



Fourteenth session

PROGRESS ACHIEVED BY THE NON-SELF-GOVERNING TERRITORIES
IN PURSUANCE OF CHAPTER XI OF THE CHARTER

NUTRITION IN THE NON-SELF-GOVERNING TERRITORIES

Report prepared by the World Health Organization and
the United Nations Food and Agriculture Organization

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NOTE: The following symbols are used:

Three dots (...)	data not available
Dash (-)	magnitude nil or negligible
Slash 1948/1949	crop or financial year
Hyphen 1948-1949	annual average

INTRODUCTION

1. The modern science of nutrition is a comparatively recent development. Until lately knowledge in this field was seriously limited and the importance of nutrition to health was not generally recognized. Modern concepts relating to nutrition and the practical application of the results of nutrition research first took shape during the period between the First and Second World War.
2. For many years before 1948, physicians from the metropolitan countries working in the Non-Self-Governing Territories had been making observations and investigations relating to nutrition, mainly in the course of their ordinary work. It was already realized that many serious nutrition problems existed. The medical services were being constantly expanded to meet increasing demands for medical care. Maternal and child health services and centres had been established, in general on a limited scale, though there were exceptions. In Singapore, for example, they had already reached practically the whole population on the island; the infant mortality rate had been reduced from 250 to under 100 in the "rural areas" by 1940.
3. In 1936 the United Kingdom Government began to collect information which was summarized in a useful report published in 1939: Nutrition in the Colonial Empire. Few of the Non-Self-Governing Territories maintained vital statistics, nor had many surveys been carried out to define the extent of nutrition problems. In many Territories, however, the existence of food deficiency and the resulting diseases had been recognized and efforts were being made to identify and treat them.
4. In 1937, the Health Organization of the League of Nations held a Conference on Rural Hygiene in Java. A Preparatory Committee for this Conference prepared a report on health conditions then obtaining in some of the East and Southeast Asian countries, including a section on nutrition which was necessarily of a somewhat general nature.
5. The Second World War interrupted much of the work that had been begun or envisaged prior to 1939. However, successful rationing schemes in some countries, and starvation in others, aroused widespread interest in nutrition. Most of the Non-Self-Governing Territories suffered as a result of the war. Plans for developments in agriculture, health and education had been altered to meet emergencies, the staff was depleted, and imports and exports were severely

restricted. In much of South-East Asia there was chaos and starvation. As soon as the war ended and law and order were restored, emergency feeding programmes were organized in some of the devastated countries.

6. In 1945, the Food and Agriculture Organization was established as a specialized agency of the United Nations, one of its basic objectives being the improvement of nutrition throughout the world. Shortly afterwards the United Nations Children's Fund was inaugurated, with special responsibility for child welfare, and took over emergency feeding programmes from the United Nations Relief and Rehabilitation Agency and instituted others. Its work was extended after a few years to a number of under-developed areas which included an increasing number of Non-Self-Governing Territories. In 1948 the World Health Organization was created, with Sections of Maternal and Child Health and Nutrition.

7. Owing mainly to the lack of adequate statistical data for many of the Non-Self-Governing Territories it is not possible to give an accurate assessment of progress towards better nutrition in the last ten years. It is certain, however, that knowledge of the subject has greatly increased, that many problems have been more clearly defined, and that practical measures to improve nutrition have been taken in many Territories.

I. THE POSITION IN 1948

8. By 1948 the setbacks caused by the war were beginning to disappear, although shortage of staff and of equipment was still serious. In that year a Nutrition Committee for South and East Asia was organized by the Food and Agriculture Organization in Baguio in the Philippines, which issued a report entitled Nutrition Problems in the Rice-Eating Countries of Asia. In 1949 an Inter-African Conference was held at Dschang in the French Cameroons under the auspices of the Committee for Technical Co-operation in Africa South of the Sahara, at which valuable information from Territories in Africa was assembled. Considerable data were collected on food consumption, fewer on the clinical aspects of nutrition, and no vital statistics relating to nutritional diseases were available. The report of the Conference includes references to work on nutrition carried out in various Territories, and a number of recommendations were

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put forward. At this Conference, as at the Committee in Baguio, the various participating countries provided some information on the work done in their Territories, so that a preliminary though still vague picture could be obtained. Both these meetings had a considerable influence in stimulating interest, in promoting training and research in nutrition, and in promoting the collection and exchange of information.

9. Emphasis at this period was laid on chronic, non-specific under-nutrition in adults. In areas with a marked dry season, food intake is much reduced during the "hungry" months. Under-nourishment was regarded as a cause of tropical ulcers, which give rise to serious disability in some areas. Signs of protein malnutrition were now being recognized in most of the Territories in Africa, and to some extent in the Far East and in the Caribbean. Deficiency of vitamin A was said to be a common cause of eye diseases both in Africa and Asia. Beriberi was known to be a problem affecting mainly rice-eating peoples, especially where large quantities of milled rice were eaten. Signs of ariboflavinosis were observed in school children in various areas. Pellagra was reported from East and Central Africa, but was rare elsewhere in the Non-Self-Governing Territories. Goitre had been discovered in certain communities.

10. It was recognized that many factors contribute to under-nutrition and malnutrition. These include insufficient food production, the production of the wrong kinds of foods, too much emphasis on cash crops, poverty and lack of purchasing power, and ignorance leading to the faulty choice of foods and unsatisfactory methods of food preservation and preparation. Attention was being drawn to the high prevalence of malnutrition in infants, children aged one to five, and pregnant and nursing women, and to the relation between malnutrition and various diseases of an infective and parasitic nature.

11. The need for supplementary feeding programmes was noted, and some had already been started. In some countries "nutrition committees" had been established, but in only a few had they achieved much. There had been isolated attempts, such as the "Food for Family Fitness" campaign in Jamaica, to educate people in better habits of diet. In most of the Non-Self-Governing Territories some form of maternal and child health services had been established, but were only beginning to reach a small fraction of mothers and still fewer children. It was fully

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recognized that much remained to be done, the first step recommended being the careful evaluation of the whole problem.

II. EVALUATION OF NUTRITION PROBLEMS

12. During the last decade, knowledge of various aspects of nutrition in the Non-Self-Governing Territories has improved through the action taken by Governments (often assisted by international agencies) to assess the situation.

Methods of assessment

13. Collection of data on food supplies and food consumption. In most technically advanced countries, it is possible to make accurate estimates of food production and of food imports and exports. Such data can be used to indicate average food consumption per head of population, in terms of the major food groups and of calories, protein and other nutrients. Country food balance sheets in which this information is presented can be established. In the under-developed countries, however, while figures for food imports and exports are usually available, data on food production are generally inaccurate and insufficient. It is obviously difficult to record the food production of subsistence farmers. In the circumstances, satisfactory food balance sheets cannot be drawn up. In some of the Non-Self-Governing Territories, however, attempts are now being made to establish food balance sheets, showing average consumption on a per caput basis, expert advice being often provided by the Food and Agriculture Organization to assist in this operation. Available food consumption data for Africa South of the Sahara, obtained by the food balance sheet technique, were summarized in the Food and Agriculture Organization annual report for 1959 on The State of Food and Agriculture.

14. Dietary surveys. In order to obtain accurate knowledge of family food consumption, dietary surveys are needed. Such surveys have been made in some of the Non-Self-Governing Territories. Attention has been given to the techniques which should be followed in making such surveys and workers have been trained to use these techniques. Much useful information has been collected by this method (table 1).

15. Surveys of state of nutrition and deficiency disease. These are needed in order to provide evidence of the effect on health of the diets consumed by different population groups. They should as far as possible be carried out in conjunction with dietary surveys. They may sometimes be made with reference to the prevalence of a particular deficiency disease. The techniques followed will vary according to the objectives in mind. Surveys of state of nutrition and deficiency diseases have been carried out in various Non-Self-Governing Territories in Africa, Asia, the South Pacific and the Caribbean.

16. Vital statistics. In advanced countries the registration of births and deaths is generally reliable. The figures can be used to establish health policies and to assess the progress achieved. In a few of the Non-Self-Governing Territories, such as certain islands in the Caribbean and in Singapore, dependable vital statistics are available. In many other areas, such statistics are less dependable. The younger the baby, and the farther it lives from the registration centre, the less likely is its birth or death to be registered. In many areas in Africa and Asia there are no vital statistics at all. Sample figures have, however, been collected and show a heavy infant and child mortality. In many of the Non-Self-Governing Territories efforts are now being made to introduce better registration and to improve vital statistics.

17. Medical records. In advanced countries causes of disease and of death are recorded with reasonable accuracy. Medical services cover the whole population. In the under-developed areas, however, these services may reach only a small proportion of the population, and even fewer children. For example, in Jamaica 70 per cent of the total deaths are certified by doctors, but only 30 per cent of children dying under ten years of age have been seen by a doctor within two months of death. In most of the Non-Self-Governing Territories, therefore, only a small percentage of those suffering from malnutrition are seen by doctors, and have the benefit of early diagnosis and treatment. But in spite of the fact that in many areas the medical records do not give a numerical assessment of the numbers of cases of malnutrition, they may be valuable in indicating the types of disease and methods of treatment. They may also throw some light on the problem of prevention. Where pediatric and maternal and child health services are available, the control of nutritional disorders is obviously facilitated.

Results of investigations

18. Under-nutrition and malnutrition. Under-nutrition exists in many parts of Asia and Africa; in Africa it is specially common during the dry season in areas in which storage and transport facilities are poor. Malnutrition of various kinds is found in many Non-Self-Governing Territories, often associated with under-nutrition. Investigations have shown that wherever malnutrition exists, children under five years are the worst sufferers. Young children often get an inadequate proportion of the family food supply. Severe malnutrition in young children is often complicated by the presence of other diseases. Pregnant and lactating women are another vulnerable group. It has also been observed that in urban areas there may be considerable malnutrition among the immigrant labourers and their families, which is the result of unemployment, inadequate cooking facilities and various other causes. In general, young children tend to suffer from deficiency disease in acute and sometimes fatal form, while in older people such diseases tend to be more chronic.

19. Protein malnutrition has been found to exist in many areas in Africa and also occurs in various countries in Asia, and in the Pacific and Caribbean islands. When the child is being weaned, and is given an abundance of starchy vegetables and little protein, the disease tends to occur in its "pure" form. It is often associated with other deficiency states. Protein malnutrition occurs, of course, in every degree of severity. Within the last ten years a great deal of research has been done on this subject, including important research in some of the Non-Self-Governing Territories.

20. Anaemia is common in practically all under-developed areas, particularly among pregnant and lactating women. The primary cause of anaemia is usually insufficiency of iron in the diet, but other factors such as lack of protein, malaria and hookworm may play a part. In Mauritius and St. Helena anaemia is prevalent, although malaria has been eradicated and there have been numerous campaigns to eliminate hookworm.

21. Vitamin A deficiency is an important cause of blindness in some countries. A variety of disorders may result from insufficiency of vitamin A in the diet. Severe cases of vitamin A deficiency have been reported from the Far East, and in numerous areas in Africa.

22. Beriberi, due to shortage of vitamin B₁ or thiamine, occurs mainly among people whose staple food is highly milled rice. It is an important cause of death in infants, such deaths being often reported as "convulsions" or ascribed to other causes. In African Territories beriberi is relatively uncommon.
23. Pellagra is caused by niacin deficiency and is mainly found among maize-eating peoples. It is often a chronic disease in adults and is not usually seen in young children. Sporadic cases occur in many countries in Africa, particularly in Nyasaland, Rhodesia and Basutoland.
24. Riboflavin deficiency is found in many areas, associated with general malnutrition. It is often seen in school children. The lesions due to lack of riboflavin are usually not of a very serious nature.
25. Rickets is caused by lack of sunlight or of vitamin D in the diet. It may occur even on the Equator if babies are kept too much indoors or are overclothed; it is seen, for instance, in Chinese babies in Singapore, or where women are veiled and children kept indoors. Infants with rickets are peculiarly liable to respiratory and intestinal infections.
26. Calcium deficiency. The part played by deficiency of calcium in producing ill health and disease is obscure. Pregnancy and lactation bring about a drain on calcium reserves and it has been suggested that certain obstetrical emergencies which are common in parts of Africa and Asia are due to lack of calcium which causes changes in the pelvic bones of the mother. It is also possible that lack of calcium in young children may cause tetanus or "convulsions". Dental caries is among the conditions which have been ascribed to lack of calcium, but there is little evidence in support of this hypothesis. Generally speaking, the simpler the diet the less the incidence of dental caries.
27. Scurvy is due to deficiency of vitamin C and is very uncommon in the tropics. Some observers have ascribed certain lesions of the gums to vitamin C deficiency, but confirmatory evidence has been lacking.
28. Goitre is due to lack of iodine in the diet. Surveys have shown that it is a serious public health problem in a number of areas in Central and West Africa, leading to disability in adults, to cretinism and deaf-mutism, and to a high child mortality.

29. The causes of under-nutrition and malnutrition. Food shortage may sometimes be the result of natural disasters such as drought, flood and earthquake, or of wars and civil disturbances. In these circumstances, emergency measures are needed and must be organized to meet the needs of the situation, use being made of whatever means are available for the distribution of food to relieve hunger. More frequently, under-nutrition is related to permanent conditions such as primitive farming methods, unproductive soil, and unsatisfactory systems of land tenure. On the economic side, it is obviously often associated with low wages, high prices of food, unemployment and the limitation of purchasing power imposed by large families. Often a combination of these various factors operates.

30. Lack of knowledge of food values and of food needs often lead to the wrong choice, preparation and timing of food, and to irrational distribution of food within the family. Even where foods of high nutritive value such as milk, eggs, poultry and meat are available, traditions and taboos may prevent them from being given to the groups most in need - that is the young children and the pregnant and lactating women. Conservative habits tend to impose a monotonous diet. Food grains and vegetables may be prepared in some indigestible form, or too much pepper is added, so that they cause indigestion and diarrhoea and are of little nutritional value to young children. Sometimes large quantities of food are consumed at certain celebrations and there is near-starvation in the intervals between such celebrations. It may often be the custom of eating one large meal daily which in the young child may result in sheer mechanical distension which interferes with digestion.

31. The parents may exhibit a type of fatalism with respect to the children. They may regard it as inevitable that many of them should die. They must be shown that much sickness can be cured and prevented. It may happen that the mother is expected to do so much of the agricultural as well as all of the domestic work that she cannot properly prepare the food for the family. In some places urbanization has weakened family ties and caused neglect of children.

32. In areas for which figures exist, it is found that one of the greatest single causes of death among children is recorded as gastroenteritis or diarrhoea. It is not possible to say how much this is due to physical properties of the food, which render it indigestible, and how much to contamination by flies, unclean hands,

utensils of water. Probably all these factors are important. In some countries outbreaks of malnutrition regularly follow epidemics of diarrhoeal diseases. It is certain that intestinal diseases (including dyspepsia, diarrhoea, dysentery and worms) are common in all the areas where malnutrition is prevalent. Chronic or repeated attacks of these diseases may render the intestines incapable of digesting or absorbing food. It is not clear at present to what extent these disorders are the cause or the result of malnutrition.

33. Many other diseases have an adverse effect on the nutritional state, whatever the nature of the diet. Such diseases are tuberculosis, septic sores and skin diseases, malaria and other parasitic conditions. This may be part of a vicious circle, malnutrition making the individual more susceptible to disease. Psychological disturbances in children, such as those caused by "maternal deprivation", may create feeding problems. Weaning is often too abrupt and the child cannot digest and absorb large quantities of food other than breast milk. In some countries the practice of giving purgatives and enemas to young children and of withholding food and fluids may be damaging. Acute nutritional emergencies often follow attacks of whooping cough and of measles. Recently attention has been called to damage done by herbal concoctions included in the diet as food, as medicine or by accident, some of which may affect the liver and have a serious effect on nutrition. Apart from these various factors, it must be recognized that there is wide variation in individual needs, and "standard requirements" are not universally applicable.

III. MEASURES TO IMPROVE NUTRITION: PROGRESS ACHIEVED

34. Enough scientific knowledge on how to treat and prevent all but a small proportion of cases of malnutrition is now available; it is the application of this knowledge that lags behind. In the Non-Self-Governing Territories efforts have been made since the beginning of the century to improve food production and health and to develop education. Within recent years these efforts have been considerably intensified. This is due to the better understanding of the problems involved and to the progress in technical education that is gradually making more workers available and is strengthening the technical services. It may be added

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that many of the advances within the last ten years have been stimulated by international organizations working with local authorities and with Metropolitan Governments.

Food production programmes

35. Orientation for these programmes have been provided by conferences, seminars, surveys and publications, and by visits from experts and advisers. Assessment of dietary needs has been of help to Governments in formulating programmes to meet the nutritional needs of the people. In Africa, nutrition conferences were held in Dschang in 1949, in Gambia in 1952 and in Angola in 1956. Seminars on nutritional problems have been held in Kampala, Marseilles and Dakar. Nutrition committees have been launched, nutritionists trained, and research units established, sometimes with international help. International experts have been made available and international assistance has been given for the development of agriculture, animal husbandry and fisheries, with special attention directed towards increasing the supply of protein-rich foods. Milk production programmes have been undertaken in Nigeria, Kenya and Morocco. Fish production and processing have been assisted in Malaya, in West, Central and East Africa, and in the Belgian Congo. Legumes are useful sources of proteins, especially when foods of animal origin are scarce. The development of the production of legumes which contributes effectively to protein needs was considered at an international conference in the Belgian Congo in 1958.

36. The Food and Agriculture Organization is assisting the Governments of many Non-Self-Governing Territories to expand crop production, to improve marketing, to make better use of land through fertilizers, to introduce improved farm implements and machinery, and to develop irrigation, afforestation and pest and disease control. Research into hardier and higher yielding varieties of plants and animals is being undertaken. Better food production statistics are being compiled.

Protein-rich foods

37. Reference has already been made to the prevalence of protein malnutrition in many Non-Self-Governing Territories. An obvious method of preventing such malnutrition is to increase supplies of protein-rich foods such as milk, fish and

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eggs. Apart from this, attention may be given to processed products such as fish flour and suitable preparations made from the presscakes of oilseeds including ground-nut, cottonseed and others. Research has been proceeding on products of this nature in the Belgian Congo, Nigeria, Senegal and Uganda, with the object of determining their digestibility, acceptability and biological value as human foods. In Kenya and elsewhere, attention is being given to the production of dehydrated meat to avoid the waste involved in transporting cattle long distances on the hoof.

Supplementary feeding

38. In advanced countries, supplementary feeding programmes to benefit various groups in the population have been in operation for many years. Supplementary foods or meals have been provided to children in schools and to mothers and infants through maternity and child welfare clinics, the provision of these being sometimes associated with education in nutrition. During the war programmes of this kind were necessarily curtailed in some countries; in others they were expanded. In many of the Non-Self-Governing Territories school meals were provided on a small scale before the war in a limited number of areas. Soon after the war measures to develop supplementary feeding through schools and maternal and child health centres were again undertaken and help from the United Nations Children's Fund in obtaining foods such as skim milk for this purpose became increasingly available (table 2).

39. Since 1948, there has been a marked expansion of supplementary feeding. Some programmes have been organized by Governments and others by voluntary societies. The value of dried skim milk in supplementary feeding is now generally recognized. In the United Nations Children's Fund assisted programmes, skim milk is usually provided for the age group one to four, for pregnant and nursing mothers, and for children in schools. Infants under one year for whom breast milk is not available may be given whole milk. Wherever there are maternal and child health centres, some attempt is made to provide supplementary milk and other foods, but the prolongation of lactation is also encouraged. The distribution of milk in maternal and child health centres not only directly improves nutrition; it also tends to increase the attendance at centres, provides a demonstration which is of

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value for educational purposes, and may stimulate local milk production and conservation. In some areas there are complaints that the staff of maternal and child health centres find the distribution of milk interferes with their other duties, that milk is badly reconstituted and gives rise to diarrhoea, that it is sold to coffee shops or consumed by other members of the family when not consumed on the premises, and discourages breast feeding. An evaluation survey of skim milk distribution recently made by the Food and Agriculture Organization and the World Health Organization consultants has shown that these dangers have been exaggerated.

40. It should be realized, however, that in most of the Non-Self-Governing Territories the maternal and child health services at present reach only a very small proportion of the population. The staff may be overworked and poorly trained in the recognition of nutritional disorders. The solution lies in having more, and more efficient, maternal and child health centres.

41. A great deal has been done in the last ten years with respect to supplementary feeding in schools. The school child is less prone to malnutrition than the younger age groups, and the value of school feeding both from the nutritional and the educational points of view is generally recognized. Food and Agriculture Organization meetings and publications have done a great deal to stimulate school feeding programmes, and milk made available to the United Nations Children's Fund and other organizations has reached large numbers of children in need. Here again, however, it should be pointed out that the numbers benefiting are in general small in relation to the total number of children of school age.

42. Supplementary feeding programmes have been organized, often with assistance from international agencies, in the Belgian Congo, French Equatorial Africa, Kenya, Ruanda-Urundi, Uganda, the Gambia, St. Helena, the Caribbean and other Territories. The United Nations Children's Fund has provided supplementary foods, particularly skim milk, for use in schools and maternal and child health centres.

Medical services

43. Medical services in under-developed areas have been largely preoccupied with the control of major epidemic and endemic diseases and with the treatment of the adult sick in hospital. It is only recently that much attention has been given to

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the diseases of children, including nutritional diseases. Experience in some Territories has shown the value of pediatric services; in Singapore, for example, where a Department of Pediatrics has existed for over thirty years, the specific nutritional diseases of children have been largely eliminated since the Second World War. In many other Territories, however, similar departments do not exist, or have only recently been established.

44. Within the last ten years, pediatricians have been appointed in Ibadan, Dakar, Belgian Congo, Jamaica, Madagascar, Trinidad and in Kampala. In most Territories in East and West Africa and in Malaya efforts are being made to expand the maternal and child health services. The provision of medical facilities for children has improved the diagnosis of nutritional diseases and has facilitated their investigation; such facilities enable methods of treatment to be established and cases to be followed up after treatment; they also make it possible to provide parents with some education in nutrition. In their absence, local personnel cannot be trained in the recognition and management of nutritional disorders.

45. The United Nations Children's Fund has provided equipment and supplies to encourage the expansion of maternal and child health services, and in some cases for pediatric wards. Fellowships abroad have been provided both by Governments and by international agencies in order to improve medical care for mothers and children.

46. While the last ten years have shown considerable progress, much still remains to be done. There are still many areas where the medical care and supervision of children are quite inadequate.

Programmes of education in nutrition

47. Nutrition workers. Considerable efforts have been made, and are continuing, to train workers of various kinds so that they have special knowledge of nutrition enabling them to study nutrition problems and develop practical nutrition programmes. A number of regional nutrition courses, attended by workers in different disciplines, have been organized by the Food and Agriculture Organization and the World Health Organization. Some 100 participants from Africa have benefited from such courses and many of these are engaged in practical nutrition work. In 1959 a Food and Agriculture Organization/World Health Organization

seminar on nutrition is being held in the Belgian Congo, at which trainees who have taken part in earlier regional nutritional courses will consider nutrition problems in Africa and the progress achieved in solving them. Apart from such international activities, facilities for training have been developed in some of the metropolitan countries. For example, a number of overseas students have attended courses at the Nutrition Unit of the London School of Hygiene and Tropical Medicine and subsequently returned to work in their own countries. It must, however, be stated that the number of workers fully specialized in nutrition at a high professional level remains small in the Non-Self-Governing Territories generally. Training at this level can as yet be provided only in countries other than the Non-Self-Governing Territories.

48. Agriculturists. During the last ten years there has been marked increases in agricultural schools in the Non-Self-Governing Territories. Personnel are also being trained in forestry and fisheries. Trainees are employed for extension work, and for experimental and demonstration farming projects and for developing horticulture and agriculture in the syllabus of the ordinary schools. Overseas fellowships for training are available. Many trainees study at the Imperial College of Tropical Agriculture in Trinidad and at other similar institutions, including institutions in the metropolitan countries. Conferences and seminars have been held, some with the collaboration of the Food and Agriculture Organization, at local and at regional levels, with the object of improving local food production and cash crops. It is most desirable that more attention should be given to human nutrition in the training curricula of agricultural schools and colleges, so that graduates understand the relation between agriculture and nutrition and give it due weight in developing food production programmes.

49. Medical personnel. It is through the medical services that cases of human malnutrition can be identified, investigated and treated. In the Non-Self-Governing Territories the medical services have expanded considerably in the last ten years. Since the last war child health departments were established in Dakar, Belgian Congo, Nigeria, the West Indies, and recently (with the United Nations Children's Fund help) in Uganda. The training of doctors in child health and in clinical nutrition is improving. The training of nurses, midwives, health nurses

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and medical assistants in these subjects is also receiving some attention. Larger numbers of doctors and nurses are now receiving training in the metropolitan countries. Students from the Non-Self-Governing Territories attend courses, often with the help of international agencies, at the International Children's Centre in Paris and at the All India Institute of Hygiene and Public Health in India. International courses in pediatrics have been organized at Dakar. These and other developments and activities, national and international, are increasing the contribution which medical personnel can make to the treatment and prevention of malnutrition.

50. School teachers. Children can be taught facts about food and diet in school and such teaching is more effective if it is associated with supplementary school meals and school gardens. To equip school teachers to provide suitable instruction in nutrition, they must themselves receive instruction either as part of their training curriculum or through special in-service courses and seminars. During recent years the training of teachers along such lines has been promoted by home economists in various Non-Self-Governing Territories, particularly in the Caribbean area.

51. The education in nutrition of the public. There has been some general dissemination of knowledge of nutrition in the Non-Self-Governing Territories through health educators, community development and adult education programmes and voluntary associations, and through mass media such as the press and the radio. It cannot, however, be said that this has as yet reached and influenced a large section of the population.

Research in nutrition

52. The record of nutrition research in the Non-Self-Governing Territories during recent years is impressive. For example, much of the modern knowledge of the clinical manifestations, pathology and treatment of protein malnutrition has been obtained through investigations in East, Central and West Africa and in Jamaica. In these investigations WHO and FAO have played an important co-ordinating role. Other deficiency diseases such as avitaminosis A have received attention. There have been surveys of diet and state of nutrition and the nutritive value of local foods has been studied. Some knowledge has been gained of the social, cultural

and economic background of dietary practices. While all this is encouraging, much remains to be done, and it should be added that the application of the results of research lags behind existing knowledge.

IV. NEED FOR FURTHER DEVELOPMENT

53. In most parts of the world, the population is expanding rapidly, creating an ever-increasing demand for food. Growing industrialization is changing traditional community life and traditional food habits, not always for the better. Processed foods produced by modern technology are tending to replace natural "unsophisticated" foods. More and more people live on the food they buy rather than on the food they grow. For these and many other reasons it is essential that work in the field of nutrition should be continued and expanded in the Non-Self-Governing Territories, some of which are shortly to achieve independence. In future developments particular attention should be given to the activities referred to below.

Agriculture

54. Food production programmes should be intensified and extended, and to an increasing extent oriented so as to fulfil nutritional requirements. Such orientation is particularly important with regard to the production, processing and distribution of protein-rich foods. The improvement of food production statistics is essential to such developments.

Training and education in nutrition

55. These need vigorous development. Many more workers in various disciplines and at various levels need appropriate training in nutrition and greater efforts are needed to reach and influence the people. Increasing attention should be given to home economics. The teaching in nutrition provided as part of health education should be reviewed and made more realistic and effective. Extension work in nutrition should be encouraged through community development programmes and voluntary societies.

Medical and public health services

56. The training of doctors and nurses and medical and public health auxiliaries should be improved with respect to nutrition and pediatrics. WHO could provide

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assistance for this purpose. More teachers of pediatrics, with a sound understanding of nutrition, could be made available through international aid. The international agencies can also assist by organizing short courses and seminars for doctors and auxiliaries both at the national and regional levels.

57. The expansion of maternal and child health services is particularly desirable from the nutritional standpoint, since these services can reach those groups which suffer most severely from malnutrition. This expansion should be preceded by evaluation studies to discover what proportion of mothers and children, especially in areas in which malnutrition is prevalent, are reached by existing maternal and child health services, and the types of supervision, treatment and supplementary feeding provided.

58. Nutritionists and dietitians are needed to improve hospital diets, and in particular to devise dietary schedules in which suitable use is made of local foods. These workers can also contribute to the training in nutrition of medical and para-medical personnel.

Vital statistics

59. More accurate and extensive vital statistics are needed to assess progress towards better health and nutrition and to develop more efficient preventive policies.

National nutrition committees

60. Such committees should be established in many Territories along lines recommended by the United Nations and the Specialized Agencies, in order to develop and guide national nutrition policies. The various departments concerned - agricultural, health, education, etc. - should be represented on such committees and should co-operate in carrying out their recommendations. In certain circumstances nutrition committees at the local level can make a useful contribution.

Research

61. Research is needed to guide and stimulate practical action. Many nutritional disorders require further investigation and the relation between such disorders and infectious and parasitic diseases offers a field of research of great interest

and importance. Research of this nature calls for long-term studies and for satisfactory clinical facilities. Pediatric wards, out-patient clinics, health centres and home visiting and laboratory services can be used for the purpose. Detailed studies of the diet of patients suffering from nutritional disorders should be made by trained nutritionists.

62. Further surveys are required to determine the extent of problems of nutrition and associated health problems. The success of programmes of education in nutrition should be evaluated by appropriate research techniques, in order to assess the effectiveness of different methods and approaches.

Table 1
Selected dietary surveys in Non-Self-Governing Territories
Per caput daily intake of calories and nutrients

Territory	Staples	Calo- ries	Protein		Carbohydrates			Cal- cium	Iron	Vit. A.	Thia- mine	Ribo- fla- vin	Nia- cin	Ascor- bic Acid
			Total	Animal	Total	% of cal.	Fat							
<u>Average per caput consumption</u>			g.	g.	g.		g.	mg.	mg.	I.U.	mg.	mg.	mg.	mg.
Uganda (Toro 1) 1958	Millet plantain	2461	53	2	526	85.5	15	1790	26	1285	2.2	0.54	11.0	58
Uganda (Gishu 1) 1958	Plantain	1630	23	2	362	88.8	10	268	13	7830	0.9	0.64	9.5	240
Madagascar (Tanala) 1957	Rice manioc	2074	39.3	0.88	457	88	7	360	11.3	6742	0.99	0.54	13.6	172
Senegal (Toukar) 1957	Millet	2668	93.7	16	478	73	38	1110	16		1.68	0.93	13.4	228
Ivory Coast (Bongouanou) (1955-56) (aver- age in village, incl. alcohol)	Yam plantain	2061	61	25	425	84	19	736	17	4140	1.58	0.84	13.3	321
Miue Island, 1953	Taro	2030	52	22	369	72.7	45	396	13		1.27	0.64	12.5	160
Netherlands New Guinea 1956 Ajappo Semporo-B	Roots Roots	1882 2348	30 28					124 126	5.7 5.5	1242 883	0.59 0.57	0.52 0.56	8.9 8.3	23 44
Fiji 1953	Cassava plantain	2500	58	24	491	78.5	36	540	17.4		1.46	0.87	14.5	326
<u>Average adult consumption</u>														
Nigeria 1949 Bida Kontagora Zuru	Sorghum millet	2639 2431 2947	75 73.4 88.6	5 1.4 1.6	486 476 595	73.6 78.3 80.7	44 26 24	489 344 581	40 42 57	5174 625 713	3.2 3.2 3.7	0.76 0.76 0.98	19 21 25	98 44 34
<u>Average unit consumption</u>														
Tunisia (KEF) 1951 Malaya 1950	Millet Rice	2768 1630	82 47					428 550	24.5 12	4330 1084	3.0 0.38	0.4 0.5	28.2 8.6	29

Table 2

UNICEF-supported supplementary feeding programmes in
Non-Self-Governing Territories

Territories and Year	Beneficiaries through		
	Maternal and child health centres		Schools
Malaya (end 1954)	10,000		
Singapore (end 1960)?			10,000
Trinidad and Tobago (end 1960)	16,100		20,000
Belgian Congo (1955)		38,500	
Nyasaland (1957)	3,800		1,200
French Equatorial Africa (1955)		3,500	
French West Africa (1958)			40,500
Gambia (1958)	13,200		3,000
Ghana (1959)	14,000		
Nigeria (1957-58)	1,300		7,000
St. Helena (1957)	800		1,300
Sierra Leone (1958)	4,000		
Hong Kong (1958)	4,000		
Netherlands New Guinea (1958)	4,000		
North Borneo (1958)			4,500
Sarawak (1958)		35,000	
British Guiana (1958)			21,000
British Honduras (1960)	9,000		12,000
British Virgin Islands (1960)	1,100		1,900
Jamaica (1958)	19,000		140,000
Dominica (1957)	12,600		8,400
Grenada (1958)	4,200		7,000
Montserrat (1958)	2,100		2,235
St. Kitts, Nevis, Anguilla (1960)	9,400		8,000
St. Lucia (1958)	4,000		7,000
St. Vincent (1960)	6,000		11,000