



NATIONAL PLAN OF ACTION FOR NUTRITION OF MALAYSIA

(1996 - 2000)

*National Coordinating Committee
on Food and Nutrition
1995*

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MINISTER OF HEALTH MALAYSIA



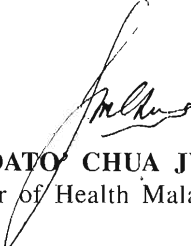
FOREWORD BY Y.B. DATO' CHUA JUI MENG MINISTER OF HEALTH MALAYSIA

The World Declaration on Nutrition and Plan of Action adopted by the International Conference on Nutrition (ICN) in Rome in December, 1992 calls for a concerted multisectoral effort and commitment of all nations, non-governmental organisations, and the international community to eliminate or reduce substantially, within this decade, starvation, widespread undernutrition, and micronutrient deficiencies which hinders progress in human and societal development around the world.

Although Malaysia do not face starvation and acute malnutrition, there are population groups in the country where undernutrition and micronutrient deficiencies affect the most vulnerable such as infants, young children, and pregnant and lactating mothers. These are normally the rural and urban poor where the problem of food security related to the availability, accessibility and affordability of food is compounded by the stresses of infection and diseases. The solution to this undesirable situation is to harness and direct all the resources available in the country to focus into the food and nutrition issues as part and parcel of national development.

The National Plan of Action for Nutrition of Malaysia (NPANM), therefore reflects Malaysia's determination to resolve these issues, through multisectoral collaboration and acting in partnership with non-government organisations (NGOs), the private sector, local communities, families and households and the international community. It contains recommendations on areas of concerns, strategies, programmes and activities to address nutrition issues pertinent and appropriate to the country.

We, in the Ministry of Health, believe and aspire that the National Plan of Action for Nutrition of Malaysia will provide the guiding principles and framework for all nutrition and nutrition-related activities in the country.


(Y.B. DATO' CHUA JUI MENG)
Minister of Health Malaysia

ACKNOWLEDGEMENT

The formulation of the National Plan of Action for Nutrition of Malaysia (NPANM) is the culmination of extensive consultation and collaboration among various agencies, institutions and non-government organisations (NGOs) coordinated by the multi sectoral National Coordinating Committee on Food and Nutrition (NCCFN).

I therefore wish to express my appreciation and sincere thanks to every member of the NCCFN and the NPANM Drafting Committee for their deliberation and input to coordinate and finalise the preparation of the NPANM. My heartfelt gratitude also to members of the nine Working Groups for having diligently carried out their duties to study and report on each of the nine thrust areas of the plan. In addition, I would like to record my thanks to all the 55 workshop participants from 19 different agencies and organisations for their valuable input and feedback to the first draft of the plan. Finally, I would like to express my utmost gratitude to the Division of Family Health Development, Ministry of Health, for having efficiently and conscientiously provided the necessary secretarial and technical support.

I believe the National Plan of Action for Nutrition of Malaysia is an important document for the development of nutritional efforts in the country.



(DATO' (DR.) WAN MAHMUD B. OTHMAN)

Deputy Director General of Health (Public Health)

Chairman

National Coordinating Committee on Food and Nutrition (NCCFN)

EXECUTIVE SUMMARY

The National Plan of Action for Nutrition of Malaysia (NPANM) represents Malaysia's commitment to the global call for the eradication of malnutrition made during the International Conference on Nutrition (ICN) held in Rome in December, 1992. The NPANM is formulated by the National Coordinating Committee on Food and Nutrition (NCCFN) formed in March 1994. It is based on the reports of nine working groups formed to deliberate in detail various areas of food and nutrition which are of concern to the communities. These reports were further deliberated upon at two multi sectoral workshops and finally compiled by a six-member Drafting Committee for ratification by members of the NCCFN.

The NPANM provides the multi sectoral nutritional framework for the country's national development efforts during the Seventh Malaysia Plan (7MP)(1996-2000). The plan is embodied under nine thrust areas designed to ensure optimal nutritional status of the population which is vital for human resource development towards the country's industrialisation process and the development of a caring society by the year 2020.

These thrust areas are:

- (i) Incorporating nutritional objectives, considerations and components into development policies and programmes
- (ii) Improving household food security
- (iii) Protecting consumers through improved food quality and safety
- (iv) Preventing and managing infectious diseases
- (v) Promoting breastfeeding
- (vi) Caring for the socioeconomically disadvantaged and nutritionally vulnerable
- (vii) Preventing and controlling specific micronutrient deficiencies
- (viii) Promoting appropriate diets and healthy lifestyles
- (ix) Assessing, analysing and monitoring nutrition situations.

Numerous strategies and activities are formulated under these thrust areas to overcome the diminishing problem of under nutrition and to contend with the emerging problem of over nutrition arising out of inappropriate diets and lifestyles such as obesity, cardiovascular diseases, diabetes and certain cancers. This NPANM therefore addresses both ends of the malnutrition spectrum.

Despite rapid improvements in socioeconomic development and numerous nutritional efforts, the country's nutrition situation still shows continued existence of chronic nutrient inadequacy manifested by protein-energy malnutrition among children, chronic energy deficiency in adults, and deficiencies in iron and iodine among females. Although frank nutrient deficiencies are rare, moderate under nutrition is widespread especially among rural underserved communities, and affects mainly young children and pregnant women.

Data from the National Nutrition Surveillance System of the Ministry of Health showed that the prevalence of severe malnutrition among children below 6 years was 1.5% in 1983 and 1.1% in 1986. It has since been reduced to 0.5% in 1990 and 0.46% in 1993. The same data also showed a decline in the prevalence of moderate malnutrition from 29.7% in 1983 to 24.5% in 1990 and 22.8% in 1993. For adults, no nationwide prevalence figure is available, but data collected in an urban population between 1984-1989 showed that about 9.3% of adults were likely to have chronic energy deficiency.

Iron deficiency anaemia (IDA) was found to affect about 30 to 60% of children between six months and two years in Sarawak, 15 to 30% in Sabah and 12 to 83% in Peninsular Malaysia. Among pregnant women, the prevalence was estimated to be between 30 to 60% among the urban poor. Moderate and severe anaemia (Hb <9g/dl) was reported among 5.4% of pregnant women in 1990 and 5.0% in 1993 at government antenatal clinics nationwide.

Iodine deficiency disorder (IDD) is another serious nutritional concern. In 1971, goitre was found in 25 to 35% of women aged 15 years and above in Kedah, Kelantan, Terengganu, Pahang and Perak. A study in the mid-eighties gave a prevalence of 35% in Kedah. Latest study in 1993, gave an overall prevalence of 37% in Kelantan. Higher prevalence rates between 45 to 93% were reported in Sarawak. In the remote areas of Keningau Division of Sabah, the overall endemicity was 76%.

At the same time, the rapid socioeconomic development and urbanisation of the country has brought to the fore the problem of over nutrition among the more affluent section of the population. The few studies conducted in urban areas indicate that about one quarter to one third of adults are overweight and another 8% are obese. Hyper cholesterolemia among urban male executives was on the rise affecting about 31% for the period 1982-1985. In addition, death due to diseases of the circulatory system has increased twofold from 24.1 to 55.2 per 100,000 between 1970 and 1989.

The mortality rate for malignant neoplasms also increased from about 15 per 100,000 during the 1967-1970 period to almost 20 per 100,000 for the 1986-1989 period. For the past years, an average of 10,000 cancer cases were admitted into government hospitals annually. This has doubled to more than 20,000 per year in 1992. The incidence of diabetes mellitus also rose from 0.65% in 1960 to about 4% in 1991. The problem is more common among the Indians with mortality increasing over the years.

Malaysians have readily available food. FAO data shows an increasing availability of calories from 2375 kilocalorie in 1961-1963 to 2671 kilocalorie in 1988-1990. Protein availability increased from 47 g. to 54 g. while fat availability increased from 48 g. to 92 g. during the same period. The safety of these foods, however, can still be improved to prevent the outbreaks of food and waterborne diseases such as typhoid, cholera, dysentery, food poisoning and hepatitis.

Various measures and interventions have been carried out to alleviate the malnutrition problem in the country. These include programmes in the health, agriculture, education, and rural development and social welfare sectors involving the government, acting in partnership with non-government organisations (NGOs), the private sector, local communities, families and households, international agencies such as WHO, UNICEF, FAO and the World Bank as well as the universities and other centres of higher learning. Intersectoral collaboration and coordination of these measures and interventions can, however, be improved with the adoption and implementation of the NPANM.

The objective of the NPANM is to achieve and maintain the health and nutritional well-being of all Malaysians through access by all to nutritionally adequate diet, safe foods and healthy living conditions in a manner that is environmentally sound and socially sustainable. Specifically the NPANM aims, among other things, to ensure greater incorporation of nutrition considerations in the national development plan, availability of affordable quality and safe foods, reduction of infectious diseases, promotion of breastfeeding, provision of care to the disadvantaged and nutritionally vulnerable, reduction of specific micronutrient deficiencies especially IDD and IDA, promotion of appropriate diets and healthy lifestyles, and strengthening the mechanism to assess, analyse and monitor the nutrition situation in the country.

An important strategy of the NPANM is the strengthening of the organisational structure and mechanism to coordinate efforts related to nutrition improvement in the country. In this respect, the National Coordinating Committee on Food and Nutrition (NCCFN), formed on 1 March, 1994 should be strengthened and given the mandate to advise the government on nutrition issues and promote effective intersectoral cooperation. This should lead to the establishment of a national council for nutrition and facilitate the formulation of a National Food and Nutrition Policy.

It is also recommended that central government agencies should support strengthening technical capabilities and organisational structure of relevant ministries and agencies for nutrition activities through the provision of manpower and budgetary allocations. In addition, the central planning agency should ensure the incorporation of more nutrition considerations in the Seventh Malaysia Plan (7MP).

The availability and affordability of quality and safe foods will be ensured by the incorporation of nutritional objectives, considerations and components in the National Agriculture Policy (NAP) and by strengthening the technical capabilities and institutional mechanism for nutrition of the Ministry of Agriculture. Rice production will be increased by ensuring the conservation of production areas and water sources

while areas for vegetable growing will be zoned to assure reasonable tenure to facilitate extension and regulatory services and marketing. Aquaculture for fish production will continue to be promoted together with food production at household and community levels. Income levels and purchasing power of farmers will be improved by encouraging the private sector to improve rural employment opportunities. In addition, post-harvest losses will be reduced through the establishment of an integrated cold chain for food while the marketing chain will be shortened by encouraging more direct selling of produce to consumers. Nutrition information dissemination and research on food security will also be carried out.

Food quality and safety for consumers will be improved by increasing awareness and inculcating good habits and practices during production, harvesting, transport, storage, processing and marketing through the promulgation and enforcement of food legislation and introduction of code of practice and guidelines. Greater emphasis is, however, given to the preventive and promotive aspects such as food sampling at source under the Hazard Analysis Critical Control Point (HACCP), education of manufacturers, food handlers and consumers on food hygiene and food quality, strengthening quality assurance for the food industries, promotion of good agricultural practices for agricultural producers, as well as monitoring of food advertisements. In addition, there will be strengthening of interagency coordination and collaboration, both within the country and internationally, and intensification of training, research and organisational capability.

The reduction of infectious diseases will be accomplished by strengthening the Universal Child Immunisation (UCI) Programme through multi sectoral cooperation and commitment, improving the logistics of vaccine procurement and supply, maintenance of cold chain and through its incorporation into the Healthy Lifestyle Campaign. The adverse effects of infections on nutritional status will be minimised through advocacy of correct dietary management of infections to the community and health personnel. In addition, mortality and morbidity from diarrhoea and specific food and waterborne diseases will be reduced by improving the environmental programmes that address safe water, human and town waste disposal, and food sanitation programmes. A study on the usage of existing latrines will be carried out and the information system on latrines and water supply will be improved with the Geographical Information System (GIS). In all these efforts, health and nutrition education related to control of infectious diseases for health workers, the community and individuals will be emphasised.

The promotion of breastfeeding will be carried out through nutrition education which will be strengthened with the development and distribution of more educational materials, effective utilisation of the mass media and informing women of their rights to breastfeeding in the work place. More social support such as the provision of child care and breastfeeding facilities at work and public places, longer paid maternity leave of up to two months and breastfeeding breaks will be advocated. In addition, more mother support groups will be made available through the training of lay counsellors, the formation of peer support groups, institutionalisation of support activities by health staff, incorporation of lactation counselling and support services in all maternal and child health clinics, and establishing regional network of the Breastfeeding Advisory Association of Malaysia (PPPIM).

The promotion of breastfeeding will be supported by extending the lactation management training to nursing tutors, private and university hospitals, maternity homes and clinics. A Lactation Information Resource Centre will be established to assist the trainers while the curriculum for nursing and medical personnel will be reviewed. More advocacy activities to improve compliance of the Code of Ethics for Infant Formula Products will be carried out to protect breastfeeding. More studies on breastfeeding will also be done.

Nutritional status of the socioeconomically disadvantaged and nutritionally vulnerable will be improved through improvement in the availability and accessibility of health care facilities to rural and urban poor, isolated communities, adolescent and the elderly, and by encouraging self reliance. This will be carried out by increasing the capability and capacity of the implementing agencies and establishing collaboration with NGOs and the private sector. Programme monitoring will be carried out with the updating of database of the hardcore poor and improve information dissemination while programme review will give greater priorities to human development and economic projects. Care and training will also be provided to the disabled to enable them to reach their potential so as to ensure their opportunities in education, employment and housing. In carrying out these strategies, the family will be recognised and treated as a holistic unit where full participation of men in taking responsibility for the nutritional well-being and support of their families will be encouraged.

The NPANM has also outlined the strategies to prevent and control iodine deficiency disorders (IDD) and iron deficiency anaemia (IDA). For IDD, the strategies include establishing a National Technical Committee, assisted by four Task Forces, to coordinate and oversee the IDD Programme in the country as well as defining the magnitude of the IDD problem through a national IDD prevalence survey. Present regulations on iodised salt shall be reviewed and appropriate legislations enacted based on the results of the prevalence survey. For IDA, the strategy is to evaluate the iron supplementation programme to improve compliance and its effectiveness. It is recommended that the Ministry of Health prepare a guideline for agencies that carry out mineral and vitamin supplementation and, to fortify the full cream milk distributed to children and mothers under the Supplementary Feeding Programme.

The long-term strategy for the improvement of micronutrient status of communities will, however, be through nutrition education and dietary diversification where the production and consumption of micronutrient-rich foods will be encouraged. The NPANM also calls for improved nutrition education coverage of non-pregnant women and the elderly, the conduct of public seminars on micronutrients and the establishment of a National Committee on the Prevention and Control of Micronutrient Deficiencies.

Among the strategies to promote appropriate diets and healthy lifestyles is to review and strengthen the nutrition and dietary component of the Healthy Lifestyle Campaign of the Ministry of Health including the provision of nutrition support services, the incorporation of the promotion of healthy diets as one of its yearly themes, and the intensification of promotional activities in schools. A National Technical Working Group will also be formed to formulate and disseminate the National Dietary Guidelines and review dietary protocols for the management of diet-related diseases. Consideration will also be given to the formulation of a National Desirable Dietary Pattern (DDP) to assist in the planning of appropriate food supply and production.

The NPANM also recommends expanding the provisions in the Food Act 1983 and the Food Regulations 1985 in the area of nutrition labelling and the regulation of health claims and advertisements. In addition, the nutritional value and safety of street foods will be improved through the provision of the necessary facilities as well as training, health education and advocacy to food vendors and food handlers. Consumer education will also be strengthened through the various channels in schools and work place. These will be supported by increasing manpower and budgetary allocations to strengthen street foods sampling and analysis, and enforcement of by-laws and regulations. Greater collaboration with the food industry, the mass media, the NGOs and the consumers will also be encouraged to improve the nutritional quality of fast foods.

Nutrition education will be intensified by encouraging and supporting the production of educational materials by the non-health and private sectors, better planned and sustainable media campaign, and the incorporation of health and nutrition messages in the teaching of the various subjects in schools. Greater emphasis will be given to the promotion of appropriate diets in feeding and food aid programmes as well as during cooking demonstration activities.

Other strategies to promote appropriate diets and healthy lifestyles include the training of community extension workers, the incorporation and strengthening of the curriculum of teacher's training colleges, universities and other centres of higher learning, collection of baseline data on dietary intakes of various population groups, expansion of the Malaysian food composition database, and more interagency involvement and collaboration in the conduct of research. Manpower development in nutrition of both government and the private sector will also be pursued and complemented by encouraging the mobilisation of the NGOs and the community. The government and private sector will also be encouraged to provide more recreational facilities as well as improving the affordability of sporting goods and equipment.

Various strategies are also recommended to strengthen the mechanisms in assessing, analysing and monitoring the nutrition situation in the country. These include the standardisation of data collection methods and assessment criteria, expansion of data coverage and improved dissemination of nutrition information. Detailed measures are recommended under each of the four strategies for nine priority nutrition issues namely, protein-energy malnutrition and obesity in toddlers and preschool children, protein-energy malnutrition and obesity in school children, chronic energy deficiency and obesity in adults, nutritional status of the elderly, low birth weight, breastfeeding and weaning practices, food consumption, micronutrient deficiencies, and diet-related non-communicable diseases.

These measures include the conduct of national surveys on protein-energy malnutrition and obesity, the review of the Recommended Dietary Allowance (RDA) for Malaysians, the adoption of WHO standards, criteria, definitions and classifications, and the carrying out of various studies on dietary intake and habits, feeding practices, as well as studies on breastfeeding and factors contributing to low birth weight.

The implementation of the NPANM will be by the various sectors and coordinated by a network consisting of a national council for nutrition as the highest policy making and coordinating body, the National Coordinating Committee on Food and Nutrition (NCCFN) and several Technical Working Groups (TWGs). The NCCFN will be assisted by a full-time secretariat to be established and placed in the Ministry of Health. The membership of the nutrition council, the NCCFN and the various TWGs will be multi sectoral including those from the NGOs and the private sectors. In addition, a national resource centre to facilitate information sharing and updates on nutrition will be established.

The various ministries, agencies and institutions will be encouraged to establish appropriate sectoral mechanisms to prioritise, develop, implement and monitor the related components of the NPANM using existing organisational structure already at national, state, district and village levels. In this respect, State Governments, district and local authorities as well as the private sector, the NGOs and the village committees will be encouraged to play an active role and to assume their responsibilities to implement the NPANM with appropriate mechanisms for coordination.

Most of the budgetary requirements for the five-year NPANM will come from the normal budget of the various sectors. However, to ensure better implementation and coordination of the NPANM, an additional RM11.1 million will be required. The extra allocation is for the emolument of 18 additional new posts as well as the cost of establishing and administrating a full-time secretariat and for training, advocacy and research.

NATIONAL PLAN OF ACTION FOR NUTRITION FOR MALAYSIA (1996–2000)

1. INTRODUCTION

Following the International Conference on Nutrition (ICN) in December 1992, one major policy decision made was for countries to prepare a National Plan of Action for Nutrition (NPAN) which represents each country's pledge towards the elimination of starvation, widespread under nutrition and micronutrient deficiencies. Towards achieving this objective, the National Coordinating Committee on Food and Nutrition (NCCFN) was established in March, 1994 (Appendix 1).

In order to adequately deal with all relevant areas in food and nutrition in the National Plan of Action for Nutrition of Malaysia (NPANM), nine working groups were established (Appendix 2). Each group was entrusted with the task of providing an updated situational analysis of the issue or problem, a detailed examination of the current intervention strategies (if appropriate) and recommendations for improvement. Preliminary reports from all the working groups were deliberated upon in a workshop held in Universiti Pertanian Malaysia in September 1994. Further detailed discussions were held in another workshop in Port Dickson in December 1994, attended by some 55 participants from 19 organisations (Appendix 3). The workshop deliberations were compiled and further edited by a six-member drafting committee (Appendix 4) in early 1995 to produce this NPANM.

In a country like Malaysia which is undergoing rapid industrialisation, the nutrition and health scenario is in a phase of transition. Hence, besides having to overcome the diminishing problem of under nutrition, Malaysia needs to contend with the emerging problem of over nutrition arising out of the modern and affluent lifestyles such as obesity, cardiovascular diseases, diabetes and certain cancers. The NPANM therefore, will address both ends of the malnutrition spectrum.

In line with the ICN World Declaration and Plan of Action for Nutrition, the main thrusts of the NPANM are:

- (i) incorporating nutritional objectives, considerations and components into development policies and programmes
- (ii) improving household food security
- (iii) protecting consumers through improved food quality and safety
- (iv) preventing and managing infectious diseases
- (v) promoting breastfeeding
- (vi) caring for the socioeconomically disadvantaged and nutritionally vulnerable
- (vii) preventing and controlling specific micronutrient deficiencies
- (viii) promoting appropriate diets and healthy lifestyles
- (ix) assessing, analysing and monitoring nutrition situations.

In view of the wide diversity of these thrust areas, it is imperative that the various ministries, departments, agencies, institutions, non-government organisations (NGOs), the private sector and the community collaborate towards ensuring the successful implementation of the NPANM. Hence, the representation of the NCCFN is multidisciplinary and multi sectoral.

The implementation of this five-year NPANM will be nationwide and operationalised within the framework of the Seventh Malaysia Plan (7MP) (1996-2000) with emphasis given to the socioeconomically and nutritionally depressed groups and areas to help achieve the objectives of the National Development Plan (NDP) towards socioeconomic redress and equity through poverty eradication and restructuring of society.

2. COUNTRY BACKGROUND

2.1 Geography

Malaysia is made up of Peninsular Malaysia and the states of Sabah and Sarawak. Peninsular Malaysia consists of 11 states namely, Perlis, Kedah, Pulau Pinang, Perak, Selangor, Negeri Sembilan, Melaka, Johor, Kelantan, Terengganu, Pahang and the two Federal Territories of Kuala Lumpur and Labuan.

Peninsular Malaysia is separated from the states of Sabah and Sarawak by the South China Sea. Although the peninsular states occupy about 40% of the total land area of 330,438 sq. km., 82.3% of the total population of 17.7 million in 1990 is in Peninsular Malaysia while 8.3% and 9.4% are in Sabah and Sarawak respectively.

2.2 Political and Administrative Structure

Following independence from the British in 1957, Malaysia adopted a constitution which provided for a constitutional monarchy and parliamentary democracy. The head of the country, the Yang di-Pertuan Agong is elected for a five-year term from one of the Sultans, the hereditary rulers of the nine states in Peninsular Malaysia.

In keeping with the concept of federalism which is the basis of government administration, the development of authority occurs both at the Federal and State levels. The distribution of legislative power between the Federal and State Government is given in the Ninth Schedule of the Federal Constitution. While areas such as finance, external affairs, communication, health, education and labour are Federal responsibilities, land, agriculture, local government and Muslim Laws are under State jurisdiction.

Although health and education services are the responsibilities of Federal Ministries, State and Local Government are important partners. Programmes and projects planned at the Federal and State levels are implemented in the districts, sub-districts and village levels. Where local government is concerned, local authorities such as Municipal Councils and District Councils are provided with sufficient authority to operate independently.

2.3 Demographic Profile

An interesting feature of Malaysia's population of 17.7 million in 1990, is its diversity in ethnic origin, language, religion and culture. Within Peninsular Malaysia, the population of 14.6 million consists of 58.2% Bumiputeras (Malays and indigenous people), 31.3% Chinese, 9.8% Indians and 0.7% of others. In contrast, the percentage of Bumiputeras in Sabah and Sarawak is higher than that in Peninsular Malaysia, the proportions being 85.3% and 70.9% respectively. While the Chinese in Sarawak constitute 28.7% of the population, their counterparts in Sabah account for 14.9% of the population.

Peninsular Malaysia and Sarawak registered a population growth of 2.3% in 1990 as compared with 3.6% for Sabah. Between 1991 and 1995, the population of Malaysia is projected to grow at 2.4% per annum to reach 20.2 million by 1995. In terms of gender, the proportion of men (50.4%) and women (49.6%) has hardly changed between 1985 and 1990. The sex ratio suggests that there are 102 males per 100 females.

The population of Malaysia is relatively young with about 37.0% in the 0-14 age group. The population of the elderly is however on the increase.

With regard to rural-urban settlement, a higher percentage of the Malaysian population lives in the rural rather than urban areas. However with increasing industrialisation, the proportion of the urban population has increased from 25% in 1960 to 37% in 1985 and to 41% in 1990. Compared to Peninsular Malaysia, the rural population is much higher in Sabah and Sarawak, the proportions being 74.4% and 79.1% respectively.

2.4 Socioeconomic Profile

The Malaysian economy is growing and continues to be robust and vibrant, with real Gross Domestic Product (GDP) increasing by 8.5% in 1994 (Economic Report 1994/1995). With this achievement, Malaysia has recorded economic growth exceeding 8% for the past seven consecutive years since 1988.

This buoyant growth was spearheaded by the strong performance of exports, particularly of manufactured products. Domestic investment, both public and private, continues to remain high. The Malaysian economy has also almost reached a situation of full employment.

The Gross National Product (GNP) per capita has increased fairly sharply by 37.2% from US\$1,783 in 1985 to US\$2,448 in 1990. The Economic Report 1994/1995 expects that growth in the GNP to rise by 9% from RM8,856 (US\$3,406) in 1994 to RM9,649 (US\$3,711) in 1995.

The Consumer Price Index (CPI), on the other hand is expected to rise at a marginally higher rate of 3.8% in response to demand pressures compared to the 3.6% registered in 1993. The increase in the price indices for food was quite significant. The food sub-index rose by 5.6% and accounted for more than half of the overall CPI increase. The sharp increase in the food sub-index was mainly due to the significant increases in the sub-groups for fish (13.5%), fruits and vegetables (8.9%) and meat (7.7%). The increase reflects supply constraints and distribution bottlenecks as well as domestic and external demand.

Steps are being taken to reduce supply constraints for food. For example in the 1995 budget, an additional RM600 million was allocated to the Food Fund together with a more attractive loan package in an effort to increase output of agricultural and animal produce by the private sector. To further contain the cost of food production, import duties on animal feeds have also been abolished.

The strong economic performance and strong financial standing has enabled high priority to be given for education and health development. Out of the total allocation for social services, education and health received 75.7% of RM8,764 million in the Fifth Malaysia Plan and 79.8% of RM13,468 million in the Sixth Malaysia Plan.

2.5 Health Profile

The health status of Malaysians has improved significantly over the years. The crude birth rate has gradually and steadily declined from 33.9 per 1,000 population in 1970 to 31.3 in 1985 and further to 27.1 in 1992. Concomitantly, the crude death rate has also fallen from 7.3 per 1,000 population in 1970 to 5.3 in 1985 and 4.8 in 1992. Life expectancy for Malaysians at the time of independence in 1957 was only 55.8 years for males and 58.2 years for females. These have improved to the current 69.3 years for males and 73.9 years for females.

Similarly, the vital mortality rates have also shown impressive declines. Infant mortality rate has gone down from 40.8 per 1,000 live births in 1970 to 11.6 in 1992. During the same period, neonatal mortality and toddler mortality rates declined from 22.9 per 1,000 live births and 4.2 per 1,000 toddlers to 7.2 and 0.8 respectively. Maternal mortality rate was also reduced from 1.48 per 1,000 live births in 1970 to 0.2 in 1992.

Birth weights of infants have also improved. The percentage of infants being born with low birth weight has declined from 10.3% in 1980 to 8.3% in 1992.

Incidences of communicable diseases related to poor hygiene, overcrowding and poor nutritional status have also fallen significantly. Of these, diseases with proven effective preventive technology such as vaccines have shown the most impressive decline to such an extent that polio and neonatal tetanus virtually do not occur anymore among Malaysians while diphtheria and pertussis are at very low levels (less than 20 cases per year). Measles have also shown a gradual decline. On the other hand, food borne diseases such as cholera, typhoid and food poisoning still occur sporadically albeit on a downward trend.

As expected for a country moving in transition from a developing to a developed status, Malaysia has begun to face diseases related to modern lifestyles, longevity and industrialisation. Of particular importance are coronary heart diseases, cancer, diabetes mellitus and motor vehicle accidents. The prevention of these diseases require urgent and committed efforts from all sectors.

It is very important to note and acknowledge that the success of Malaysia in achieving the current health status is not attributable solely to the efforts of the health sector since health is determined to a large extent by non-health factors especially overall socioeconomic development, better food availability, better housing and better education, amongst other things.

3. THE FOOD AND NUTRITION SITUATION

In preparing for the ICN in Rome, 1992 a thorough review of the food and nutrition situation in the country was undertaken and published in the Malaysia Country Paper (Tee and Cavalli-Sforza, 1993). The review covered published and unpublished reports up to 1991. The following section highlights the country's situation and provides some updates.

Malnutrition continues to affect various segments of the population in Malaysia despite the rapid economic growth and national development. Protein-energy malnutrition, chronic energy deficiency, iron deficiency anaemia and iodine deficiency disorders are still prevalent among specific communities. Although the severe forms of nutrient deficiencies are rare, moderate under nutrition is widespread among rural communities and also the urban poor afflicting especially young children and pregnant women.

The National Nutrition Surveillance data of the Ministry of Health showed that the prevalence of severe malnutrition among children below six years was 1.5% in 1983 and 1.1% in 1986 (Ministry of Health, 1989). It has since been reduced to 0.5% in 1990 and 0.46% in 1993. The same data also showed a decline in the prevalence of moderate malnutrition from 29.7% in 1983 to 24.5% in 1990 and 22.8% in 1993.

Nationwide prevalence figure for chronic energy deficiency among adults is not available. However, data collected in an urban population between 1984-1989 showed that about 9.3% of adults were likely to have chronic energy deficiency with BMI less than 18.5 (Ismail and Zawiah, 1991).

Iron deficiency anaemia (IDA) has been reported to affect young children and pregnant women in Malaysia since the early 1950's. Several large-scale surveys in the last 15 years showed that the highest prevalence of anaemia are often found in children in the first two years of life. It was estimated that the prevalence among children between six months to two years was between 30 to 60% in Sarawak (Anderson, 1976a, 1976b, 1977a, 1978b), 15 to 30% in Sabah (Chen et al, 1981) and 12 to 83% in Peninsular Malaysia (Chong, 1974, Chong et al, 1979, 1981, 1982, 1983). Among pregnant women, several small-scale studies provide an estimation of the problem to be between 30 to 60% among the urban poor (Tee et al, 1984). Moderate and severe anaemia (Hb < 9 g/dl) seen at government health care facilities have been reported among 5.4% of pregnant women in 1990. In 1993, the prevalence was estimated at 5.0% (Ministry of Health, 1994).

Iodine deficiency is another serious nutritional concern. Goitre had been reported in some areas of Kedah, Kelantan, Terengganu, Pahang and Perak affecting between 25 to 35% of women aged 15 years and above (Polunin, 1971). In Kedah, a study conducted in the mid-eighties showed an overall prevalence of goitre of 35% (Hanis et al, 1987). Latest study in 1993, gave an overall prevalence of 37% in Kelantan (Mafauzy et al, 1993). Higher prevalence rates of between 45 to 93% were reported in Sarawak (Tan, 1982). In the remote areas of Keningau Division of Sabah, the overall endemicity was 76% (Chen et al, 1989).

At the same time, the rapid socioeconomic development and urbanisation of the country has brought to the fore the problem of over nutrition manifested by an increase prevalence of obesity, cardiovascular diseases, diabetes and certain cancers among the more affluent section of the population.

The few studies conducted in urban areas indicate that approximately one quarter to one third of adults are overweight (Jones, 1976, Teo et al, 1988, Ismail and Zawiah, 1991). Data from Ismail and Zawiah, 1991 also showed that about 8% of adults in the urban areas are obese (BMI>30). Hypercholesterolemia among urban male executives was also on the rise. In a study carried out in the early 1970s, less than 12% of urban male workers were found to be hypercholesterolemic. In contrast, 31% were identified as hypercholesterolemic in a study carried out in 1982-1985 (Teo et al, 1988). In addition, death due to diseases of the circulatory system has increased twofold from 24.1 to 55.2 per 100,000 between 1970 and 1989 (Department of Statistics, 1970, 1989).

The mortality rate for malignant neoplasms has also increased from about 15 per 100,000 during the 1967-1970 period to almost 20 per 100,000 for the 1986-1989 period. In 1991, cancer contributed to 9.3% of all mortalities compared with 7.4% in 1975. For the past years, an average of 10,000 cancer cases were admitted into government hospitals annually. This has doubled to more than 20,000 per year (Ministry of Health, 1993).

The incidence of diabetes mellitus rose from 0.65% in 1960 to about 4% in 1991 (Khor and Gan, 1992). Diabetes is more common in the Indian population followed by the Chinese and the Malays. Mortality due to diabetes mellitus is also increasing over the years especially among the Indians.

On food security, data for Peninsular Malaysia shows increasing trend in the availability of calories from 2375 kilocalorie in 1961-1963 to 2481 kilocalorie in 1969-1971 to 2671 kilocalorie in 1988-1990 (FAO, 1993). Protein availability also increased from 47 g. to 49 g. to 54 g. during the same period. In comparison, the increase in the availability of fat, especially vegetable fat, has been more substantial from 48 g. in 1961-1963 to 54 g. in 1969-1971 and to 92 g. in 1988-1990.

Outbreaks of food and waterborne diseases still take place in the country. In 1992, a total of 1764 cases of typhoid including five deaths were reported. The incidence rate was 9.48 per 100,000 population, while the fatality rate was 0.28%. The incidence for cholera was 3.76 per 100,000 population. There were also 372 cases of dysentery including one death as well as 35 notifications and 963 cases of food poisoning. In addition, a total of 1097 cases of viral hepatitis were reported giving an incidence rate of 5.89 per 100,000 population.

4. CURRENT FOOD AND NUTRITION PROGRAMMES

Socioeconomic development in Malaysia is planned over a five year period, and since the First Malaya Plan (1960-1965) after independence, priority has been accorded to rural development, alleviation of poverty and restructuring of society. This emphasis is reflected in all successive Malaysia Plans up to the current Sixth Malaysia Plan (1991-1995). In addition, the country's development is guided by the National Development Policy (1991-2000). This Outline Perspective Plan for the country has also specified alleviation of poverty, redressal of social and economic imbalances within the population and human resource development as the major thrusts.

Given this socioeconomic development framework, rural development and development of social and economic programmes for the population has been the mainstay and strength to support the infrastructure and formulation of sectoral programmes. In the 1960's and 1970's, emphasis was given to the building of infrastructure such as schools and educational institutions, health care facilities, rural community facilities and so on as a basis of development of programmes in the agricultural, education, health and other social sectors and in land and regional development schemes.

Various measures and interventions have been carried out to alleviate the malnutrition problem in the country. These include programmes in the health, agriculture, education, and rural development and social welfare sectors involving the government, acting in partnership with non-government organisations (NGOs), the private sector, local communities, families and households, international agencies such as WHO, UNICEF, FAO and the World Bank as well as the universities and other centres of higher learning.

4.1 Applied Food and Nutrition Programme

Although nutrition intervention programmes have been carried out in this country for many years, the formulation of an intersectoral and coordinated programme only began with the establishment of the Applied Food and Nutrition Programme (AFNP) which was implemented in 1970. The AFNP was coordinated by the Ministry of National and Rural Development and had the Ministries of Health, Education, Agriculture and Information as its major implementation partners. The roles of each sector were identified with the main objectives of improving the health and nutritional status of women and children especially in the rural and disadvantaged areas.

This programme included supplementary feeding, home gardening and environmental sanitation implemented by relevant professionals and field extension workers. Training and information dissemination was carried out through various training courses and educational campaigns. These activities are complemented by the production and distribution of educational materials. The AFNP is presently under review.

4.2 Supplementary Feeding Programmes

Supplementary feeding programmes are carried out by various ministries. The Supplementary Feeding Programme of the Ministry of Health supplies full-cream milk to underweight and anaemic mothers and children from six months to six years. The Ministry of Education provides subsidised milk and free nutritious meals to primary school children while KEMAS provides meals to preschool children, direct food assistance and runs community kitchen.

4.3 Iron and Vitamin Supplementation Programme

Iron supplements, folic acid and vitamin B complex are provided routinely to all pregnant women at hospitals and health care facilities of the Ministry of Health. A study is underway to assess compliance and improve the supplementation regime.

4.4 Iodine Deficiency Disorders (IDD) Control Programme

Control programmes for Iodine Deficiency Disorders (IDD) are being carried out in Sarawak and Sabah and there are plans to extend it to the other states which are known to have high prevalence of IDD.

A National Technical Committee on IDD has been formed as well as four Task Forces. The Plan of Action for IDD, is however, being reviewed for ratification by the National Technical Committee. A National IDD Prevalence Survey had been planned for early 1995. Three laboratories have been upgraded, one each in Ipoh, Kuching and Kota Kinabalu for urinary iodine determination. Three survey teams have also been formed, one each for Peninsular Malaysia, Sarawak and Sabah. Training for urinary IDD determination and ultrasonography have also been carried out. Meanwhile, the Task Force on Food Fortification is finalising the amendments to the Food Regulations 1985 to provide for salt iodisation. The decision on universal salt iodisation is pending on the outcome of the national IDD survey.

4.5 Nutrition Education Programme

Nutrition education by the Ministry of Health is mainly carried out in the health care facilities and in the community. These are carried out either individually or in groups through various forms including dietary counselling, talks, cooking demonstrations and exhibitions. The target groups are mainly mothers and the topics discussed include nutrition for infants, toddlers and preschool children.

Nutrition education is also carried out in schools by the School Health Team. The Ministry of Education has included some aspects of nutrition in its primary and secondary school curricula. It is, however, not taught separately but is integrated in the various subjects. Nutrition is also taught to women under the Farm Family Development Programme of the Ministry of Agriculture through home economics classes.

4.6 Healthy Lifestyle Campaign

The Healthy Lifestyle Campaign of the Ministry of Health is the main programme aimed at creating awareness and encouraging behavioural change in the prevention and control of diet-related lifestyle diseases in the country with specific objectives, strategies and activities. The campaign was launched in 1991 and is on-going until 1996 giving due emphasis to cardiovascular diseases, sexually transmitted disease and AIDS, food hygiene, childhood diseases, cancers and diabetes mellitus.

Activities carried out include anti-smoking campaigns, promotion of healthy nutrition and exercises, obesity control and provision of support services for hypertensive and diabetic patients. The mass media is widely used in the campaign to ensure wide coverage of both urban and rural populations.

4.7 Breastfeeding Campaign

The promotion of breastfeeding is an on-going programme under the Ministry of Health. Regular talks on breastfeeding, lactation management and maternal nutrition are given during child-health, ante-natal and post-natal clinic sessions as well as during home visits.

The Ministry of Health has produced booklets, posters and television commercials as well as newspaper advertisements on breastfeeding. The ministry has also implemented the Baby Friendly Hospital Initiative to ensure a conducive and supportive environment for breastfeeding in all hospitals. In conjunction with this, training have been conducted for health staff at all levels. The Malaysian Code of Ethics for Infant Formula Products which was first drawn up in 1979 was recently revised. The Code covers relevant aspects of marketing, distribution and product information on all infant formula products.

The Malaysian Child Welfare Council and the Malaysian Breastfeeding Promotion Association (PPPIM) with the cooperation of the Ministry of Health carry out breastfeeding promotional activities during the World Breastfeeding Week since its inception in 1992. PPPIM is also active in conducting courses, giving counselling to mothers and in the production and distribution of educational materials on breastfeeding.

4.8 Poverty Eradication Programme

The Programme for the Eradication of Poverty which was initiated in 1989 has several components including food aid and nutrition rehabilitation, educational support and provision of infrastructure and amenities to the poor. This programme is aimed at improving the quality of life of the poor segment of the population including nutrition upliftment.

Health care for the poor includes health and nutrition assessment to malnourished children and their families, provision of food, safe water and proper toilets, intensification of growth monitoring, health and nutrition education as well as home visits, follow-ups and referrals.

Food is provided under the Rehabilitation Programme for Malnourished Children of the Ministry of Health. Basically the objective of the programme is to help rehabilitate moderately and severely malnourished children below 6 years in the country. The programme targets are children from very poor families where all eligible children are provided with monthly rations of local foods high in calories and protein together with mineral and vitamin supplements.

In addition, the families are also provided with intensified medical and health care including health screening and treatment together with health and nutrition education. Those with unsatisfactory environmental sanitation are provided with water supply and toilets. These families are also referred to the other agencies for social and economic upliftment.

Provision of adequate infrastructure and amenities in rural areas particularly roads, water and electricity, is important in redressing poverty as well as uplifting the standard of living and quality of life of rural dwellers. Other activities include village modernisation and the rehabilitation of living quarters for the hardcore poor.

Hardcore poor farmers are provided with farming equipment and materials, training as well as assistance in economic activities such as food processing, mushroom cultivation and honey production and marketing of the products. Improvement in the quality of life of the poor farm families is achieved by increasing women's involvement in economic activities through women-extension groups.

Working in close cooperation with the Government, the non-government organizations (NGOs) and the private sector provide small business loans to the poor, industrial training and job opportunities, educational support for the children of the poor and better housing. In addition, the National Investment Corporation (PNB) provides interest-free loans to the hardcore poor to own shares in a unit trust scheme, the Amanah Saham Bumiputera (ASB).

The Poverty Eradication Programme has helped to reduce the incidence of poverty from 49.3% in 1970 to 15.0% in 1990 for Peninsular Malaysia, from 58.3% in 1970 to 34.3% in 1990 for Sabah and from 56.5% in 1970 to 21.0% in 1990 for Sarawak. For hardcore poverty, the incidence has declined from 6.9% to 4.0% for the period 1985-1990. The incidence of hardcore poverty is highest in Sabah (8.5%). The incidence is 3.6% in Peninsular Malaysia and 3.3% in Sarawak.

Rural and urban poverty have also recorded a downward trend. Within Peninsular Malaysia, rural poverty has declined from 58.7% in 1970 to 19.3% in 1990. Similarly, urban poverty has fallen from 21.3% to 7.3% over the same period. In Sabah, the proportion of poor rural households was 39.1% compared to 14.7% for urban households in 1990. In Sarawak, the proportion was correspondingly 24.7% and 4.9%.

5. OBJECTIVES AND TARGETS OF NPANM

5.1 General Objective

To achieve and maintain the health and nutritional well-being of all Malaysians through access by all to nutritionally adequate diet, safe foods and healthy living conditions in a manner that is environmentally sound and socially sustainable.

5.2 Specific Objectives

- (i) To ensure that nutrition considerations are incorporated into development objectives of all government and non-government agencies.
- (ii) To ensure availability of quality and safe foods at affordable prices to all households at all times.
- (iii) To ensure the quality and safety of food from production to consumption.
- (iv) To reduce the prevalence and severity of infectious diseases through better nutritional status, improvement in primary health services and better living conditions.
- (v) To promote, protect and support breastfeeding among all mothers.
- (vi) To improve the nutritional status of the socioeconomically disadvantaged through improvement in health care and encouraging self reliance.
- (vii) To reduce prevalence of specific micronutrient deficiencies especially IDD and IDA.
- (viii) To improve the health and nutritional status of the population through the promotion of healthy diet and lifestyles.
- (ix) To strengthen the mechanism for assessing, analysing and monitoring the nutrition situation in Malaysia.

5.3 Targets

The NPANM shall aim to achieve the nutrition targets of the National Plan of Action for Child Survival, Protection and Development (Appendix 5) as well as specific targets set in the nine thrust areas.

6. THRUST AREAS

6.1 INCORPORATING NUTRITION OBJECTIVES, CONSIDERATIONS AND COMPONENTS INTO DEVELOPMENT POLICIES AND PROGRAMMES

6.1.1 Background

Nutrition is one of the components that will ensure a sustainable quality of life of each and every individual which in turn is an important determinant of national development. Therefore nutrition issues and related strategies, and programmes have been undertaken in one form or another as an integrated component of the overall social and economic upliftment of the entire population. This strategy was adopted as part of the twin objectives of the New Economic Policy. One of the objectives was the eradication of poverty which has an effect on health and nutritional status of the affected population. The strategies were aimed at all quarters of population in urban and rural areas. They have contributed to the reduction of protein-energy malnutrition, as well as conditions related to micronutrient deficiencies such as iodine, iron and vitamin A.

Despite the numerous interventions being undertaken, under nutrition remains a problem in various population groups. It must be emphasised that lack of comprehensive data should not be misconstrued as absence of problems. On the other hand while under nutrition persists, current scenarios reveal a new set of problems related to poor dietary habits and lifestyles. These include cardiovascular diseases, cancer, diabetes and other related problems such as obesity and hypertension.

Therefore it is imperative that policy makers and planners be made aware of the types and magnitude of the nutritional problems, contributing factors and the feasibility of social and economic interventions. This will ensure the continued incorporation of nutrition considerations into the various sectoral development policies and programmes.

6.1.2 Situational Analysis

Nutrition considerations have been incorporated in the policies, objectives and programmes of some government agencies. However, policies and programmes of other related sectors have not visibly demonstrated their nutrition commitments. This could be due to several reasons, such as the lack of comprehensive data that can convince policy makers and planners on the magnitude and severity of the malnutrition problems, the lack of qualified nutritionists, the lack of coordination among sectors, and the lack of involvement of nutrition experts in policy formulation.

Recent international development such as the World Summit for Children in September, 1990 and the International Conference on Nutrition (ICN) in Rome in December, 1992 have contributed to make central agencies more sensitive on nutrition issues and as a result, the mid-term review of the Sixth Malaysia Plan (6MP) has incorporated more nutrition objectives, strategies and programmes. With this development, it is hoped that the Seventh Malaysia Plan (7MP) will accord greater emphasis on nutrition issues.

6.1.3 Recommendations

6.1.3.1 Objective

To ensure that nutrition considerations are incorporated into development policies, objectives and programmes of all government and non-government agencies.

6.1.3.2 Strategies and Activities

- (i) Since nutrition issues are multi sectoral based and integrated closely with human development, a national level mechanism such as the National Coordinating Committee on Food and Nutrition (NCCFN) formed on 1 March, 1994 should be strengthened and given the mandate to promote effective intersectoral cooperation, to analyse and advise the government of the effects of macro-level policies and development plans on the nutritional situation and to facilitate the formulation of nutrition policies and programmes.
- (ii) Establishment of a national council on nutrition.
- (iii) Formulation of a National Food and Nutrition Policy.
- (iv) Acquiring support of central agencies to strengthen technical capabilities and improve organisational structure of relevant ministries and agencies for nutrition activities through the provision of manpower and budgetary allocations.
- (v) Ensuring incorporation of nutrition considerations in the introduction section and in the various sectoral components of the Seventh Malaysia Plan (7MP) document.

6.1.3.3 Monitoring and Evaluation

The incorporation of nutrition issues in sectoral and national development plans will be reviewed during the mid-term review of the Seventh Malaysia Plan (7MP).

6.2 IMPROVING HOUSEHOLD FOOD SECURITY

6.2.1 Background

Household food security refers to the ability of the household to produce or buy sufficient, safe and good quality food to meet the dietary needs of all its members. It is concerned with how households produce, acquire and utilise food, earn and spend their income, as well as how households use savings to protect food consumption and cope with economic hardships.

Food security and adequate nutrition are beneficial outcomes in themselves as well as important inputs to economic development. Food insecurity, and the frequently extreme efforts taken by affected households to avert it, leads to much human suffering. In addition, it results in substantial productivity losses in both the short and long run due to reduced work performance, lower cognitive ability and school performance.

The efforts to secure food may also have important implications for the environment and for natural resource utilisation. Many of the poor and food-insecure households already live in ecologically vulnerable areas. Inappropriate or desperate land use practices can cause environmental degradation, which in turn, can further undermine the livelihood of those who lack food security.

It cannot be denied that an increase in food availability to the households has made immense contributions to improving household food security as well as the well-being of children and adults in Malaysia. This is reflected by the decline in the prevalence of protein-energy malnutrition in children and underweight adults in Malaysia.

The growing concern on the emergence of chronic diseases has, however, brought to the fore the need to formulate appropriate nutritional goals. This includes the provision

and consumption of foods which are of the quality and in the quantities that are necessary to promote and sustain nutritional health while at the same time to reduce the risk of developing diseases such as cardiovascular diseases, obesity, diabetes and cancer.

6.2.2 Situational Analysis

Malaysia is a net food importer. In view of its ability to generate foreign exchange earnings and its liberal trade policy, Malaysia is able to import food to complement local production so that there is adequate supply of food at the national level. This together with the generally equitable distribution of income, and the special programmes for the chronically poor has resulted in Malaysia being categorised as a nation with high household food security. The FAO gave a rating of 89.1 for the period 1991-1993 in its report on World Food Security in 1994 (FAO, 1994). This placed Malaysia above Indonesia and Thailand.

The thrust of agricultural development in Malaysia has been set out in the National Agriculture Policy (NAP) (1992 - 2010). Among its strategies is the development of a dynamic food industry. This aims for the creation of a strong local food production and processing industry to supply the country's needs both in terms of quantity and quality.

Target of self sufficiency levels (SSL) for the major food commodities have been set as follows:

Commodity	Self Sufficiency Levels (%)	
	1990	2000
Rice	73	65
Vegetables	73	115
Fruits	99	115
Fish	113	160
Beef	30	30
Mutton	10	30
Poultry	115	139

Source : Government of Malaysia (1984), National Agriculture Policy.

Rice is the staple food of Malaysians and thus has been accorded special government attention. The price of rice to farmers is guaranteed and they further enjoy price and fertiliser subsidies. The selling price of the main grade is fixed. In addition, the government spends vast amounts to provide and improve infrastructure for rice growing. The government also maintains a stockpile of 92,000 tonnes equivalent to one month's supply. The targeted SSL is however under threat because of the conversion of land to other uses. The expected tight market of rice due to a similar phenomenon worldwide is a cause for concern.

Fruits and vegetables are a rich source of vitamins and minerals and the consumption of these items is encouraged. However, there is public concern over the excessive use of pesticides by vegetable farmers. Pesticide levels of vegetables at retail level is being monitored by public health authorities using powers under the Food Act, 1983. There is as yet no effective mechanism for trace back to the source of vegetable exceeding maximum residual levels.

Fish is the principal source of animal protein of Malaysians. Supply has been enhanced by the encouragement of deep sea fishing. However, this has not been sufficient to make up for the increase in demand due to population increase. The market for fish is characterised by price volatility due to seasonality of supply. Aquaculture which has been identified as having the greatest potential for increasing the supply of fish faces the problem of pollution which makes production in the affected sites unsustainable.

The government ensures that prices of essential goods are reasonable through the Price Control Act. Of late the price of food has been a major contributing factor to inflation and this is of concern to the government. As a measure to stimulate food production, the government launched the Food Fund which provides loans at 4% interest. The government is committed to achieving zero inflation and thus attention must be focused on measures other than the Food Fund towards lowering the cost of production and increasing food supply.

Nevertheless, the government recently reviewed the NAP in view of the overall changes that have taken place in the economy and developments in international trade. It has been shown that the agricultural sector was facing several emerging and persistent constraints that hinder its present and future development. The revised NAP, for the period 1992 to 2010, was formulated to create a market-led, commercialised, efficient, competitive and dynamic agricultural sector in the context of sustainable development. The structural transformation and rationalisation of activities in the sub-sector will be the main mechanisms for change. The process will allow it to contribute and benefit from the growth and development of the economy as the latter moves to an industrialised state. The NAP highlighted the importance of several important food crops for household consumption including rice, meat, fruits and vegetables.

The marketing system of some agricultural produce is characterised by lack of transparency and inordinate power of market intermediaries. This has resulted in high market margins and low returns to producers. Among the challenges facing food production are the loss of production areas due to urbanisation and industrialisation and the high cost and shortage of labour.

Price volatility of fish and vegetables is a characteristic of the Malaysian market. In some cases this is due to natural causes, such as seasonality and weather conditions. In other cases it is due to a lack of coordination in production resulting in supply being out of tandem with demand.

During emergency, three main agencies are responsible for food supply. The Ministry of Domestic Trade and Consumer Affairs is responsible to ensure sufficient stock of food at reasonable prices whilst the National Rice and Padi Board (LPN) has the task of ensuring sufficient supply of rice. The Ministry of National Unity and Community Development is responsible for the acquiring, storing and distributing of food before, during and after the occurrence of disasters. In the case of floods, especially during the monsoon seasons, the Ministry will be responsible for the storage of the necessary food supplies including rice, milk and cooking oil.

6.2.3 Recommendations

6.2.3.1 Objective

To ensure availability of quality and safe foods at affordable prices to all households at all times.

6.2.3.2 Strategies and Activities

- (i) The National Coordinating Committee on Food and Nutrition (NCCFN) will review the National Agriculture Policy (NAP) to ensure the incorporation of nutritional objectives, considerations and components.

- (ii) The Ministry of Agriculture should strengthen its technical capabilities and institutional mechanism to integrate nutrition considerations in agriculture and rural development projects.
- (iii) Rice production should be enhanced by ensuring that production areas in the granaries, and their water sources are conserved and yield increased through R&D and wider use of certified seeds. Areas should also be zoned for vegetable growing in all states so that farmers are assured of reasonable tenure and to facilitate extension and regulatory services, and marketing. To ensure the use of good agricultural practices, particularly the safe use of pesticides, a system of accreditation of farms should be introduced. Aquaculture for fish production should be encouraged.
- (iv) Post-harvest handling, packaging, storage, preservation, transport and distribution of food, especially fish and vegetables, should be improved to reduce losses at all stages. The establishment of an integrated cold chain for food from production to distribution will lower post-harvest losses and thus enhance food supply.
- (v) Household food security can be enhanced by the encouragement of home and community gardens in both the rural and urban areas. Training courses shall be organised by the Department of Agriculture and gardening kits made available.
- (vi) Market transparency can be enhanced by promoting auctioning in wholesale markets. Farmer's Market which allow producers to sell direct to consumers and thus shorten the marketing chain should be improved and expanded.
- (vii) Food security may be further enhanced through improved employment opportunities, particularly in rural areas by encouraging the private sector to augment such opportunities in agriculture, industry, handicraft and business.
- (viii) There should be more effective dissemination of nutrition information to improve the selection of safe and adequate diet, food production, processing, storage and handling techniques at all levels.
- (ix) Research should be carried out to improve production, utilisation and preservation of traditional foods, household handling of food and intra family food distribution. In addition, research should also be carried out on appropriate cost-effective indicators to measure household food security problems and to measure progress of appropriate programmes in solving those problems.

6.2.3.3 Monitoring and Evaluation

Food security indicators should be included in a national nutrition surveillance system. In addition, food prices and production costs should be continuously monitored.

6.3 PROTECTING CONSUMERS THROUGH IMPROVED FOOD QUALITY AND SAFETY

6.3.1 Background

Food is vital to the survival of mankind. It has been reported that enough food is produced every year to give human beings three times more food per day than we need to live on. Yet untold suffering has been caused by the shortage of food in some countries. This situation is further aggravated by poor food safety measures causing diseases particularly diarrhoea which further deplete the body's nutrients. Diarrhoeal diseases are responsible for an estimated four to five million deaths annually among children under the age of five. Therefore, having access to food alone does not ensure health. The food must be safe for consumption and be free from substances that may adversely affect health.

The Food Quality Control (FQC) Division of the Ministry of Health is the central agency in-charge of the food safety programme in the country. The general objective of the Division is to help protect the public against health hazards and fraud in the preparation, sale and use of food. The Division also strives to motivate and promote safe and hygienic preparation, handling and sale of food in all sectors of the food industry. The Division also motivates the public and provides the consumers with adequate information on the importance of eating safe and quality food.

The rapid development of the food industry and technology, and the extensive growth in production and sale of food has led to the need for a systematic approach in the implementation of the Food Quality Control Programme. Priority is given to solve health hazards such as microbiological contamination. Activities are geared towards solving problems at the source whereby focus is directed towards getting industries to comply voluntarily to the specific health safety requirements. Legal actions are being taken whenever necessary to protect the health of the public.

Continued emphasis is given to high risk groups such as school children by regular inspection of school canteens and hostel kitchens. Poor food handling practices among food handlers are given due emphasis, with extensive health education activities conducted to overcome the problem. Close collaboration with other agencies related with production and sale of food, consumer organisations and food industries is being continuously strengthened.

6.3.2 Situational Analysis

6.3.2.1 Regulatory Activities

Premise inspections remain the main activity of the Food Quality Control Programme. Premises inspected include hawker stalls, restaurants, school canteens, hostel kitchens, food caterers, backyard industries, markets, pasar malam (night markets), pasar tani (agriculture markets), food factories, godowns, etc. These inspections were intensified during specific periods of crisis and prior to festive seasons. Adequate measures are taken to inspect every premise once a year and repeat inspections conducted when necessary.

A new approach in food inspection has been introduced in 1989 incorporating the Hazard Analysis Critical Control Point (HACCP). This approach emphasises on food sampling being taken at source, i.e. at the site where the foods are being produced or where the specific problem is anticipated. The target and priorities of food sampling activities are contained in the National Planned Activities (NPA), and amount to 70% of the total target of food samples. The remaining 30% of the total target is left to be prioritised by individual states, in accordance with the problems encountered by the states. The prioritisation of sampling according to food problems is as follows:

Food Problem	Percentage
Microbiology	30%
Industrial & Environmental Pollutant	20%
Pesticide Residue	15%
Food Additives	15%
Foreign Matters	8%
Economic Cheats	8%
Drug Residue	4%

Prioritisation on the group of food commodities has also been identified under the NPA. This was based on perceived problems that could be found in specific groups of food, and to ensure a wide range of coverage as far as type of food groups and type of food problems are concerned.

Intensive efforts have been made both by the Ministry of Health and the Ministry of Agriculture in the control and monitoring of pesticide residues in vegetables. Samples have been taken at different levels of the food chain such as farms, collection centres and retail outlets while sampling of imported fruits is continuously being carried out at entry points. Over the years (1987-1989), analysis of vegetables from the latter source showed that there had been encouraging decline in EBDC violations both in leafy and non-leafy vegetables. However, there appears to be an increase in the detection rate for methamidophos. The Ministry of Health, with the technical assistance from the Ministry of Agriculture is in the process of reviewing the existing surveillance programme. Some of the proposals include concentrating efforts in analysing only a limited range of vegetables and to carry out more stringent checks and stepping up health education and dialogues in addition to enforcement of existing laws.

6.3.2.2 Food Standards Development

The legislation and regulations currently enforced in Malaysia are the Food Act 1983 and Food Regulations 1985. In response to requests from the food industry, consumer bodies and in keeping with the latest information, several amendments to the 1985 Regulations have been made in 1987, 1988, 1990 and 1991.

Several code of practices and guidelines have been drawn up under the Food Quality Control Programme. These include:

- (i) Code of Practice for Food Hygiene (1980)
- (ii) Code of Practice for the export of frozen cooked prawns (1980)
- (iii) Code of Practice for the processing and refining of edible palm oil, palm olein and palm stearin (1985)
- (iv) Guidelines for school canteens (1989)
- (v) Code of Practice for Hawkers/Street Food (just completed, awaiting implementation).

Besides the above mentioned, there are local authority by-laws pertaining to food hygiene and safety which are complementary to the main food legislation.

6.3.2.3 Import and Export Control

For the year 1989, Malaysia's food trade amounted to a total of RM4,563,857,783 in imports, RM2,869,815,000 in exports and RM48,369,307 in re-exports. Major imports included cereal and cereal preparations, sugars and sugar preparations, dairy products, bird eggs, vegetables and fruits. Coffee, tea, spices, fish, crustaceans and live animals comprised the major exports.

Food imports to the country were controlled via 24 major entry points and food consignments are inspected for general compliance including radionuclide inspections. Quality control for food export is mainly carried out for cooked, frozen and peeled prawns and palm oil.

6.3.2.4 **Street Foods**

The Ministry of Health has prepared a Code of Practice for Hawker/Street Foods which will be implemented soon. This Code is intended as a guide to the hawker food industry and addresses aspects of the following:

- (i) General requirements eg. licensing conditions for pest control, display of notices
- (ii) Hawkers' health status, personal hygiene and training
- (iii) Design and structure which includes location, structure of trade and sanitary facilities
- (iv) Equipment
- (v) Food preparation i.e. requirements for ingredients, cooking and handling, serving of food, unsold food, transportation of ready-to-eat food and food storage
- (vi) Customer facilities
- (vii) Hawker centre requirements.

If the provisions of this Code are followed, the public is expected to enjoy a higher degree of food safety, quality and hygienic practices from hawker sources. The Code is intended to be relevant to the hawker industry for the next five to ten years.

This Code is also intended to act as a catalyst for supporting infrastructural needs of the hawker trade. Through the proper administration of this Code and health education, it is hoped that there will be voluntary cooperation and compliance by the hawker industry. In addition, enforcement of existing food safety regulations will be conducted through periodic checks.

6.3.2.5 **Food Laboratory Services**

Laboratory services for food quality control activities are provided by several laboratories. The Chemistry Department laboratories at Petaling Jaya, Penang, Ipoh, Johor Bahru, Kuala Terengganu, Kuantan, Kota Kinabalu, Kuching and Bintulu provide laboratory services for purposes of legal enforcement, monitoring and surveillance, import and export control.

Seven food quality control laboratories under the Ministry of Health are in operation since 1989. These are located in various strategic towns in the country, namely in Kelang, Penang, Johor Bahru, Kuching, Kota Kinabalu, Kuala Terengganu and Kangar. These laboratories provide analytical services for monitoring of local food, control of food import and export, monitoring of crisis situations as well as carrying out surveys. Presently, these laboratories of the Ministry of Health carry out only microbiological analysis of food samples except for the laboratory at Kelang which carries out limited parameters of chemical analysis of food on a routine basis. The laboratory at Penang also began chemical analysis of food on a trial basis.

Other government agencies which provide laboratory services are the Department of Agriculture and the Malaysian Agricultural Research and Development Institute (MARDI). The former monitors pesticide residue contamination of vegetables, while the latter assists in the development of food standards.

In addition to the above mentioned government laboratories, three private laboratories have been accredited for analysing cooked, frozen and peeled prawns for export. The Committee for Accreditation of Private Laboratories visits these laboratories for spot checks.

6.3.3 Recommendations

6.3.3.1 Objectives

General Objective

To ensure quality and safety of food from production to consumption.

Specific Objectives

- (i) To ensure food are produced, processed, stored and handled in a sanitary manner.
- (ii) To ensure that the quality of food is maintained during production, post-harvest handling, processing, storing, distribution and consumption.
- (iii) To ensure producers adopt good agricultural practices.
- (iv) To ensure foods are:
 - (a) free from contamination, unnecessary or fraudulent additives
 - (b) comply with the required standards
 - (c) labelled and advertised properly, adequately and not misleading
- (v) To ensure food imported into this country is safe and complies with the prescribed standards and regulations.
- (vi) To ensure food exported from this country complies with the standards required by the importing country.
- (vii) To ensure that the public receive adequate information regarding health aspects related to food.

6.3.3.2 Strategies

- (i) Promulgation and enforcement of food legislation and introduction of codes of practice and guidelines. Greater emphasis is given to the preventive and promotive aspects, not merely the enforcement of the regulation.
- (ii) Strengthening food import and export control activities.
- (iii) Encouraging solution of problems at source such as during the processing of food by the implementation of HACCP and good manufacturing practice.
- (iv) Increasing awareness and inculcating good habits and practices amongst the food handlers and consumers regarding food hygiene and food quality.
- (v) Strengthening quality assurance for food industries and good agricultural practices for agricultural producers.
- (vi) Monitoring and surveillance of food produced and sold locally.
- (vii) Monitoring of food advertisements.
- (viii) Providing information to consumers on safety and quality aspects of food.
- (ix) Strengthening coordination and collaboration with other agencies responsible for food control, both within the country and internationally.
- (x) Strengthening and intensify training, research and extension activities.
- (xi) Strengthening of organisational capability.

6.3.3.3 Activities

- (i) Development of food legislation and guidelines
 - Formulation of Food Hygiene Regulations
 - Formulation of Food Import and Food Export Regulations
 - Formulation of Guidelines on Food Sampling
 - Development of Guidelines and Codes of Practice on Aquaculture
 - Development of Guidelines on Food Advertisements
 - Development of Guidelines on Nutrition Labelling
 - Revision of the Animal Ordinance 1953
- (ii) Improve food sampling and food premises inspection through HACCP and GMP.
- (iii) Food Handlers Research and Training
 - Establish Food Handlers Research and Training Unit at the ministry level
 - Establish Food Handlers Training School at the state level
 - Develop a database Register of Food Handlers at ministry, state and district level.
- (iv) Food Industry Advisory and Consultative Services
 - Provide advisory and consultative services to food industries and agricultural producers
 - Strengthen health education activities such as seminar, forum, dialogues, etc.
 - Develop a database Register of Food Industries and Agricultural Producers at ministry, state and district
 - Formulate and implement guidelines on quality assurance of small and medium scale food industries (SMI) and agricultural producers
 - Promote voluntary compliance through ISO 9000 by large scale and multinational food industries
 - Strengthen intersectoral collaboration among relevant agencies such as the Ministry of Agriculture, Ministry of Health, MARDI, Universities, SIRIM, FAMA, Veterinary Department etc.
- (v) Laboratory Support Services
 - Establish a mini laboratory at each entry point for rapid screening tests
 - Strengthen the Food Quality Control laboratories with specialisation
- (vi) Establish a computerised information network for the Food Quality Control Programme.
- (vii) Establish Food Import, Export Inspection and Certification Unit which looks into regulations, policy, guidelines on food export control activities, proper coordination and monitoring as well as certification based on quality assurance principles such as ISO 9000.
- (viii) Establish a mechanism to screen food advertisements.
- (ix) Intensify consumer education including the use of mass media towards encouraging active participation in the Food Quality Control Programme.

- (x) Conduct Periodical Food Basket Survey on nutritional quality and food safety.
- (xi) Participate in the GEMS/food contamination monitoring and assessment programme.
- (xii) Intensify research in priority areas.
- (xiii) Establish a scheme for the accreditation of farms.
- (xiv) Improve post-harvest handling of agricultural produce.
- (xv) Intensify training in post-harvest handling of agricultural produce.
- (xvi) Intensify training of personnel to increase efficiency and effectiveness of the food quality and safety programme.
- (xvii) Monitor the sale and nutritional claims of food supplements in collaboration with the Drug Control Authority.

6.3.3.4 Monitoring and Evaluation

- (i) The incidence of food poisoning cases.
- (ii) Number of food handlers trained.
- (iii) Number of food premises rated more than 75%.
- (iv) Percentage of food complying with the food legislation.
- (v) Monitoring of quality assurance indicators to food industries and agricultural producers.
- (vi) Number of farms accredited.
- (vii) Volume of agriculture produce from accredited farms.

6.4 PREVENTING AND MANAGING INFECTIOUS DISEASES

6.4.1 Background

The interaction between nutrition and infection, often called the “*malnutrition-infection complex*” (MIC), remains the most prevalent public health problem in the world today. Control of infectious diseases and dietary/nutrition interventions are of major importance in breaking the cycle of malnutrition and infection. Prevention of infection and management of infectious diseases involves the reduction of their incidence, duration and severity. Priority areas of action include health education, environmental health and food hygiene, immunisation, curative care, growth monitoring and promotion, and primary health care.

6.4.2 Situational Analysis

6.4.2.1 Areas of Concern

An analysis of the causes of deaths in infants and children in Malaysia revealed that the majority of them had died from conditions such as prematurity, acute respiratory infections and bronchopneumonia from measles complications.

Other areas of concern include:

- (i) Food and waterborne diseases which are still a major cause of morbidity in the country

- (ii) Parasitic infections
- (iii) Immigrant health which is assuming greater importance as a result of the continuing influx of immigrant workers into the country
- (iv) Management of infectious diseases
- (v) Inadequate immunisation coverage of high risk groups
- (vi) Environmental health programmes
- (vii) Growth monitoring and promotion
- (viii) Primary Health Care

6.4.2.2 Activities

(i) **Promoting immunisation, especially against measles and whooping-cough**

The incidence rate of most of the immunisable diseases have declined. Except for the three isolated cases of poliomyelitis in 1992, which have occurred as a result of specific identified social factors, Malaysia has been virtually free of poliomyelitis since 1986. The incidence rate of whooping cough has been reduced from 0.79 per 100,000 in 1979 to 0.09 per 100,000 in 1993, that of measles has declined from 47.94 per 100,000 to 2.66 per 100,000 over the same period. Diphtheria cases have declined from 1,983 in 1961 to 4 in 1993. The immunisation coverage for the third dose of poliomyelitis has increased from 54.6% in 1983 to 89.7% in 1993. The third dose of triple antigen (DPT3) coverage for children below one year of age has increased from 54.6% in 1983 to 89.7% in 1993.

(ii) **Avoiding mosquitoes by eliminating breeding sites and using impregnated bed-nets**

The current strategy is mostly focussed on the reduction and total elimination of mosquito breeding in selected areas. This is in view of the current reduction activities to control mosquito-borne diseases such as malaria, dengue fever/dengue haemorrhagic fever, filariasis, etc. In some areas, insecticide impregnated mosquito bed-nets have been used successfully in preventing mosquito bites and subsequently interrupting the transmission of the malarial parasites.

Specific health programmes to prevent tropical infections and infestations through immunisation and vector control can exert a positive influence on nutrition. In addition, precautions need to be taken to ensure that new or existing development activities do not create additional nutrition and health problems.

(iii) **Promoting improved water supplies, sanitation and personal hygiene**

Appropriate measures are being taken to ensure that safe food and safe water supplies are readily available in sufficient quantities to provide adequate environmental sanitation for all and to improve waste disposal systems.

Environmental health programmes that address safe water, human and town waste disposal and adequate housing have the potential to significantly reduce morbidity from various water and foodborne infections.

The National Environmental Sanitation Programme has greatly improved the availability of sanitary toilets and safe water to most parts of the country. Foodborne diseases are however still prevalent in certain identified areas and need to be controlled since they are important causes of diarrhoea, as are many other infections caused by bacteria, viruses, mycotoxins and parasites.

(iv) Promoting the dietary management of infection, especially diarrhoeal diseases

Appropriate nutrition management has been shown to be effective, in the prevention and reduction in severity of diseases especially diarrhoeal diseases. Early and adequate curative treatment of infectious diseases is critical in maintaining good nutritional status. An example is oral rehydration therapy for diarrhoea, which is now widely accepted and used in the government and private clinics. Adequate food intake during and after diarrhoeal episodes reduces the impact on nutritional status and hastens recovery. Community-based treatment for acute respiratory infections, diarrhoea, malaria and childhood and parasitic diseases has helped prevent malnutrition. The availability of essential drugs had influenced the utilisation of health services and they have succeeded in shortening disease episodes and improving nutritional status.

(v) Providing appropriate health and nutrition education for health workers, communities, parents and other individuals

These are being provided through the regular health promotion activities which are targeted towards the groups engaged in or are responsible for nutrition related activities.

6.4.3 Recommendations

6.4.3.1 Control of EPI Diseases

(i) Objective

To strengthen the Expanded Programme on Immunisation (EPI) to control diseases with special emphasis on:

- poliomyelitis eradication.
- neonatal tetanus elimination.
- measles reduction.

(ii) Targets

- Eradication of poliomyelitis by the year 1995.
- Reduce the incidence rate of neonatal tetanus from 0.06 per 100,000 in 1990 to 0.01 per 100,000 by 1995.
- Maintain zero measles deaths as achieved in 1990.
- Reduce cases of measles from 563 in 1990 to 56 cases by the year 2000.
- Immunisation coverage of more than 90% of children less than 1 year of age by the year 2000.
- Increase the immunisation coverage of tetanus toxoid for women of child-bearing age from 81.5% in 1990 to 85.0% by the year 2000.

(iii) Strategies

- Documentation of separate disease statistics for indigenous and imported cases.
- Strengthening the Universal Child Immunisation (UCI) Programme through multisectoral cooperation and commitment in immunisation activities, improving the logistics of vaccine procurement and supply, maintenance of cold chain and incorporation into the Healthy Lifestyle Campaign.
- Provision of primary immunisation against tetanus toxoid to immigrant women of child bearing age group.
- Instituting community-based surveillance for neonatal tetanus.

(iv) Activities

- Carry out specific national surveillance of these diseases.
- Continue mobile campaigns to improve immunisation coverage among:
 - estate population.
 - immigrant families.
 - Orang Asli.
 - urban slum population.
 - defaulters.
 - non-acceptors.
- Install solar-powered refrigerators in selected health facilities.

(v) Monitoring and Evaluation

- No. of cases of acute flaccid paralysis (AFP).
- Measles incidence rate.
- Neonatal tetanus incidence rate.
- Immunisation coverage by population groups, locality and completion dose of immunisation.

6.4.3.2 Dietary Management of Infectious Diseases

(i) Objective

To promote the dietary management of infectious diseases especially diarrhoeal diseases.

(ii) Strategies

Advocate correct dietary practices during illness especially diarrhoeal disease, measles and acute respiratory infections (ARI).

(iii) Activities

- Strengthen community based treatment activities
- Strengthen the dietary management component under Control of Diarrhoeal Disease Programme (CDD).

(iv) **Monitoring and Evaluation**

Evaluation of knowledge, attitude and practice (KAP) of the community and health personnel.

6.4.3.3 **Diarrhoeal and Specific Food and Water Borne Diseases**

(i) **Objective**

Reduction of mortality and morbidity of diarrhoeal cases and specific food and waterborne diseases.

(ii) **Target**

Reduce the incidence rate of diarrhoeal disease from 1874 per 100,000 in 1990 to 1381 per 100,000 by the year 2000.

(iii) **Strategies**

- Strengthen existing Control of Diarrhoeal Diseases Programme (CDD).
- Review current control programmes for specific food and waterborne diseases.

(iv) **Activities**

- Further strengthen and improve environmental and food sanitation programmes.
- Further intensify environmental health programmes that address safe drinking water, and human and town waste disposal.

(v) **Monitoring and Evaluation**

- Study on the usage of existing sanitary latrines.
- Geographical information system (GIS) on sanitary latrines and safe water supply.

6.4.3.4 **Health and Nutrition Education to Control Infectious Diseases**

(i) **Objective**

To provide appropriate health and nutrition education related to control of infectious diseases for health workers, community leaders and other individuals.

(ii) **Strategies**

Strengthen nutrition education through existing mechanisms, MCH clinics and Healthy Lifestyle Campaigns.

(iii) **Activities**

- Intensify activities in priority areas.
- Develop, produce and distribute quality health and nutrition education materials.
- Provide appropriate training to health workers on effective way of imparting health education.

6.4.3.5 Monitoring and Evaluation

Conduct studies on knowledge, attitude and practice (KAP) of health workers, community leaders and other individuals.

6.5 PROMOTING BREASTFEEDING

6.5.1 Background

Current world health priorities are focussed on preventing disease and death in young children. In the last few years, it has become clear that seven simple and practical activities can be effective in saving millions of children's lives. These programmes, summarised by the acronym GOBI FFF forms the core of the Child Survival and Development strategies and they represent growth monitoring, oral rehydration salt (ORS), breastfeeding, immunisation, family planning, food and nutrition and female education.

Breastfeeding has an important role in all aspects of GOBI FFF. It is widely recognised that breastfeeding, specifically exclusive breastfeeding for the first four to six months and continuing thereafter with appropriate complementary foods constitutes optimal infant feeding practices. Breast milk provides optimal nutrition and promotes child's growth and development. It provides protection against diarrhoea and infectious diseases. Breastfeeding benefits women's health, and has been associated with lowering the risk of ovarian and breast cancers and offers psychological benefits by the emotional bonding created between the breastfed infant and mother. Exclusive breastfeeding contributes significantly to child spacing and reduces fertility rates.

Recent scientific literature shows that breastfeeding is a single programme intervention that can save more infant lives and prevent more morbidity than any other intervention strategy. Breastfeeding currently saves six million infant lives per year from diarrhoea and acute respiratory illnesses.

6.5.2 Situational Analysis

6.5.2.1 Breastfeeding Trends

The percentage of women who breastfed declined from 92% in the early 1950's to 78% in the early 1970's. However, there was a reversal in the 1970's. The breastfeeding rates in 1975 and 1976 were significantly higher than the rates in the early 1970's. In the late 1980's the rate is 85% (Malaysian Family Life Survey - II 1988).

Of women who initiated breastfeeding, the durations of total breastfeeding is much longer for Malays (between 9 and 12 months over the period 1962-1988) than for Chinese and Indians. The average for Chinese is around one month. The duration of breastfeeding for the Indians is also generally less than the WHO's recommended duration for exclusive breastfeeding. Over the same period, the less educated women breastfed longer than the more educated women (Malaysian Family Life Survey - II 1988).

6.5.2.2 Factors Related to Breastfeeding

(i) Ethnicity

Generally, most studies have shown that the incidence of breastfeeding is lowest among the Chinese varying from 35.0% to 46.0% (Chen, 1978 and Malaysian Population and Family Survey, 1984/85). By comparison, the incidence of breastfeeding among Malay and Indian mothers is much

higher, ranging from 78.0% to 98.0% among the Malays and 55.0% among the Indians (Chen, 1978 and Malaysian Population and Family Survey, 1984/85).

(ii) Employed vs Non-Employed

There is very little difference in the percentage of infants put to the breast by working mothers (74%) and non-working mothers (73%) (Melaka Medical and Health Department, 1985). The same survey, however, indicated that the duration of breastfeeding was found to be longer among non-working mothers than working mothers where 45% of working mothers breastfed their babies for 6 months as compared to 23% of working mothers.

(iii) Rural vs Urban

The incidence of breastfeeding among rural mothers was found to be 92.0% while the incidence for urban mothers was 67.0%. It was also found that urban mothers breastfed their youngest offspring for a much shorter duration than rural mothers (Malaysian Population and Family Survey, 1984/85).

(iv) Parity

The incidence and duration of breastfeeding increase with higher parity (Malaysian Population and Family Survey, 1984/85 and Melaka Medical and Health Department, 1985).

(v) Pre-disposing Factors

Besides ethnicity, employment, rural or urban living and parity that are described above, a study by Soh (1984) also revealed other factors that affect breastfeeding practices. These are summarised below:

- As many as 25.0% of urban mothers are unaware of the advantages of breastfeeding.
- A large proportion of both urban and rural mothers (56.0% and 81.0% respectively) are unaware of the benefits of colostrum.
- Most mothers, both urban and rural (79.0%) are unaware of the hazards and disadvantages of bottle feeding.
- Forty-six percent of urban and 34.0% of rural mothers are not knowledgeable of the ways or techniques to increase milk production.
- A large proportion of urban and rural mothers, 71.0% and 82.0% respectively, are unaware of the importance of early initiation of lactation.
- Slightly more than half of urban and rural, 54.0% and 51.0% respectively, are unaware that breast milk is sufficient to meet the baby's growing needs or requirements until six months of age.
- Thirty-one percent of urban and 37.0% of rural mothers view that breastfeeding is inconvenient and troublesome.
- Thirty-four percent urban mothers, especially the Chinese, feels that breastfeeding spoils the mother's figure.
- A significant proportion of both urban and rural mothers, 46.0% and 39.0% respectively, feels that there is not much difference between breast milk and infant formula.

(vi) **Socio-cultural Factors**

Certain socio-cultural factors have also been seen to discourage women from breastfeeding optimally. These are listed below:

- Lack of support from employers.
- Lack of support from families.
- Influence of peer groups.
- Perception of inferiority of breastfeeding.
- Embarrassment of breastfeeding in public.
- Taboos during confinement.
- Practice of discarding the colostrum.

Other factors include:

- Lack of facilities for breastfeeding.
- Short maternity leave.
- Hospital practice of separating the mother and newborn for the first 24 hours and the early introduction of bottle feeding.

6.5.3 **Current Promotional Activities**

The Ministry of Health plays the lead role in promoting, protecting and supporting breastfeeding as part of its functions and responsibilities in ensuring optimal nutrition of infants and children as well as optimal health for mothers. However, in carrying out this function, the Ministry depends considerably on the complementary activities of other ministries and government agencies, non-government organisations (NGOs) and the mass media and also the milk industries.

6.5.3.1 **Nutrition Education**

Nutrition education is one of the major components of the Maternal and Child Health Services in the Ministry of Health. The educational activities are conducted during the child-health, ante-natal and post-natal clinic sessions as well as during home visits for priority cases. Activities carried out at both the clinic and community levels include talks, individual advice and video shows from time to time.

Educational materials like posters, leaflets and booklets were also developed, produced and distributed. Trailers and documentaries on breastfeeding have also been produced. Articles on breastfeeding have been published in the various vernacular newspapers and magazines. Educational activities like talks and forums were also carried out by other agencies, both private and voluntary. Talks on radio and TV have also been held in collaboration with the Ministry of Information.

6.5.3.2 **Training**

Breastfeeding forms part of the curriculum in medical and nursing training. Health staff undergoing midwifery, post-basic or in-service training are taught on the importance of breastfeeding and its management. At the national level, the Ministry of Health has managed to procure funds from UNICEF to conduct lactation management courses towards the implementation of the "*Baby Friendly Hospital Initiative*". Besides government health personnel, breastfeeding lay counsellors are also given training by the Breastfeeding Advisory Association of Malaysia.

6.5.3.3 Implementation of the 'Baby Friendly Hospital Initiative'

To further promote breastfeeding in Malaysia, the Ministry of Health has adopted and implemented the '*Baby Friendly Hospital Initiative*' (WHO/UNICEF), and all major government hospitals would have initiated the programme by December 1994. The Ministry of Health has also planned to extend this Baby Friendly Hospital Initiative to the private and university hospitals.

6.5.3.4 Implementation of the Code of Ethics for Infant Formula Products

In line with the International Code of Marketing of Breast Milk Substitutes, a Malaysian Code of Ethics for Infant Formula Products was drawn up in 1979 which was subsequently amended in 1983 and 1985 and is currently undergoing the final stages of the most recent amendments.

The Code covers relevant aspects of marketing, distribution and product information on all infant formula products. It also provides guidelines for a code of conduct for medical and health personnel working in clinics, hospitals and maternity centres. A code of conduct is also provided for personnel employed by the milk industry.

6.5.3.5 Legal Provision

In Malaysia, the Food Regulations 1985 and the Food Act 1983 have several provisions to protect breastfeeding. There is one whole section (Section 389) with 15 subsections in the Regulations devoted to provisions for Infant Formula. Currently, the Food Regulations are being reviewed and further strengthened to protect infant and child nutrition.

6.5.3.6 Integration into School Curriculum

The Ministry of Education has taken steps to include breastfeeding in a section on infant and child care for the Secondary Four and Five in the Physical and Health Education curriculum.

6.5.3.7 Social Support

Besides the efforts of the Ministry of Health, there are activities and policies of the government and non-government agencies that have lent considerable support for the promotion of breastfeeding. These include:-

- the provision of 42 days maternity leave for successive deliveries in the public sector. A mother can apply for three months no-pay leave following the maternity leave. Spouses are given three days paternity leave. A provision of 60 days maternity leave is provided in the private sector.
- the provision of breastfeeding facilities in some work places and public places like shopping centres.
- the provision of tax relief for companies that make available child care facilities at their work place.
- the active involvement of non-government organisation like the Breastfeeding Advisory Association of Malaysia whose activities include giving information, support and counselling to mothers. Professional bodies such as the Malaysian Medical Association and the Malaysian Paediatric Association have also played a role in promoting breastfeeding.

6.5.3.8 World Breastfeeding Week (1-7 August)

The annual activity has been celebrated in Malaysia since 1992. The Week has been organised by the Malaysian Council for Child Welfare and Breastfeeding Advisory Association of Malaysia with the co-operation of the Ministry of Health. The objective of the Week is basically to create awareness among the public on the importance of breastfeeding. Several activities are usually lined up for the whole week. These include public seminars, forums, exhibitions and publications of articles in the media.

6.5.3.9 Research

Various studies have been undertaken in the past. More studies are currently being undertaken and planned for the future. Among the studies being done by Ministry of Health are:

- (i) Health Systems Research : *“To study the strengths and weaknesses in implementation of the 10 steps to successful breastfeeding in Kluang Hospital”*.
- (ii) A study on the *“Knowledge of doctors and nurses regarding breastfeeding: Effect of lactation management education”*.
- (iii) A study on the *“Assessment of the Baby Friendly Hospital Initiative in five General Hospitals using the WHO Assessment Tool”*.

6.5.4 Recommendations

6.5.4.1 Objectives

General Objective

To promote, protect and support breastfeeding among all mothers.

Specific Objectives

- (i) To promote exclusive breastfeeding for at least the first four to six months of life.
- (ii) To encourage breastfeeding up to the age of two years with the introduction of appropriate supplementary foods at the age of four to six months.
- (iii) To ensure that all government health facilities comply with the Code of Ethics for Infant Formula Products.
- (iv) To enable all government hospitals to implement the Baby Friendly Hospital Initiative by the year 1997.
- (v) To encourage all private hospitals to implement the Baby Friendly Hospital Initiative.

6.5.4.2 Strategies and Activities

(i) Nutrition Education

- (a) Sustain and strengthen current nutrition education activities.
- (b) Develop and provide adequate nutrition education materials related to breastfeeding to all health facilities and selected public areas.
- (c) Develop public education on breastfeeding through effective utilisation of the mass media.
- (d) Inform women of their rights to breastfeeding in the work place.

(ii) Social Support

- (a) Provide child care and breastfeeding facilities at work and public places (building by-laws).
- (b) Lobby for longer paid maternity leave of up to two months.
- (c) Compel employers to allow breastfeeding breaks for breast feeding mothers.

(iii) Mother Support Groups

- (a) Train more lay counsellors of NGOs to be available for on-phone counselling.
- (b) Identify and train specific target groups for peer support eg. flat dwellers, squatters and factory workers.
- (c) Institutionalise support activities carried out by health staff.
- (d) Incorporate lactation counselling and support services in all maternal and child health clinics.
- (e) Assist the Breastfeeding Advisory Association of Malaysia establish more support groups by region.
- (f) Encourage and support collaboration between health care systems and mother support networks including the family and the community.
- (g) Ensure that information disseminated on feeding of infants and young children is consistent and in line with current scientific knowledge and take steps to counteract misinformation on infant feeding.

(iv) Training

- (a) Extend the lactation management training to nursing tutors, private and university hospitals, maternity homes and clinics.
- (b) Establish a Lactation Information Resource Centre to provide trainers continuous and updated information on breastfeeding.
- (c) Review the curriculum for nursing and medical personnel to ensure sufficient inclusion of breastfeeding information.
- (d) Until or unless a growth standard for exclusively breastfed infants is developed, tested and implemented, emphasis must be placed on training health personnel in the correct interpretation of growth patterns and in the provision of appropriate infant feeding recommendations that promote and protect exclusive breastfeeding at least through the fourth month of life.

(v) Code of Ethics for Infant Formula Products

- (a) Include and expand on the Code in future lactation management training courses and other related courses or seminars.
- (b) Strengthen the enforcement of the Code.

(vi) Research

- (a) Conduct a situational analysis of current infant feeding practices to determine the prevalence of exclusive breastfeeding.

(Note: Caution should be taken to ensure that the proper definition of “exclusive” is used).

- (b) Conduct knowledge, attitude, and practice (KAP) surveys related to infant feeding in general and the introduction of weaning foods in particular. Use such surveys along with other quantitative methodologies to identify and evaluate the nutritional quality and quantity of weaning foods that are locally available and generally acceptable in the community or culture.
- (c) Conduct a study of the acceptance of free or low cost supply of infant formulas to hospitals and its impact on the success of the breastfeeding promotion activities.

6.5.4.3 Monitoring and Evaluation

- (i) Breastfeeding rates are to be captured in the Health Management Information System (HMIS).
- (ii) All hospitals are to monitor the implementation of the Baby Friendly Hospital Initiative while the Ministry of Health is to assess all hospitals on the Baby Friendly status.
- (iii) The Ministry of Health is to monitor the implementation of the Code of Ethics for Infant Formula Products.

6.6 CARING FOR THE SOCIOECONOMICALLY DISADVANTAGED AND NUTRITIONALLY VULNERABLE

6.6.1 Background

Care is the provision of time, attention, support and skills to meet the physical, mental and social needs of the socioeconomically disadvantaged and nutritionally vulnerable groups. Among the socioeconomically disadvantaged are the urban migrants, the landless, the hardcore poor, the '*Orang Asli*', other indigenous groups as well as orphans and children in difficult circumstances, whilst the nutritionally vulnerable includes the children, pregnant and lactating women, the elderly and the disabled. Care ensures optimal use of human, economic and organisational resources to feed children, protect them from infection, attend to them during illness and to assist others who may be unable to care for themselves because of their disability or old age. Care of these groups determines the way in which food supplies are acquired, procured, delivered and allocated and the manner in which health, social and economic services and a variety of family support networks are utilised.

Although the provision of care is primarily a responsibility of the family, the government and the society to some certain extent, are also obliged to assist those who cannot care for themselves. Realising this obligation, the Malaysian Government, through her National Development Policies, gave special attention to the less fortunate by implementing various development programmes aimed not only to improve their economic status but also to enhance their health and social well-being. Poverty eradication is one such programme undertaken by the government to assist the poor especially the *hardcore poor*.

Poverty eradication has been the main thrust of the Malaysian Development Plans since 1970 with its main objective of bridging the socioeconomic gap existing between races, groups and regions in the country to achieve national unity and integration. Since the programme was launched, numerous poverty redressal programmes which focused on increasing productivity and income as well as improving living standards have been implemented. Through these efforts the incidence of poverty in Malaysia was reduced from 17.1% in 1990 to 13.5% in 1993. However, with the overall poverty situation in the country improving rapidly, poverty eradication efforts since 1991 focussed more sharply on the socioeconomically disadvantaged ie. the *hardcore poor*.

6.6.2 Situational Analysis

In Malaysia the responsibility for social welfare services is concurrent between Federal and State Governments. Strengthening family and community life is given importance as the whole social order rests on the family as the basic unit of society.

The most common problems confronting the family today are related to more general and widespread social problems such as poverty, unemployment, malnutrition, poor health, lack of education, inadequate sanitation, low income and low quality housing. However, the most pressing problems appear to be related to personal and interpersonal problems, such as family instability, marital discord, desertion, wife battering, drug addiction, juvenile delinquency, prostitution, alcoholism, incest, child abuse and neglect, waywardness and behavioural problems, neglect of the disabled and the elderly, mental depression, destitution and vagrancy.

Families facing threats of disorganisation or disintegration are given support with the hope that they in turn can assist and support their members, be it a child, a young person, an adult or an elderly person.

6.6.2.1 Current Programmes

Social welfare programmes carried out by the government towards strengthening and preserving individual, family and community functions are as follows:–

(i) Financial Aids

- Aid to needy children;
- Aid to the destitute/disabled elderly;
- School aid for children from poor families;
- Aid for the purchase of spectacles (for destitute school children and the elderly);
- Launching grants to help individuals start economically viable enterprises;
- Public assistance to destitute individuals and families;
- Natural disaster relief for victims of disasters such as fire, floods, landslides and storms.

(ii) Counselling Services

Counselling services are provided to assist individuals and families to cope with stressful situation and resolve their problems as well as to rehabilitate social casualties.

(iii) Programmes for Children

These programmes are aimed towards the protection of children at risk. Legal instruments are used to comply with the need for the protection and welfare of children:

- Juvenile Courts Act, 1947;
- The Children Protection Act 1991 (replacing the Children and Young Persons Act 1947);
- Adoption Act 1952 and the Registration of Adoption Act 1952.

(iv) Reformatory Services

The programmes are supported by both legislative and administrative infrastructure to provide compulsory and voluntary treatment for juvenile delinquents as well as for women and girls involved in vice or exposed to moral danger. The infrastructure provides facilities for treatment both within the community and in institutions.

(v) Programmes for the Elderly

For those who could manage to continue living in their own environment, financial assistance is provided by the government and some voluntary organisations to help reinforce their existence. The Department of Social Welfare also provides assistance of RM70 per month to an aged person under the Assistance Scheme for the Elderlies.

(vi) Alternative Child Care Project

This project was designed to upgrade existing provisions of care of children aged four years and below in child-care centres in the rural, urban and plantation sectors. The government also trains parents and child-minders in different aspects of caring for children eg. in cleanliness, nutrition and creativity. The project has brought about changes in terms of the provision of basic physical care including improved nutrition and the opportunities for '*open-learning*' among children in line with the provisions of the Child Care Centre Act 1984.

(vii) Programmes for the Disabled

There have been several positive social policy initiatives for the disabled, in the form of higher financial allocation for services, special employment quota, tax deduction and barrier-free access. Over the years, the government has provided more funds for the education, training and rehabilitation of the disabled as well as providing increasing grants-in-aid to voluntary organisations which deliver services to the disabled. Presently there are some 60,000 registered handicapped individuals benefiting from the Department of Social Welfare rehabilitative efforts and financial aids.

(viii) Urban Poor

The programme for the poor in the urban areas are handled separately by the respective local authorities. The Kuala Lumpur City Hall for example has the *NADI* programme to assist the urban poor. The *NADI* programme is an integrated and community-based programme designed to achieve the objective of uplifting the quality of life for the lower income group. To attain this, projects related to upgrading of the social environment, instilling social consciousness and community participation, improvement of health system and welfare of the family and income generating and career development are planned and implemented for the target groups. The lower income group of the City Hall also gets better opportunities to purchase low cost houses under the City Hall Low Cost Housing Programme as well as opportunities to participate in small-scale businesses. Programmes of these nature are also extended by other major local authorities in the country to their urban poor.

(ix) Hardcore Poor

The programme for the hardcore poor is aimed at improving their socioeconomic status, therefore bringing them out of the poverty cycle. Basically the programme provides them opportunities to gain employment in higher-paying jobs or activities so that they can increase their income

and become self-reliant. Less emphasis has been given to handouts or cash transfer except for those section of the hardcore poor who are aged and handicapped and as such are physically and mentally unable to find gainful employment. In addition, the hardcore poor are also given loan facilities to participate in the *Amanah Saham Bumiputera* (ASB)-PPRT an investment scheme launched by the government in 1992 to enable the hardcore poor to supplement their income.

Besides facilitating economic projects, the programme for the hardcore poor also provides for human resource development. Under this programme, special training and courses are held to prepare them not only in increasing their knowledge and skill but to change their attitudes.

In addition, the hardcore poor are also provided with physical and basic infrastructure and facilities to upgrade their quality of life. In this respect provision of roads, water and electricity supplies are given priority to areas where there is high incidence of the hardcore poor. The various programmes have brought positive impact in reducing the number of households from 170,300 in 1989 to 124,548 in 1993.

6.6.2.2 Health and Nutrition

Care for the socioeconomically and nutritionally vulnerable also covers health and nutrition. The provision of health care is primarily the responsibility of the Ministry of Health. Using the primary health care (PHC) approach, it aims to provide health care to all so as to improve health and reduce the disparity in health status. Basic to this approach is the strengthening of the *Rural Health Services* to provide health care to rural women, their children and families and making it more accessible to the socioeconomically disadvantaged groups.

Health care for women includes provision of antenatal care where pregnant women is provided with health and nutrition assessment, screening for STD, immunisation against tetanus, monitoring of foetal growth and development, supplementary feeding with full cream milk, treatment of minor ailments, health and nutrition education, advice on antenatal diet, home visits and referrals. Postnatal care is also given to mothers which includes support for breastfeeding and advice on family planning and postnatal diet. In addition, screening services for cervical cancer and immunisation against rubella are offered to women in the reproductive age.

Health care for infants and young children includes health and nutrition screening, immunisation against tuberculosis, hepatitis B, diphtheria, whooping cough, tetanus, polio and measles, monitoring of growth and development, deworming, treatment of minor ailments, provision of health and nutrition education including weaning, and promotion of appropriate diets for infants and young children as well as supplementary feeding with full cream milk, home visits and referrals. Health care is also provided to kindergarten, Primary One, Primary Six, Secondary One and Secondary Three pupils by school health teams.

Health care for the hardcore poor includes health and nutrition assessment of family members, provision of food, mineral and vitamin supplements to malnourished children, provision of safe water and proper toilets, intensification of growth monitoring, health and nutrition education as well as home visits, follow-ups and referrals. In addition, the hardcore poor are given free medical treatment and are exempted from medical and hospital fees.

Care for the socioeconomically disadvantaged and nutritionally vulnerable also includes various programmes such as the *Applied Food and Nutrition Programme* (AFNP), *Pre-school Guidance Programme* (TABIKA) by KEMAS, *School Supplementary Feeding Programme* and the *School Milk Programme* of

the Ministry of Education, and the *Programme for the Rehabilitation of Malnourished Children* implemented by the Ministry of Health.

Care in respect of nutrition also covers providing adequate knowledge on home economics especially to the rural community. This activity is undertaken by KEMAS through its *Home Economics Programme* since 1963. The subjects include conserving nutrients during food production and selection, preparation, processing and preservation. Good eating habits and healthy practices are also propagated to the participants. The Home Economics Programme is well received as indicated by the number of participants involved. In 1994, a total of 57,959 individuals participated in this programme. Knowledge on nutrition is also taught to school children by the Ministry of Education and Ministry of Health through the *School Health Programme*.

6.6.2.3 Role of the NGOs and the Private Sector

Care of the socioeconomically and nutritionally vulnerable are also given by the various non-governmental organisations (NGOs) in the country. The *Breastfeeding Advisory Association of Malaysia (PPPIM)* for example encourages and assists mothers who wish to breastfeed their babies and provides them with current information on breastfeeding. NGOs are also actively involved in addressing the problems of the poor. The *Amanah Ikhtiar Malaysia (AIM)* for example, has been instrumental in helping the poor to participate in various economic activities. AIM provides assistance in the form of interest free loan and technical advice to the recipients. As of 30 September 1994, a total of 31,599 recipients all over Malaysia have participated in AIM programmes. *Yayasan Basmi Kemiskinan (YBK)* is another NGO to mention. YBK is a foundation set up by the Selangor State Government to look into the welfare of the poor in the Selangor state. YBK provides a more varied assistance. Beside financing economic projects, YBK provides houses on grant to hardcore poor and also institutional care for the elderly and orphans. Recently, more institution of this nature are been set up by other states to provide similar services to the socioeconomically deprived and the disadvantaged.

6.6.3 Recommendations

Various efforts initiated by the government with the close support of the NGOs and the private sectors have thus far been instrumental in reducing the problems of the disadvantaged groups. However, there is still room for improvement and in support of the nation's aspiration to establish a "caring society" by the year 2020, concerted efforts must focus on alleviating existing problems related to the effectiveness of policy formulation and programme implementation.

In cognisance of the existing problems faced, namely the lack of collaborative efforts among implementing agencies including NGOs and the private sector, poor programme coverage to meet the requirements of all needy populations, lack of accurate and current information on nutrition and health, ineffective utilisation of the programme by the recipients, and the lack of effective monitoring and evaluation mechanisms, the followings are recommended:

6.6.3.1 Objective

To improve the nutritional status of the socioeconomically disadvantaged through improvement in health care and encouraging self reliance.

6.6.3.2 Strategies

- (i) Increase the capability and capacity of the implementing agencies.
- (ii) Establish collaboration and work closely with the NGOs and the private sector.

- (iii) Reprioritise programmes to give emphasis to human development and implementation of viable economic projects.
- (iv) Ensure that all infants, children, adolescent, women and the elderly, particularly those with special needs have access to adequate, well balanced and safe diets, health care and education to enable them to attain optimal physical and mental well-being.
- (v) Enhance the nutritional and health status of the rural and urban poor and isolated communities.
- (vi) Provide care and appropriate training for the disabled individuals to enable them to reach their potential and become self-supporting; ensuring their opportunities in education, employment and housing.
- (vii) Prepare and motivate men to fully participate in and take responsibility for the nutritional well-being and support of their families, as well as to be sensitive to women's needs in protecting and promoting family well-being.
- (viii) Ensure that the family is recognised and treated as a holistic unit so that participating agencies use this approach to improve the health and nutritional status of the family.
- (ix) Strengthen the information dissemination mechanism in the country so that current and accurate nutritional information can reach all age groups and levels of society as well as the participating agencies.

6.6.3.3 Activities

- (i) Establish a computer base databank in every district to facilitate data collection, tabulation, analysis and reporting for effective programme planning, budgeting and monitoring.
- (ii) Update and formulate new programme guidelines which give due consideration to the nutritional needs of the vulnerable groups.
- (iii) Establish more resettlement schemes for the hardcore poor.
- (iv) Provide opportunities for related implementing agencies to hold discussions to formulate yearly action plans that can enhance programme effectiveness.
- (v) Provide financial assistance and other incentives to NGOs by establishing the National Poverty Eradication Foundation.
- (vi) "*Privatise*" selectively some activities of the Poverty Eradication Programme to NGOs to allow for their direct involvement in programme implementation.
- (vii) Ensure equity and equality in health care to meet the future needs of an industrialised country by recognising the needs of specific vulnerable groups.
- (viii) Increase personnel in nutrition and dietetics and provide training to appropriate personnel for better programme coverage of vulnerable groups.
- (ix) Implement the Plan of Action for Child Survival, Protection and Development.
- (x) Increase the access of children from needy families to residential schools and other educational facilities and set up more rural hostels.
- (xi) Encourage participation of the community in providing for the needs of the vulnerable groups within their own community.
- (xii) Establish day care centres for the elderly and extend the community-based rehabilitation programmes nationwide.

6.6.3.4 Monitoring and Evaluation

- (i) Update the databank of the hardcore poor regularly and to establish an effective monitoring mechanism to ensure that programmes are implemented as planned.
- (ii) Conduct and extend regular programme reviews to determine effectiveness of programmes in achieving their objectives.
- (iii) Conduct more regular follow-up and follow through visits to projects and selected target groups.

6.7 PREVENTING AND CONTROLLING SPECIFIC MICRONUTRIENT DEFICIENCIES

6.7.1 Background

Various data have shown that the overall nutrition situation in Malaysia has improved over the years. However, several epidemiological studies have indicated that pockets of malnutrition exist among various rural and urban underprivileged communities. Overt nutrition deficiencies are relatively rare, but mild-to-moderate under nutrition affects significant proportions of the population. Various intervention programmes have been carried out to improve the nutritional status of the communities.

More recent nutrition studies in various parts of the country show that deficiency of several micronutrients continue to affect the underprivileged segments of the communities.

6.7.2 Situational Analysis

The status of micronutrient deficiencies in Malaysia has been reviewed in the Country Paper prepared for the ICN (Tee and Cavalli-Sforza, 1993). Several more recent reports on the subject have been reviewed in order to update the status of iodine deficiency anaemia (IDD) in the country. Few recent studies on Vitamin A deficiency (VDA) have been carried out.

6.7.2.1 Status of Micronutrient Deficiencies

(i) Iodine Deficiency Disorders (IDD)

Recent studies suggest that goitre is still endemic in Sabah, Sarawak and amongst specific communities in Kedah and Kelantan. In Sabah, the overall prevalence rate for goitre among females aged 15 years and above was estimated at 38% (Polunin, 1971). A later study in Keningau gave a high prevalence rate of 76% among the same group (Chen et al, 1989). Among school children, the prevalence was between 31-56% (Ma Tai, 1991), while among pregnant women, it was between 46-83% (Rahimah, 1994).

In Sarawak, 47% of the population groups studied between 1970-1982 had goitre prevalence in excess of 50% (Tan, 1982). In a screening of newborns carried out in 1992, it was found that between 29-51% of newborns had TSH level greater than 5mU/l, which is indicative of severe IDD problem (Sarawak Health Department, 1993).

Goitre is still reported in Peninsular Malaysia with an overall prevalence of 35% in inland villages of Kedah (Hanis et al, 1987) and 37% in various areas of Kelantan (Mafauzy et al, 1993). In Selangor and Pahang, the problem had been reported among selected Orang Asli groups (Osman et al, 1992).

(ii) Iron Deficiency Anaemia (IDA)

Iron deficiency anaemia (IDA) has been reported to affect young children and pregnant women in Malaysia since the early 1950's. Several large-scale surveys in the last 15 years showed that the highest prevalence of anaemia are often found in children in the first two years of life. It was estimated that the prevalence among children between six months to two years was between 30 to 60% in Sarawak (Anderson, 1976a, 1976b, 1977a, 1978b), 15 to 30% in Sabah (Chen et al, 1981) and 12 to 83% in Peninsular Malaysia (Chong, 1974, Chong et al, 1979, 1981, 1982, 1983). Among pregnant women, several small-scale studies provide an estimation of the problem to be between 30 to 60% among the urban poor (Tee et al, 1984).

Several research studies conducted in recent years have provided more information on the prevalence of anaemia in various age groups and different parts of the country. The largest data set is probably that to be derived from the study on the nutritional status of the main functional groups in Peninsular Malaysia, which has included, by the end of 1993, some 8,000 subjects in rural agriculture communities involved in padi, rubber and coconut. Subjects in fishing communities and estates were studied in 1994.

In a recent study conducted in 1994 on anaemia among 1417 adolescent girls in schools, it was found that 19% had Hb values below 12 g/dl (using the WHO criterion for anaemia in children 12-16 years) (IMR, 1994).

A study on anaemia in pregnancy found much higher prevalence of Hb levels below 11g/dl, in rural areas of Kuala Selangor (n=490), than in Kuala Lumpur (n=449); 67% in the former and 26% in the latter (Hanafiah et al, 1992).

The information obtained through the Information and Documentation System (IDS) of the Ministry of Health refers to the prevalence of anaemia in pregnant women visiting government antenatal clinics, expressed as prevalence of Hb levels below 9g/dl. This cut off can be used to indicate moderate and severe degrees of anaemia. The prevalence of anaemia according to the above definition, varies from 1.1% in Perlis to 13.4% for Sabah in 1993 (Ministry of Health, 1994). The national average for 1993 was 5.0%. The prevalence in 1990 was 5.4% (Ministry of Health, 1991).

Two studies on women working in rural areas and estates (Nawalyah et al, 1990) found a much higher prevalence of anaemia in estate workers (from 21 to 50%, n = 101), than in village women (7.8%, n=93).

The data mentioned above indicate that anaemia is still prevalent among several age and functional groups of the population and needs to be assessed systematically in the sectors of the population at highest risk, like preschool and school children, for which reliable data are presently lacking.

(iii) Vitamin A Deficiency (VAD)

No recent large scale studies of VAD in the country have been reported. One on-going study in this area is that being carried out by the Sarawak Medical and Health Department which attempts to determine the extent of Vitamin A deficiency among preschool children in the State.

6.7.2.2 Programmes for the Prevention and Control of Micronutrient Deficiencies

(i) Iodine Deficiency Disorders (IDD)

In view of the much greater prevalence of the IDD problem in Sarawak, various specific intervention programmes have been carried out over the years. These programmes include:

- (a) Setting up of salt iodisation plants, run by the State Health Department in Kuching and Sibu in 1957 to iodise coarse salt for salt dealers, who will then sell the salt through the usual commercial distribution outlets. The project has been successful only in the Rejang River Basin;
- (b) The distribution of iodised salt through the State Health Services since 1979, mainly to antenatal mothers. However due to logistical problems, only limited quantities could be distributed through the health facilities;
- (c) Passing a legislation for the compulsory sale of iodised salt in gazetted goitrous areas in the State in 1982. There was some problem in enforcement, as the salt dealers had difficulty in obtaining iodised salt;
- (d) Trial of iodisation of gravity-feed water supply system using an iodinator in 1981. This was discontinued as the iodicators were blocked by silt;
- (e) Trial of iodised oil injection in 1982. This was discontinued because of side effects.

Of the above, (a), (b) and (c) are still going on while (d) and (e) have been discontinued because they were found to be unsuitable. New efforts are being made to provide iodine through gravity-feed water system using better iodicators. However further research is needed to determine the feasibility and cost-effectiveness of large scale water iodination.

Distribution and acceptance of iodised salt in many parts of the State need to be improved as a study carried out in 1988 showed that it was only satisfactory in the Rejang River Basin area. A recent study in 1993 on the sale of iodised salt showed 40% of shops in gazetted areas were selling iodised salt. Health authorities in the State are seriously seeking better ways of controlling IDD. In 1992, a study into the prevalence of neonatal hypothyroidism was carried out. The role of cassava consumption in the etiology of goitre in the State should also be investigated.

Some of the above activities have also been carried out in Sabah, but to a much smaller extent. In Sabah, 100% of salt is imported. A situational analysis on salt in 1992 showed that less than 1% of the total imported salt was iodised. The extent and distribution of the problem in Sabah was also less well studied. More recently, greater efforts have been made to systematically overcome the problem.

(ii) Iron Deficiency Anaemia (IDA)

(a) Iron supplements to antenatal mothers

The Ministry of Health, through the network of maternity hospitals and Maternal and Child Health (MCH) clinics in the country, has been providing supplements containing iron, folic

acid and B complex to antenatal mothers for many years. Through these clinics, nutrition education including promotion of iron-rich foods, has also been carried out as a routine activity. The tablets have been purchased by the government and there has been no problem in meeting the needs of all the clinics. There are however some thoughts on changing the types of supplements, the details of which have yet to be announced.

(b) Other supplementation programmes

There are no specific large-scale programmes for iron supplementation to pre-school children. However, under the rehabilitation programme for malnourished children from poor families, pre-school children receive essential food items each month which includes iron and multivitamins. There are currently some 8,000 malnourished children benefiting from this food supplement programme. In addition, multivitamin preparations (sometimes with iron) are also given to preschool children through MCH clinics, especially in conjunction with deworming programmes. The practice is however not standardised throughout the various centres and sometimes irregular, depending on availability of the supplement.

Multivitamin preparations, some of which with added iron, are also given to pre-school children in centres organised by the Community Development Division (KEMAS) of the Ministry of Rural Development. This is not a standard practice in all KEMAS centres, but rather the decision of some centres to provide their children with additional supplementation besides cooked meals.

Another food supplement that is distributed through the MCH clinics is full cream milk powder given to selected children (aged six months to seven years), pregnant women, lactating mothers and school children who are found to be underweight or at higher risk of under nutrition. Specific criteria have been drawn up for the selection of beneficiaries who will receive one kilogram of milk powder per month for three consecutive months. At the end of the period, the case is reviewed to determine if continued supplementation is necessary.

(iii) Vitamin A Deficiency (VAD)

There are no specific programmes for providing vitamin A supplements to communities. However, as mentioned above, some deserving children are provided with multivitamins that contain vitamin A.

6.7.2.3 Programmes to Encourage Consumption of Micronutrient-Rich Foods

There are no specific programmes to promote increased consumption of micronutrient-rich foods. There are however numerous general nutrition education activities which promote the intake of a balanced diet, good infant and child feeding practices and appropriate food preparation. These activities are expected to include promotion of the consumption of micronutrient-rich foods.

(i) Nutrition Education Programmes of the Ministry of Health (MOH)

Health education has long been a programme of the Ministry of Health for the promotion of the health of communities. These activities are delivered through the network of health services which is essentially

a two-tier system consisting of one health centre for a population of 15,000-20,000 and one clinic desa (rural clinic) for a population of 2,000-4,000. These clinics are supervised by the district health office.

Nutrition education through MCH clinics is an important part of the health education activities, aimed at preventing malnutrition in the vulnerable groups, ie. pregnant and lactating women, infants, toddlers and pre-school children. The topics covered in nutrition education include food preparation procedures and supplementary feeding of infants and children, besides general knowledge on nutrients in foods and balanced diet. Cooking demonstrations are also given to the mothers. The health centre is suitable for nutrition education activities, where group talks as well as individual advice are given to mothers attending the centres. Home visits are also made for priority cases. Nutrition education activities are also carried out in the villages. Various teaching modules (including audio-visual aids) have been prepared for these activities.

(ii) Nutrition Education Programmes of the Ministry of Education (MOE)

The Ministry of Education has included some aspects of nutrition education in its primary and secondary school curricula and in the subject called Physical and Health Education. Topics covered include balanced diet, good food habits and cleanliness in the preparation and serving of food. The chapter on nutrition is however less than 10% of the section on health.

(iii) Promotion Programmes of the Ministry of Agriculture (MOA)

The Farm Family Development (FFD) Programme of the Ministry of Agriculture was established over 20 years ago. These are basically home economics programmes, aimed at uplifting the socioeconomic status of rural societies. In the area of food and nutrition, efforts have been made to train and educate farm women in nutrition, food processing, preservation and food storage for home consumption and income generating activities.

From time to time, the Federal Agricultural Marketing Authority (FAMA) carries out various promotion programmes. One such programme which is relevant to this context is the promotion of the consumption of "*ulam*" or local green leafy vegetables and local fruits which are very rich sources of carotenoids and various minerals. Ways to prepare and serve these vegetables and fruits are also being highlighted in the nationwide campaigns.

(iv) Other Promotion Programmes

The Malaysian Palm Oil Promotion Council is currently promoting the consumption of red palm oil. In contrast to refined, bleached and deodorised (rbd) palm oil, the red palm oil retains more than 80% of the carotenoids and vitamin E originally present in the crude palm oil. As such, it is a very rich source of provitamin A compounds.

6.7.2.4 Food Fortification Programmes

One food item that is extensively fortified is salt. For specific areas in Sarawak, the Food Regulations permit only iodised salt to be sold. These have been discussed under the IDD programme.

There are few regulations for mandatory fortification or enrichment of foods in the country. One such example is margarine, which is required in

Regulation 185 (Food Regulation 1985) to contain in each 100 grams, not less than 2,500 IU and not more than 3,500 IU of vitamin A, and not less than 250 IU and not more than 350 IU of vitamin D.

Nevertheless, the said regulations permit the fortification or enrichment of various food items with a number of nutrients. Regulation 26 (7) permits the fortification of foods with vitamins, minerals, amino acids and fatty acids, provided the amounts added is not less than the levels stipulated in Table 2 of the Twelfth Schedule. The foods can then be labelled as enriched, fortified, vitaminised, supplemented or strengthened. Some of the foods in the market that have been so enriched include bread, full cream milk powder, and breakfast cereals.

6.7.3 Recommendations

(i) Iodine Deficiency Disorders (IDD)

Iodine Deficiency Disorders (IDD) in the country, particularly in Sarawak and Sabah remain a problem of considerable magnitude in spite of various activities carried out over the years. It is necessary to institute a more coordinated and concerted approach to address the problem. A National Meeting Towards the Elimination of IDD was held from 17-20 November, 1993 to identify appropriate strategies for this purpose. A National Plan of Action for IDD has been drafted and is currently been actively discussed and at various stages of review. The main points of the National Plan of Action (NPA) for IDD are as follows:

(a) Objectives of NPA for IDD

By the year 2000,

- To increase the proportion of population in iodine deficient areas consuming adequately iodised salt to more than 95%;
- To reduce the proportion of children 8 to 10 years of age with goitre of any grade (palpable and visible combined) to less than 5%;
- To increase the median urinary iodine excretion of school-age children to more than 10 ug/dl.

(b) Strategies

- Establish organisational structure to coordinate and oversee the IDD programme in the country;
- Carry out a nationwide prevalence study to map out the IDD situation in the country;
- Review present regulations on iodised salt and to enact appropriate legislations based on prevalence studies to be carried out;
- Establish laboratories to permit iodine determination in the urine by upgrading existing facilities;
- Train health personnel on IDD control, including urinary iodine determination and use of ultrasonography in the detection of goitre;
- Carry out sustainable advocacy activities, social marketing and health education at all levels.

(c) Activities

Various activities have been planned. These include:

- Setting up a National Technical Committee on IDD;
- Formulate guidelines for training of health staff on IDD;

- Organise national level IDD training;
- Organise national advocacy forum on IDD;
- Set up monitoring and evaluation scheme;
- Prepare proposal to gazette goitrous regions under existing provisions of the Food Regulations;
- Define the extend of the IDD problem nationwide and identify goitrous areas;
- Establish laboratory and diagnostic facilities of the IDD programme.

Besides the National Technical Committee, various Task Forces have been established, namely for Training, Education and Information, Monitoring and Evaluation and Food Fortification.

The above activities are being redefined and at various stages of implementation. Besides these national level activities, Sarawak and Sabah have also planned several programmes and activities for their states. Iodised salt programme in the two states are being intensified and a more systematic programme for monitoring iodised levels in the salt is being instituted. There will also be more private sector involvement in the programmes. In addition, Sabah is also distributing iodised oil capsule to remote population served by the Flying Doctor Services.

It is recommended that the cost of iodised salt be subsidised to ensure that it is affordable by the community. Studies on the role of goitrogens and appropriate food preparation should be carried out.

(ii) **Iron Deficiency Anaemia (IDA)**

(a) **Objectives**

- To reduce the prevalence of anaemia among preschool children (Hb <11.0 g/dl) from 30% in 1990 to 20% by the year 2000.
- To reduce the prevalence of anaemia among pregnant mothers (Hb < 11.0g/dl) from 30% in 1990 to 20% by the year 2000.

(b) **Strategies and Activities**

There has been no systematic evaluation of the iron supplementation programme being undertaken by maternity hospitals and antenatal clinics. The Maternity Hospital (Kuala Lumpur), in collaboration with the Institute of Medical Research is conducting a study of the effectiveness of iron and multivitamin supplements in reducing anaemia among pregnant mothers. This will be compared with the single iron/folate supplement advocated by UNICEF. The impact of the two approaches on pregnancy outcome shall be examined. Experiences of other countries gained from the inter-country collaborative study on weekly iron supplementation versus daily supplementation will also be useful in guiding the formulation of future programmes, especially for this group of children.

It is recommended that the distribution of multivitamins with iron to children under the rehabilitation programme for malnourished children as well as other deserving preschool children be continued. It would however be desirable for the Ministry of Health to prepare a guideline for the multivitamins and minerals provided to the children under various agencies and departments.

It is recommended that the full cream milk powder currently distributed through the MCH clinics be fortified with iron according to the provisions in the Food Regulations 1985. The slightly higher cost is to be borne by the Ministry of Health. This fortified food would assist towards controlling nutritional anaemia amongst identified undernourished recipients.

(iii) Vitamin A Deficiency (VAD)

It is recommended that more data on VAD in the country be obtained to provide a more accurate picture of the situation.

(iv) Promotion of Micronutrient-Rich Foods

The long-term strategy for the improvement of micronutrient status of communities should be the promotion of consumption of appropriate foods through nutrition education activities. The benefits of these programmes will not be immediately clear, but they remain the most important strategies to adopt. The consumption of balanced diets will benefit the overall nutritional well-being of communities. It is recommended that the continued emphasis and focus on these efforts be given. It is not sufficient to merely acknowledge the importance of these activities, but rather efforts and resources must be channelled towards these programmes.

Nutrition education has long been carried out by MCH centres. These are important activities and could serve as useful channels for imparting nutrition knowledge. Since these activities have not been thoroughly reviewed in the past, it is recommended that the implementation of these activities be evaluated.

In general, nutrition and health education to all segments of the community through various media should be intensified and the scope widened. More local audio-visual educational materials on nutrition should be developed and distributed to facilitate nutrition education activities.

There is a need to include health and nutrition as a separate subject in the school curriculum. Training of teachers on the teaching of nutrition need to be emphasized.

Nutrition education in the curricula of nursing and midwifery courses need to be reviewed and updated to ensure correct nutrition information is disseminated by these front-line health workers. Nutrition education activities should also be carried out in welfare centres and homes. Mechanisms to ensure that the media provide only correct information to the consumers need to be reviewed and improved.

(v) Dietary Diversification

Dietary diversification should be promoted through the production and consumption of micronutrient-rich foods. The promotion of the consumption of local vegetables and fruits should be sustained. There is the need to promote nutritious traditional foods, for example tempeh and edible seaweeds (sea vegetables). The rising cost of vegetables and fruits should be monitored and checked.

(vi) Other Aspects

(a) There are certain groups which are not covered by existing health facilities which focus on pregnant and lactating mothers, preschool and school children. Examples of these groups are the non-pregnant women (women of reproductive age) and the elderly. Clinics and facilities should be provided for their health and nutritional needs.

(b) There is a need to also examine deficiency of other micronutrients eg. zinc, selenium and calcium. Aspects that need to be examined include the levels

of these nutrients in foods and diets, and in biological materials, and bioavailability studies. The interaction of these nutrients with iodine, iron and vitamin A are also important areas for studies.

- (c) It is recommended that regular public seminars on micronutrient deficiencies for community leaders be organised to create awareness and to encourage community participation.
- (d) It is recommended that a National Committee on the Prevention and Control of Micronutrient Deficiencies be established to oversee the activities and programmes of IDD, IDA and other specific micronutrient deficiencies.

(vii) **Monitoring and Evaluation**

- (a) Measurement of urinary iodine and goitre size and volume among school children to be done every three to five years
- (b) Survey on iodised salt consumption by households to be done once a year
- (c) Survey on iodised salt availability in the market to be done once a year
- (d) Periodic assessment of haemoglobin status of preschool children, school children and pregnant women.

6.8 PROMOTING APPROPRIATE DIETS AND HEALTHY LIFESTYLES

6.8.1 Background

Increasing affluence and urbanisation have led to the adoption of unhealthy lifestyle such as inappropriate diet, physical inactivity, cigarette smoking, stressful living and substance abuse including alcohol and drugs. These lifestyle related risk factors have led to the increase in non-communicable diseases such as obesity, cardiovascular diseases, diabetes mellitus and cancers. It is disturbing that these diseases are among the most common causes of mortality and morbidity affecting a significant proportion of the most productive group of the population and thus have an immense social and economic implications to the country. Reversal of these trends are therefore of utmost importance.

Of these lifestyle risk factors, inappropriate diet is of particular importance because it is a universal behaviour thus putting everyone at risk. This requires not only the provision of accurate information on what constitutes a healthy diet and the best way to meet nutritional needs but must also include motivating and providing opportunities for people to change their behaviour taking into consideration their individual preferences, lifestyles and time constraints. In addition, people must have easy access to a variety of safe and affordable foods. It is imperative that the adoption of healthy eating habits and diet be initiated right from conception and be maintained throughout life.

6.8.2 Situational Analysis

In a rapidly developing country like Malaysia, the major causes of morbidity and mortality are the diseases related to unhealthy lifestyles, in particular diet. Of all medically certified death, within the last five years, about 30% are caused by cardiovascular diseases and about 9 to 11% are due to cancers. There is also a disturbing trend in the dietary pattern and physical activity of Malaysians.

6.8.2.1 Dietary Trends

Based on food balance sheet data from 1964-1966 to 1986-1988, Khor (1991) showed that Malaysians currently have available 21% more calories per capita per day than two decades ago. The increase in available calories has been towards more calories from sugar, animal products, and oils and fats while there is a drop in cereals, fruits and vegetables. The tendency is towards an increase in

fat calories and decreasing proportion of calories from carbohydrates. The public health implications of the changes in food availability trends over the past two decades are likely to be:

- (i) Increased available total calories leading to an increased prevalence of overweight, especially in the more affluent segment of the population.
- (ii) Lower consumption of dietary fibre as the availability of cereals and other plant products is reduced.
- (iii) A rising trend in the consumption of animal products that leads to increased intake of saturated fat and cholesterol.

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

6.8.2.2 Overweight

A number of studies have reported the prevalence of overweight among Malaysians based on the definition of body mass index (BMI) exceeding 25 kg/m². Malays living in poverty villages were found to have a low prevalence of overweight (Chong et al., 1984). In this study, 5% of 522 men and 15% of 965 women aged 18 years and above were identified to be overweight. However, in a recent study by Hakwelele, Sumarsono and Phanthaly (1991), a higher prevalence of overweight was reported in a rural Malay community. This group lives in a low-cost housing scheme with three-quarters of them stating their family annual earning as less than RM 20,000. It was found that 45.5% of 134 men and 42% of 153 women were overweight. The prevalence of overweight increases with age for male and female. Among urban subjects, the few available studies showed on the average that one quarter to one third of men and women to be overweight (Jones, 1976; Teo et al, 1988).

In addition, obesity was estimated at 3% among urban executives (Teo et al 1988) and 8% among urban adults (BMI >30) (Ismail and Zawiah, 1991). Obesity among school children (>120% cf reference weight for height) was estimated at 4% among Primary One pupils and 11% among Primary Six pupils (Bong et al, 1994).

Overweight is known to contribute to high serum lipid levels. Among Malaysians such a positive association was shown by Chong and Ng (1985), who found that overweight (with BMI>25) subjects had lower levels of high-density lipoprotein cholesterol than the non-overweight subjects.

It has been shown that in Malaysia, the mortality rate due to ischaemic heart disease and cerebrovascular disease is increasing and community studies have also identified significant proportions of the population to be hypercholesterolemic and overweight.

6.8.2.3 Hypercholesterolemia

Since the early 1960's, there have been studies which measured the blood cholesterol levels of Malaysians especially among male workers from the urban areas. In the early 1960's, the mean serum cholesterol level of 30-39 years-old Malaysian men was found to be approximately 185 mg/dl (Lau et al, 1962). In the mid-1970's, in the same age group, mean serum cholesterol was reported to be 198 mg/dl, while in 50-59 years-old men, it was 239 mg/dl (Chong and Khoo, 1975). A study published in 1988 reported an average cholesterol level of 224 mg/dl in 25-34 years-old men (Teo et al, 1988). In another study carried

out in 1982-1985 on urban male executives aged 25 years and above, 31% of them were identified to be hypercholesterolemic (cholesterol level exceeding 250 mg/dl) (Chong and Ng, 1985). In contrast, in the early 1970's, less than 12% of a group of urban male workers aged 30 years and above were found to be hypercholesterolemic (level exceeding 200 mg/dl) (Chong and Khoo, 1975).

Among the main ethnic groups, Indians were recently reported to have the highest prevalence of hypercholesterolemia. In Teo, Chong and Zaini's study (1988), 43.2% of the Indians were hypercholesterolemic as compared to 35.2% and 24.2% among the Malays and Chinese respectively. Earlier studies apparently did not report this finding. For example, in studies by Lau, Lopez and Gan (1962) and by Chong and Khoo (1975), the prevalence of hypercholesterolemia among the Indians was revealed to be close to the range found for the Chinese and Malays. This development is of significance in light of the fact that the Indians have the highest mortality rate for ischaemic heart disease.

It has also been shown that communities living in the rural areas have a lower average serum cholesterol level than their urban counterparts. The mean blood cholesterol level for aborigines in West Malaysia was found to be low at about 156 mg/dl, and none of them were hypercholesterolemic (Burns-Cox, et al, 1972). The average cholesterol level among poor rural Malay men was also revealed to be low at 175 mg/dl (Chong et al., 1984).

6.8.2.4 Cardiovascular Diseases

Diseases of the circulatory system have been the leading causes of death in Peninsular Malaysia since the early 1970's. In 1989, it contributed to 29.6% of the total medically certified deaths. This has not changed much in 1992 where it constituted 28.3% of the total reported deaths. In terms of mortality rates, death due to cardiovascular diseases increased from 22.1 per 100,000 in 1980 to 37.9 per 100,000 in 1992. During the same period, hospital admissions for cardiovascular diseases increased 256% from 19,472 to 69,284.

6.8.2.5 Cancers

There is increasing evidence to link diet to certain cancers. Aflatoxin contaminations in foods, long-term consumption of salted fish and betel nut chewing are possible underlying aetiological basis to liver, nasopharyngeal and mouth cancer respectively. High fat diet with low consumption of fruits and vegetables have been shown to be associated with cancers of colon and breast.

Mortality rate for cancer has increased from 15 per 100,000 for the period 1967-1970 to 20 per 100,000 for the period 1986-1989 mainly due to tumours of the digestive organs and peritoneum, and the respiratory and intra thoracic organs. The main types of cancer were cancer of the liver, stomach and colon. In 1992, cancer contributed to 11.5 % of all certified deaths compared to 7.4% in 1975.

Mortality due to stomach cancer was higher among males and more common among the Chinese and Indians. Similar pattern was seen for colon cancer except that there was no sex difference. Female breast cancers were also on the increase with the highest mortality among the Chinese and the Indians.

6.8.2.6 Diabetes Mellitus

Although aetiologically, diabetes mellitus is strongly associated with genetic factors, the role of diet and body weight are also very important and strongly related. The number of cases of diabetes mellitus has increased over the years

from 6,908 cases in 1977 to 19,059 cases in 1989. Consequently, the prevalence rate increased from 65.7 per 100,000 to 109.7 per 100,000 over the period. In 1992, mortality due to diabetes mellitus was 2.3% of all certified deaths.

Mortality trend among the ethnic groups was on the increase with the rates being constantly highest for the Indians and the Chinese.

6.8.3 Existing Efforts to Promote Appropriate Diet and Healthy Lifestyles

6.8.3.1 Formulation of Dietary Guidelines

Dietary guidelines have been formulated separately by the Ministry of Health, Ministry of Agriculture and the Ministry of Rural Development as well as the Universities. These guidelines are based on the recommended dietary intake for the population and are focussed on safe and adequate intakes to avoid deficiencies and to cover the needs of nearly all individuals in the population. These allowances have been used widely, to plan for balanced diet of infants, toddlers, preschoolers, school children and women.

Dietary guidelines for the prevention of cardiovascular diseases are either based on that of the World Health Organisation (WHO) or those advocated by countries such as USA and Australia. In general these guidelines advocate the following percentages of food consumption:

55 to 65%	:	carbohydrate
10-15%	:	protein
less than 30%	:	fats

There is as yet no National Dietary Guidelines to serve as the basis of and provide the guiding principles for all widely disseminated nutrition education messages given to the public to ensure consistent and accurate information is provided to consumers.

Similarly, there is no National Desirable Dietary Pattern (DDP) that is expressed in terms of certain foods or groups of foods that can be used to plan for national food supply and production.

6.8.3.2 Nutrition Education

The promotion of appropriate diet is mainly carried out by the Ministry of Health through its health care facilities and periodic campaigns at the community level especially in the rural areas. Emphasis is on the promotion of breastfeeding and balanced diets for the infants, toddlers, preschoolers, pregnant and lactating women. Patient education on healthy diet and its related diseases is also being conducted and carried out in government hospitals.

The promotion of appropriate diet for school children is mainly carried out by the Ministry of Education in particular through the School Supplementary Feeding Programme. Basic nutrition information is incorporated in the primary school curriculum. These are complemented by the nutrition education activities of the school health teams from the Ministry of Health.

The Ministry of Agriculture incorporates the promotion of appropriate diets through their Farm Family Development Programme targeting at rural women especially the wives of farmers. Similarly the Ministry of Rural Development promotes appropriate diets through its community development extension workers and through its kindergartens (TADIKA) and nursery (TASKA), as well as community kitchens.

The Ministry of Information is also supportive of the nutrition education programme in the country and has made available valuable air time on the radio and television. The Ministry has also helped in producing health programmes, trailers and jingles. In addition, radio and television do not carry out advertisements of infant formulas. Unfortunately, there are still commercials of fast foods and snack foods on radio and television. Newspapers have also been used to inform, educate and motivate the public. As in the electronic media, the print media do not carry infant formula advertisements but do advertise fast foods and snack foods.

Nutrition education and the promotion of healthy lifestyles have been increasingly undertaken by the private and commercial sectors including the food industry and health clubs as well as professional bodies and associations such as the Association of Physical Educators, the Malaysian Heart Foundation, the Cancerlink Foundation, the Malaysian Diabetic Association, Malaysian Dietetics Association and the Nutrition Society of Malaysia.

6.8.3.3 Food and Nutrition Labelling

Food labelling requirements are found in the Food Regulations 1985. Monitoring and enforcement of the food labelling provisions are by the Division of Food Quality Control, Ministry of Health. Specific provisions have been formulated for nutrient content information on the labels of infant formula products. In addition, health claims and descriptors on food labels of special dietary foods are specifically regulated. With the exception of these, there are no specific requirements for nutrition labelling of health foods.

6.8.3.4 The Healthy Lifestyle Awareness Campaign

The only nationwide and extensive programme to promote appropriate diet and healthy lifestyles is the Healthy Lifestyle Awareness Campaign (HLSC) of the Ministry of Health which was launched on 25 May, 1991.

The objectives of the campaign are:

- (i) To create among the population, awareness of the diseases caused by lifestyle and the dangers they pose to the community.
- (ii) To educate Malaysians on preventive measures against lifestyle diseases.
- (iii) To promote healthy lifestyle among all Malaysians.

The campaign is over a period of six years with emphasis being given to one theme per year as follows:

1991	—	Cardiovascular Diseases
1992	-	Sexually Transmitted Diseases including AIDS
1993	—	Food Hygiene
1994	—	Promotion of Child Health
1995	—	Cancers
1996	—	Diabetes Mellitus

The primary target audience for the campaigns are those at risk while the secondary target audience are their peers, family members and others who influence their decisions on health matters including medical and health staffs. The promotion of healthy diet is one of the major component in the Healthy Lifestyle Campaign.

The HLSC main strategies include social marketing, behavioural modification, intersectoral collaboration and community participation. Activities carried out as part of the campaign include mass media activities through the radio, TV, billboards, local newspapers, exhibitions and interpersonal communication activities. Activities are also carried out in collaboration with the relevant agencies, governmental, non-governmental and voluntary agencies.

6.8.3.5 ***“Malaysia Cergas” and “Rakan Muda” Campaign***

The “*Malaysia Cergas*” campaign is organised by the Ministry of Youths and Sports. It is a ‘*Sports for All*’ campaign which stresses on the importance of regular exercises for the masses. The campaigns will reinforce the adoption of the healthy lifestyle and complement efforts in the promotion of healthy diet. The “*Rakan Muda*” campaign is another government effort towards promoting healthy lifestyle amongst youth.

6.8.3.6 **Executive Fitness Programme**

The fitness programme which was initiated in 1989 at the highest level of the government involving Ministers, Members of Parliament and senior government officers of ministries is now been carried out to involve the middle management and the rest of the civil service. It has also permeated into the private and corporate sectors. Under this programme special emphasis is given to educate participants on risk factors of diet related chronic diseases.

6.8.3.7 **Training**

Training in nutrition is currently provided by universities for medical students, dietitians, food scientists and technologists. In addition, paramedic staffs in the Ministry of Health are given nutrition training in basic, post basic and in-service training.

Nutrition in-service training is also being conducted by relevant ministries and agencies for their workers in the community such as the extension workers of the Department of Community Development (KEMAS) under the Ministry of Rural Development. In all these training programmes, the importance of diet and healthy lifestyles is being emphasised.

6.8.3.8 **Monitoring and Evaluation**

The Ministry of Health carries out monitoring of weight of vulnerable groups such as infants, children and pregnant and lactating women. Weights of every child below six years attending government clinics are monitored on growth charts while weights and heights of every school children are recorded in the School Health Records by the Ministry of Education. In addition, dietary intakes of children with unsatisfactory weight gain are monitored monthly by health staff.

Programme monitoring and evaluation is however, minimal and is limited to process evaluation of specific efforts such as the measurement of awareness levels of the public to the Healthy Lifestyle Campaign of the Ministry of Health.

6.8.3.9 **Research**

Currently, a nationwide study by the Ministry of Health is being carried out to determine the prevalence of coronary heart disease and its risk factors in particular obesity, physical inactivity, Hyper cholesterolemia, hypertension, and diabetes mellitus. In addition, a nationwide study on nutritional status of functional

groups is being carried out by UPM in collaboration with the Institute of Medical Research. Isolated studies on dietary pattern have also been carried out by the academic institutions. Studies on the relationship between diet and cancer are being planned for future implementation. However, there are only a few intervention studies in relation to the promotion of healthy diet and very little applied research on motivating people for behaviour and lifestyle changes.

6.8.4 Recommendations

6.8.4.1 Objective

To improve the health and nutritional status of the population through the promotion of healthy diets and lifestyles.

6.8.4.2 Strategies and Activities

(i) Healthy Lifestyle Campaign

- (a)* Review and strengthen the nutrition and dietary component of the Healthy Lifestyle Campaign and provide nutrition support services for target groups as well as ensure its sustainability.
- (b)* Incorporate promotion of healthy diet as one of the yearly themes for the Healthy Lifestyle Campaign of the Ministry of Health.
- (c)* Intensify promotional activities of the Healthy Lifestyle Campaign in schools.

(ii) Dietary Guidelines

- (a)* Form a Technical Working Group to formulate:
 - dietary guidelines for different age groups and lifestyles appropriate for the country's population
 - review dietary protocols for the management of diet-related non-communicable diseases such as obesity, cardiovascular diseases, diabetes and cancer
- (b)* Disseminate widely the dietary guidelines for healthy living to the public through the use of appropriate channels including interpersonal, electronic and print media.
- (c)* Integrate these guidelines into appropriate programmes and activities of the various ministries and agencies.

(iii) Dietary Pattern

Consider the development of a National Desirable Dietary Pattern to assist the planning for appropriate food supply and production.

(iv) Food Legislation

- (a)* Expand further the requirements for nutrition labelling based on Codex Standards in the Food Act 1983 and Food Regulations 1985.
- (b)* Expand further the provisions in the Food Act 1983 and Food Regulations 1985 to regulate health claims and advertisements beyond those required for special dietary foods.

(v) **Street Foods**

- (a) Improve the nutritional value and safety of street foods through the provision of the necessary facilities and training as well as by carrying out health education and advocacy to street foods vendors and food handlers.
- (b) Strengthen consumer education through various channels in schools and work places.
- (c) Strengthen enforcement of the present by-laws and regulations by increasing manpower and budgetary allocations for street food sampling and analysis.

(vi) **Fast Foods**

- (a) Encourage discussions among government, food industry, the mass media, the NGOs and the consumers to ensure the development of more appropriate and healthier choice of products by the food industry and to regulate advertisements in the mass media.
- (b) Inform and educate the consumers on making wiser fast foods selections.

(vii) **Nutrition Education**

- (a) Encourage and support the production of educational materials by non-health and private sectors including the food industry, consumer groups and farmers' associations consistent with the National Dietary Guidelines.
- (b) Sustain nutrition education programmes in the various media through better planning especially in the procurement of sponsorships and better utilization of allotted media space and air time.
- (c) Review the school curriculum on health and nutrition to include advice on diet, the importance of exercise and recreation, stress management and the dangers of smoking and drinking, and to incorporate health and nutrition messages in the teaching of the various subjects.
- (d) Strengthen the health and nutrition education component of the school supplementary feeding programme, milk supplementary feeding programme for mothers and children and the food supplementation of the Poverty Eradication Programme.
- (e) Strengthen nutrition education of canteen operators, food caterers, cooks, chefs, hawkers and other food services personnel and assist them in preparing nutritious and healthy diets.
- (f) Give greater emphasis to healthy lifestyle diets in cooking demonstrations carried out in health care facilities and in the community especially in the urban areas.

(viii) **Training**

- (a) Update knowledge of community extension workers on appropriate diets and healthy lifestyles through in-service training.
- (b) Incorporate and strengthen nutrition and healthy lifestyles in the curricula of teacher's training colleges, universities and other centres of higher learning.

(ix) **Research**

- (a) Collect baseline data on dietary intakes of various population groups.
- (b) Expand the Malaysian food composition database to include information such as P:S ratio, dietary fibre and micronutrients.
- (c) Encourage more interagency involvement and collaborations in the conduct of research projects so that resources and findings can be optimally utilised.
- (d) Include more nutrition indicators in the National Health and Morbidity Survey.
- (e) Undertake more intervention studies.

(x) **Manpower**

- (a) Upgrade technical capabilities of government and private sectors by employing and increasing the numbers of nutritionists in their organisations as well as improving their career prospects.
- (b) Strengthen the dietary component of patient education as well as promotive and preventive health care with the appointment of dietitians at various levels of the health-care system.
- (c) Encourage NGOs and the community to mobilise community resources in activities to promote health and nutrition.
- (d) Procure more trained manpower for the enforcement of the relevant regulations.

(xi) **Recreational Facilities**

- (a) Strengthen current legislations on the provision of appropriate recreational facilities in housing estates.
- (b) Encourage the government to build more recreational facilities as well as to further reduce tax on sporting goods and equipment.

6.8.4.3 **Monitoring and Evaluation**

Each ministry and agency will be responsible to plan, monitor and evaluate the relevant recommended activities. The overall coordination will, however, be carried out by the National Coordinating Committee on Food and Nutrition (NCCFN).

In order to facilitate the monitoring and evaluation process, a nutrition surveillance system should be established to monitor the nutritional status of all age groups. Indicators of over nutrition such as the prevalence of overweight and obesity as well as data on Body Mass Index (BMI) should be incorporated. Data should also be obtained from periodic food consumption surveys.

The cancer registry at national and state levels need to be strengthened for the collection of more reliable cancer data. Existing data on medically certified causes of death and morbidity data will continue to be used. However, the rate of medical certification of deaths will need to be improved.

6.9 **ASSESSING, ANALYSING AND MONITORING NUTRITION SITUATIONS**

6.9.1 **Background**

Assessing, analysing and monitoring nutrition situations is an important activity for providing accurate and timely information which is needed for many purposes, the major ones being to identify chronic nutritional problems and causes, to predict acute nutritional

problems, to monitor changes in nutritional status, and to evaluate the impact of interventions and development programmes.

The International Conference on Nutrition (ICN) has suggested some basic considerations for assessing, analysing and monitoring nutrition situations. The following considerations are highlighted as they are deemed relevant for the situation in Malaysia:

- (i) Draw as much as possible on existing data collection systems
- (ii) Use a minimum number of indicators and focus on those that lend themselves to regular assessment
- (iii) Include trends on the selected indicators and population groups
- (iv) Monitoring should be built into a project or intervention from the beginning

6.9.2 Situational Analysis

There has been much improvement made in the nutrition situation in Malaysia brought about mainly by the socioeconomic development that has been taking place since the country attained independence in 1957. Severe degree of protein-energy malnutrition (PEM) are hardly reported. The more common evidence of PEM especially among young children in poor communities is represented by unsatisfactory physical growth attainment. Among these children, there exists a significant prevalence of underweight and stunting. Such findings have been reported by some cross-sectional studies involving anthropometric assessment of a fairly large number of children.

However, there is a lack of large scale dietary studies which can provide information on the consumption of calories and nutrients of various population groups in different parts of the country. Food consumption data would help towards a better understanding of the persistence of under nutrition in some communities, and the emergence of the problem of over nutrition in others. In the former case, such malnutrition issues as iron deficiency anaemia, iodine deficiency disorder and perhaps vitamin A deficiency remain as public health challenges.

With rapid socioeconomic development in the recent decades, the Malaysian diet has become more westernised leading to an increase in the morbidity and mortality of such diet-related non-communicable diseases as cardiovascular diseases, some types of cancer and diabetes mellitus. The prevalence of obesity among both urban and rural adults needs to be better delineated. Regular surveys are also called for to determine the magnitude of obesity among children as recent studies point towards the emergence of this form of malnutrition in Malaysia.

Besides inadequate food consumption, sociocultural factors also play an important role in the health care of young children, and during pregnancy and lactation in the multi-ethnic community of Malaysia. There remains much to be understood with regards to infant feeding and weaning practices, especially in light of increasingly more mothers working outside the homes.

Based on the above knowledge about the country's nutrition situation, nine priority nutrition issues were identified for further deliberations with regards to the need for constant assessment, analysis and monitoring. These are:

- (i) Protein-energy malnutrition and obesity in toddlers and preschool children
- (ii) Protein-energy malnutrition and obesity in school children
- (iii) Chronic energy deficiency and obesity in adults
- (iv) Nutritional status of the elderly

- (v) Low birth weight
- (vi) Breast feeding and weaning practices
- (vii) Food consumption patterns
- (viii) Micronutrient deficiencies:
 - Iron deficiency anaemia
 - Iodine deficiency disorder
- (ix) Diet-related non-communicable diseases:
 - Cardiovascular disease
 - Cancers related to diet
 - Diabetes mellitus

This section deals with the present mechanisms used by various institutions in assessing the nutritional situation in Malaysia. The focus is on the variations in the methods of collecting data for nutritional assessment, in the criteria used to assess and classify nutritional conditions and on the need to improve the dissemination of nutrition information.

6.9.2.1 Data Collection Methods

(i) PEM and Obesity in Children

The weight and height of preschoolers who attend government clinics and hospitals are recorded usually by the nurse on duty. In the schools, class teachers are expected to take the weight and height of the children annually. There are some shortcomings in the present system of taking these measurements routinely. Similar shortcomings may also arise when universities and research institutions carry out nutrition surveys, thereby affecting the quality and reliability of the data collected. This makes it difficult to compare the data obtained by the clinics, schools, universities and research institutions. These shortcomings include:

- (a) The type and quality of the weighing scales used vary among the clinics and schools.
- (b) Proper calibration of the instruments may not be undertaken routinely.
- (c) Errors arise when the measurements are not taken by the trained staff themselves, perhaps due to other work priorities.
- (d) Not all teachers are adequately trained to take measurements.
- (e) The standard procedures for weighing are not properly adhered to, especially in busy clinics, eg. weighing with shoes, child holding on to the mother during weighing, etc.

Besides the problems related to methods in data collection, there is also the problem of data availability due to:

- (a) low attendances of toddlers and preschool children at government child health clinics
- (b) unavailability of information related to this issue on PEM and obesity in children at private clinics.

(ii) Chronic Energy Deficiency (CED) and Obesity in Adults

There is a lack of information on the prevalence of CED and obesity in Malaysian adults. This is due to the greater attention given to vulnerable groups such as infants, young children and pregnant mothers.

(iii) Food Consumption Patterns

There are many methods available for recording past and current dietary intakes at the household and the individual levels. When an assortment of dietary methods are used and applied over various lengths of time, this can render comparisons of the data from various groups difficult.

A variety of food replicas are used in food consumption studies, from food models made from plaster of Paris to photographs. These food replicas are not standardised in terms of portion size.

The Recommended Dietary Allowance (RDA) are used to compare nutrient intakes found in dietary surveys to estimate what proportion of the population is at risk of deficient (or excessive) intakes. The Malaysian RDA has not been revised since it was first published (Teoh, 1975). A group of experts should revise the Malaysian RDA.

Local food composition tables are important for analysing the results of dietary surveys, because the type and composition of food varies considerably among different countries. The Malaysian Food Composition Tables (Tee et al, 1988) should be expanded to include information on other foods and on fatty acids, cholesterol and more micronutrients.

Information on the dietary intakes of toddlers, adolescents and the elderly is still lacking in Malaysia. Some dietary studies should be conducted on these age groups.

(iv) Micronutrient Deficiencies

(a) Iron deficiency anaemia

The method used to determine haemoglobin concentrations varies among the clinics and hospitals in that some are still using the blotting paper technique and the Sahli's method while others follow the cyanmethaemoglobin method which is currently in use in research institutions and universities.

In the school health programme, haemoglobin level is determined only if pallor is detected. The latter is assessed, subject to the experience of the nurse or doctor involved.

There is a lack of information on the prevalence of anaemia throughout childhood from toddlers to the adolescent group.

(b) Iodine deficiency disorder (IDD)

A nationwide prevalence study to map out the IDD situation in Malaysia is being planned for implementation in early 1995. A multi-department task force has been formed to oversee the planning and implementation of the survey. Training of personnel to carry out the survey will be undertaken.

There is a lack of uniformity of methods used for diagnosing IDD based on palpation/visibility of the thyroid gland, ultrasound scan of thyroid, urinary iodine levels and TSH levels in blood.

(c) Vitamin A deficiency

There is a lack of information on the prevalence of vitamin A deficiency among Malaysian children. Existing biochemical methods of assessing vitamin A levels require venous blood samples or repeated capillary blood samples to obtain sufficient blood for testing.

(v) Diet-related Non-communicable Diseases

There is a lack of epidemiological data on cardiovascular diseases (CVD), diabetes and cancers. The Ministry of Health has initiated a nationwide research on the risk factors of CVD and diabetes based on hospital patients and population groups.

6.9.2.2 Assessment Criteria

(i) PEM in Children

Some programmes in the Ministry of Health and KEMAS are still using the Harvard reference values to describe the different degrees of PEM in preschool children. Other institutions involved in nutritional assessment are using the National Centre for Health Statistics, USA (NCHS) reference values as recommended by WHO.

Classification of PEM in preschoolers is described in a variety of ways. Different institutions using the same Harvard reference values classify PEM by different indicators and cut-off points.

Among the institutions using the NCHS values, the criteria used to describe nutritional status of children also varies. For example, the School Health Record booklet of the Ministry of Education describes the nutritional status of school children according to grades as follows (weight for height):

> 120%	:	grade O
> 100-< 120%	:	grade A
> 90-< 100%	:	grade B
> 80-< 90%	:	grade C
< 80%	:	grade D

Universities and IMR have been using the NCHS reference and underweight is based on (NCHS median - 2 SD) (wt for age). There is no agreement among Malaysian workers on the classification for the mild and moderate forms of PEM in children based on the NCHS reference values.

(ii) Obesity in Children

The problem of different criteria being used to describe PEM also prevails for obesity in children. For example, while the universities and IMR use weight for age above +2 SD from the NCHS median for obesity, a study by the Department of Health of Selangor based obesity on weight for height at >120% of the NCHS median.

(iii) **Underweight in Adults**

While underweight in adults is generally described as BMI < 20, UKM follows a WHO classification of CED comprising of three chronic energy deficiency levels as follows:

BMI > 17-≤ 18.5	:	CED I
BMI > 16-≤17	:	CED II
BMI < 16	:	CED III

(iv) **Obesity in Adults**

In general, Body Mass Index (BMI) between 25 and 29.9 is described as overweight, while BMI >30 is considered as obese. A further classification of obesity is used by UKM as follows:

BMI > 25-≤ 30	:	grade I
BMI > 30-≤40	:	grade II
BMI > 40	:	grade III

(v) **Nutritional Status of the Elderly**

The present criteria for defining underweight and obesity among adults as described above do not have a separate category for the elderly group. It has been questioned whether the same criteria are appropriate for the elderly.

(vi) **Low Birth weight**

The length of gestation is not routinely recorded when the birth weight is taken. The gestational age should be made known to avoid the inclusion of preterm infants with full term infants born with birth weight less than 2.5 kg.

(vii) **Breastfeeding and Weaning Practices**

The definitions for exclusive breastfeeding and partial breastfeeding vary among researchers in terms of the types of food given. There is a dearth of data on breastfeeding and weaning practices among the urban population.

(viii) **Micronutrient Deficiencies**

(a) **Iron deficiency anaemia**

The MOH's criteria for the classification of iron deficiency anaemia for school children and pregnant mothers are as follows and differ from the ones recommended by WHO (1989):

Population Groups	Haemoglobin Levels (g/dl)	Classification
School children in Primary One, Six and Secondary Three	<10	
Pregnant mothers	9-10	mild anaemia
	8-<9	moderate anaemia
	<8	severe anaemia

6.9.2.3 Dissemination of Nutrition Information

There is limited exchange of annual reports and research findings among the various institutions involved in nutrition and nutrition-related activities. For example, the annual reports of the Health Management and Information System (HMIS) are not circulated among the universities and research institutions.

The mass media sometimes highlight certain nutrition claims of questionable validity. There is no “*Nutrition Watch*” to counter such claims.

6.9.3 Recommendations

6.9.3.1 Objective

To strengthen the mechanisms for assessing, analysing and monitoring the nutrition situation in Malaysia.

6.9.3.2 Strategies

The following four strategies can be applied to the nine priority nutrition issues towards achieving the above objective.

- (i) Standardise data collection methods.
- (ii) Standardise the assessment criteria.
- (iii) Expand the coverage of data collection.
- (iv) Improve the dissemination of information.

(i) PEM and Obesity in Preschool Children

(a) Standardise data collection methods

All weight measurements should be taken using a beam balance for centre-based weighing. A sturdy spring scale including hanging scales may be used for home-based weighing. Bathroom scales are not recommended.

All weighing scales should be calibrated using a standard method. For the clinic-based weighing of preschoolers, accuracy and reliability of the data collected can be improved as follows:

- Identify persons responsible for weighing the children during the sentinel months of March, June and September so that they can be targeted for training, supervision and validating purposes.
- A study should be carried out to determine the representativeness of the data collected for the three sentinel months, on those attending the clinics during the other months, and on those who do not attend the clinics at all.

(b) Standardise assessment criteria

The NCHS reference values should be used by all involved in the anthropometric assessment and classification of the nutritional status of children. The following classification for

PEM and obesity is proposed by MOH for young children based on the NCHS reference:

$\geq +2$ SD	:	Obese
≥ -2 SD and $< +2$ SD	:	Normal
≥ -3 SD and < -2 SD	:	PEM
< -3 SD	:	Severe PEM

However, the above classification should be reviewed in line with WHO's current review of anthropometric classification.

(c) Expand coverage of data collection

The present sentinel monitoring should be extended to all preschool children in government kindergartens (TABIKA, TADIK and TASKA) covered by the School Health Programme of the Ministry of Health. The Child Health Clinics of Dewan Bandaraya Kuala Lumpur, which are regularly conducting growth measurements of children, should generate the sentinel monitoring data and submit these to the MOH. All private clinics will be requested to take weight and height measurements and record these on the child health card, which will be used for the monitoring of nutritional status of children and for sentinel monitoring purposes.

If the study on the sentinel monitoring shows that the data collected is not representative of the whole population, a national PEM and obesity prevalence survey for preschoolers should be carried out once in 5 years.

(d) Improve dissemination of information

The Information and Documentation System (IDS) Unit of the Ministry of Health should send copies of the various annual reports of the Health Management and Information System (HMIS) to the libraries of the universities and research institutions. Universities and research institutions should send their relevant publications related to nutrition and health to the IDS for dissemination to the various programme heads of the Ministry of Health.

(ii) PEM and Obesity in School Children

(a) Standardise data collection methods

Reliable and economical weighing scales, preferably beam balance scales with height attachment should be used in all schools. The scales should be calibrated eg. with 5 kg weights. Teachers should be trained to improve their skills in the weighing procedure and their understanding of the classification system of PEM and obesity among school children.

(b) Standardise assessment criteria

It is recommended that the NCHS reference be used for the classification of PEM and obesity among school children. The WHO's anthropometric classification, which is being reviewed presently, will be used for school children when it is available.

(c) Expand coverage of data collection

All school children should be measured for weight and height with a view towards identifying children with malnutrition for intervention purposes. If a regular system of monitoring the weight and height of school children is not established, a survey should be conducted once in 5 years to assess the prevalence of PEM/obesity among school children.

(d) Improve dissemination of information

As the anthropometric data collected by the schools throughout the country is large, the processing and analysis of this data require much resources on the part of the Ministries of Education. Privatisation of this activity should be seriously looked into. At present, data collected by the schools is not being used systematically on a large scale either for research or intervention purposes. Such data should be circulated among the universities and other interested agencies.

(iii) Underweight and Obesity in Adults

(a) Improve data collection methods

A workshop is proposed for updating researchers on the anthropometric indicators and classification of chronic energy deficiency and obesity in adults.

(b) Improve assessment criteria

The WHO (1990) cut-off points for classifying CED and obesity in adults are recommended for adoption in Malaysia.

(c) Expand coverage of data collection

Information on the prevalence of CED in adults in Malaysia is scarce. Universiti Kebangsaan Malaysia recently completed an IRPA-funded project which provides data on the BMI and percentage body fat of adults from the three main ethnic groups in selected urban and rural areas of Malaysia.

It is proposed that a survey be carried out once in 5 years on the prevalence of CED among adults in labour intensive industries, and also on the prevalence of obesity among the different ethnic groups in urban and rural areas.

(d) Improve dissemination of information

Data collected should be compiled to form a baseline data on CED and obesity for various population groups. These data should be disseminated to interested and relevant parties.

(iv) Nutritional Status of the Elderly

(a) Need to standardise data collection methods

In cases where height cannot be taken, measurement of arm span or knee height should be used as proxy for stature.

The 24-hour recall method is not recommended for those elderly who cannot recall their past intake. For this group, alternative ways of collecting dietary information should be

used based on usual intakes and asking other family members to recall the food taken. Nutritional studies of the elderly should include questions on medication, smoking habits, alcohol consumption and the use of food supplements as these factors can influence nutritional status.

(b) Standardise assessment criteria

There is a need to consider having a separate category for the elderly based on BMI for CED and obesity, due to differences in body composition between the elderly and younger adults.

The revised Recommended Dietary Allowance (RDA) for Malaysians should separate the dietary recommendations for the older groups into groups of 50-59, 60-69 and 70+ years as their energy and nutrient requirements are not identical due to changes in body composition.

(c) Expand coverage of data collection

An on-going IRPA research on various “*functional*” groups is being undertaken by UPM and IMR/MOH, and it includes anthropometric measurements and dietary study (24-hour recall) on the elderly groups in Peninsular Malaysia. While this research provides useful information on a large group of Malay elderly in the rural areas, more studies on the elderly are needed, especially those from the various ethnic groups in both the rural and urban areas.

(v) Low Birth Weight

(a) Expand coverage of data collection

It is important to know the gestational age for research purposes, but it is not necessary for routine monitoring of low birth weight prevalence. There is a need to ensure complete recording of birth weight including those delivered at home in small private maternity homes. Weighing of all newborns should be done following recommended procedures.

Studies should be carried out on the factors that lead to the relatively high prevalence of low birth weight, including nutritional status in pregnancy, particularly of groups at high risk.

(vi) Breast Feeding and Weaning Practices

(a) Need to standardise the data collection methods

Studies on breast feeding and weaning practices should follow the definitions of WHO/UNICEF (1989) on the various types of infant feeding such as exclusive breast feeding, predominant breast feeding, timely complementary feeding, continued breast feeding at one and two years of age, and bottle feeding.

The types of food given in mixed feeding should be identified and described. In studies on weaning practices, the age of commencement of solid foods, the frequency and amounts given should be described.

(b) Need to expand coverage of data collection

Conduct regular monitoring of breast feeding rates and duration on representative samples at the national level, including ethnic groups with low breast feeding rates. This may be done through the National Health and Morbidity Survey.

More studies should be carried out on the influence of cultural beliefs and practices on breastmilk output and weaning practices. There is a need to conduct more studies on the nutritional status of lactating mothers.

(vii) Food Consumption Patterns

(a) Standardise data collection methods

A groups of experts in dietary studies should discuss and review the following recommendations to reach an agreement on the standardisation of data collection methods.

Food consumption studies should be differentiated between household level and individual level. At the household level, at least the following two methods should be included to assess the usual intake of the household:

- list-recall method where a list of major food items is used for the respondents to recall the amount and frequency of the foods acquired in a specified period; and
- food frequency where frequency of intake of a list of food items usually taken by the household in a specified period is recorded.

At the individual level, at least the following two methods should be used to assess his/her past and usual intake namely:

- 24-hour recall; where if information on intra-individual variations is required, the 24-hour recall is repeated for at least 3 times including a weekend. If seasonal variations are present, repeat 24-hour recall as necessary;
- food frequency method.

The need to validate food consumption survey data should be considered and discussed before the study is implemented, especially for groups for which the validity of the procedures has not been previously assessed. Appropriate food replicas should be used in food consumption studies involving food frequency and 24-hour recall methods. The food models should be standardised in terms of household measures or portion sizes. The food replicas should be shown in a graduation of sizes in order to reduce bias in selection by the respondents.

(b) Standardise assessment criteria

The Recommended Daily Dietary Intakes for Malaysia needs to be revised in line with recent developments in nutrient requirements. The word “daily” may be omitted in the spirit of the concept of recommended dietary allowances in that the dietary intakes need not be fulfilled on a daily basis.

The Nutrient Composition of Malaysian Foods should include more examples of cooked foods, beverages and pork foods (the latter could be adopted from other countries). A Malaysian computer soft-ware for nutrient analysis should be developed appropriate for local needs.

(c) Need to expand coverage of data collection

In light of the influence of the diet in non-communicable diseases e.g. coronary heart disease, diabetes and breast cancer, food consumption and related public health studies should obtain more information on foods consumed not only at home, but also those taken outside the home. More food consumption studies should be focused on toddlers, adolescents and the elderly.

(viii) Micronutrient Deficiencies

(a) Iron deficiency anaemia

As far as possible, the cyanmethaemoglobin method should be used in the assessment of haemoglobin levels in blood. The WHO (1989) criteria/classification for iron deficiency anaemia based on haemoglobin levels should be used:

Children 6 months - 5 years	< 11.0 g/dl
Children 6 - 14 years	< 12.0 g/dl
Adult males	< 13.0 g/dl
Adult females (non-pregnant)	< 12.0 g/dl
Adult females (pregnant)	< 11.0 g/dl

Data should be presented in terms of the above criteria to facilitate comparisons within and outside the country.

Surveys should be carried out to determine the prevalence of iron deficiency anaemia among children in all age groups from infants to adolescents.

(b) Iodine deficiency disorder

Besides the palpation method and determination of urinary iodine levels, the ultrasound method should be used wherever possible. Research groups are encouraged to use a common classification system of goitre so as to facilitate the comparisons of data. The following criteria of the Joint WHO/UNICEF/ICCIDD's classification of goitre (1993) are recommended:

Grade 0	: thyroid gland not palpable
Grade 1	: thyroid gland not visible but palpable
Grade 2	: thyroid gland visible and palpable

If the ultrasound method is used, the normative values for thyroid size given by WHO/UNICEF/ ICCIDD (1993) should be adopted.

The classification scheme for severity of IDD based on the median urinary iodine levels should be as follows:

< 2.0	ug/dl	:	severe IDD
2.0 - 4.9	ug/dl	:	moderate IDD
5.0 - 9.9	ug/dl	:	mild IDD
>10	ug/dl	:	no iodine deficiency

(c) Vitamin A deficiency

More community studies are required to determine whether vitamin A deficiency is of a serious magnitude amongst children. Studies should be carried out to improve biochemical methods for assessing vitamin A status, e.g. micro-methods for serum vitamin A and carotenoids to enable such analysis to be carried out among children from whom only a small volume of blood can be obtained.

(ix) Diet-related Non-communicable Diseases

Researchers interested in studying the risk factors of CVD should liaise with the Ministry of Health to obtain information on its current research in this area, and to plan further studies based on analysis of present needs.

The following monitoring mechanisms are recommended to improve the effectiveness in the prevention and control of the non-communicable diseases mentioned above:

- (a) National and state cancer registries should be strengthened;
- (b) Data on morbidity and mortality should be categorised for coronary heart disease and diabetes mellitus specifically.

6.9.4 Implementing Agencies

Many recommendations were forwarded in the previous section for the improvement of the present system of collecting and classifying data for the assessment of nutritional status of various population groups. Recommendations were also made towards strengthening the present system of monitoring the nutrition situation and the dissemination of nutrition information among the various institutions involved in activities related to nutrition.

In this section the major agencies that are involved in the planning and implementation of activities related to each of the ten priority nutrition issues are identified. These agencies will coordinate activities to ensure that the recommendations proposed are undertaken towards the successful implementation of the NPANM.

(i) Ministry of Health

(a) PEM and obesity in toddlers and preschool children

- Ensure the use of quality and reliable weighing equipment in all health facilities, and standardise procedures in taking measurements.
- Train staff involved in the sentinel monitoring.
- Ensure the NCHS reference is used for classifying PEM and obesity of children at all levels.

- Include the School Health Team in the sentinel monitoring of all government kindergartens, including TABIKA, TADIKA and TASKA.
- Ensure the Child Health Clinic of Dewan Bandaraya Kuala Lumpur conduct sentinel monitoring.
- Coordinate a national survey on PEM and obesity among preschoolers once every 5 years.
- Ensure the annual HMIS reports are sent to universities and research institutions.

(b) PEM and obesity in school children

- Assist the Ministry of Education in training of its staff in weighing procedures and use of the NCHS reference values.
- Ensure the use of quality and reliable weighing equipment in all schools as far as possible.
- Assist the MOE together with the universities and research institutions to conduct periodic surveys on the prevalence of PEM and obesity among school children.

(c) Low Birth weight

- Ensure complete reporting of Birth weight, including deliveries at home and in small private maternity homes.
- Study the feasibility of having the age of gestation made known when birth weight is reported.

(d) Breast feeding and weaning practices

- Encourage the use of the WHO/UNICEF definitions on the various forms of infant feeding.
- Conduct studies with the cooperation of universities and research institutions on aspects of infant feeding that need further understanding e.g. influence of cultural beliefs on output of breastmilk, and weaning practices of Indian women.

(e) Micronutrient deficiencies

- Ensure the use of the cyanmethaemoglobin method in all health facilities as far as possible.

(f) Diet-related non-communicable diseases

- Strengthen the cancer registries at the federal and state levels.
- Coordinate with the Department of Statistics in categorising national morbidity and mortality data for coronary heart disease and diabetes specifically.

(ii) Ministry of Health, Universities and Research Institutions

(a) Food consumption patterns

- Undertake more studies on the dietary intake patterns of toddlers, adolescents and the elderly.
- Carry out studies on dietary habits in relations to non-communicable diseases.
- Revise the RDA (Teoh, 1975) for Malaysians.

(b) Micronutrient deficiencies

- Ensure the use of the WHO classification (1989) for iron deficiency anaemia.
- Determine the prevalence of nutritional anaemia in childhood from toddlers up to adolescents (including preschoolers and children in primary and secondary schools).
- Ensure the use of a common classification for the assessment of IDD.
- Carry out a study to determine the magnitude of vitamin A deficiency amongst children.

(c) Diet-related non-communicable diseases

- Form a national interest group to carry out research on dietary aspects of non-communicable diseases, and to undertake health education programmes for the prevention and control of these diseases.

(iii) Universities and Research Institutions

(a) PEM and obesity in toddlers and preschoolers

- Assist in the national surveys on PEM and obesity among preschoolers.
- Ensure that relevant publications are sent to the Ministry of Health and other interested institutions.

(b) CED and obesity in adults

- Conduct a workshop to update groups on methodologies related to assessing, monitoring and classification of CED and obesity in adults.
- Carry out studies on the prevalence of CED and obesity in selected population groups.

(c) Nutritional status of the elderly

- Undertake research studies on various aspects related to the nutritional status of the elderly from different socioeconomic and ethnic groups living in different areas.
- Study the implications of having a different classification for obesity among the elderly based on the BMI, e.g. whether BMI > 25 is overweight for the elderly compared to other indicators.

(d) Low Birth weight

- Carry out studies on the factors that contribute to the high prevalence of low birth weight among the socioeconomic groups at risk.

(iv) Ministry of Education

- Ensure the use of quality and reliable weighing equipment in all schools as far as possible.
- Study the possibility of including all age groups (besides the present Primary One and Six classes only) in the regular measurements of weight and height.
- Study the possibility of privatising the processing and analysis of the anthropometric data collected.

7. FOLLOW-UP MECHANISM AND ORGANISATION

The implementation of the NPANM will be by the various sectors and coordinated by a network consisting of a national council for nutrition, the National Coordinating Committee on Food and Nutrition (NCCFN) and several Technical Working Groups (TWGs). The NCCFN will be assisted by a full-time secretariat to be formed and placed in the Ministry of Health.

7.1 NATIONAL NUTRITION COUNCIL (NNC)

The NNC will be the highest policy making body for nutrition in the country and administratively located in the Ministry of Health.

The Terms of Reference of the NNC are as follows:

- (i) Formulate policies on food and nutrition.
- (ii) Advise the government on all major issues related to food and nutrition.
- (iii) Ensure the incorporation of nutrition objectives, considerations and components into development policies and programmes.
- (iv) Oversee the functions of the NCCFN and the implementation of the NPANM.

The members of the NNC are as follows:

- Chairman : Minister of Health
- Members : Director-General, Ministry of Health
Secretary-General, Ministry of Agriculture
Director-General, Ministry of Education
Director-General, Economic Planning Unit,
Prime Minister's Department
Director-General, Implementation Coordinating
Unit, Prime Minister's Department
Secretary-General, Ministry of National Unity and Community
Development
Director-General, Division of Community
Development, Ministry of Rural Development
President, Federation of Malaysian Consumers
Association (FOMCA)
President, Federation of Malaysian Manufacturers (FMM)

The council will meet at least once a year.

7.2 NATIONAL COORDINATING COMMITTEE ON FOOD AND NUTRITION (NCCFN)

The NCCFN will provide the national platform on which sectoral experiences and measures will be exchanged and discussed in order to avoid duplication of efforts and omissions in important areas of activity. The main objective is to make the best use of the financial resources available in considering the nutritional problems of the country and developing appropriate measures to overcome these.

The Terms of Reference of the NCCFN are:

- (i) Ensure that the NPANM is implemented, monitored and evaluated with the involvement and participation of all relevant sectors.
- (ii) Set up various Technical Working Groups, and to oversee and coordinate their activities.

- (iii) Review available information on nutrition problems in the country and identify measures to combat them, to be implemented by the different sectors within the framework of their policies and plan of action.
- (iv) Review nutrition and nutrition-related measures implemented by different sectors of the government and NGOs, and identify areas where duplication has taken place or which have not been touched by any sectoral measures.
- (v) Identify government sectors or other organisations which are competent to undertake corrective measures in urgent or emergency situations such as natural or man-made disasters.
- (vi) Develop an overall, time-bound plan of work at national level, estimate the financial and technical requirements for such a plan and obtain the necessary approval of the sectors concerned and of the central planning body.
- (vii) Initiate the development of a multi sectoral national food and nutrition policy.
- (viii) Procure the necessary resources and government support to implement the NPANM.

The members of the NCCFN are:

- Chairman : Deputy Director-General of Health (Public Health),
Ministry of Health
- Members : Director of Family Health Development, Ministry of Health
Senior Assistant Director (Family Health), Ministry of Health
Senior Assistant Director (Food Quality Control),
Ministry of Health
Senior Assistant Director (Disease Control), Ministry of Health
Assistant Director (Family Health), Ministry of Health
Assistant Director (Nutrition), Ministry of Health

Representatives from:

Economic Planning Unit, Prime Minister's Department
Implementation Coordinating Unit,
Prime Minister's Department
Ministry of Agriculture
Ministry of Education
Ministry of National Unity and Community Development
Ministry of Rural Development
National Family and Population Development Board (LPPKN)
Institute for Medical Research (IMR)
Malaysian Agriculture Research and Development Institute
(MARDI)
Universiti Kebangsaan Malaysia (UKM)
Universiti Pertanian Malaysia (UPM)
Universiti Malaya (UM)
Nutrition Society of Malaysia
WHO Clinical Nutritionist (co-opted member)

The NCCFN will meet at least once in six months and will be assisted by a full-time secretariat under the Division of Family Health Development in the Ministry of Health.

7.3 TECHNICAL WORKING GROUPS (TWGs)

The function of the TWGs is to make initial review and prepare a concise report on subjects on which the NCCFN will deliberate. Initially, three TWGs will be formed for each of the following areas:

- (i) Training
- (ii) Research
- (iii) Formulation of Dietary Guidelines

7.4 IMPLEMENTING MECHANISM

The NPANM will use the organisational structure already in place at national, state, district and village levels. The various ministries, agencies and institutions will be encouraged to establish appropriate sectoral mechanisms to prioritise, develop, implement and monitor the related components of the NPANM under each of the nine thrust areas. In addition, State Governments, district and local authorities as well as the private sector, the NGOs and the village committees will be encouraged to play an active role and to assume their responsibilities to implement the NPANM with appropriate mechanisms for coordination.

It is recommended that a resource centre be established to facilitate information sharing and updates on nutrition.

7.5 RESOURCE NEEDS

Agencies responsible for specific functions in this NPANM shall be responsible for procuring the appropriate manpower and budget. In addition to this, the operationalisation of the NPANM has other manpower and budgetary requirements which are described below. These are minimal requirements to improve the technical capabilities of the main agencies implementing the NPANM, to facilitate and strengthen the coordinating mechanism as well as to advocate intersectoral nutrition intervention, training and research.

7.5.1 Human Resources

Currently, there are only 16 nutritionists to plan and manage nutrition programmes in the country. They are all employed by the Ministry of Health with three at the ministry level and one each for the states. The Institute for Medical Research has only six Research Officers to carry out research on nutrition. The implementation of the NPANM, therefore, requires more nutritionists and research officers.

(i) Ministry of Health

The establishment of a full-time secretariat to the NCCFN will require the employment of two dedicated Nutrition Officers, a clerk, a typist and a junior general assistant. The implementation of the NPANM at state level will necessitate the placement of 13 additional Nutrition Officers, one each for the states.

In addition the Institute of Medical Research will need two more Research Officers to enable the institute to carry out the additional surveys and studies identified in the NPANM.

(ii) Ministry of Agriculture

At least one Nutrition Officer will be required to act as a nutrition technical adviser to the ministry in the area of food security. The duties and responsibilities of the officer will include:

- Serve as a liaison officer to plan, implement, monitor and evaluate the food security component of the NPANM.
- Ensure the incorporation of nutrition objectives, considerations and components in agriculture and farm family development policies and programmes.

- Produce and disseminate nutrition information related to food production, processing and storage to all levels.
- Train agriculture extension workers in specific functions and tasks needed to implement the NPANM and all other programmes.
- Carry out research in the area of food security and nutrition.

(iii) Ministry of Education

At least one Nutrition Officer will be required to act as technical advisers and desk officers. The duties and responsibilities of the officers will include:

- Serve as a liaison officer to plan, implement, monitor and evaluate school nutrition programmes needed to implement the NPANM.
- Ensure nutrition objectives, considerations and components are incorporated into the School Health Programme.
- Review and strengthen the school supplementary feeding programme.
- Provide technical advice on curriculum development for health and nutrition for schools and teacher training colleges.
- Plan and develop nutrition education programmes for teachers, parents and school children.
- Provide advice on nutrition for school canteens and institutional feeding in hostels, boarding schools and teacher training colleges.
- Train teachers in specific functions and tasks needed to implement the NPANM and all other programmes.
- Conduct research and studies on nutrition in school children.

(iv) Ministry of Rural Development

At least one Nutrition Officer will be required to act as technical advisers and desk officers. The duties and responsibilities of these officers include:

- Serve as liaison officer for the development of community nutrition intervention and education programmes for the implementation of the NPANM.
- Ensure that nutrition objectives, considerations and components are incorporated into rural development policies and programmes.
- Strengthen the nutrition component of the activities of the Department of Community Development (KEMAS) such as:
 - supplementary feeding programmes for preschoolers.
 - community kitchen
 - home economics classes
- Train community development workers in specific tasks and functions needed to implement the NPANM.
- Carry out nutrition education activities in the community.
- Carry out research and studies on nutrition in community development.

7.5.2 Budgetary Requirements (Appendix 6)

The total five-year operating budget of the NPANM, over and above those that will be required under each of the various sectors normal budget is RM11.1 million.

(i) Emolument for Additional Posts

The budgetary requirement for salary and allowances for the 18 additional posts (excluding those for the secretariat) is RM1.45 million.

(ii) **Secretariat**

The amount required for emolument (one Nutrition Officer (C2), one Nutrition Officer (C3), one clerk (N9), one typist (N11) and one junior general assistant (N13)) is RM47,950 and rental of office space is RM144,000. The amount required for office furniture and equipment is RM145,000, for utilities RM108,000 and stationaries RM62,000.

The secretariat will also be used as a nutrition resource centre with an additional cost of RM12,000 per year or RM60,000 for five years for the cost of additional stationaries, postage etc. The total budget for the secretariat for the five years is RM884,000 million.

(iii) **Training, Advocacy and Research**

The total amount required for the above is RM8.7 million. The training is required to develop the skills of implementors while advocacy is needed at national, state and district level for policy and decision makers, programme managers, private sectors, non-government organisations (NGOs) and community leaders. The funds for research are required to undertake the studies proposed in the NPANM for each of the nine thrust areas.

8. CONCLUSION

The NPANM is a milestone in the continuing process to eliminate malnutrition and at the same time prevent an increase in the incidence of diet-related communicable and non-communicable diseases in the country. It provides the framework for an intersectoral action for nutrition with emphasis on strengthening the organisational structure, coordinating mechanism and technical capability of the various implementing agencies, as well as advocating nutrition intervention as part and parcel of national development.

The NPANM preparatory process which began at the national level has already initiated multi sectoral collaboration through the NCCFN and the various Working Groups. Efforts to incorporate nutrition objectives, considerations and components into the Seventh Malaysia Plan (7MP) and the various sectoral plans are already underway. The challenge is to build on these achievements and finally to translate the NPANM into operational plans which will identify specific activities and targets for implementation to protect and promote the nutritional well-being of all.

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PORT DICKSON**

21-24 DECEMBER 1994

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5. Dr. Mustaffa Bakri Adnan
6. Dr. Jalal Halil
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10. Ms. Fauziah Arshad
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3. Dr. M. Kandiah

III. Institute of Public Health

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2. Ms. Uma Thevendran

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| 2. Ms. Rusidah Selamat | Kedah |
| 3. Ms. Angela Chia | Selangor |
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| 11. Dr. Rahimah Said | Sabah |
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3. Dr. Mohd. Khan Ayub
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1. Mr. Abdullah Yatim

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1. Mr. Lim Heng Boon

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1. Mr. Sahari Jantan

XIII. Ministry of National Unity and Community Development Malaysia

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2. Mr. Sayed Abd. Rahman Mohd
3. Ms. Adawiyah Mohd Zin

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1. Ms. Zanariah Jiman

XVI. Malaysian Agriculture Marketing Authority (FAMA)

1. Ms. Normah Mohd. Salleh

XVII. National Population and Family Development Board Malaysia (LPPKN)

1. Ms. Kamarul Faridah Kamarul Zaman

XVIII. Breast Feeding Advisory Association of Malaysia (PPPIM)

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XIX. World Health Organization

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**NUTRITION TARGETS OF THE NATIONAL PLAN OF ACTION
FOR CHILD SURVIVAL, PROTECTION AND DEVELOPMENT**

GOALS	NATIONAL TARGET
1. Reduction in severe, as well as moderate malnutrition among children under 5 years by half of 1990 levels.	To reduce severe malnutrition from 0.5% (1990) to 0.2% (2000) and moderate malnutrition from 24.5% (1990) to 12.2% (2000).
2. Reduction of the rate of low birth weight (2.5 kg or less) to less than 10%	To reduce low birth weight from 8.3% (1989) to 6.0% by the year 2000.
3. Reduction of iron deficiency anaemia in woman by one third of 1990 levels.	To reduce iron deficiency anaemia (Hb <9g/dl) in pregnant women from 5.4% (1990) to 3.6% by the year 2000.
4. Virtual elimination of iodine deficiency disorders.	Iodine deficiency disorders will be monitored and managed with a view to elimination by the year 2000.
5. Virtual elimination of vitamin A deficiency and its consequences including blindness	With the strengthening of ongoing nutrition education programme and the supplementary feeding programme, vitamin A deficiency could be virtually eliminated by the year 2000.
6. Empowerment of all women to breastfeed their children exclusively for the first four to six months and to continue breastfeeding, with complementary food well into the second year.	<p>More than 80% of the rural mothers and 60% urban mothers start to breastfeed their newborn infants but a large majority stop breastfeeding by three months. The thrust of education therefore, is to sustain breastfeeding at least for the first four to six months and to continue breastfeeding with complementary food well into the 2nd year.</p> <p>The implementation of the Code of Ethics for Infant Formula Products since 1979 will be continued to assist in the provision of safe and adequate nutrition to Malaysian infants by the protection and promotion of breastfeeding and to ensure adequate standards and proper use of infant formula products. Action will be taken to further strengthen the implementation of this Code, so that the activities of the infant formula industries comply with the Code. Malaysia will also promote breastfeeding through the Baby Friendly Hospital Initiative.</p>
7. Growth promotion and its regular monitoring to be institutionalised by the end of the 1990's.	<p>In Malaysia, growth monitoring and the use of growth charts was introduced since 1979 as a device to monitor growth of children <7 years of age and to detect children at risk of impending under nutrition as early as possible; any failure in weight gain is taken as an early warning signal and the child is managed accordingly.</p> <p>The existing growth chart is available for all children attending MCH outlets and has been incorporated into the Child Health Record for Children <7 years. New home-based child health cards with growth curves are being designed for mothers to keep and use to monitor the growth of their child so that timely remedial action can be taken.</p>

OPERATING BUDGET OF THE NPANM

I. EMOLUMENT FOR ADDITIONAL POSTS

	1996	1997	1998	1999	2000	TOTAL
1. Ministry of Health						
(i) Nutrition Officer (C3)						
– Number	0	0	13	0	0	13
– Salary (RM)	0	0	194,376	204,672	214,968	614,016
– EPF (RM)	0	0	21,381	22,514	23,646	67,542
– Allowances (RM)	0	0	82,680	82,680	82,680	248,040
Total (RM)	0	0	298,437	309,866	321,294	929,598
2. Ministry of Agriculture						
(i) Nutrition Officer (C3)						
– Number	0	0	1	0	0	1
– Salary (RM)	0	0	14,952	15,744	16,536	47,232
– EPF (RM)	0	0	1,645	1,732	1,819	5,196
– Allowances (RM)	0	0	6,360	6,360	6,360	19,080
Total (RM)	0	0	22,957	23,836	24,715	71,508
3. Ministry of Education						
(i) Nutrition Officer (C3)						
– Number	0	0	1	0	0	1
– Salary (RM)	0	0	14,952	15,744	16,536	47,232
– EPF (RM)	0	0	1,645	1,732	1,819	5,196
– Allowances (RM)	0	0	6,360	6,360	6,360	19,080
Total (RM)	0	0	22,957	23,836	24,715	71,508
4. Ministry of Rural Development						
(i) Nutrition Officer (C3)						
– Number	0	0	1	0	0	1
– Salary (RM)	0	0	14,952	15,744	16,536	47,232
– EPF (RM)	0	0	1,645	1,732	1,819	5,196
– Allowances (RM)	0	0	6,360	6,360	6,360	19,080
Total (RM)	0	0	22,957	23,836	24,715	71,508
5. Institute for Medical Research						
(i) Research Officer (Nutrition) (Q3)						
– Number	0	0	2	0	0	2
– Salary (RM)	0	0	29,904	31,488	33,072	94,464
– EPF (RM)	0	0	3,289	3,464	3,638	10,391
– Allowances (RM)	0	0	15,720	15,720	15,720	47,160
Total (RM)	0	0	48,913	127,039	131,855	307,807
TOTAL EMOLUMENT (RM)	0	0	416,221	508,413	527,294	1,451,928

OPERATING BUDGET OF THE NPANM (1996—2000)

II. SECRETARIAT

	1996	1997	1998	1999	2000	TOTAL
1. Emolument						
(i) Nutrition Officer (C2)						
– Number	0	0	1	0	0	1
– Salary (RM)	0	0	39,324	41,124	42,924	123,372
– Allowances (RM)	0	0	18,000	18,000	18,000	54,000
Total (RM)	0	0	57,324	59,124	60,924	177,372
(ii) Nutrition Officer (C3)						
– Number	0	1	0	0	0	1
– Salary (RM)	0	14,952	15,744	16,536	17,328	64,560
– EPF (RM)	0	1,645	1,732	1,819	1,906	7,102
– Allowances (RM)	0	6,360	6,360	6,360	6,360	25,440
Total (RM)	0	22,957	23,836	24,715	25,594	97,102
(iii) Clerk (N9)						
– Number	0	1	0	0	0	1
– Salary (RM)	0	6,756	7,152	7,548	7,944	29,400
– EPF (RM)	0	743	787	830	874	3,234
– Allowances (RM)	0	2,040	2,040	2,040	2,040	8,160
Total (RM)	0	9,539	9,979	10,418	10,858	40,794
(iv) Typist (N11)						
– Number	0	0	1	0	0	1
– Salary (RM)	0	0	5,664	5,964	6,264	17,892
– EPF (RM)	0	0	623	656	689	1,968
– Allowances (RM)	0	0	1,860	1,860	1,860	5,580
Total (RM)	0	0	8,147	8,480	8,813	25,440
(v) Junior General Assistant (N13)						
– Number	0	0	1	0	0	1
– Salary (RM)	0	0	5,232	5,520	5,820	16,572
– EPF (RM)	0	0	576	607	640	1,823
– Allowances (RM)	0	0	1,860	1,860	1,860	5,580
Total (RM)	0	0	7,668	7,987	8,320	23,975
Total Emolument (RM)	0	32,496	106,953	110,724	114,509	47,950
2. Rental of office space (RM)	0	0	48,000	48,000	48,000	144,000
3. Office Furniture (RM)	0	5,000	0	0	0	5,000
4. Educational Aids (RM)	0	50,000	0	0	0	50,000
5. Computer (2) (RM)	0	20,000	20,000	0	0	40,000
6. Photostat Machine (RM)	0	0	40,000	0	0	40,000
7. FAX Machine (RM)	0	0	10,000	0	0	10,000
8. Utilities (RM)	0	0	36,000	36,000	36,000	108,000
9. Stationaries (RM)	0	8,000	18,000	18,000	18,000	62,000
10. Resource Centre (RM)	0	24,000	12,000	12,000	12,000	60,000
Total (RM)	0	107,000	184,000	114,000	114,000	519,000
TOTAL SECRETARIAT (RM)	0	139,496	290,953	224,724	228,509	883,683

OPERATING BUDGET OF THE NPANM (1996—2000)

III. SPECIFIC ACTIVITIES

Type of Activities	1996	1997	1998	1999	2000	TOTAL
1. Training						
(i) Workshop to prepare training module (RM)	25,000	0	0	0	0	25,000
(ii) Transport and day allowance for 5 National Trainers (RM)	0	7,500	7,500	7,500	7,500	30,000
(iii) Printing 1,000 copies of Training Module @ RM30 (RM)	30,000	0	0	0	0	30,000
(iv) Printing of training aid and materials @ RM10 (RM)	0	12,500	10,000	10,000	10,000	42,500
(v) Training of specific groups (RM)	0	0	15,000	15,000	15,000	45,000
(vi) National level training (RM)	0	20,000	0	0	0	20,000
(vii) State level training @ RM10,000 (RM)	0	40,000	50,000	50,000	0	140,000
(viii) District level training @ RM5,000 (RM)	0	125,000	40,000	50,000	30,000	245,000
(ix) Printing of report (RM)	0	0	0	0	10,000	10,000
Total (RM)	55,000	205,000	122,500	132,500	72,500	587,500
2. Advocacy						
(i) Printing 2,000 copies of NPANM @ RM6.00 (RM)	12,000	0	0	0	0	12,000
(ii) National level launching of NPANM (RM)	25,000	0	0	0	0	25,000
(iii) State level NPANM Seminar @ RM10,000 (RM)	0	140,000	0	0	0	140,000
(iv) District level NPANM Seminar @ RM5,000 (RM)	0	100,000	100,000	100,000	100,000	400,000
(v) Workshop to prepare Dietary Guidelines (RM)	20,000	0	0	0	0	20,000
(vi) Printing 10,000 copies of Dietary Guidelines @ RM5.00 (RM)	50,000	50,000	50,000	50,000	50,000	250,000
(vii) Launching of Dietary Guidelines (RM)	20,000	0	0	0	0	20,000
(viii) National Breastfeeding Seminar (RM)	0	30,000	0	0	30,000	60,000
(ix) State level Healthy Eating Seminar @ RM10,000 (RM)	0	140,000	140,000	140,000	140,000	560,000
Total (RM)	127,000	460,000	290,000	290,000	320,000	1,487,000

Type of Activities	1996	1997	1998	1999	2000	TOTAL
3. Research						
(i) Workshop to prepare research protocol @ RM15,000 (RM)	15,000	15,000	15,000	15,000	15,000	75,000
(ii) Printing 10,000 copies of research protocol @ RM3.00 (RM)	30,000	30,000	30,000	30,000	30,000	150,000
(iii) Workshop for National level researchers @ RM10,000 (RM)	10,000	10,000	10,000	10,000	10,000	50,000
(iv) Workshop for state level researchers @ RM3,000 (RM)	0	42,000	42,000	42,000	42,000	168,000
(v) Services of 50 research assistants @ RM500 month x 3 (RM)	0	75,000	75,000	75,000	75,000	300,000
(vi) Transportation of 50 research assistants @ RM500 month x 3 (RM)	0	75,000	75,000	75,000	75,000	300,000
(vii) Accomodation of 50 research assistants @ RM70x30x3 (RM)	0	315,000	315,000	315,000	315,000	1,260,000
(viii) Food allowances for 50 research assistants @ RM30x30x3 (RM)	0	135,000	135,000	135,000	135,000	540,000
(ix) Printing 500 copies of research report @ RM4.00 (RM)	0	2,000	2,000	2,000	2,000	8,000
(x) Grant for food analysis (RM)	0	1,000,000	1,000,000	900,000	0	2,900,000
(xi) Grant for researchers (RM)	0	100,000	85,000	60,000	60,000	305,000
Total (RM)	55,000	1,799,000	1,784,000	1,659,000	759,000	6,056,000
4. Grant to NGOs						
(i) Lactation Management Training (RM)	0	30,000	30,000	30,000	30,000	120,000
(ii) Breastfeeding Week activities (RM)	0	20,000	20,000	20,000	20,000	80,000
(iii) Printing of nutrition education materials (RM)	50,000	50,000	50,000	50,000	50,000	250,000
Total (RM)	50,000	100,000	100,000	100,000	100,000	450,000

Type of Activities	1996	1997	1998	1999	2000	TOTAL
5. Revision of RDA						
(i) Workshop to prepare RDA @ RM5,000x3 (RM)	0	15,000	0	0	0	15,000
(ii) National RDA Workshop @ RM15,000 (RM)	0	0	15,000	0	0	15,000
(iii) Printing 5,000 copies of RDA @ RM4.00 (RM)	0	0	20,000	0	0	20,000
Total (RM)	0	15,000	35,000	0	0	50,000
6. Updating of Food Composition Table						
(i) Printing 5,000 copies of Food Composition Tables @ RM20.00 (RM)	0	0	0	100,000	0	100,000
Total (RM)	0	0	0	100,000	0	100,000
GRAND TOTAL (RM)	287,000	2,579,000	2,331,500	2,281,500	1,251,500	8,730,500

