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1. Introduction

The purpose of this document is to present an up-to-date account of the malnutrition problem in the Americas, a succinct but comprehensive statement of what the Bureau has done in the field of nutrition in 1960, and an exposition of the program for 1962. In commenting on the activities of the past year and in dealing with the program for 1962, it will be necessary and perhaps opportune to touch on certain principles underlying public health nutrition that will make it easier to understand the nutrition policy of the Bureau. In the final analysis that policy is, of course, nothing more than a synthesis of the policies of the Ministries of Health of the Governments of the Americas.

2. The Problem

The nutrition problem in the Americas embraces the antipodes of undernourishment and overeating. In the Americas, these two extremes are found in certain geographical areas and certain social classes and have a history and economy of their own. For obvious reasons—for reasons of priority—this document will deal almost exclusively with undernourishment, although that does not imply that overeating is not of importance as a public health problem. However, undernourishment is more serious precisely in those countries that have the fewest means with which to cope with it, whereas overeating is a problem in countries whose need for international assistance is not so urgent. It follows that, while not discounting the importance of obesity, atherosclerosis, diabetes, and the like, the Bureau is of the opinion that in view of its limited resources its efforts should, for the present time, be primarily directed towards dealing with the problems of undernourishment.

As is well known, the figures for mortality from deficiency diseases do not offer a trustworthy picture of nutrition problems. Apart from the fact that the registration of deaths is very incomplete in many countries, undernourishment is rarely the final cause of death.

Children suffering from kwashiorkor —severe protein deficiency— or from marasmus die mainly of bronchopneumonia, diarrhea, or infectious diseases and that is the cause of death entered on the death certificate. Thus, if the order of priority of health programs is established solely on the basis of mortality rates serious errors of interpretation may occur. Nevertheless, even with these reservations, it is an impressive fact that for every child in the age group 1-4 who dies of undernourishment in the United States of America, 300 die in the countries of Latin America. (Deaths per 100,000 in the age group 1-4: United States of America, 0.4; El Salvador, 143.4; Colombia, 124.7; Mexico, 124; Guatemala, 78.3; Venezuela, 53.2).

The most common forms of undernourishment in Latin America are marasmus in children under 1 year of age, and kwashiorkor in the age-group 1-4. Surveys have shown very high morbidity from these two diseases as well as from the intermediate forms of protein and caloric insufficiency. It is estimated that in many areas in Latin America between 3% and 6% of the children suffer from severe forms, and up to 50% from mild forms, of this type of undernourishment. Even the remaining 50% do not exhibit optimum nutritional levels.

In 1958, 15,478 cases of deficiency diseases and anemia were registered in hospitals in Colombia and 9,204 in Guatemala. In several countries in Latin America more than 50% of the patients admitted to hospitals are children under 5 years of age suffering from some serious form of malnutrition.

Protein deficiency, often associated with a general lack of food, which is the most serious nutritional problem in most of the Latin American countries, has serious consequences for the population, especially for children on weaning, being the direct cause of death by malnutrition or reducing resistance to such an extent that death may occur as a result of any infectious disease.

It is for this reason that general mortality in children between the ages of 1 and 4 years in Latin America is 20 to 30 times higher than in the United States of America. Were the mortality rate in children in the age group 1 to 4 the same in Latin America as it is in the United States of America, 250,000 fewer children in that age group would die every year.

Another serious nutritional problem in the Americas is endemic goiter. Endemic goiter is considered to be a public health problem when its prevalence is greater than 10%. In the Americas —excluding the Islands— there are areas in all the countries where the prevalence is higher than 10%. Uruguay, where the problem was thought not to exist, is no exception.

In Argentina the prevalence in some provinces is between 70 and 80%; in Bolivia there are extensive areas where the prevalence is 40%, and some where it is between 50 and 60%. In Brazil, in the State of

Minas Geraes, the prevalence is 44%; in the south east it is 27%; in the middle east, 53.8%, and in the south, 27.7%. In Chile, in the province of Santiago, the average prevalence in school children is 11%, and it is even higher in some of the valleys in the foothills of the high mountains; in Colombia the prevalence is extremely high, reaching 89% in Cauca, 81% in Caldas, 67% in Boyacá, 75% in Santander del Sur, and 71% in Valle. One survey covering the whole country showed an average prevalence of 53%. In Costa Rica the prevalence ranges from 10 to 26%; in Ecuador it is 50.5%; in El Salvador, 30%; in Guatemala, 30.5% —the highest in Central America; in Honduras, 22%, in Mexico, 19%; in Nicaragua, 26.5%; in Panama, 31.5%; in Paraguay, 30%; and in Peru the prevalence in males is 36% and in females 64%, and in certain areas, such as the province of Rodríguez de Mendoza, it is 100%. In Uruguay it ranges from 6 to 17%, and in Venezuela, in the Andes, from 10 to 89%.

A third specific nutritional problem in most of the Latin American countries is that of the iron-deficiency anemias. Although no accurate figures of their prevalence are available, preliminary estimates indicate that it is extremely high in some areas.

The general view held in the past, namely, that the fundamental cause of these anemias was infestation with parasites, especially ancylostoma, is at present being revised and, while the importance of that factor is not discounted, it is suspected that others, such as the loss of iron by sweating in the tropics, and poor absorption of iron, may play an important role in the genesis of these anemias. This problem is at present one of the most interesting aspects of public health research.

Of the avitaminoses the most important ones in Latin America are undoubtedly vitamin A deficiency and vitamin B complex deficiency. Although they do not occur in clinically-severe forms, except in sporadic cases, sub-clinical deficiency may affect the health of the population.

Finally, it should be pointed out that, as a background to the specific problems mentioned above there is in most of the countries of Latin America the problem of general undernourishment. Although it is not manifested in specific deficiencies it has serious repercussions and results in: (a) poor physical development of the population; (b) low resistance to disease; and (c) reduces work output.

3. Food Consumption and Production Trends

The total consumption of food in the Americas varies considerably from country to country. The consumption of cereals and grains (leguminosae) in most of the countries of Latin America is much higher than in Argentina, the United States of America, and Uruguay, which on the other hand, consume twice or three times as much meat. Likewise, the consumption of milk in Argentina, the United States of America, and Uruguay is four or five times as high as in the other countries.

It is thus in the consumption of animal proteins that the differences between the countries are so evident. Whereas in some countries more than 60 grams of animal protein are consumed per person per day, in most Latin American countries consumption ranges from 10 to 20 grams and in some it is less than 10.

The situation in 1960 does not appear to have been much better than in earlier years.

The Food and Agriculture Organization's publication, The State of Food and Agriculture, 1960, states:

"Revised data show that the large increases in Latin American agricultural production in 1956/57-1958/59 restored per caput production of food (though not of agricultural products as a whole) to approximately the prewar level in each of these three seasons. The preliminary information at present available for 1959/60 suggests that, while total agricultural production rose by more than 1%, food production declined by about the same percentage, so that per caput food production is once again less than before the war.

A decline in grain production in 1959/60 was caused by bad weather conditions in various countries. Beef production also fell, largely because of reduced output in Argentina. Increases of 7 to 8 percent in the production for rice and groundnuts and a recovery of 70 percent in sunflowerseed production were insufficient to bring a rise in total food production. Further expansions of 18 percent for linseed and 36 percent for coffee, however, contributed to a small rise in total agricultural production.

Countries where the production of various crops was affected by bad weather were particularly numerous in 1959/60, and included Argentina, Brazil, Costa Rica, Guatemala, Mexico, and Uruguay. In Argentina the wheat and maize crops fell by nearly 20 percent and there was also a big decline in cotton, though the linseed harvest rose by 25 per cent. Beef production fell sharply, reflecting lower cattle numbers and the start of a build-up of herds. Agricultural production expanded by nearly 7 percent in Brazil, but this was mainly due to sharp increases in coffee and groundnuts, as droughts and floods caused shortages of beans, potatoes and other staple foods. Mexico's agricultural production probably increased only slightly in 1959/60; there were substantial gains in sugar and maize, but a sharp reduction in cotton production. In Uruguay agricultural production was severely affected by the floods of 1959; the production of wheat, oats, linseed and meat fell considerably, and imports of wheat and meat were necessary."

4. Factors Affecting Undernourishment

Malnutrition in the Americas is conditioned by demographic, geographical, historical, cultural, economic, social, and health factors whose interdependence worsens the situation even more.

The increase in food production barely keeps pace with the annual 2.5% increase in population in the Americas. Every year Latin America must produce food for 5 million more mouths and even if food production parallels population increase the available food per person will remain the same. However, the fact that at present only 7% of the arable land in Latin America is under cultivation gives rise to the hope that new land will be opened up. It is estimated that in Latin America only 29% of the land is waste land, as contrasted with 59% in the Far East, 45% in North America, and 43% in Africa.^{1/}

It must be pointed out, however, that the importance of the population increase varies from country to country. It is not the same in Bolivia with 3 persons per km² as in Haiti with 129.

Unbalanced land distribution is another fundamental factor in the nutrition problem in Latin America. According to the Report of the Group of Experts of the Pan American Union on Planning for Economic and Social Developments for Latin America, between 3% and 8% of the landowners own 60% to 80% of the cultivable land and, inversely, 75% to 80% of all land holdings account for only 5% to 10% of the total cultivated acreage.

Low purchasing power is likewise a preponderant factor. In Colombia and in El Salvador a skilled worker must work 4-1/2 hours and in Mexico 3-1/2 hour to earn enough to purchase a kilo of meat, compared with a few minutes in the United States and other countries. A skilled worker in El Salvador must work 52 minutes and in other 16 countries of Latin America 30 minutes in order to buy a liter of milk. These facts are enough to show the high cost of this product.

Finally mention must be made of the educational situation. The average educational level in Latin America is only 2 years of schooling; 40% of the population over 15 years of age is illiterate. The number of illiterates is at present estimated at 40 million, and over 15 million children of school age have no educational facilities. Less than 10% of the children who enter the first grade complete their primary education.^{2/}

These few facts explain the nutritional situation of Latin America. The complexity of this etiology does not warrant our being optimistic about short-term solutions, although it is possible to make notable improvements

^{1/} ECLA, Ninth Session, Chile, May 1961: Preliminary study of the demographic situation in Latin America (Document E/CN.12/604)

^{2/} OAS Official Records, OEA/Ser. H/X.1, ES-RE-DOC.4 (English), Rev., "Planning for Economic and Social Development for Latin America," page 5.

specially in reducing mortality and morbidity due to malnutrition and even to improve nutritional levels if, together with other governmental measures, direct programs for the improvement of nutrition are put into operation.

5. Activities in 1960/61 and Programs in 1962/63

5.1 Personnel

In response to the growing interest of the Governments in nutrition problems, the post of Regional Adviser on nutrition was established in June 1960 in the Washington headquarters. Up to then the advisory nutrition services of the Bureau in the Americas had been the responsibility of the Director of INCAP.

This appointment was necessary in order to expand nutrition activities in the whole Hemisphere as a complement to the complex and successful work carried out by INCAP in the countries of the members of the Institute.

In the same year two other nutrition adviser posts were created, and the incumbents were assigned to two zones of the Region. In 1962 a further adviser will be recruited.

The effect of the increase in personnel on nutrition programs will be immediate and the Bureau expects to be able to increase its resources even more in the near future, so as to deal satisfactorily with the needs of the Governments.

In order to ensure that all the advisers of the Bureau have the same approach to the nutrition programs in the Americas it is planned to hold a meeting in 1962.

Such varied activities as programs for the prevention of caloric insufficiency and protein malnutrition, endemic goiter, general improvement of nutrition, organization of national nutrition services, promotion of research, and training of personnel require all advisers to have the same approach to public health nutrition, and such a meeting will enable them to agree upon certain principles underlying the methodology and content of public health nutrition to be adjusted.

5.2 National Nutrition Departments

The Bureau was of the opinion that as a first step it was necessary to draw up an inventory of the nutritional problems of the Hemisphere and to establish an order of priorities. What has already been said gives a summary idea of the situation. It was also necessary to find out what the human resources and existing services were, in order to establish priorities in the training of personnel. An analysis of the available data brought out how differently national nutrition services were organized in different countries. Virtually all the Ministries of Health

have a department or institute of nutrition, but their viewpoints and the technical and administrative organization of these institutes varied markedly from country to country. In some emphasis is placed on supplementary feeding programs for vulnerable groups; in others on the chemical analysis of food; in some on dietetic treatment and in others in laboratory or field research. Generally speaking, activities are not decentralized.

The Bureau believes that the general principles underlying the organizations of these departments could be brought into uniformity without prejudice to the arrangements proper to each country and to its administrative organization, and to this end the Bureau began the preparation of a document containing an analysis of the main types of organization and some suggestions.

5.3 Human Resources and Training of Personnel

The shortage of trained nutrition personnel is at present the major obstacle in most of the countries of the Americas. The solution of this problem will require continuous efforts over a long period.

In 1960 the Bureau carried out in collaboration with FAO a survey in several countries of the Americas to examine existing training facilities in nutrition for all categories of personnel. This survey was made at the request of UNICEF, which expects to contribute to the improvement of training facilities for nutrition personnel.

Annex I of this document contains the conclusions and recommendations of that report.

In 1960 the Bureau awarded 5 fellowships for nutrition training. In future budgets it is expected to increase the funds allotted for this aim. In 1961 already, 15 fellowships or 3 times as many as in 1960 have been awarded. The training program began by INCAP in 1960 deserves special mention. Three types of nutrition training have been organized. The first is that given at the School of Nutrition and Dietetics, which in 1960 was attended by 7 students from Central America. The training course lasts for 2 years, and successful students are awarded a diploma as dietitians and nutritionists. The curriculum covers public health nutrition, education in nutrition, nutrition within agricultural extension programs, and hospital dietetics. For enrollment in this course a university degree in biochemistry, pharmacy, or the allied sciences is required; students holding a diploma as dietitians awarded by a recognized Latin American School may follow a 9-month course of training leading to a diploma as nutritionist.

The second is the annual 10-week course for physicians with a public health qualification. The success of this course has exceeded all expectations. The number of applicants is much greater than the

physical installations of INCAP can cope with. The purpose of this course is not to train nutrition specialists but to provide medical officers of health with a broader knowledge of applied nutrition. In response to requests from countries outside the Hemisphere, the 1960 course was given in English and was attended by nine physicians, two of whom were from Latin America. For the 1961 course, in Spanish, 11 physicians from Bolivia, Colombia, Venezuela and the Central American countries were accepted. The course in Spanish will be given every year from June till September.

The third training program, the duration and content of which depends on the previous knowledge of the candidate, is aimed at preparing nutrition specialists.

Finally in 1960, a two-month course-seminar on dietary survey was organized at INCAP in collaboration with FAO and UNICEF and was attended by 11 candidates from Latin America.

What has been done, however, is very little in relation to needs.

The Bureau is of the opinion that a long-term plan for the training of nutrition personnel would involve the training of 360 persons in the course of 10 years. This number would include 70 medical nutritionists; 100 non-medical nutritionists; 100 medical officers of health; 20 heads of hospital dietary services; 10 specialists in food hygiene; and 60 specialists in other branches of nutrition. The cost of the training program of this magnitude is estimated at \$200,000 a year. It is clear that, at the present time, the Bureau does not have at its disposal the funds necessary for this task, but efforts will be made to obtain funds from other sources.

Meanwhile, in 1962, the Bureau will assist the courses being offered at INCAP by increasing the number of fellowships; it will also help with the courses which are expected to be organized in cooperation with FAO and UNICEF in other areas of Latin America.

5.4 National Planning of a Food and Nutrition Policy

One of the major difficulties in most of the countries in the way of achieving an efficiently coordinated food and nutrition policy is the absence or ineffectiveness of the national nutrition committees. These committees, which have been recommended by all the international meetings on nutrition or on agricultural policy, have been established in most of the countries, but their work has, with few exceptions, been of little value. The Bureau believes that this situation should be thoroughly examined, so that once its causes are known the organization of these committees can be revised and their powers and duties better defined. Perhaps the ineffectiveness of these committees is due to the weakness of the technical and administrative machinery in the fields of

public health nutrition and of agriculture.

The work which the Organization began 1960 in this connection will be continued in the coming years, and it is hoped that by first improving the technical level of these committees, it may subsequently be possible to achieve a suitable coordinated food policy in the countries.

The main topic of discussion at the Fifth Conference on Nutrition Problems in Latin America, which will be organized jointly by WHO and FAO, will be the national planning of a food and nutrition policy. Earlier conferences were held in Montevideo (1948), Petropolis, Brazil (1950), Caracas (1953) and Guatemala (1957).

The exact time and date of the Fifth Conference has not yet been fixed, but it is expected to be held in a country on the Pacific coast of South America towards the end of 1962 or at the beginning of 1963.

A seminar jointly organized by the Bureau, FAO, UNICEF and the Caribbean Commission was held in Puerto Rico from 19 to 27 September, 1961. It was attended by students from the English, French and Dutch-speaking islands of the Caribbean, and special attention was given to a coordinated food policy in the countries.

5.5 Research

The Bureau is of the opinion that in order to plan sound programs of applied nutrition, research on nutrition problems is essential. In this connection, mention should be made of the work done in 1960 in INCAP, in the Institute of Nutrition in Ecuador, and in an area in Peru, with the assistance of the Bureau. Much of this research has been carried out with grants awarded to the Bureau by Government and private institutions in United States of America, such as the National Institutes of Hygiene, the Williams Waterman Fund, the Nutrition Foundation, the Kellogg Foundation, the Rockefeller Foundation, and the like.

Since it is impossible to describe here all the research undertaken, mention is made only of those projects which are of major interest for the development of applied nutrition programs in the Americas.

5.5.1 INCAP

In 1960, INCAP continued its research on the synergistic relation between nutrition and infection. With a view to studying the interrelation between the health, growth, and development of children, and the frequency of infectious diseases. For this project 3 villages were selected: a control village; a village in which a program of prevention and control of all infectious diseases was established; and a third village in which supplementary feeding was provided for children. This study, which was planned for three years and will be completed in April, 1962, comprises a thorough epidemiological analysis of diarrheal

diseases, including clinical, bacteriological, parasitological and virological examinations of all cases observed in children under five years of age and of their household contacts. In these three villages data are also being collected on mortality, morbidity, baby-feeding practices, and clinical nutrition examinations, dietary surveys, and other routine examinations are being made.

When concluded, this study will enable certain aspects of the etiology of diarrheal diseases to be cleared up, and the influence of nutritional state on the incidence and severity of these diseases to be elucidated.

Another research project being carried out by INCAP that may have important practical consequences, is the study of the probable causal mechanisms of the differences that are observed between the two severe forms of caloric insufficiency and protein malnutrition, namely kwashiorkor and marasmus. The new hypothesis, although not yet proven, is that children suffering from marasmus due to the dietary restrictions to which they are submitted slowly consume their own tissues whereas children suffering from kwashiorkor due a deficiency in the suprarenal cortex, have lost the capacity to re-utilize their muscular proteins for the synthesis of tissues or of more vital substances.

During last year's meeting of the PAHO Directing Council, the Director of INCAP had the opportunity to present the results of the investigations relating to INCAPARINA, which is already being produced on a commercial scale in El Salvador and Guatemala. It should be added that during 1960 INCAP continued to explore the possibility of developing new formulas, using other cereals such as rice, wheat, oats and other combinations. The report of the Director of INCAP to the Council of that Institute states that "the results of the studies made with cotton flour and other protein concentrates are promising and may possibly result in the preparation of a mixture of even greater value than those already developed. The repercussions that these investigations may have in the Americas will be dealt with below.

Another INCAP project in 1960 was the preparation of a publication in collaboration with the Interdepartmental Committee on Nutrition for National Defense of the United States of America of a table of the composition of foodstuffs in Latin America, which will be distributed by the Bureau.

INCAP also carried out other studies of interest in the field of anthropometry, clinical medicine, biochemistry, and metabolism, but they are too numerous to mention here. In 1961 the Bureau will publish Supplement No. 4 to the Bulletin containing 38 scientific articles. Today INCAP enjoys a merited prestige not only in the Americas but throughout the world, and persons from many countries visit it in order to familiarize themselves with its activities. From June 1960 to May 1961, INCAP received more than 200 visitors from various countries.

5.5.2 Institute of Nutrition of Ecuador

The National Institute of Nutrition in Quito, to which a Bureau advisor is attached, also carried out important investigations in the field of nutrition, especially the development of mixtures with a high protein content. For that purpose a native seed called "chocho" (*lupinus mutabilis*) was used. Experiments in supplementing the Ecuadorian diet with lysine, and studies on the effect of iodine supplementation on the efficiency of school children, were also made.

5.5.3 Research on Anemias in Peru and in Venezuela

Finally, the Bureau collaborated with the Institute of Nutrition in Peru in a study on the etiology of anemias in Iquitos, where it appears that the prevalence of iron-deficiency anemias is relatively high. At the present time, this investigation is still continuing, and further time will be needed before definitive conclusions are arrived at. WHO Headquarters likewise provided funds for the research on anemias that is being carried out in Venezuela.

5.5.4 Research Program of the Bureau

As a result of the agreement between the United States Public Health Service, National Institutes of Health, and the Bureau, nutrition research may come to play an important part in the Bureau's research program. Apart from the specific work being carried out by INCAP and by the Institute of Nutrition of Ecuador, the following will be of special interest to the Bureau: epidemiological studies of malnutrition in infants; the etiology of the anemias; epidemiological surveys of endemic goiter, including the study of goitrogenic factors; the effect of malnutrition in the adult on work output; the interaction between nutrition and infection; and other similar studies. The selection of the research subjects will depend on the degree of development of the institutions requesting assistance, but above all on the interest for the Americas of a coordinated study of a continent-wide problem which would be difficult to solve by means of partial studies carried out in one country only. An instance of this is the etiology of anemias, in which so many factors are involved.

The Bureau is of the opinion that all these investigations are necessary, provided that they are paralleled by practical programs. In the same way as it is not advisable to initiate any activities intended to improve nutrition without a previous investigation of the problems, it is also clear that it is not desirable to initiate research that will not be followed by its practical application, where indicated.

5.6 Expanded Nutrition Programs

One of the programs designed to improve nutrition which was begun in the Americas in 1958 is known as the Expanded Nutrition Program. It is

being carried out by Governments in cooperation with FAO, PASB and sometimes UNESCO, with the assistance of UNICEF.

The objective of this program of coordinated action by the Ministries of Health, Education and Agriculture is to raise the nutritional level of families in rural areas by means of intense educational activities and the promotion of food production in schools and by families.

For historical, geographical, economic and social reasons, the rural families in large areas of the Americas have a very low living standard. A logical approach to this problem must not only take into account the education of the population but also attempt to stimulate the local production of foodstuffs, especially those which complement the present deficient diet. The health services are cooperating in this program and are concentrating on the nutritional rehabilitation of undernourished persons, especially children and by means of demonstration are providing mothers with elementary instruction in feeding the family and in particular in feeding infants. Schools are participating in the organization of school vegetable gardens and the whole community, through ad hoc committees, is helping with the project.

The Bureau is aware of the complexity of this program and believes that it will be necessary to evaluate it as recommended by the Joint FAO/WHO Expert Committee on Nutrition at its recent meeting in April, 1961 in Geneva.

This program was begun in Chile, Guatemala and Paraguay in 1958 and 1959, and in 1960 in a further three countries — Brazil, Costa Rica and Ecuador. In the same year, the appropriate preliminary studies were made in Bolivia, Colombia, El Salvador, Haiti, Nicaragua and Peru.

In these countries the projects planned to cover a relatively small area; on the basis of the experience gained the program can be extended step by step. The factors that must be taken into account when selecting an area for this type of program may be summarized as follows: (1) the size of the area to be chosen must be such that it can be adequately supervised; (2) the area must contain reasonably satisfactory health and agricultural services; (3) the project must be planned in such a way that its organization may be subsequently extended to other areas and finally to the whole country; and (4) the community must want such a program and must cooperate in it.

It is the impression of the Bureau that in principle this expanded nutrition program has aroused considerable interest in nutrition programs among technicians and local authorities and that, in some countries the coordination of the efforts of the Ministries of Health, Education and Agriculture have got off to a good start.

The Bureau is of the opinion that the approach and results of this program, which by 1962 will be in operation in 10 countries, needs to be evaluated.

In cooperation with FAO and UNICEF the Bureau plans to make this evaluation in 1962, using a team composed of a public health administrator, an agricultural engineer specialized in agricultural extension work, and a nutritionist with experience in education in nutrition.

5.7 Nutrition Programs Undertaken by Local Health Centers

In addition to the specific program mentioned above, the Bureau considers it essential for the local health centers to make nutrition programs part of their normal activities. During the visits made by the nutrition advisers to different countries in 1960 and 1961, an attempt was made to stimulate such programs by means of round tables and discussions with local health personnel. There are 6 essential nutrition activities which may be considered specific activities of local health centers: (1) diagnosis of nutrition problems in the area; (2) organization of supplementary feeding programs and nutritional rehabilitation programs; (3) periodical supervision of the population, especially of the most vulnerable groups; (4) relationship between infectious diseases and nutritional status; (5) education in nutrition, including practical demonstrations; and (6) cooperation with agricultural extension agencies.

The Bureau is of the opinion that it would be desirable to hold in the near future a seminar on this problem in Latin America which, the staff responsible for the administration, supervision, and execution of local health services should attend. It is believed that this seminar should be organized in 1963.

5.8 Promotion of Mixtures Similar to INCAPARINA

On the occasion of the XII Meeting of the Directing Council in 1960, the Director of INCAP submitted a detailed report (Document CD12/60) on the vegetable mixture INCAP-9, the generic name of which is INCAPARINA. That report summarized the basic chemical and biological studies made by the Institute in connection with this project and the results of the stability, acceptability, and sales tests to which it was submitted and which proved very satisfactory.

To date (August 1961) INCAP has authorized commercial firms in Colombia, El Salvador, Guatemala, Nicaragua and United States of America to produce and distribute INCAPARINA. In El Salvador and Guatemala, where it is already being produced on a commercial scale, the demand exceeds present production.

The authorizations which INCAP has granted to date in Central America and in South America specify a maximum sales price, through normal commercial channels, of 4 cents (United States) for a package of 75 grams, the amount which satisfies the daily protein requirements of a child. In all the licenses granted, appropriate provisions have been made to ensure that INCAPARINA is sold to all welfare bodies at a 30% discount (per pound, wholesale, and not resaleable).

In 1960, in order to give the best possible encouragement to the promotion of INCAPARINA, the Bureau assisted INCAP by giving advice and supplying information to countries requesting it.

The promotion of INCAPARINA is no longer a technical matter but rather a matter of economics. Experience is showing that the marketing of vegetable mixtures, such as INCAPARINA, is a difficult task which requires the interest of the Governments and in certain cases the cooperation of international organizations such as WHO, FAO and UNICEF.

It is expected that by 1962 several other countries in addition to El Salvador and Guatemala will be well advanced in the commercial production and distribution of this type of product. Other countries will probably have the matter under study. The Bureau will be in a position to provide advice for both these purposes to Governments that request it. The Bureau will refer to FAO cases in which the cooperation requested by the Governments falls within the sphere of interest of the Organization.

5.9 Endemic Goiter

Although most of the countries have enacted legislation on salt iodization, there are only three countries that have a national program for the prevention of endemic goiter (Guatemala, Paraguay, and Colombia) and only two — Argentina and the United States of America — which have state or provincial programs. The Bureau has attempted to stimulate Governments so that countries which have the pertinent legislation will put it into force and those that do not have such legislation will enact it.

In 1960 the Government of Paraguay, with the technical assistance of the Bureau, made a request to UNICEF for new salt iodization equipment. This equipment is expected to be installed in the second half of 1961.

The Bureau has decided to give a new and powerful impetus to the salt iodization program in the Americas. Although no special allotment has been made for this purpose in the 1962 or 1963 budget, it is expected that during the periodical visits to the countries the nutrition advisers will be able to have some success. The Bureau believes that if these advisory services are not sufficient to obtain satisfactory results, it might, perhaps, be advisable to establish a Pan American Endemic Goiter Center, among whose functions would be that of assisting the Governments in studying the epidemiology of goiter and frequently associated conditions; the analysis of possible goitrogenic factors in different areas; training personnel; and finally serving as a center for advice and information. This possibility is under consideration.

5.10 Anemias

Apart from the research mentioned above, the Bureau is of the opinion that the data available do not warrant embarking on specific programs for the prevention of anemias other than the classical ones of environmental sanitation. However, the policy of the Bureau is that all pregnant women registered with health centers should systematically receive an iron salt, as suggested by the WHO Study Group on anemias in 1958.

This policy is being applied in some countries, but it is not yet a routine activity of most of the local health centers.

5.11 Education in Nutrition

This is one of the activities to which the Bureau is giving preferential attention. In the Americas there are certain cultural features relating to feeding which because of their nature, are an authentic expression of national characteristics and which must be respected and stimulated. On the other hand there are others based on customs and erroneous popular beliefs which are a considerable obstacle to efforts for the improvement of nutrition. Great efforts are necessary to overcome local cultural resistance to new ideas about the value and use of foodstuffs.

In 1960, this Organization in collaboration with the Government of Brazil, FAO, and UNICEF took part in the preparation and conduct of a Seminar of Education in Nutrition held in Quitandinha, Petropolis, Brazil (15-24 June 1960), at which 10 South American countries were represented. The methodology, content, and materials of programs of education in nutrition in schools, public health services, and agriculture extension services were examined. The necessary arrangements have been made for a similar seminar in 1961 in Mexico (11-21 October) for persons from the Central American countries and from Panama, Mexico, and the Caribbean Area.

5.12 Technical Advisory Committee

The Director is considering the possibility of establishing in 1962 a technical advisory committee to advise the Bureau on the nutrition programs.

It is expected that the first meeting of this committee will be held in 1962, jointly with the nutrition advisers of the Bureau. At that meeting it is planned to discuss the general lines of the nutrition programs of the Bureau and to determine certain specific topics which need special consideration at future meetings.

The Technical Advisory Committee will consist of eight or nine persons of international repute.

It will not be necessary to make any substantial increase in the Budget for this purpose, since the members of the Technical Advisory Committee at INCAP, plus two or three from South America, would constitute the Technical Committee of the Bureau. The Technical Advisory Committee of INCAP and of the Bureau would meet consecutively.

It is hoped that as a result of the joint meeting of the PAHO Technical Advisory Committee and the nutrition advisers, it will be possible to prepare a document containing the guidelines of the nutrition policy of the Bureau which may be of use to the Governments.

5.13 Creation of a Nutrition Fund for Certain Areas with Severe Malnutrition Problems

The Bureau has the impression that in certain regions of the Americas, where for geographical, historical, economic, cultural and health reasons the nutrition problem is very serious, only intensified activities and suitable coordination, together with international assistance, where necessary, could have any worthwhile effect. The funds contributed by the Governments in these regions and international assistance has up to now been too small to bring about any effective result. In these areas, the creation of a special nutrition fund with national and, if necessary, international funds, could give a considerable impetus to certain programs for the improvement of nutrition and coordinate international, technical and financial assistance. This fund would help the nutrition research programs, both from the medical and the economic standpoint; would participate in training programs; would collaborate in the financing of supervised agricultural credits; in programs for community development and the development of cooperatives and would assist in the promotion of new sources of protein, food technology, food processing, and enrichment of foodstuffs. Although the fundamental objective of the fund would be to foster programs for the improvement of nutrition in the area concerned, it would recognize the principle that the factors contributing to the welfare of the individual are indivisible and its programs of action would be associated with any other programs in the area, such as those for economic expansion. It is possible that in those areas only an action of a certain technical and financial magnitude will bring about a rise in the nutritional levels which today are so severely affected.

Such programs as the Bureau may undertake in the future for the improvement of nutrition in the Americas are directly dependent on the amount of funds available and, above all, on the decisions the Governments adopt.

In the matter of nutrition, Latin America is on the threshold of a decisive stage, and it is possible that the survival of future generations will depend on what is done now.

SURVEY ON NUTRITION TRAINING IN THE
AMERICAS*

by Dr. M. F. Trulson, FAO Consultant, and Dr.
J. M. Bengoa, WHO Regional Adviser.

January 1961

* The survey was planned jointly by FAO, WHO, and UNICEF and carried out in October and November 1960, as follows: Guatemala, 4-11 October; Ecuador, 12-19 October; and Brazil, 21 October-12 November.

NUTRITION TRAINING IN THE AMERICAS
(Document E/ICEF/429; 2 June 1961)

The report presented under this title by Dr. M. F. Trulson and Dr. J. M. Bengoa sets forth the following conclusions and recommendations:

CONCLUSIONS

1. The partial survey of nutrition training in Latin America confirms the urgency and importance of improving the training in nutrition for both professional and auxiliary personnel in all nutrition fields.
2. The solution of the problem is not merely one of enlarging the time spent in training and increasing the number of personnel, but also requires drastic improvement in the quality of instruction including its reorientation towards a more practical approach.
3. The present lack of sufficient highly trained personnel is one of the main handicaps to the enlargement of training programmes for nutrition specialists.
4. Insufficient nutrition literature in Spanish and Portuguese is another limiting factor in improving the present training.
5. Centres which can best be utilized for nutrition training are already overburdened with other teaching activities and research. Therefore, it will be necessary to increase not only the teaching personnel, but also their equipment and supplies, should nutrition training activities be expanded.
6. Highly specialized nutrition personnel require training not only in nutrition, but in related subjects (social science, agriculture, economics, i.e.). It should be possible to organize integrated programmes by utilizing faculties and facilities of other disciplines in regional centres for the training of specialized nutrition personnel. For some time to come, however, it will often be necessary to complement the preparation that trainees may receive in Latin America with additional training outside their own country.
7. At present there is a greater demand for dietitians than for non-medical nutritionists in public health. In Latin America there are approximately eight schools for dietitians and only one for nutritionists. In the future, however, it is assumed that the opportunities for employment of non-medical nutritionists will increase due in part to the Expanded Nutrition Programmes. Present schools of dietetics in Latin America will need curriculum changes and field training facilities in order to train non-medical nutritionists. Special emphasis should be given to the training of non-medical nutritionists for field work.

8. Some of the schools of dietetics offer only part-time training to students. With changes such as mentioned in Section 7, they should provide full-time training including field work.
9. A meeting or a conference in Latin America, or perhaps a joint FAO/WHO expert committee or study group, should be planned to define the responsibilities and the training needs for dietitians, non-medical nutritionists and home economists specialized in nutrition.
10. There are few schools in Latin America that offer university-level training in home economics. Assistance for development of schools of home economics on a regional and/or a country basis is needed, so as a result, a profession with prestige will evolve.
11. Out of 91 medical schools in Latin America fewer than five have nutrition units. Cali, Ribeirao Preto, Recife, and perhaps others are able to offer advanced training in nutrition to physicians. These schools and others should be examined to ascertain the possibility of offering refresher courses in nutrition for physicians and general practitioners. These would be particularly valuable for physicians from rural areas.
12. Assistance should be given to other medical schools in Latin America to establish a nutrition unit or professorship in existing departments of preventive medicine, pediatrics, internal medicine, physiology and biochemistry.
13. There are 11 schools of public health in Latin America, and in all nutrition is a required subject. However, the quality of the curriculum and the training approach vary considerably even within the same country. (Brazil).

In addition to the improvement of the present curriculum, periodic refresher courses for public health personnel have a very high priority in most of the countries of Latin America. The three months training course given by INCAP will help in this direction. Training courses may be considered in other localities.
14. Out of approximately 270 schools of nursing in Latin America, only about 110 met the minimum requirements. While most schools teach some nutrition, the hours devoted to this subject are often inadequate and some do not have dietetics laboratories. Supplying equipment for dietetics laboratories and other types of assistance for some of these schools would improve nutrition teaching.
15. Every country in Latin America has one or more Schools of Agriculture, but they have done little to include training in human nutrition. Assistance is needed in the form of equipment, teaching material, and additional personnel. Periodic refresher courses for existing

personnel should be organized to compensate for the present gaps in the knowledge in this field.

16. The importance of the economic and social aspects of nutrition requires that teaching of nutrition in schools for social workers, which have been extensively developed in Latin America, receive more attention. A reorientation in nutrition training for social workers should include more public health nutrition.
17. Teacher training for nutrition education in primary and secondary schools in Latin America should receive a high priority. This is already being done in the Expanded Nutrition Programmes of some of the countries.
18. The majority of countries have no personnel trained in Food Technology. Many more Food Technologists should be trained to assist in: (a) the development of methods for home conservation of local foods; (b) the development of low-cost protein food especially for young children after weaning; (c) the preparation of other commercial foods of good quality which are low-priced; (d) providing sufficient storage of food staples to take care of emergencies.
19. The supplementation of salaries of local personnel in the general programme of nutrition education in Latin America is controversial. There are, however, special situations in which the supplementation of salaries may be justified. Any policy of salary supplementation by an outside agency should be adapted to local conditions.

RECOMMENDATIONS

1. That the number of fellowships be considerably increased for the preparation of a limited number of high level nutrition personnel urgently required to initiate and supervise nutrition training and applied programmes. The categories which should receive priority are:

a) Medical Nutritionists

Physicians who are to work at a national level require at least one year of academic training in public health and the necessary additional training in nutrition and related subjects. Physicians who are to teach nutrition to medical students should have at least one year of academic training in a department of nutrition in a medical school or a school of public health.

b) Non-Medical Nutritionists

Nutritionists to work at the national or regional level should be university graduates with at least one year of post-graduate work and one year of field training.

c) Home Economists Specialized in Nutrition

University graduates in home economics should have one year of additional training in nutrition to prepare them to supervise nutritional aspects of agricultural extension and home demonstration programmes of Ministries of Agriculture.

d) Dietitians

Limited numbers of dietitians in each country should receive advanced training to prepare them to teach in national schools of dietetics and supervise, at national and regional levels the work of institutional dietitians.

Only when a sufficient number of persons in the above categories have been trained can there be a sound expansion of nutrition training programmes for country workers. Although the training in nutrition of school teachers, public health workers, agricultural extensionists, social workers, etc., is also a matter of importance and urgency, it is obvious that the highest priority must be given to personnel who are to be responsible for training them.

2. The institutions that are to do the training at the various levels need to be helped to acquire needed physical facilities, equipment, supplies and personnel. In some cases this may require direct financial assistance rather than only the partial assistance of specific equipment and supplies or consultants. In particular, funds may be required for employing local personnel and meeting the increased operating costs of expanded training activities, especially when centers are expected to train persons for other areas than those providing basic financial support to the institution.