assist in this endeavour. Collaboration is already in progress to improve the questionnaire and "standard forms" to be used regarding health conditions in these areas. Further development of this collaboration under the terms of the WHO Constitution will include qualitative evaluation of the information obtained, participation in field surveys and ultimately in technical advice and recommendations for improvement of the health services in these areas.

Satisfactory organization and efficiency of the public-health administration in many countries is an important prerequisite for the satisfactory functioning of all other health services. Good public-health administration must support and influence all programmes designed to raise health standards, and without it all plans for the improvement of food production, distribution and ultimate industrialization must be severely handicapped. Occupational hygiene to protect the health of the most productive groups of the population contributes directly to the control of an avoidable loss of man-power. The provision of medical care, by reducing disabilities from sickness, plays a large part in the preservation and effective utilization of man-power.

The regional labour conferences of the ILO held in 1947 in the Near East and Asia laid particular emphasis on the importance of the development of public-health services in those regions in raising the economic level of the population. This may well be self-evident, but has been publicly recognized all too infrequently.

7.4.8.3. *Objectives*

7.4.8.3.1. *Long-term*

The preparation and promotion of internationally acceptable standards and of the most applicable methods for use in public-health services, organization of medical care, medical social work and rehabilitation, hospital facilities and nursing throughout the world, with special emphasis on occupational and industrial health.

[1] *Official Records of WHO*, No. 13, page 324.

7.4.8.3.2. *Immediate*

(1) To assist national health administrations in raising their standards of service to the highest level possible in the circumstances.

(2) To make the experience gained by each nation available to all others which may need it, in a form suitable to the context.

(3) To demonstrate in the field the organization and application of modern schemes for public-health service, such as health centres and comparable techniques.

(4) To make special studies and give advice on certain problems, such as hospital construction and medical rehabilitation.

7.4.8.4. *Work to be accomplished in 1950*

7.4.8.4.1. The First World Health Assembly decided that problems falling under the heading of public-health administration should receive a major emphasis in the programme of WHO. The Assembly made provision for the establishment in 1949 of certain joint programmes, such as those conducted with ILO on industrial hygiene and the hygiene of seafarers.

7.4.8.4.2. *Methods*

7.4.8.4.2.1. *Reconnaissance and collection of information*

Analysis and compilation of this information, to put it at the disposal of Governments, will be a regular undertaking. Other methods of collecting information and opinions will take the form of consultations and advice.

Surveys of areas selected for health demonstrations or similar studies will be made as required, at the request of Governments, the United Nations or the specialized agencies. Such surveys will be made by small teams composed of a qualified officer with international experience and a public-health officer well acquainted with local conditions. A systematic survey of general public health conditions will, over a period of time, be made in all areas or countries receiving assistance from WHO; such surveys are essential to facilitate the selection of the area and type of assistance and in some cases to determine its advisability. In addition, the surveys will produce a general and continuing picture of health administration in all countries of the world.

7.4.8.4.2.2. *Provision of information and advisory services*

General information will be provided through correspondence, through the notes, reports and communications of the Director-General, expert committees and correspondents and by publication of the most important and valuable material (in part in the Health Year Book).

7.4.8.4.2.3. *Advisory and demonstration services to governments*

Demonstration teams and expert consultants will provide advice and assistance to governments. Special consideration will be given to organization of health services, hospital construction and administration, nursing and surveys, recommendations and assistance preliminary or prerequisite to the inauguration of WHO programmes.

7.4.8.4.2.6. *International exchange of personnel*

An international exchange of personnel to promote exchange of valuable experience will be sponsored. This will be conducted by various methods. WHO, acting as an intermediary, will "second" public-health personnel from one country to another; these will be mainly laboratory workers and persons holding teaching positions, but in some instances also public-health officers. Individual travel grants will be available to persons in positions of responsibility; this group will be strongly represented in WHO fellowships grants. Collective study tours will be arranged for groups of persons with similar qualifications from various countries, for example, groups of public-health officers, epidemiologists, directors of public health nursing and hospital administrators. Each group will visit appropriate institutions in several countries and hold a series of seminars on the applicability of techniques in various countries.

The estimated cost of the public-health administration programme, is as follows:

First year, $295,810; second year, $354,972.

7.4.9. *Nutrition* [*page 108*]

7.4.9.1. *The problem and its significance*

Nutrition is perhaps the most important single environmental factor influencing health. The discoveries of recent decades show that inadequate nutrition plays an important part in infant mortality, in

the excessive proportion of under-developed schoolchildren and adolescents, in the incidence of tuberculosis and some other diseases, and in the poor health and low productivity of a large number of adults. The availability of all kinds of foodstuffs has diminished, and there is a dire need for improvement in nutrition in most countries. Unnecessary starvation still exists in many regions of the world. Better distribution of food in the world is necessary, and FAO and other international organizations are concerned with this problem. Sufficient food is not the only essential factor; a well-balanced diet and the best use of available foodstuffs are also very important in reaching the highest attainable standard of health. The food habits of some population groups must be changed. The education of public-health administrators, legislators, teachers, etc., in practical nutrition and dietetic knowledge is an essential part of any programme. The food habits of certain types of population are such that deficiencies lead to avoidable avitaminoses, for example beri-beri and pellagra. Inadequate nutrition is responsible for low productivity among millions of workers.

The objective "food for health" is common to FAO and WHO, and the closest co-operation between these two organizations will be necessary. In FAO the emphasis is on nutrition in relation to the production, distribution and consumption of food; in WHO the emphasis will be on nutrition in relation to the maintenance of health and the prevention of disease. Nevertheless, every practical programme of nutrition has aspects which fall within the fields of interest of both organizations. Collaboration must therefore be flexible and no sharp dividing lines of responsibility can be drawn.

7.4.9.2. *Methods*

To prepare the ground for the long-term objectives, the following programme is suggested for 1950:

(1) Collection, evaluation and distribution of information on recent advances in the science of nutrition;

(2) Educational programmes to improve the food habits of individuals and families;

(3) Emphasis on the role of health workers and health centres in nutrition education;

(4) Assistance to Governments in sending demonstration teams and consultants;

(5) Allocation of fellowships in nutrition;

(6) Training in nutrition of maternal and infant specialists, of dieticians, of personnel for nutrition surveys and others;

(7) Advice on the nutrition of mothers and children;

(8) Surveys, in close co-operation with existing research institutes, on the assessment of nutritional status;

(9) Inclusion of nutrition specialists in malaria and other teams;

(10) Control and elimination of dietary deficiency diseases.

The estimated costs of the nutrition programme is as follows:

First year, $314,645; second year, $377,574.

7.4.10. *Cholera* [*page 110*]

7.4.10.1. *The problem and its significance*

Cholera prevails endemically in Bengal, whence it is carried to other parts of India and occasionally to other countries, causing severe and highly fatal epidemics. It prevails also in a hypo-endemic form in Burma, Siam, Indo-China and southern China.

Mortality from year to year varies from 100,000 to half a million or more.

The comparatively limited area of continuous endemicity contrasts with the explosive character of the outbreaks of the disease. It appears advantageous to take the offensive and attempt eradication in well-defined endemic areas, rather than to keep a continuous and sterile watch in many provinces and countries against cholera invasion.

7.4.10.2. *Work previously accomplished*

In past years the League of Nations limited its action against cholera to studies on the epidemiology of the disease and on the relative efficiency of oral and subcutaneous inoculation.

Its main practical achievement was the establishment of the Singapore Epidemiological Bureau to reduce the danger of the international transmission of cholera by means of efficient telegraphic and wireless reporting of its occurrence.

The Interim Commission of WHO set up jointly with Office International d'Hygiène Publique a study group which met twice in 1948 and made recommendations,[1] not only for the drafting of WHO sani-

[1] *Official Records of WHO,* No. 11, page 15; No. 19 (to be published).

tary regulations but also for international field studies, with a view to eventual control and eradication of the disease.

7.4.10.3. *Statement of objective*

Cholera is a disease for which true eradication—that is to say, world eradication—can and must be aimed at, in the opinion of experts (OIHP/WHO Joint Study Group).

The immediate objective is gradually to clean up the truly endemic area, after a preliminary delineation of this area and a study of the factors of endemicity (both planned for 1949) have been made.

Cholera eradication has never been attempted on an international basis.

7.4.10.4. *Programme for 1950*

It is proposed to send into two districts of the endemic area of Bengal (situated respectively in the Territories of the Indian Union and of Pakistan) two international teams for the demonstration of those methods of control considered most appropriate by the study team sent there in 1949, as recommended by the Expert Committee on International Epidemiology and Quarantine.[1]

It is proposed that the teams should control cholera in successive adjoining districts, so as gradually to reduce the endemic area.

It is expected that further teams may be formed by the local health authorities, using the experience of the previous teams and working in successive years in adjoining districts. Each original team would be made up of three members (a bacteriologist, an epidemiologist and a sanitary engineer) employed by WHO, assisted by two local medical officers, together with subordinate administrative, technical and laboratory staff.

As the first two international teams should serve as training centres for both local and non-local staff, it is suggested that field fellowships be given by WHO to medical officers intended by their health administrations to take up eradication work in the following years. Each fellowship would be granted for three months; three groups of five fellows could be accommodated in succession by each team (two-thirds of the fellows should be locally recruited).

It will be necessary critically to assess the work performed and possibly recommend changes. This should be done by the OIHP/WHO

[1] *Ibid.*, No. 19 (to be published).

Joint Study Group (or Expert Committee) on Cholera, to be convened for the purpose in India, for one week, late in 1950.

Such an appraisal is of paramount importance for planning any further action towards the eradication of cholera.

Co-operation with the section of environmental sanitation is envisaged at all stages of the work both at headquarters and in the field.

The estimated cost of the cholera programme is as follows:

First year, $177,215; second year, $212,658.

7.4.11. *Plague* [*page 112*]

7.4.11.1. *The problem and its significance*

Plague, although kept in check at considerable cost in many of its present areas of prevalence, is still a deadly disease which, in its main endemic foci of India and China, caused some 90,000 cases and 45,000 deaths in 1947.

No sanitarian conversant with the history of the last pandemic which began in 1894 can under-estimate the power of dissemination of this disease, or its potential havoc (12 million deaths in India alone between 1898 and 1935; 100 per cent fatality of the 60,000 pneumonic plague cases of the Manchuria epidemic in 1910-11).

7.4.11.2. *Statement of objectives*

The long-term objective must be, if not true eradication—which would require elimination of the infection in wild rodents where it has spread over huge areas on the higher plateaux or mountains of the Americas, South Africa and Asia—at any rate, elimination from the human communities adajacent to these areas.

A closer objective is to make plague-free and plague-proof sea and air ports and sea and air craft to prevent international transmission of plague.

An immediate objective is the elimination of plague from endemic areas or small foci, where it has persisted for years, by the combined use of modern rodenticides and insecticides with residual action. Infected islands (Azores, Hainan, Madagascar) appear to be the best fields for such eradication.

7.4.11.3. *Work previously accomplished*

WHO has already made a survey (WHO.IC/Plague/3), consulted plague experts during the Fourth International Congress of Tropical

Medicine in Washington in June 1948 (WHO.IC/Plague/4) and formed jointly with the OIHP a study group which met in April and October 1948 (WHO.IC/Epid./4. Rev.1; WHO/Plague/5).

The reports of the experts show that new methods of rat and flea destruction permit effective elimination of plague from towns and villages (even without radical changes in sanitation) and warrant an attack on the infection in limited endemic foci where its reservoirs are domestic rodents.

7.4.11.4. *Programme for 1950*

Two international teams for the demonstration of the newer control methods in infected towns and villages will be formed and start operation in 1950. Each team will be composed of a staff of three, recruited from health administrations of countries affected by plague, with a view to using in plague control the experience to be gained by them while serving on the international team. These officers will, during the first half of 1950, receive special training such as that given in the centre set up in Peru for the training of plague control personnel.

The first demonstration teams will serve as training centres for both local and non-local staff. Field fellowships will be given by WHO to sanitarians intending to take up plague-control work in either international or national teams during the following years. This will, in some cases, avoid the language difficulties and travel costs involved in training at the Peruvian centre.

A critical review of the work done, of recent advances in the knowledge of plague, and recommendations for future action, including further research, will be dealt with by a meeting in 1950 of the WHO Expert Committee on Plague.

The estimated cost of the plague programme is as follows:

First year, $175,365; second year, $210,438.

7.4.12. *Typhus fever* [*page 114*]

7.4.12.1. *The problem and its significance*

Louse-borne epidemic typhus is still present in many countries and still constitutes a major public-health problem in a number of countries where the vector prevails and where economic conditions are unfavourable.

Over 100,000 cases were recorded in North Africa alone in 1942. Over 17,000 cases were reported in Romania during the first two months of 1948.

7.4.12.2. *Work previously accomplished*

International work against typhus has, in the past, been limited to the large-scale application, by the League of Nations, of the classical delousing methods in the chain of quarantine stations established in 1921 on the eastern borders of Poland and the Baltic States, a study of the relative efficacy and respective indications of the then-existing typhus vaccines (at a conference of experts held in 1937), and to action against the disease in the field by League of Nations anti-epidemic units in China from 1938 to 1940.

7.4.12.3. *Statement of objectives*

The discovery of effective insecticides with residual action capable of destroying the vectors, and therefore of breaking the chain of infection, justifies fresh action towards gradual elimination of these vectors and consequently of both typhus and louse-borne relapsing fever.

Elimination should be started in typhus endemic foci and gradually expanded to clean up entire provinces and countries.

It is clear that the machinery required for delousing entire populations and for maintaining these populations louse-free can be the responsibility of only national health administrations.

7.4.12.4. *Programme for 1950*

WHO can only provide demonstrations of the feasibility and success of such large-scale delousing and arrange for the procurement of the necessary insecticide for those countries which, for technical or financial reasons, cannot obtain it in the requisite quantities.

The first two demonstration teams will begin operations in 1950. It is intended that the teams will work in regions of high endemicity and that one of them should operate in an area of northern Africa. This area is not only one of typhus endemicity but was at the same time the origin of the last two pandemics of louse-borne relapsing fever.

The above suggestions are merely tentative, as in each case success of a demonstration depends upon a careful preliminary study of its proper location, taking into consideration possibilities for local administrative support and psychological as well as technical epidemiological factors.

In succeeding years, similar teams will initiate demonstrations in

other infected countries, while individual experts will check to make certain that the areas previously treated are being maintained in a louse-free condition.

These first international demonstration teams will serve as field training centres for both local and non-local staff intended to apply similar schemes in other areas in the following years, i.e. in infected countries of the Mediterranean area and of Eastern Europe. Such training will be effected by granting fellowships for a period of three months.

It will be necessary critically to assess the work performed and possibly to recommend changes. This will be done by a special expert committee on typhus and typhus-like diseases.

7.4.12.5. *Louse-borne relapsing fever*

The Expert Committee on International Epidemic Control has recommended that louse-borne relapsing fever be treated as a pestilential disease and be the object of the same control measures as louse-borne typhus.

This is fully justified. Before 1914 relapsing fever caused in Russia a higher morbidity than typhus. The number of cases in that country from 1918 to 1921 was estimated between eight and ten million (Tarassevitch, League of Nations Epid. Int. No. 2, 1922). After the First World War the disease gradually declined in Europe, but a pandemic originating in the Fezzan swept over Africa during 1921 and the following years. A similar pandemic broke out in the same area during the Second World War and caused no less than 110,000 cases in Egypt in 1946, and tens of thousands of cases in other African countries.

It is highly desirable to eradicate louse-borne relapsing fever from its endemic areas in the Fezzan and, at the same time, to study the possible role of ticks as reservoirs.

The attack on relapsing fever and typhus will be carried out simultaneously, through elimination of their vectors, i.e. body lice. Therefore, no special or additional team or other form of action is recommended for this purpose for 1950.

The estimated cost of the typhus programme is as follows:

First year, $159,115; second year, $190,938.

7.4.13. *Health education of the public* [*page 116*]

7.4.13.1. *The problem and its significance*

The view is generally accepted that the success of many if not all public-health programmes depends largely on public response, and that the general level of health depends on health habits of the individual and the enlightenment of the public. Popular health education has received much attention from authorities and organizations; a variety of methods have been developed with the aim of improving the spread of information on health and of securing the maximum public co-operation. In view of the importance of the psychological element in public education, the methods must be flexible and depend on the psychology of groups or nations.

The role of the national component in planning popular health education is more important than that of the international one. On the other hand, technical equipment and material for health education have now become matters of international concern. An international advisory and procurement service, and assistance in the production of educational material will facilitate the tasks of individual countries in popular health education. This is particularly important for less-developed countries lacking adequate personnel and material. In addition to general public opinion, which should be well informed on matters of health, some groups require a greater knowledge of health problems. Among them are school teachers, professors of teachers' colleges, architects, engineers, and leaders of community life and public opinion. This aspect of health education must receive attention on the international level even if that attention is limited to the collection and exchange of information.

7.4.13.4. *Methods*

It is expected that the experience which will be obtained during 1949 will indicate the best methods for work in 1950 and later. So far, the following are envisaged:

(1) Collection and dissemination of information on ways and means of health education as applied in various countries;

(2) Arrangement for consultative services to Governments at their request;

(3) Assistance to countries in the production of their own educational material. This should be limited to countries where special difficulties and needs exist.

The estimated cost of the programme of health education of the public is as follows:

First year, $119,985; second year, $143,982.

7.5.1. *Technical training of medical and auxiliary personnel* [*page 118*]

7.5.1.1. *The problem and its significance*

It is well recognized that a sufficiency of medical and auxiliary health personnel of high quality is a corner-stone of any sound system of health protection. No modern programme in any field of health, including the WHO programmes, can develop properly and give lasting results unless the area concerned has a reasonable number of qualified personnel, who would continue the work initiated or demonstrated with the assistance of WHO as part of a general scheme of health action in a given country. Of course, the mere presence of a large number of qualified medical and auxiliary personnel is not in itself sufficient evidence of the adequacy of the health care; nevertheless, it is a prerequisite for any comprehensive scheme.

Efforts made to expand training facilities in the vast lands of Asia and Africa should receive the strongest possible support in the interest of world health. The existing resources in these parts of the world are by no means sufficient. The following summary statement can be made:

(1) There is a great shortage of physicians (and other health personnel). In consequence, about half of the world's population does not have sufficient access to modern medicine.

(2) The number of medical schools is nearly sufficient only in parts of the world inhabited by about half of the total population, but the existing training facilities in those parts, particularly in Africa and Asia, cannot solve the problem of shortage of health personnel.

(3) The problem is of great world-wide importance and can be solved only gradually and by intensive international effort and co-operation.

The rapid progress of modern science and recent economic and social developments require the adjustment of the training of health personnel to the new situation. Not all countries can keep pace with this progress, and, in order to continue improvement in teaching and training, they need assistance. The modern concept of total and positive health increases a doctor's responsibilities in the field of hygiene,

preventive medicine and public health; it also requires adequate preparation in a medical school and thorough post-graduate training.

On the other hand, the increasing similarity of technical developments in various countries, the continuous increase of relations between countries and the spread of international ideas promote international approaches to health problems and reduce the necessity for strictly national patterns of training. A practical consequence of these trends can be found in the growing interest in the evaluation of medical degrees and in the possibilities of international medical licensure. Without subscribing to any theories on uniformity, it can be said that some co-ordination of basic standards in the teaching and training of medical personnel would have a favourable influence on medical education throughout the world. This will be especially important in connexion with the establishment and expansion of teaching resources in under-developed regions, where international assistance will be needed for a long period and where education and training must be adapted to local needs, on the one hand, and must be correlated with international standards, on the other. The quality, content and methods of medical education are undergoing an important transition which spreads over the boundaries of countries and continents and represents a subject deserving of world-wide study. Problems of post-graduate training, specialization of personnel, refresher courses and the like must also be considered along with medical education in the programme of international activities.

During the years to come, a very considerable demand for fellowships may be expected from under-developed areas. Under-developed and undeveloped areas should be encouraged to make full use of the fellowship programme, as an essential part of over-all plans for their development.

The whole organized effort for better health hinges on the availability of competent leaders and an adequate number of well-trained personnel. The fellowship programme is an investment in individuals selected to lead and introduce new knowledge in their own country.

In under-developed regions, even the existing health facilities with a small number of doctors could give much wider and better service if well-trained auxiliary personnel could be provided. It is very probable that the main bulk of health work in under-developed areas and, particularly in maternal and child health, will be carried out by nurses, midwives, medical assistants, etc. There, the greatest need is for simple

instruction, simple treatment and leadership. The question of the training, employment and supervision of various grades of auxiliary personnel is of the most urgent importance.

For these reasons, the greatest care and effort should be devoted to the development of educational resources for this type of personnel. WHO should give as great assistance as possible to individual countries in the establishment and development of schools for nurses, midwives, medical assistants, sanitary inspectors and other auxiliary personnel.

In some under-developed areas, it has been found possible to use as auxiliary personnel a great many persons who are illiterate, provided they are (i) worthy of some training, responsibility and prestige and (ii) supervised intelligently.

In the training of personnel for work in under-developed countries, emphasis must be laid on adaptation of the trainees' knowledge and skill to the local environment. Patterns of health work and health training developed in highly modernized countries are not usually applicable in a primitive environment, whereas many technical procedures can remain basically the same. International co-operation will give the advanced specialists (teachers and leaders) a possibility of becoming acquainted with various patterns of health services and training as developed in different countries. An eclectic method will be applied to planning for under-developed regions, and the most suitable elements from different patterns will be selected for given circumstances.

7.5.1.2. *Examples of previous international work*

The League of Nations Health Organization made investigations of the type of instruction given to various groups of health personnel, made surveys of training personnel; gave advice and technical assistance to Governments; organized conferences of directors of schools of hygiene, courses in hygiene, interchange of sanitary personnel; organized study-tours and granted individual fellowships and travel grants.

UNRRA. Activities of the UNRRA Health Division in the field of training of public health personnel in devastated countries comprised:

(1) Visiting lecturers, teaching and demonstration missions.

(2) Travel grants.

(3) Supplying of medical literature, teaching equipment, microfilm readers, and organization of courses for sanitary personnel.

Several other agencies, especially the Rockefeller Foundation, have stimulated and assisted the development of training resources throughout the world.

Since July 1946, the World Health Organization and its Interim Commission have arranged, sponsored and financed over 600 fellowships and study-tours. Other work of WHO in the field of training has comprised preliminary studies of the systems and the resources available, the collection and supply of information, the preparation of programmes and collaboration with other agencies on matters of common interest. Assistance to Governments has been given by the provision of consultants, missions, visiting lecturers and advisers for the planning and development of training schemes for health personnel in several countries, including under-developed areas.

7.5.1.3. *Objectives*

(1) To sponsor the development of a world-wide programme for the training of medical and other health personnel on an adequate level and in sufficient numbers to enable all countries to extend the health care of the masses of their population.

(2) To ascertain that high standards of training are internationally accepted and followed.

(3) To assist in the establishment and development of resources for the training of medical and auxiliary personnel in appropriate places, especially where there is a lack of local personnel, and in the development of schemes for the expansion of training programmes.

7.5.1.4. *Work to be done in 1950*

7.5.1.4.2. *Methods*

(1) International collaboration in educational matters, envisaged in a variety of forms which would develop along with the increase in international experience.

In principle, the activities of WHO will be mainly directed toward the co-ordination of international work done by various organizations and institutions with WHO programmes, raising of the standards of training by assistance to Governments and using as far as possible existing institutions for international collaboration in training. Special development of training facilities is envisaged in regions where lack of staff handicaps health work. It is proposed to provide fellowships and

study tours on as large a scale as possible. Four types of areas are in particular need: (*a*) areas where health services are below the average or show obvious gaps, either through lack of social, educational or economic development or from related causes; (*b*) areas which, through any cause, e.g. isolation or lack of foreign exchange, have been unable to keep abreast of advances in medical knowledge; (*c*) areas which have not yet repaired the severe losses caused by the war in health personnel or in facilities for their training; (*d*) areas which, as result of their size or for other reasons, lack opportunity for training some types of specialized personnel.

Fellowships will be normally, but not exclusively, granted for study in a branch of medicine connected with WHO priorities and will form part of a general plan for health development.

(2) Advisory services to countries and regions. Consultants to be appointed at the request of Governments for the organization of training and on occasion for the actual teaching of various subjects. Visiting professors will be sent to countries or regions with special emphasis on public health and hygiene.

(3) Assistance to schools to serve as examples for other areas. This assistance to include advice, collaboration in planning and providing for the supply of lecturers and consultants. Special provision is made for assistance in establishment or development of model schools for nurses and auxiliary personnel.

(4) Calling the attention of the Governments and peoples of the world to the necessity of an increase of trained personnel if underdeveloped countries are to be brought within the framework of civilization. Mobilization of public resources and of private support throughout the world for co-ordinated work on the development of training facilities.

(5) Organization of international courses, conferences, seminars for groups of teachers and leaders of public health.

(6) Provision for the supply of the necessary teaching equipment and material. This help, along with technical assistance, is essential to raise the standards of teaching institutions.

The estimated cost of the programme for technical training of medical and auxiliary personnel is as follows:

First year, $1,964,680; second year, $2,357,616.

7.5.4. *Epidemiological studies (field work)* [*page 134*]

7.5.4.2. *Pestilential diseases*

7.5.4.2.1. *Smallpox*

7.5.4.2.1.1. *The problem and its significance*

Apart from occasional importation, smallpox has been practically eliminated from countries in temperate climates where vaccination is extensively practised. It persists, however, in most tropical territories, despite prolonged efforts toward its eradication. There, fresh outbreaks result from migrations or any slackening in systematic revaccination. Such was the case in Africa and Asia during the war.

In 1944 no less than 216,000 deaths were ascribed to smallpox in British India alone.

7.5.4.2.1.2. *Objectives*

The long-term objective is to make the whole population of the world immune to smallpox by proper vaccination. This involves, in countries in which the disease appears as a remote danger, provision for vaccination at an age sufficiently early to reduce to negligible proportions the risks of post-vaccinal encephalitis and, in tropical endemic countries, improved administrative machinery for bringing vaccination to the most remote and inaccessible population groups and provision of a lymph that preserves its activity under all environmental conditions (such as dry vaccine).

7.5.4.2.1.3. *Work previously accomplished*

Extensive inquiries made by the League of Nations and the Office International d'Hygiène Publique have shown that post-vaccinal encephalitis was not the result of any contamination of the vaccinal lymphs, but of latent infection in humans, prior to vaccination.

In 1948 a Joint OIHP/WHO Study Group on Smallpox reviewed existing knowledge, recommended one technique of vaccination and defined and interpreted the various forms of reaction following vaccination and revaccination.

The group recommended further studies and observations on:

(*a*) The duration of immunity after vaccination and revaccination carried out at various ages, as measured by antibody titration and reactions after revaccination in countries free from smallpox and, as

proved by actual protective efficacy in countries of smallpox endemicity;

(*b*) The means of preparing an active but pure dry vaccine.

7.5.4.2.1.4. *Programme for 1950*

The above studies are being carried out in 1949 and will be continued in 1950.

The results and any new problem that the experts may find desirable to elucidate will be dealt with by an expert committee or study group in 1950.

Immediately before or after the meeting of smallpox experts, a meeting of medical officers responsible for vaccination in tropical areas will be held, to discuss the most effective means of obtaining universal vaccination in under-developed territories.

WHO will facilitate the use and preparation of dry vaccine for interested health administrations in tropical countries.

7.5.4.2.2. *Yellow fever*

Work on yellow-fever vaccines and the delineation of the yellow fever endemic areas is a statutory obligation of WHO under the 1944 International Sanitary Conventions. Therefore, such work is provided for under the regular budget.

It must be noted, however, that all of the epidemiological work involved will be carried out entirely in the under-developed areas of equatorial Africa and South America.

7.5.4.3.1. *Filariasis*

7.5.4.3.1.1. *The problem and its significance*

The military campaign in the islands of the Western Pacific has focused interest on the severity and wide prevalance of Filaria infections.

The more common—infection by *Wuchereria (Filaria bancrofti)*—prevails in varying degrees in practically all tropical and subtropical countries. The rate of infection often exceeds 20 per cent of the population, and in places reaches 90 per cent. Stoll in 1947 estimated the prevalence at 189 million cases, of which 157 million were in Asia, 22 million in Africa, 9 million in Central and South America and 1 million in Oceania.

Onchocerciasis, a form of filariasis, due to *Onchocerca volvulus,*

exists in several states of Guatemala, in Mexico and Venezuela, and also in tropical Africa and the Anglo-Egyptian Sudan. Certain forms cause considerable reduction in mobility and working power, e.g. elephantiasis due to *W. bancrofti* and blindness to *O. volvulus.*

7.5.4.3.1.2. *Work previously accomplished*

No international work has been done hitherto on filariasis. In November 1948 the Expert Committee on International Epidemiology and Quarantine recommended that WHO make a preliminary study of the subject in 1949.

7.5.4.3.1.3. *Programme for 1950*

In view of the favourable reports now received of certain new drugs (such as salts of 1-diethylcarbamyl-4-methylpiperazine) in the treatment of both micro- and macrofilarial infection, systematic testing of such drugs will be carried out under controlled conditions.

These therapeutic trials could be started in 1950. For this purpose it will be necessary to distribute to selected hospitals and institutions drugs for co-ordination of research for treatment of filariasis.

The planning of these therapeutic and other researches should be made by a group of six clinicians and parasitologists, who would actually participate in the trials.

The experts will be requested to advise on further research or the best means of making the drugs available to the populations affected, also on the possible means of attacking the insect vectors under suitable conditions.

Long-term planning will be based on the experts' findings and recommendations.

7.5.4.3.2. *Trypanosomiasis*

7.5.4.3.2.1. *The problem and its significance*

Infection by *Trypanosomiasis gambiense* or *T. rhodesiense*—the causes of sleeping sickness—is a most serious health problem in tropical Africa. Foci of infection are distributed unevenly in practically every territory between the 15°N and 15°S parallels, from Senegal to Mozambique.

Untreated sleeping sickness wipes out entire populations. Large areas have to be emptied of their inhabitants to break the chain linking tsetse flies on the one hand with human and other animal reser-

voirs on the other. Trypanosomiasis militates against the survival of cattle and is directly as well as indirectly a tremendous factor in preventing the agricultural development of Central Africa.

In Central America and the tropical part of South America infection by T. cruzi (Chagas' disease) is widespread and frequently fatal; the area of potential expansion of the disease is much larger than the one in which man is affected, inasmuch as wild animals are infected over large areas and the insect vectors (reduviidae) are widely prevalent.

7.5.4.3.2.2. *Work previously accomplished*

The sanitary and economic importance of the disease was recognized by the League of Nations, which, as early as 1923, had a survey made of the prevalence of the disease in Africa.

A Central International Trypanosomiasis laboratory was established in Entebbe (Uganda) (1926-27) for experimentation. A number of surveys were made in various infected territories by members of the League Committtee on Sleeping Sickness.

Since then sleeping sickness has been the object of co-operative research and administrative action by the British health authorities in Eastern Africa.

In February 1948 an international conference on trypanosomiasis, held at Brazzaville, agreed to centralize information in an *ad hoc* bureau at Brazzaville or Leopoldville. The British Standing Committee on Tsetse and Trypanosomiasis Research, operating under the Central African Council (Salisbury, Southern Rhodesia) will co-operate.

The International Scientific Committee on Trypanosomiasis, which met in London in February 1949, will co-ordinate the research and field work in the various African Territories.

7.5.4.3.2.3. *Programme for 1950*

Co-ordination will be considered under the proposed WHO regional bureau envisaged for Central Africa.

7.5.4.3.3. *Leishmaniasis*

7.5.4.3.3.1. *The problem and its significance*

The various forms of leishmania infections—the mild cutaneous one prevailing in the countries bordering on the Mediterranean, Kala-Azar (Mediterranean (infantile) and Indian) and the ulcerative leish-

maniasis of South America—constitute, through their frequency, long duration and (as regards Kala-Azar) high fatality, a serious international public health problem.

7.5.4.3.3.2. *Work previously accomplished*

No international action has so far been taken for the control of these infections. Action, however, is justified by the possibilities now afforded by insecticides with residual action in the control of the fly, *Phlebotomus,* vector of the *Leishmaniae.*

7.5.4.3.3.3. *Programme for 1950*

In accordance with the recommendations of the First World Health Assembly, specialists in the various forms of leishmaniasis, in parasitology and in insecticides, will be convened in 1950 to discuss the best lines of action for the control of the vectors, for the prevention of the disease and for its treatment by suitable drugs.

Long-term plans will necessarily depend upon the recommendations of this meetings of experts.

7.5.4.4. *Virus diseases*

7.5.4.4.1. *Poliomyelitis*

7.5.4.4.1.1. *The problem and its significance*

Poliomyelitis has definitely been spreading during the last forty years, both within infected countries and from one territory to another. Although uneven, the present distribution is practically world-wide. Some 80,000 cases have been notified in the United States of America within the last five years.

The several thousand cases reported each year give but an imperfect idea of the number of individuals permanently affected by the disease, in view of its lasting paralytic sequelae and its attendant psychological and economic consequences.

7.5.4.4.1.2. *Work previously accomplished*

So far there has been no international work undertaken against poliomyelitis apart from epidemiological information and studies. An international meeting of experts, however, took place in Brussels in 1945 and another in New York in 1948. Interested specialists are now formulating plans for the creation of an international poliomyelitis union, comparable with those existing for tuberculosis, cancer, etc.

Proposals were made at the First World Health Assembly that WHO should undertake studies on the disease, help in the preparation of further international conferences, and investigate the practicability of building up stocks of artificial respirators that could be loaned, together with competent personnel to operate them, to countries affected by epidemics.

7.5.4.4.1.3. *Programme for 1950*

In 1950 a group of poliomyelitis experts, together with virus experts and epidemiologists, will be convened to advise WHO on the feasibility of the above proposals, and the best means of co-ordinating research and action against poliomyelitis on the international level.

7.5.4.4.2. *Trachoma*

7.5.4.4.2.1. *The problem and its significance*

Trachoma is a serious and chronic eye disease, widespread in many tropical and subtropical countries, causing a great deal of disablement and often ending in complete blindness.

Of Egypt's population of 20 million, it is estimated that 90 per cent are affected.

The disease may also prevail in temperate climates, and it occasionally causes epidemics when imported into a hitherto trachoma-free area.

7.5.4.4.2.2. *Work previously accomplished*

Two international technical associations against trachoma were formed in 1923 and 1929 respectively, and have combined their publications.

The League of Nations has made world surveys of trachoma prevalence and published documents on legislative and medical measures of prevention and cure.

WHO, jointly with the Office International d'Hygiène Publique, convened in October 1948 a special study group to advise on WHO sanitary regulations to prevent the international transmission of the disease.

The group recommended further research on the effects of various sulfa drugs which have given remarkable results in both treatment and prevention. It recommended also a survey of trachoma prevalence. Finally, it advocated the setting up of a special expert committee.

7.5.4.4.2.3. *Programme for 1950*

A committee of specialists, as recommended by the joint OIHP/WHO Study Group on Trachoma, will be convened in 1950 to consider the results of the research work recommended by the study group in October 1948. The results will be promulgated.

7.5.4.4.3. *Rabies*

7.5.4.4.3.1. *The problem and its significance*

Rabies, a widespread infection in Eastern Europe, Africa, Asia and some parts of America among wild and domestic animals, is a serious menace to man.

The statistics collected by the League of Nations for treatment by the Pasteur Institutes of persons bitten or licked by presumably rabid animals between 1927 and 1946 exceed 1,670,000.

7.5.4.4.3.2. *Work previously accomplished*

The League of Nations convened in Paris in 1927 an Inter-governmental Conference on Rabies. Another conference took place in Bucharest in 1938.

The Executive Board of WHO has instructed the Director-General to make a preliminary study covering:

(*a*) The present situation as regards rabies prophylaxis and vaccination;

(*b*) The as yet unimplemented proposals made by the various conferences;

(*c*) The possible need of holding another international rabies conference.

WHO is consulting in 1949 experts on the best means of stimulating and co-ordinating field and laboratory research on prevention and vaccine treatment.

7.5.4.4.3.3. *Programme for 1950*

In 1950 an Expert Committee on Rabies, composed of six members, will be convened to consider the results of the above-mentioned consultation. They will make recommendations regarding the desirability of a conference, and will initiate research in which anti-rabies institutes and authorities will be invited to participate.

7.5.4.5. *Common communicable diseases of childhood*

7.5.4.5.1. *The problem and its significance*

Diphtheria, whooping cough and measles remain a considerable cause of morbidity and mortality in many countries of the temperate zones where they constitute the chief causes of death among children of pre-school age.

7.5.4.5.2. *Programme for 1950*

The WHO Expert Committee on Maternal and Child Health, at its first session, therefore recommended that WHO take steps to make widely available the potent vaccines obtained by new processes.

It recommended, for the purpose, a conference of pediatricians and experts in the preparation of vaccines, to generalize the newer techniques of vaccine preparation and to arrange for the optimum use of the vaccines. The conference should, in addition, recommend lines of research for the improvement of immunization procedures for diphtheria, whooping cough, typhoid fever, etc., and particularly combined immunization when practicable. It should also consider possible research on immunization against other diseases of childhood regarding which specific preventive methods are not yet available.

7.5.4.6. *Leprosy*

7.5.4.6.1. *The problem and its significance*

The First World Health Assembly recommended that WHO study leprosy, a disease still widely prevalent in tropical countries and causing prolonged suffering and progressive invalidity to several million persons.

7.5.4.6.2. *Work previously accomplished*

This disease has received attention in the past from two international voluntary organizations and from the League of Nations, which made a world-wide survey of the disease and set up an expert committee.

7.5.4.6.3. *Programme for 1950*

WHO will keep in contact with the field and research work carried out in order to arrange international co-ordination as the opportunity arises.

A panel of experts will be set up, for preliminary exploration of the field by correspondence.

The information collected, particularly as regards the effects of new

drugs, will be made available to interested health administrations and the medical profession by means of suitable publications.

The estimated cost of the epidemiological studies programme is as follows:

First year, $114,345; second year, $137,214.

7.5.11. *Schistosomiasis field-study group* [*page 161*]

7.5.11.1. *The problem and its significance*

Schistosomiasis, whether in its intestinal, vesical or hepatic forms, prevails over wide areas of the African, Asiatic and American continents. In some areas it may reach 90 per cent of the rural population.

The infection causes such a diminution of the sufferer's strength and capacity for work that it seriously impedes food production in the agricultural areas. It is, therefore, an international problem from the social and economic, as well as from the health, point of view.

7.5.11.2. *Objectives*

Eradication of the disease will naturally be the goal, but the accomplishment of this objective will still depend upon the solution of certain technical problems as yet unsolved.

Immediate objectives are the delimitation of the areas of prevalence of the various types of the disease, and determination of the various zoological factors involved in its epidemiology in these areas.

7.5.11.3. *Work previously accomplished*

The Expert Committee on International Epidemiology and Quarantine recommended that this condition should be studied in 1949 for field action in 1950.

7.5.11.4. *Programme for 1950*

Field action will include the sending to an endemic area of a study team of three investigators (epidemiologist, helminthologist and molluscologist) to determine the relative value of available methods of snail destruction and other means of control.

When progress is satisfactory, the study team will become a demonstration team.

Members of the study team will make short visits to infected areas other than the one selected for the main study, in order to compare conditions and arrive at local adaptations of methods.

It is desirable that, in order to prepare the extension of the work, officers in charge of schistosomiasis studies and control in other territories be given an opportunity to see the work done and discuss the problem with the members of the team. This might be done by the granting of five field fellowships of one month each to such officers.

The details of the field experiments and other research (particularly as to the use of drugs in treatment) will be planned by a meeting, early in 1950, of experts on schistosomiasis, together with parasitologists (helminthologist, molluscologist). Members of the field team will participate in this meeting.

Therapeutic trials will proceed, parallel with field work, against the snail intermediate host.

Apart from the field work, information on the prevalence of schistosomiasis throughout the world, the epidemiological factors involved in the various countries and data on the results obtained by prophylactic and therapeutic measures, will be collected.

This information will be made available by suitable publications to interested administrations and the medical profession.

The estimated cost of the schistosomiasis field study group is as follows:

First year, $50,000; second year, $60,000.

7.5.13. *Research on antibiotics* [*page 164*]

7.5.13.1. *The problem and its significance*

As early as 1947 the Interim Commission and its Advisory Expert Committee on Venereal Disease drew attention to the limited availability and inequitable distribution of penicillin in the world; it was pointed out that this represented one of the over-all restricting factors in control of venereal disease. The drug also has established value in the treatment of a number of other diseases.

Although the world production of penicillin had improved considerably by the end of 1948, the exportable surplus was still far short of needs, as evidenced by a study carried out by the Director-General of WHO.

The First Health Assembly provided: (*a*) that all possible measures should be taken by WHO to encourage antibiotics production and to ensure an equitable distribution to all countries, particularly

those where it is not now available, and (*b*) that the immediate object of WHO in this field should be to make technical knowledge on penicillin production available to countries contemplating the erection of plants; to facilitate procurement of penicillin for countries unable to obtain this and similar drugs.

The Assembly also authorized that penicillin matters should be a separate activity.

Co-operation with the United Nations Economic Commission for Europe was established before the end of 1948. On 17 February 1949 technical consultations took place with representatives of Czechoslovakia, Poland and Yugoslavia. During these consultations, a tentative programme was agreed upon for action necessary to put the UNRRA plants in these countries into production.

Similar action is pending in the United Nations Economic Commission for Asia on an UNRRA penicillin plant in the Far East.

7.5.13.1.1. *Developments*

It has become clear that technical information will be required by countries at two stages in the production of antibiotics:

(1) During the period of design, installation and initial operation of plants;

(2) For continued training and research in production.

7.5.13.1.2. *Objectives*

The general objective of WHO, in co-operation with the ECE and other regional economic commissions of the United Nations, is to make available to Governments sources of technical knowledge on design installation and initial operation of plants. There are certain limited possibilities in the immediate future of finding satisfactory sources, other than commercial and the like, of technological information on plant installation.

In view of the great importance of antibiotics in modern methods of disease control, the longer-term and wider subjects of research and after-training in antibiotics in general—without which, incidentally, satisfactory production even of penicillin cannot be maintained—will be an activity of WHO.

The estimated cost of the programme of research in antibiotics is as follows:

First year, $32,000; second year, $38,400.

7.6.1. *Medical literature, teaching equipment and programme supply services* [*page 167*]

7.6.1.1. *The problem and its significance*

The world need for medical literature is tremendous. In underdeveloped areas, health services are usually below average. Current medical knowledge is often unavailable. The medical profession is able to keep abreast of current medical knowledge only through the dissemination to libraries and medical schools of books and periodicals on recent advances.

The same appalling situation and urgent needs exist in connexion with special teaching equipment. Many less-developed areas have started training of medical personnel under severe handicaps. The schools are overcrowded, and teaching equipment is inadequate or non-existent. As a result of scientific advances, even schools formerly considered first class need to be adapted to meet changing requirements. At a time when competent workers are desperately needed, the facilities available to train them are extremely inadequate.

7.6.1.2. *Work previously accomplished*

In 1947 and 1948, medical books and periodicals were supplied by WHO to thirteen countries. The term *medical literature* was enlarged to include special teaching equipment such as films and projectors, micro-film readers, etc. Much headway has been made by WHO and national and international bodies, such as the Rockefeller Foundation. However, continuing currency difficulties have prevented the closing of the gap. To continue this programme in 1949 and to make it available to other areas, the Health Assembly appropriated $150,000.

7.6.1.3. *Statement of objectives*

In order that the medical profession may keep abreast of recent medical knowledge and that competent workers may be trained to attain the objectives set forth in the Constitution of WHO, the objective is to provide medical literature and special teaching equipment to give assistance in:

(1) Rehabilitating existing inadequate and outdated libraries and teaching laboratories;

(2) Furnishing nuclear sets of medical literature and teaching equipment to countries where health services and standards of medical education are below average;

(3) Co-operation with UNESCO in this field.

Similarly, on a limited scale, supplies should be made available either to implement programmes after WHO demonstration teams have completed their task or to further health projects carried out by governmental health administrations.

7.6.1.4. *Work to be accomplished*

7.6.1.4.2. *Method*

Until economic recovery has reached a level which will enable countries to procure their own requirements of this nature, they will need assistance. Therefore this programme of providing medical literature, special teaching equipment and programme supplies on a limited scale will be carried out where a real need can be demonstrated.

Such provision will be essential to satisfactory implementation of many operations in the 1950 programme.

The volume of services in 1950 is expected to be more than double the volume during 1949, owing to (*a*) the increase in the field programme which will require supplies and equipment for teams engaged in the advisory and demonstration programmes, and (*b*) the needs, in some cases, of Governments carrying out health projects on their own initiative.

The estimated cost of the programme of medical literature, teaching equipment, and programme supply services is as follows:

First year, $485,000; second year, $582,000.

Special services and central administrative costs

Special administrative and common services required in conjunction with the supplementary programme of WHO are estimated to involve expenditures of:

First year, $241,820; second year, $290,184.

WHO Provisional Financial Estimates

Summary table

Programme	First year	Second year
	$	$
Health demonstration areas	1,140,340	1,368,408
Malaria	739,725	887,670
Maternal and child health	740,590	888,708
Environmental sanitation	795,575	954,690
Mental health	725,370	870,444
Venereal diseases	340,480	408,576
Tuberculosis	540,460	648,552
Public-health administration	295,810	354,972
Nutrition	314,645	377,574
Cholera	177,215	212,658
Plague	175,365	210,438
Typhus fever	159,115	190,938
Health education of the public	119,985	143,982
Technical training of medical and auxiliary personnel	1,964,680	2,357,616
Epidemiological studies	114,345	137,214
Schistosomiasis field-study group	50,000	60,000
Research on antibiotics	32,000	38,400
Medical literature, teaching equipment and programme supply services	485,000	582,000
Special services and central administrative costs	241,820	290,184
Grand total	9,152,520	10,983,024

CHAPTER 13

Statement by the International Bank for Reconstruction and Development

The concern of the International Bank with the provision of technical assistance to under-developed countries is a direct outgrowth of its financial responsibilities. The primary purpose of the Bank, as expressed in its Articles of Agreement, is "to assist in the reconstruction and development of territories of members by facilitating the investment of capital for productive purposes, including . . . encouragement of the development of productive facilities and resources in less developed countries". But in many under-developed countries productive investment is retarded not only by lack of capital but also (and in some cases primarily) by lack of knowledge and experience—for example, inadequate information about resources and markets, a shortage of the technical and entrepreneurial skills required to convert promising ideas for development into practical projects ready for financing, inadequate financial mechanisms to mobilize available savings, low standards of health and education, and a shortage of skilled labour.

Member Governments of the International Bank, seeking to surmount these difficulties, have increasingly requested the Bank's help in obtaining technical assistance and advice in analysing their development problems and potentialities, in formulating practical development programmes adapted to their particular needs, and in mobilizing their resources and strengthening their financial position. The technical assistance which the Bank may thus furnish to under-developed countries, and the measures which result, help to create a sound basis for loans by the Bank and increase the contribution which the Bank can make to balanced development. Moreover, to the extent that this assistance contributes to improvement of conditions in the under-developed countries, it helps to make those countries more attractive for private investment and encourages a greater flow of capital from that source.

Up to 30 April 1949, the Bank had sent missions to assist with

development problems in nineteen countries of Latin America, Asia and Africa, in addition to its missions to the more highly developed European countries. Some of these missions were undertaken mainly to investigate specific projects for possible loans; others have had the broader purpose of studying the general economic situation and prospects of the country; still others have been undertaken in response to a member Government's request for technical assistance on some particular phase of development. In most cases these various purposes shade into one another; most Bank missions study both economic conditions in general and the merits of particular projects, and these studies are normally followed by consultations with and advice to the member Government concerned. Thus, technical assistance furnished by the Bank provides a necessary foundation and supplement for its financial operations with under-developed countries.

In its technical assistance activities the Bank has worked closely with the specialized agencies and with the United Nations, and will continue to do so in order to take full advantage of their knowledge and experience in various special fields. The Bank will look to these organizations, for example, for assistance of the following types:

(*a*) Advice on promising fields for investment or on other problems of development falling within their fields of specialization;

(*b*) Help in obtaining technical experts to serve on missions sponsored by the Bank or to assist member Governments on projects for which Bank financing is desired. The respective agencies might make such personnel available either by assignment of experts from their own staffs or by recommending qualified technicians from other sources;

(*c*) Help in securing, compiling and evaluating data on appropriate aspects of the economy of member countries, as background for the consideration of loan applications or for the briefing of survey or advisory missions sponsored by the Bank;

(*d*) Advice on the technical feasibility, and the cost and other requirements, of specific development projects or programmes in the fields of the respective agencies.

Because the Bank's technical assistance programme is inseparably associated with its financial operations, it is impossible to draw any line between its normal activities in this field and the proposed expanded programme. Moreover, the technical assistance projects to be undertaken by the Bank cannot be programmed accurately in

advance, since they will depend largely upon the receipt of requests for Bank financing, the situation of the countries making such requests, and the extent of technical assistance rendered by other agencies in countries and fields which are of interest to the Bank from a financial standpoint. It is not necessary, in any case, to present herein any definite budget for technical assistance by the Bank, since its expenditures for this purpose will continue to be financed out of its operating income.

The general types of technical assistance in which the Bank may play a particularly important role are outlined in the following paragraphs.

1. *Assistance in formulating comprehensive development programmes*

In some countries the Government will be in a position to formulate a comprehensive development programme and establish appropriate administrative and financial machinery to carry it out. The initiative in working out such a programme must come from the member country and it must make the fundamental decisions. But outside help can be of substantial value in this phase of the development process.

The International Bank can play a key role in providing this type of assistance. The nature of its responsibilities makes it necessary for the Bank to be concerned with those aspects of a country's development programme which involve capital investment, whether in the form of bank loans or from other sources. It must maintain close and continuous contact with conditions in the entire field of international investment, and the resultant knowledge and experience may be quite useful to under-developed countries in finding practical solutions to financing problems, which are often of central importance. Apart from its own loans the Bank may, in some cases, be able to help enlist private capital for certain types of investment. Finally, since the Bank is interested in the long-term welfare of its member countries, it is in a position to provide continuing technical advice and assistance, where necessary, to ensure that the development plans are carried out successfully.

The first step in a comprehensive development programme is usually a general survey of development needs, potentialities and problems to provide the basis for a long-term investment programme and to indicate what kinds of administrative and financial mechanisms

and fiscal measures are necessary to carry it out. The Bank has been requested by some of its member countries to make surveys of this type. In response to one such request, a Bank mission will shortly proceed to Colombia for this purpose. In organizing this and subsequent missions, and in evaluating and implementing their conclusions, the Bank will solicit the assistance of other specialized agencies in their respective fields.

It is expected that the cost of these missions will normally be shared by the Bank and the country concerned, the Bank's share to be derived from its operating income. For the immediate future the chief limit to the provision of this type of technical assistance by the Bank is not likely to be any lack of funds for the purpose, but rather the organizational problems of recruiting and supervising the missions, and the additional work involved in providing necessary background information and in evaluating the missions' conclusions. For these reasons the Bank does not expect to undertake more than three or four missions of this type during the coming year; in subsequent years the number may be increased.

2. *Analysis and planning of specific projects*

In cases where it is proposed to seek International Bank financing for development, it is desirable, in order to avoid waste of time and effort, that the prospective borrower consult the Bank at as early a stage as possible on the definition of specific projects and the preparation of detailed plans to carry them out. In some cases the Bank's own economic and engineering staff may provide some technical assistance; normally, however, the Bank, upon request, will assist the country seeking a loan to choose qualified independent experts. In any event, such consultation will enable the Bank to work closely with both the sponsors of the project and the technicians who prepare and carry it out.

In general, the Bank considers that this kind of consultation and assistance will be most important in the planning and execution of industrial, power and transportation projects. The special concern of the Bank with these aspects of development arises from two considerations: first, that technical assistance in these important fields is not the responsibility of any other specialized agency; and second, that these fields usually involve particularly heavy investments of capital, which frequently must come from external sources.

3. *General economic and financial measures*

The Bank's purpose of "facilitating the investment of capital for productive purposes" is not fulfilled merely by making loans from its own resources. If such loans are really to serve as a significant stimulus to economic development they must be supplemented by investment from other sources, foreign and domestic. The Bank's activities, in both the sphere of financing and that of technical assistance, are designed to stimulate a flow of private capital for development in areas and enterprises where private investment is suitable, primarily through fostering a favourable atmosphere for investment.

Progress toward this objective may frequently require assistance to member Governments in devising and putting into effect various measures to strengthen their financial institutions, to reform unsound or ineffective practices, and to improve their general financial position. In providing technical assistance to its members in these fields, the Bank works closely with the International Monetary Fund and other agencies having related responsibilities.

The Bank, like the other specialized agencies, furnishes technical assistance of all these various kinds in several ways—through advice rendered by its permanent staff in the regular performance of their duties, by means of special missions, by employing individual experts or consulting firms on a temporary basis to assist specific member countries with particular problems, and by recommending qualified economic or technical advisers to be employed directly by the countries desiring assistance.

In order to be in a position to employ or recommend the best qualified experts, in cases where its own small staff cannot furnish the help required by a member country, the Bank is undertaking to develop rosters of potentially available experts in fields that are not covered by the other specialized agencies. This function is more than merely that of furnishing a name or panel of names. The Bank makes a thorough inquiry into the qualifications and experience of those whose names are suggested and endeavours thereby to find the particular man best qualified for a particular job. In addition, the Bank may often be able to assist in getting the designated expert released from his regular employment for the special assignment in question, in providing him with background information, and otherwise in facilitating and reinforcing his efforts.

CHAPTER 14

Statement by the International Monetary Fund

The primary interest of the Fund is in the monetary, fiscal, and financial spheres. Its interest in development, as such, is therefore indirect rather than direct. The Fund is not intended to make loans for development, and its primary financial function is to help member countries tide over temporary balance of payments difficulties. While, however, the problems referred to the Fund by member Governments are normally those connected with the balance of payments and the exchange rate, a thorough investigation of these necessarily involves consideration of the domestic credit situation, including problems arising from the adoption of large-scale development plans.

The Fund provides technical advice for members in regard to currency, banking and allied problems in the interests of an efficient working of the financial and monetary mechanism in the process of development. It regards its role as specialized adviser in the monetary and financial spheres as no less important than its role in making foreign exchange available to cover short-period gaps in its members' balance of payments. The adoption of correct policies and the efficient working of the institutional machinery in these spheres are, of course, essential prerequisites of development.

The Fund is prepared to give members advice regarding monetary and banking policy and organization. Derived from its primary functions of promoting monetary co-operation and providing short-term credit facilities, the role of the Fund may be regarded as that of a specialized adviser on the monetary and banking prerequisites of a successful development policy.

The provision of technical advice to member countries to help in the solution of their urgent financial or monetary problems is thus one of the principal activities of the International Monetary Fund.

The Fund uses three different mechanisms to carry out these activities. First, the Board of Executive Directors serves constantly, at the seat of the Fund, as an international body available for financial consultation on a multilateral basis. Second, at the request of members

the Fund sends out technical missions to collect information on the basis of which recommendations may subsequently be made to the Governments concerned, or on occasion to work out with the Government concerned the legislative, administrative and technical details of a particular programme. And third, officials of the Government concerned sometimes bring their problems to the seat of the Fund for discussion with staff experts and Executive Directors.

The Fund has provided one or more of these types of assistance to many of its forty-seven member countries. During the past year alone representatives of the Fund visited thirty-eight member countries, while the Executive Board served continuously as a panel for discussion of the fundamental problems of member countries, and the technical staff had under constant review developments in the financial situations of these countries. The technical assistance provided to its members by the Fund is ordinarily not publicized in any way, since it is regarded as a confidential arrangement between the Fund and the Government to which it is provided.

The Fund's facilities are designed primarily for assistance to members of the Fund, but the organization is also prepared to co-operate with other international organizations in meeting the requests of their members even though they may not be members of the Fund, and has done so.

The scope of the Fund's advice has been wide. It has included, for example, monetary, fiscal and credit policies, with the aims of ensuring wise use of the financial resources of the country concerned; the control of inflationary pressures; and restrictions, where necessary, on luxury imports in order to conserve foreign exchange for the purchase of essential goods.

The Fund also undertakes certain projects designed to benefit not just a single country or international organization but all member countries. In this connexion may be cited the *Balance of Payments Manual,* published by the Fund in January 1948 after considerable study by the staff of the Fund in collaboration with representatives of thirty countries and international organizations. The *Manual* is designed to assist members in the compilation of an adequate balance of payments statistics, thereby providing the Fund with data necessary for its operations and, at the same time, giving members a better understanding of their own financial situation. On the basis of the

data so collected, a *Balance of Payments Year Book* will be published by the Fund early this summer.

Also for the purpose of ensuring the dissemination of information and improvement of knowledge in its field, the Fund publishes a monthly bulletin, *International Financial Statistics,* and a weekly, *International Financial News Survey.* These are distributed widely among the Fund's member countries and to other international organizations and are also available at a nominal cost to interested students and technicians in the field throughout the world. To ensure widest distribution of this knowledge, special arrangements have been concluded to enable subscribers to pay for these publications in the local currency of their own countries.

In all this work, the Fund maintains the closest practicable liaison with all other international organizations having interests in these fields. This liaison is maintained not only through the mechanism of the ACC and its subsidiary committees in which the Fund participates actively, but through direct contacts at all levels as required.

The Fund has loaned the expert services of members of its staff to member Governments and to international organizations, and, where this has not been possible, has contributed papers to give these bodies the benefit of Fund experience and wide expert knowledge.

In all of this work the Fund has been guided by two general principles:

1. The primary function of the Fund is to be of service to its member Governments, and its responsibilities are only to them;

2. All its activities are directed solely toward fulfilling the purposes set forth in its Articles of Agreement.

The Fund proposes to continue these activities set forth above, on the same basis. It does not appear at this time that the Fund will require any additional money to support these activities. It is not possible to present any more detailed programme of technical assistance to be rendered by the Fund, since it is not possible at this stage to determine which of our member countries are likely to have problems, what these problems will be, or in what form assistance on these problems can best be given. Within the principles set forth above, the Fund will continue to give its closest attention to ways in which its information, its expert technical knowledge and consultative machinery can be used to the fullest extent practicable for the benefit of both its member Governments and of international organizations.

CHAPTER 15

Statement by the International Refugee Organization

1. The International Refugee Organization is a non-permanent specialized agency created by the United Nations for the care, re-establishment and protection of refugees and persons displaced from their countries of former residence by the war. Although the date for final termination of the IRO has not been determined, it is anticipated that its present operations will be reduced by 30 June 1950, and may not continue beyond 1951. Subject to this condition of time, the IRO is in a position to make an effective contribution, directly to Governments or in co-operation with other specialized agencies, to the expansion of technical assistance to under-developed countries in matters affecting migration, the supply of technicians, specialists or skilled labour, or the overseas movement of substantial numbers of people as suggested below.

2. In fulfilling its functions of repatriation and resettlement the IRO, during its first eighteen months of existence (1 July 1947 to 31 December 1948), has been able to re-establish over 400,000 displaced persons. The great majority of these refugees have been resettled in foreign countries requiring their overseas movement from Europe. To accomplish this, the IRO has progressively acquired a fleet which, is currently represented by about thirty-five vessels under long-term charter now in continuous operation in IRO service in voyages from Europe to destinations well distributed over the world. Additionally, refugees are being transported by IRO from Europe to various destinations by space arrangements made with regularly scheduled, commercially operated ships. IRO also provides air lifts to supplement the shipping operations to meet the need of special case requirements.

3. In the acquisition of this fleet and in the movement of these refugees, the IRO has necessarily developed a staff of specialists who are not merely theoretical but practical experts in the fields of (*a*) large-scale movements, (*b*) immigration problems and requirements, (*c*) details of processing and required retraining (both vocational and technical) and orientation.

4. It is estimated that as of 1 January 1949 some one million displaced persons eligible for IRO services were awaiting re-establishment. This group of people represents a pool of manpower comprising some unskilled labour, a substantial amount of skilled labour and many technicians, specialists and professionally trained people. The IRO periodically surveys the occupational skills of its refugee charges by means of classifying a sampling of approximately 300,000 cases. The scope of this sampling is adequate to provide a quite accurate index of the numbers and varieties of occupational skills of all the displaced persons in the IRO "population". Since this pool of manpower is not a static but a constantly changing one, due to intake and outgo, a revised canvass is made each six months and the results published in tabulated form. About 235 specific occupational classifications are presented, strictly defined for the most part in terms used by the Dictionary of Occupational Titles, United States Employment Service, June 1939.

5. It is desired to emphasize, therefore, that in any plan for technical assistance for under-developed countries the IRO may be in a unique position to provide:

(*a*) Individuals as required from a trained staff who are expert by virtue of actual operational experience in the fields of large-scale land, sea and air movements;

(*b*) Individuals as required representing labour, both skilled and unskilled, technicians, specialists and professional people in over 300 particular categories from an available pool of manpower numbering nearly one million persons and which includes such specific categories as accountants, agronomists, chemists, dietitians, dentists, doctors, draftsmen, engineers, foresters, lawyers, librarians, laboratory technicians, mechanics, mill operators, nurses, opticians, photographers, radio operators, surveyors, and X-ray operators;

(*c*) A fleet of vessels for the provision of large-scale, high standard and low-cost overseas movement.

6. The conditions under which the facilities of IRO as above given could be made available must be made clear. The IRO is a non-permanent organization. Its programme for the future and its exact length of tenure have not yet been definitely decided. The tentative programme now being given consideration envisages continuance of all its present functions and responsibilities until 30 June 1950. At

that time it is anticipated that there will be a substantial number of displaced persons under IRO care still requiring re-establishment and that an additional period will be necessary to bring to an end the agency's active field operations. During this final period it is planned to reduce or eliminate some of the present responsibilities of the IRO, particularly in the field of care and maintenance, and to concentrate its efforts largely on the movement of displaced persons for repatriation or resettlement.

7. If the tentative programme forecast in the preceding paragraph is adopted then it is clear that the assistance which IRO can give is as follows:

(*a*) Until the termination of field operations the IRO is in a position to,

(i) Provide such skilled labour, technicians or specialists from its manpower pool of displaced persons as may be required by any plan for technical assistance provided only that the applicable conditions are acceptable to the IRO under the terms of its mandate,

(ii) Provide as a part of its regular operational programme, and normally without any special budgeting provision, the movement of such people to areas where they are required and can establish themselves under conditions acceptable within the IRO mandate,

(iii) Provide from its current staff, assistance and advice in the development of plans for technical assistance;

(*b*) Until the termination of its field operations, the IRO can divert either its staff or its facilities (shipping) to participate or assist in those actual operations not coming within its mandate, only on special authorization and budgeting;

(*c*) Currently and up to the terminal period the IRO, as circumstances dictate, *may* be able to supply by loan or transfer certain specialists of its staff as required for the development or implementation of plans for technical assistance.

CHAPTER 16

Statement concerning the International Trade Organization

1. The Havana Charter for an International Trade Organization was signed on 24 March 1948 but has not yet entered into force. The Charter contains a special chapter relating to economic development, under which members of the organization undertake a number of obligations relating to the promotion of economic development and under which a number of duties are laid upon the organization. Duties of the organization in relation to technical assistance are laid down under paragraph 2 of article 10, which reads in part as follows:

"... subject to any arrangement which may be entered into between the Organization and the Economic and Social Council of the United Nations and appropriate inter-governmental organizations, the Organization shall, within its powers and resources, at the request of any Member:

"(a) (i) Study the Member's natural resources and potentialities for industrial and general economic development, and assist in the formulation of plans for such development;

"(ii) furnish the Member with appropriate advice concerning its plans for economic development or reconstruction and the financing and carrying out of its programmes for economic development or reconstruction; or

"(b) assist the Member to procure such advice or study.

"These services shall be provided on terms to be agreed and in such collaboration with appropriate regional or other inter-governmental organizations as will use fully the competence of each of them. The Organization shall also, upon the same conditions, aid Members in procuring appropriate technical assistance."

In addition article 72, which provides for a number of functions for the organization, refers particularly to action to promote and encourage establishments for technical training.

2. The Havana Conference directed the Interim Commission, which it established, to report to the first conference of the International

Trade Organization on the structure and administrative methods and the working relations with other inter-governmental organizations which would enable the organization most effectively to carry out its positive functions for the promotion of economic development.

3. The Executive Committee of the Interim Commission gave consideration to this resolution at its second session. The following are relevant extracts from the report of the Sub-Committee of the Executive Committee, which considered the matter, as amended and approved by the Executive Committee at its meeting on 15 September 1948.

"(1) . . . In view of the scope of the Havana Resolution and the very short time available for consideration and discussion at the second session the Sub-Committee considered that it was not possible at this session for the Executive Committee to prepare the report or to formulate recommendations for the first conference of the ITO. It was agreed that there should be time for members of the Executive Committee to consider further the documents that had been prepared and that the Secretariat should pursue further studies. Members would then have an opportunity at the third session of the Executive Committee to submit for consideration specific proposals relating to the resolution. It would then be possible to prepare the report to the conference. This document therefore should be regarded as a brief record of the discussions at this session and of certain tentative conclusions which should be considered by members before the next session . . ."

"Section II. Activities of ITO

"(8) The Sub-Committee desired, in the first place, to lay emphasis on the fact that the Havana Charter required the ITO to take a comprehensive interest in economic development and reconstruction. This had to be weighed against the fact that similar broad responsibilities were laid upon other organs of the United Nations, such as the Economic and Social Council, and that significant work was already being undertaken by the United Nations and specialized agencies in this field. Given the limitation of the resources of the United Nations and other inter-governmental organizations, the Sub-Committee deemed it essential to ensure that the coming into existence of the ITO did not result in any duplication but in a net addition to the sum total of activities. The Sub-Committee was, therefore, of the

opinion that the ITO should not undertake any activities which are being carried out by the United Nations or other inter-governmental organizations, unless after consultation and careful consideration it seemed appropriate both to the ITO and to the other organization concerned that particular activity should be undertaken by the ITO.

"(9) It was agreed that the ITO should not allocate rigidly to itself a particular field but that it should pay initial attention to the gap in the industrial field indicated in paragraph (6) above.[1] . . ."

"(13) The ITO must be prepared in the first place to carry out its principal function under paragraph 2 of article 10. This may include dispatch, on request, of missions of experts or individual experts to particular countries. The ITO should also be able to aid requesting Governments to obtain appropriate technical assistance. The experts whom the ITO may send to particular countries could either be officials of the ITO or specialists engaged for the purpose. The action of the ITO will vary according to the type of request received. In some cases the ITO will take action itself while in others it may direct the requesting Government to other sources of assistance. For this purpose the ITO will have to equip itself with such staff and advisers as will enable it to be thoroughly familiar with the needs and problems of less developed countries and with public and private sources of technical assistance in order, *inter alia,* to be able competently to advise on the quality of assistance available.

"(14) In undertaking the work referred to in the preceding paragraph, the ITO will clearly have to possess extensive information with regard to sources, terms, forms and quality of technical assistance. It may prove desirable to assemble information as regards sources in the form of a register of relevant public and private entities, more especially of consulting engineers and industrial consultants. The Sub-Committee felt that the matter required further consideration at the next session of the Executive Committee.

"(15) The Sub-Committee considered that the ITO should take an active part in promoting technical fellowships and other forms of assistance designed to enable less-developed countries to augment their force of technical personnel. It should also study under article 72, paragraph 1 (*c*) (iv) ways and means of promoting agreements for

[1] Paragraph 6 refers to "the fields of manufacturing industries, mining and metallurgy, power development and public utilities, road and other inland transport, public works and building activity and mechanical and civil engineering"

the setting up of establishments for technical training. Some delegates thought that it might prove necessary for the ITO itself to grant fellowships as a part of its general programme of technical assistance. The Sub-Committee however considered that the matter needed further study . . ."

"Section IV. Working relations of ITO with other agencies

" (22) The Sub-Committee was of the view that it was essential that there should be close co-ordination and co-operation between the ITO and the other agencies concerned in carrying out the particular activities listed in section II and that appropriate working arrangements should be established to this end. While the ITO would of course maintain direct relations with each of the agencies concerned, the Sub-Committee recognized that many matters might have to be considered jointly by several agencies. In view of its general interest in economic development, it would be necessary for the ITO to make suitable arrangements to keep itself continuously informed of the activities of other agencies. In this connexion the Sub-Committee took note of the existence of the Administrative Committee on Co-ordination, which at present provides a framework for consultations between the United Nations and the specialized agencies.

" (23) The Sub-Committee took note of the preparation undertaken by UNESCO of a 'World Handbook of Scholarships, Fellowships and Other Forms of Assistance Available to Persons in Countries Other than Their Own' and of the arrangements undertaken by that and other agencies for the dissemination of published scientific and technical information and for promotion of scientific research. In view of the importance of those matters to economic development, the Sub-Committee recommended that the ITO should collaborate with these agencies which have assumed responsibility in these fields . . ."