

Food and nutrition in Malaysia and plans for future action

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Abstract

In preparation of the FAO/WHO International Conference on Nutrition 1992, a Malaysian country paper was prepared to describe the nutritional problems in the country, factors affecting the nutritional status, and intervention programmes carried out. This paper is a summary of the country paper.

Mortality rates, which can be used as proxy indicators of nutritional status, have improved dramatically in Malaysia in the last 40 years. As can be expected, there is, however, considerable variation in the health and nutritional status of different communities. Although frank nutrient deficiencies are not commonly found, moderate undernutrition is widespread, especially among the rural underserved communities, and it affects mainly young children and pregnant women. Underweight and stunting occur in significant proportions of preschool and school children. Large-scale surveys conducted in the last 15 years show that the prevalence of anaemia has declined since the 1950s and is highest in the first two years of life, ranging from 30 - 60% in Sarawak, 15-30% in Sabah and 12-83% in Peninsular Malaysia. During pregnancy, the prevalence of anaemia varies from 30-60% depending on the ethnic group, according to mostly urban studies. Iron deficiency is the main determinant, but folate deficiency also plays an important role. Vitamin A deficiency has clearly become much less frequent since the 1950s when it was the major single cause of blindness. In the 1970s and early 1980s, several rather comprehensive studies found approximately 10% of cases with xerophthalmia among primary school children and preschool children in two states of the Peninsula. In Sarawak, this rate ranged from 2-38% in children under 7 years, depending on the ethnic group. Iodine deficiency is considered endemic in 16 of Sarawak's 27 districts, with goitre prevalence ranging from 30-80%. High prevalence rates have been reported for Sabah and some remote areas in Peninsular Malaysia.

A new dimension of the nutrition scene in Malaysia is the increasing prevalence of diet-related non-communicable diseases brought about by rapid socio-economic development and reflected in changes of dietary patterns and lifestyles. Epidemiological data show that there is an increasing prevalence of diseases such as obesity, diabetes, cardiovascular diseases and cancer.

A variety of programmes have been implemented by various government agencies and non-governmental organisations (NGOs) to improve the nutritional situation. These range from the more specific programmes such as supplementary feeding and milk programmes, and the rehabilitation programme for malnourished children, to the more general and long-term programmes such as the Applied Food and Nutrition Programme, the Farm Family Development Programme, various health and education programmes, programme for the development of the very poor, and the activities of Community Development.

To further improve the nutrition situation in the country, various recommendations were put forth in a workshop held to discuss the country paper. Inter-sectoral collaboration is vital, and this can be effected through the formation of a National Nutrition Consultative Committee. Other specific recommendations are related to nutrition programmes and intervention, research, and manpower development.

1. Introduction

Many countries have made great strides to improve their food and nutrition situation. Nevertheless, hunger and malnutrition remain serious problems in many parts of the world. Chronic diet-related diseases are also emerging as serious health problems in both developed and developing countries. To help meet the global challenge presented by existing and emerging nutrition problems, the Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO) of the United Nations have joined to convene the International Conference on Nutrition (ICN) in Rome, Italy, from 5 to 11 December 1992. A World Declaration on Nutrition was adopted in the Conference, attended by over 1,300 representatives from government organisations and NGOs from 162 nations. A global Plan of Action, with specific and detailed strategies and actions, was drawn up to provide guidelines to achieve the objectives of the Declaration.

Various country-level activities were initiated to prepare for the International Conference on Nutrition. These activities included the preparation of a Malaysian country paper, describing the nature and dimensions of nutrition and diet-related problems in the country, factors affecting the nutritional status, and the current policies, programmes and interventions carried out to overcome the nutritional problems. The various sections of the country paper were prepared by contributors from relevant departments, agencies and organisations (appendix). The draft country paper was discussed and finalised in a workshop held in the IMR in December 1991. Workshop participants also made various recommendations for future action to further improve the nutrition situation in the country.

This paper is a summary of the Malaysian country paper, particularly the sections on the food and nutrition situation in the country, the intervention programmes that have been implemented, as well as recommendations for future actions.

2. The nature and dimensions of nutrition and diet-related problems in Malaysia

Two main types of data are presented to describe the nature and dimensions of nutritional problems in the country, namely epidemiological data reported by various investigators and selected mortality rates for various population groups.

The major nutrient deficiencies in the country are **protein-energy malnutrition** amongst children, **chronic energy deficiency** in adults, and deficiencies of several **micro-nutrients, namely iron, vitamin A and iodine**. Nutrition studies carried out in different parts of the country have shown that frank nutrient deficiencies are rare. Nevertheless, moderate undernutrition is widespread especially among rural under-served communities, and affects mainly young children and pregnant women. **Underweight** and **stunting** occur in significant proportions of pre-school and school children. A Nutrition Surveillance Programme conducted by the Ministry of Health, involving approximately 1.2 million children, found that in 7 states, in 1985-86, the proportion of children below 60% of the Harvard WT/AGE standard was not greater than 1.1%; the prevalence of moderate underweight (between 60 and 79% of the standard) was 16%, below one year, 29% between 1 and 4 years, and 38% at 5-6 years. Besides this tendency of increasing rates of moderate undernutrition, as age increases, considerable variation between states was seen.

The information available for adults is not representative of the whole population. However, a compilation of data obtained in urban areas in recent years shows that about 50% of males and 40% of females can be classified as normal in terms of having a BMI between 20 and 25; about 22% are **underweight** (BMI <20), and about 28% of men and 34% of women are **overweight** (BMI >25). Mean body weight is higher than the Malaysian reference value of 55 kg for males and 50 kg for females, and increases with age, in all age groups, except the elderly, and in all three main ethnic groups. Changing food habits and sedentary lifestyles are likely to be responsible for the increasing prevalence of overweight in the urban middle-income population. Studies on food consumption in rural communities conducted in the last 5 years generally show low energy intake, closely linked with poverty; lack of nutritional knowledge has also been shown to restrict food intake among some pregnant and lactating women.

Several studies on **anaemia in Malaysian children** were carried out since the 1950s. Results of large-scale surveys reported in the last 15 years show that the highest prevalences of anaemia are generally found in the first 2 years of life, ranging from 30 to 60% in Sarawak, from 15 - 30% in Sabah, and from 12 - 83% in Peninsular Malaysia. A decrease in prevalence has occurred between the

1950s and the 1980s. The main causes are considered to be inadequate supplementary feeding and poor weaning practices, determining lack of iron, protein and other nutrients. Intestinal helminthiases and malaria, in some communities, contribute to determine anaemia.

Anaemia in pregnancy had been recognised by early Malaysian investigators as a major cause of maternal mortality and one of the main complications of pregnancy. In the 1950s and 1960s, about 77% of pregnant women were found to be anaemic. Microcytosis, attributed to iron deficiency, was seen in 76% of cases, and macrocytosis, attributed to folic acid and vitamin B12 deficiency, in most of the remaining cases. Studies in the 1980s have found low levels of serum folate in approximately 60% of pregnant women and low levels of RBC folate in about 30% of them. Serum iron, serum ferritin and transferrin saturation were low in 50 - 60% of cases, serum protein in about 30% . The prevalence of anaemia ranged from 30 - 60% depending on the ethnic group.

Most studies were conducted on urban women. Information is needed on anaemia in pregnancy in rural areas and on the relative importance of the main nutrient deficiencies in these areas. More data on the prevalence of anaemia could be obtained by compiling and analysing the results of Hb determinations conducted as a routine test in most antenatal clinics.

Studies on **anaemia in estate workers** were conducted as early as in 1918, and led to the recommendation that all newly recruited workers should be examined for haemoglobin and helminthiasis, and treated if necessary. After the Second World War, nutritional anaemia was one of the main causes of prolonged sickness and loss of working capacity among estate workers, as well as a great contributory cause of mortality. The situation of **industrial workers** was found to be much better, already in post-war days. In the 1970s, only 10% of males in a group of industrial workers and 26% of females had Hb levels below 13 and 12 g/dl, respectively.

Vitamin A deficiency in Malaysia was first documented in the 1920s by an ophthalmologist who described cases of keratomalacia that he attributed to deficiency of fat and fat-soluble vitamins. In the 1970s and early 1980s, several rather comprehensive studies found approximately 10% of cases of xerophthalmia among primary school and pre-school children in two states of the Peninsula. In Sarawak, this rate ranged from 2 - 38% in children under 7 years, depending on the ethnic group. For all the Sarawak communities, there was an increasing prevalence with increasing age, peaking at 4-6 years. In the most recent series of studies, serum vitamin A levels below 20 g/dl were found in about 10% of primary school and pre-school children. The sample size, however, was rather small.

Dietary studies in the early 1980s showed the consumption of both vitamin A-rich animal foods, and fruits and vegetables to be poor, and much lower than the average estimated from food balance sheets. It is therefore likely that, even though the number of cases of frank xerophthalmia found is small, subclinical vitamin A deficiency may affect a considerable proportion of the rural

communities studied.

The importance of the problem of vitamin A deficiency has clearly been reduced over the years, since the 1950's, when it was the major single cause of blindness. No precise estimates of the magnitude of the problem are presently available. It is believed that there are probably very few cases of children with eye signs more advanced than conjunctival xerosis, and with serum vitamin A < 10 g/ml. There are, however, many remote areas in the country where the vitamin A status is not known, including parts of Peninsular Malaysia, and the problem has been little studied among urban squatters. It is therefore necessary to conduct further studies in communities considered at greater risk of vitamin A deficiency because of poverty, characteristics of the diet, or a higher prevalence of PEM.

The problem of **endemic goitre** in Malaysia has been documented since the 1930's. Low levels of iodine in water and salt and low consumption of sea foods are considered the main determinants. Goitrogens contained in cassava, which is consumed in greater quantity by some hill tribes in Sarawak, when their supplies of rice are exhausted, may also play an important role in some population groups. Goitre is found more frequently in females.

A 1982 review of the various studies conducted in Sarawak since the 1950's shows that goitre is endemic in 12 of the state's 25 districts, mainly located in inland areas, with prevalence rates that vary considerably among different communities, mostly between 30 and 80% of the people examined.

Two salt iodation plants were established in Sarawak in 1957 and 1959. In 1982, the existing legislation was improved to increase the availability of iodised salt by making it compulsory to import table salt only in iodised form. A survey on the availability of iodized salt conducted in 1988 found a number of problems in the local production and distribution systems, indicating the need for improvement. Iodination of water supplies at the village level has also been tried, with encouraging results.

Few studies on endemic goitre in Sabah have been conducted, a recent one reporting high prevalence rates, related with the degree of remoteness of the areas studied. It was found that only 3% of the people used iodised salt.

In Peninsular Malaysia, the problem of endemic goitre is considered much less serious than in Eastern Malaysia although, in the absence of public health interventions, very high prevalence rates of goitre have been found in villages where the problem was recognised 50 years ago. The possibility that there may be many other foci of endemic goitre in inland areas of Peninsular Malaysia suggests the need for a systematic assessment of the prevalence of iodine deficiency also in this part of the country.

Several **mortality rates** have often been used as proxy indicators of the nutritional situation in the country. Infant, toddler and maternal mortality rates have declined dramatically in Peninsular Malaysia, since the country gained Independence in 1957. IMR declined from 76 in 1957 to about 13 in 1989.

Over the same period, TMR (1-4 years) dropped from 11 to 1, while maternal mortality declined from 3.2 to 0.2. However, as can be expected, there is considerable variation in the health status of communities in different parts of the country. The information on mortality in East Malaysia is less comprehensive, as deaths are probably under-reported in Sabah and Sarawak. However, the same declining trend can be seen, particularly for IMR and TMR.

It is clear that although these indices do give an indication of the overall nutritional status of the country or state, they do not show the problems existing at the micro level. In conclusion, while the overall nutrition situation in the country has greatly improved over the years, pockets of malnutrition still exist in various parts of Malaysia. An important task is to analyse the characteristics of districts with the highest rates of mortality, morbidity, low birth weight and PEM, and to derive from this analysis information on action required to improve health and nutrition conditions in the areas of the country and in the population groups at highest risk.

A new dimension in the nutrition scene in Malaysia is the increasing prevalence of **diet-related non-communicable diseases**, related to the excessive consumption of various nutrients (e.g. fat) on the one hand and low levels of intake of other nutrients (e.g. complex carbohydrates and fibre) on the other. Epidemiological data show rapid socio-economic development in the country has brought about increasing prevalence of diseases such as obesity, diabetes mellitus, cardiovascular diseases and cancers. An analysis of the mortality rates in the country indicates that cardiovascular diseases and malignant neoplasms have become the leading causes of death in Malaysia.

Among the main ethnic groups in Peninsular Malaysia, the Indians have consistently shown the highest mortality rates for **ischaemic heart disease** and **diabetes** compared to the Chinese and Malays. In 1988, the mortality rate for IHD in Indians was 53 per 100,000 whereas that for the Chinese and Malays was 27 and 13 respectively.

The rate of increase of **cancer** deaths has not been as rapid as that of deaths due to CVD. This increase may be due, at least partly, to more people seeking treatment and a better diagnosis of the disease. Thirty percent of cancer deaths are due to tumours of the digestive organs and the peritoneum. Chinese and Indians have higher MR for stomach cancer (3.9 and 3.6 per 100,000, respectively) than the Malays (0.5). Colon cancer deaths are more frequent among the Chinese (3.3 per 100,000) followed by the Indians (1.9) and the Malays (0.4).

Among the possible risk factors for cancers of the digestive organs, the incidence and levels of contamination of commonly consumed foods by aflatoxin has been recently investigated and suggests the need to systematically monitor the levels of aflatoxin contamination in these foods.

Among the risk factors for CVD, serum cholesterol level has increased, in Malaysian men age 25 to 55 years, from an average value of 185 g/dl in the 1960's to 230 in the 1980's. Of the main ethnic groups, the Indians were

recently reported to have the highest prevalence of hypercholesterolemia. It has also been shown that rural communities have a lower serum cholesterol level than their urban counterparts.

The prevalence of overweight (BMI > 25) was found to be low in adults living in poor rural villages in the early 1980's, but high in a recent study of families living in a low-cost housing scheme (approximately 45%). The few studies conducted in urban areas indicate that approximately one quarter to one third of adults are overweight.

The **trends in food availability** during the past 20-25 years, as reflected in food balance sheets, show that Malaysians have available, on average, 21% more calories than two decades ago. This increase derives mainly from more oils and fats, animal products and sugar. The contribution of cereals, vegetables and fruits as sources of calories has decreased from 57% in the 1960's to 46% in the late 1980's. The overall trend is towards deriving a decreasing proportion of calories from complex carbohydrates and an increasing proportion from fat, sugar and protein.

The public health implications of these changes in food availability over the past two decades may be summarised as follows:

- a. The increase in total calories available will lead to an increased prevalence of overweight, especially in the more affluent segment of the population.
- b. The decreased availability of cereals and other plant products is likely to result in a lower consumption of dietary fibre.
- c. A rise in consumption of animal products means an increased intake of saturated fat and cholesterol.

These changes are expected to further increase the incidence of CVD and some types of cancers which have become amongst the most common causes of death in Malaysia in the past two decades.

3. Analysis of current policies, programmes and interventions affecting nutritional status

Various programmes and interventions have been carried out by numerous organisations and agencies to ameliorate the nutritional problems seen in the country. This chapter of the Country Paper gives an analysis of the major programmes instituted. Besides describing the past activities of the programmes, the reports of the various organisations also highlight the emphasis to be given in the future.

Four major **programmes of the Ministry of Health Malaysia** have been implemented to combat the undernutrition problems in the country. Recognising that malnutrition and related public health problems were best tackled in the form of coordinated long-term action programmes, the **Applied Nutrition Programme** (ANP) was launched in the country in 1969 as a pilot project in Kuala Langat. The Project was then coordinated by the Ministry of

National and Rural Development with the Ministries of Health, Education, Agriculture and Information as the major participating ministries. The Programme involved integrated and coordinated efforts in the sectors of economy and food production, nutrition education and home economy, health, sanitation and supplementary feeding in order to improve the nutritional status of the rural population. Following a review of the Project in 1973, the project was renamed **Applied Food and Nutrition Programme** (AFNP) and its implementation expanded to several states with high toddler mortality rates. By the end of 1974, AFNP was implemented in nine districts in Selangor, and by 1980, it was expanded to 43 selected districts in Peninsular Malaysia. It was further expanded to Sabah and Sarawak in the Fifth Malaysia Plan period. An impact evaluation of the programme was carried out in 1979 in selected AFNP areas.

In a review of the strategies for poverty eradication as indicated in the New Economic Policy of the Malaysian Government, it was found that there still existed very poor families living in the rural areas even though the rate of poverty in the country has been reduced significantly since 1970. Thus, in 1989 a comprehensive programme for the **development of "the very poor"** was launched, and the role of the Ministry of Health was to ensure that the health needs of these families were identified and fulfilled. The task of the Ministry was to ensure that these poor families used the health facilities in areas where they existed. In remote areas, the task was to improve accessibility to health facilities. The essential component of the programme was to make visits to the poor families to establish rapport between health staff and the families, and motivate the family members to use the nearest health facility. Basic health and nutrition education were also given, and food supplements provided to malnourished children in the poor families. During 1989-1990, of the total of 117,169 families identified, 73.5% were visited by health staff.

Another strategy adopted by the Ministry of Health is the provision of **supplementary feeding** in the form of instant full cream milk powder to selected deserving children (aged 6 months to 7 years), pregnant women, lactating mothers and school children. The recipients are selected based on a set of criteria, including nutritional status. Eligible beneficiaries were given 1 kg per person per month for three consecutive months.

Data from the National Nutrition Surveillance System implemented from 1983 to 1986 by the Ministry of Health showed that some 20% of children under 7 years of age were moderately to severely malnourished. In order to provide immediate assistance to these children, the **rehabilitation programme for malnourished children** was implemented. Starting from 1989, the programme was expected to rehabilitate some 12,000 malnourished children by the provision of several essential food items. The food aid was considered a form of treatment while other medium and long term strategies are being implemented including immunisation, health and nutrition education, treatment of diseases and close growth monitoring. In a recent analysis of the programme which is being closely monitored, there was a 2.5 times reduction in the percentage of severely malnourished children, while the percentage of moderately malnourished children declined by 1.6 times.

Programmes of the Ministry of Agriculture deal mainly with food commodities be they crops, livestock or fish. Activities are focussed on smallholders to improve food production through improved agricultural services such as irrigation and drainage, agricultural inputs, credit, marketing, and other activities. Such services enable the smallholders to increase food production and improve their income. An important programme implemented by the Ministry since 1968 is the **Farm Family Development Programme (FFD)**. The programme aims to improve the quality of life of farm families through balanced food consumption, diversified diet and sanitary food preparation. Other activities in the programme include developing active Women Extension Groups in the rural society socio-economic development and to promote and training farm women in agro-based economic activities. The FFD programme will be given further emphasis in the Sixth Malaysian Plan period.

Various health and nutrition programmes have been implemented by the **Ministry of Education** for improving the nutritional status of school children. The **School Health Programme** is an integrated programme designed to protect, promote and maintain optimum health of pupils and school personnel, promote healthy school living and develop desirable knowledge, attitudes and practices pertaining to health. The programme is implemented within the perspective of community health as a whole, through the involvement, participation and cooperation of the school, the parents and the community. **Health education** is recognised as a fundamental mean by which the individual and the community can improve health and nutrition practices. In the Malaysian primary school syllabus, health education is being integrated in various subjects such as "*man and his environment*", moral education, religious education, etc. In secondary schools, health education is integrated with physical education and is now known as Physical and Health Education.

Two feeding programmes have been implemented by the Ministry of Education to improve the nutrient intake of needy school children. The first is the **school supplementary feeding programme** which provides a balanced meal during the mid-morning or mid-afternoon break. The meal aims at providing about one-fourth to one-third of a child's daily nutritional requirements, mainly for protein and calorie, to deserving selected children from low-income families. The programme also aims at creating opportunities for formal/informal nutrition and health education to the children as well as providing informal community education on health and nutrition. The Programme currently benefits more than half million primary school children mainly from the lower socio-economic group. The **school milk programme** is the second feeding programme implemented by the Ministry to improve the nutritional status of school children. From 1985, the Programme covers the entire country except Sabah which has its own milk programme under the Sabah Foundation Funds.

In an effort to ensure that foods sold in school canteens are safe and of certain nutritional quality, the Ministry of Education and the Ministry of Health jointly developed and implemented the "**school canteen guideline**". School canteens are recognised as important avenues for the provision of nutritious meals to children as well as for inculcating good food habits among these young

population groups at a very impressionable age.

Several programmes and activities of the **Community Development (KEMAS) Division of the Ministry of Rural Development** have contributed to the nutritional improvement of communities in the country. One early activity was the implementation of a nationwide programme on nutrition education for rural women through its **Home Economics Programme** since 1963. One of the areas of focus was the subject of conserving nutritional values in relation to food production, selection, preparation, processing and preservation. Good eating habits and healthy practices were also propagated to participants. In 1970, the **pre-school guidance programme (TABIKA)** for children between the ages of 4 to 6 years was implemented to uplift the health and nutritional status of rural children who were far behind that of the urban children. A food supplement is also given to the children at the TABIKA to increase their nutrient intake. With the introduction of the programme for the eradication of "the very poor" in 1990, the Government further intervened by providing essential food items through the TABIKA or the nurseries for children below 4 years of age. For those children not covered by these two activities, food was provided through the **"community kitchen" project**.

The role of the private sector in improving nutritional status is illustrated by the activities of the **Federation of Malaysian Manufacturers**. Various activities of the food industries are said to contribute to infant and young child feeding, to prevent various lifestyle related nutritional disorders, and in educating consumers on various health issues. Continuing research and development activities of the food industries will strive to ensure nutritious foods for the communities. The advancement of food industries in the country also provide employment opportunities and technical expertise to the people, thereby uplifting their economic status.

Various non-governmental organisations also contribute to improving the nutritional status of Malaysians. The **Federation of Malaysian Consumers Association** and various consumer bodies in the country continue to provide education to consumers on matters related to food, health and nutrition. Various activities have been organised including talks, seminars and campaigns on specific issues. Recognising the decline in breast feeding trend amongst Malaysian mothers, the **Breastfeeding Advisory Association of Malaysia**, founded in 1974, aims to encourage and assist mothers who wish to breast feed their babies and to provide them with current information on breast feeding. The Association has called on medical professionals, including hospital administrators, obstetricians, paediatricians and nursing staff, to play an active role in persuading and motivating mothers to establish lactation and successfully breastfeed their babies. It urged hospitals to adopt the "baby friendly" hospital concept and implement the "10 steps to successful breast feeding" strategy of the WHO/UNICEF.

4. Recommendations for future action

Based on the inputs from contributors to various sections of the Country Paper as well as discussions during a 3-day workshop held to finalise the Paper,

recommendations covering a variety of subjects were put forth for further improvement of the nutrition situation in the country.

A **National Seminar** should be held to present and discuss with a wider audience the analysis of nutritional problems and programmes, plans for the future and recommendations contained in the Country Paper. **Inter-sectoral collaboration** in various programmes and activities is needed to further improve nutrition in the country. To effect this collaboration, a **National Nutrition Consultative Committee** should be formed. Aside from other activities, the Committee is expected to assess the need for the establishment of a **Food and Nutrition Policy** in Malaysia.

It is recommended that there should be continued emphasis on the **assessment and monitoring of the nutritional status** in the country both in the rural and urban areas. Nutrition surveys should be conducted at regular intervals and the need for a regular nutrition monitoring system for children should be reviewed. Studies should also be carried out on aspects not previously considered to a significant extent in Malaysia, e.g. nutrition of the elderly and the role of women in nutrition.

Several recommendations related to **nutrition programmes and interventions** were made. These programmes should place emphasis on all age groups of the population including the elderly, and both under- and over-nutrition problems should be adequately addressed. It is recommended that an appropriate agency should be identified to coordinate major nutrition intervention programmes in the country, such as the AFNP, the nutrition rehabilitation programme and the programme for "the very poor". It is essential to include and plan carefully a monitoring and evaluation component from the beginning of an intervention programme so that conclusions can be drawn on the impact of the programme on the nutrition and health status of the beneficiaries.

Recommendations pertaining to specific programmes were also made. On **nutrition education**, there is a need to further intensify the programme in order to cover all segments of the community, including health staff. More local audio-visual educational materials on nutrition should be developed and distributed to facilitate these activities. It is felt that the current status of the **Applied Food and Nutrition Programme** should be reviewed and its appropriateness assessed in order to determine its future implementation. **Breast feeding** promotion activities should be reviewed and appropriate strategies implemented. It is recommended that the review of the **National Agricultural Policy** should take into consideration the changing nutritional problems in the country. Several recommendations pertaining to **food quality control** and the supply of **safe foods** to the communities were also made, including obtaining detailed data on the extent of the problem of microbiological and chemical contaminants and veterinary drug residues in foods. The **private sector and non-governmental organisations** in the country are urged to carry out programmes and activities in support of the government's efforts in improving the nutrition and health status of communities.

To effectively implement these and other programmes and activities, there is a need to create many more **job opportunities** for nutritionists and dieticians in the government and private sector. A review should be carried out on the training programmes of universities to ensure that manpower development is in consonance with the need for these professions in the various sectors.

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Appendix

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