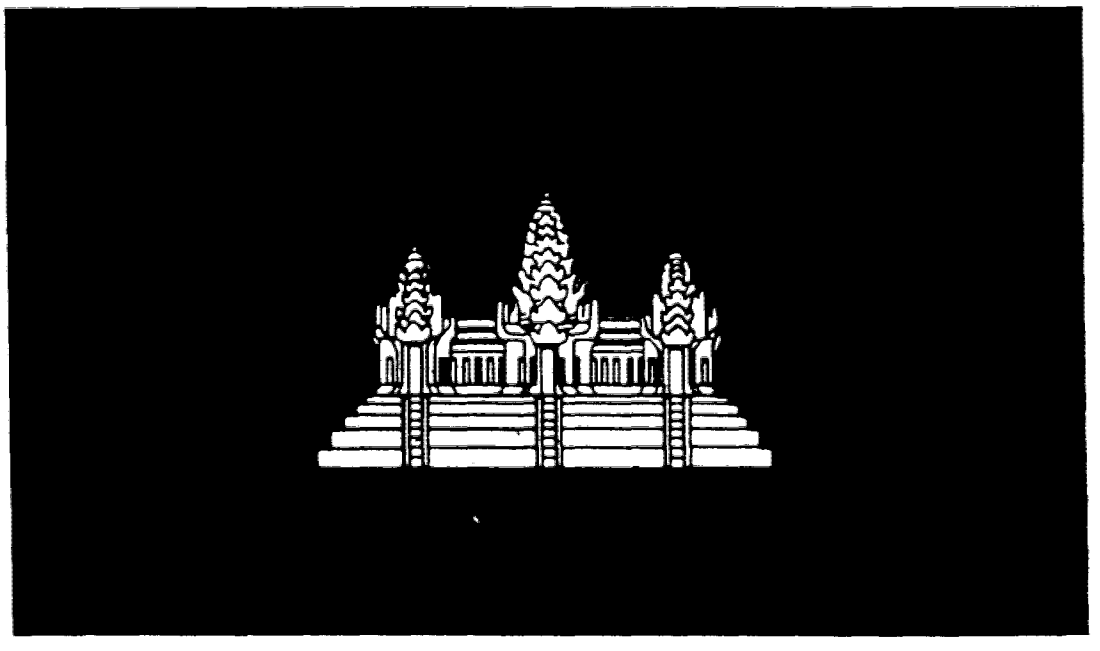
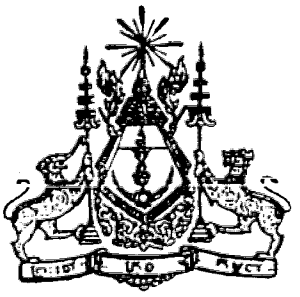
KINGDOM OF CAMBODIA



NATIONAL PLAN OF ACTION FOR NUTRITION



KINGDOM OF CAMBODIA

NATION, RELIGION, KING

ROYAL GOVERNMENT OF CAMBODIA

NATIONAL PLAN OF ACTION FOR NUTRITION

Phnom Penh, January 1997

PREFACE

The adoption of the ***National Plan of Action for Nutrition*** (NPAN) is an important development in Cambodia's recent efforts to enjoin other nations of the world in the fight against hunger and mainutrition, both as a human right and as a social economic imperative. These efforts are also reflected in the ***Constitution of the Royal Kingdom of Cambodia***, accession to the ***Convention on the Rights of the Child*** (CRC), signing of the ***Convention on the Elimination of All forms of Discrimination Against Women*** (CEDAW) and the endorsement of the World Declarations and Plans of Action of the ***World Summit for Children*** (WSC), the ***International Conference on Nutrition*** (ICN) and the ***World Food Summit*** (WFS).

The Royal Government of Cambodia is acutely aware of the problem of malnutrition in the country especially as it affects children underfive years of age and women. ***Four major nutrition problems have been identified in Cambodia: protein-energy-malnutrition and the deficiencies of vitamin A, iodine and iron.*** Addressing these problems provides a major challenge, not only to the Royal Government, but to all our people in general. This is because malnutrition is not merely a failure to grow. More crucial are the social and economic effects caused by the erosion of the human resource base by reducing its learning and productive capacity.

Malnourished children cannot learn easily because their brain growth is slowed. Their survival and development is threatened by frequent infections. Deficiency of iodine can reduce intelligence by as much as 13.5 IQ points and if it occurs during pregnancy, the child might be born with irreversible brain damage. In adults, iodine deficiency can result in general slow down of physical and mental activities reducing civil participation and economic productivity. Children who are anaemic learn poorly in school, and their intelligence can be reduced by as much as 10 IQ points. Anaemic adults literally gasp for air when they even do simple tasks. They tire easily and have low productivity. Children with vitamin A deficiency succumb to frequent infections and if severe may go blind. Frequent illnesses result in increased school and work absenteeism, increased custodial care and overall reduction in the learning of children and productivity of adults. These are but some of the major effects that the ***National Plan of Action for Nutrition*** (NPAN) aims to address through public policy and specific programmes.

I am aware that public policy is not a panacea solution to the problems of malnutrition afflicting Cambodia. But I believe that it provides the framework within which the various public and private sectors and agencies can formulate remedial actions. There are already indications of nutrition improvement through small scale community-based social actions in the various provinces. It is my hope that the **NPAN** will provide the basis for larger scale investments in nutrition as part of the Royal Government's efforts in poverty eradication.

The development of this **NPAN** was a broadly based sectoral and agency endeavor under the coordination of the Ministry of Planning. The participation of these sectors clearly indicate that activities to improve the health and nutritional status of the Cambodian people will depend on the input from a wide range of sectors.

I would like to take this opportunity to thank all those sectors for their contribution. Relevant organizations of the UN (UNICEF, WHO, FAO, UNDP, WFP) and Helen Keller International provided crucial support. The production of this final version of the document was made possible by the support of UNICEF. It is my hope that the determination and commitment of the Sectoral Ministries, the International Organizations and NGOs shown in the development of the **NPAN** will continue through its implementation.

Chea Chanto
Minister of Planning.

Kingdom of Cambodia
Nation, Religion, King

Council of Ministers

No. 69 សជណ

Phnom Penh, 27 January 1997

INFORMATION ON RESULTS OF COUNCIL OF MINISTERS' PLENARY MEETING, 08 JANUARY 1997

On the 08th day of January 1997 at 1500 hours at the Council of Ministers, there was a plenary meeting of the Council of Ministers held and presided over by H.E. Samdach Hun Sen, second Prime Minister, to look at:

1. National Nutrition Plan of Action
2. Draft of laws on abortion
3. Report on Cambodian currency (Riel)'s progress
4. Others

1.0 <u>National Nutrition Plan of Action</u>

1.1 The Council of Ministers agreed to the recommendations made by the Ministry of Agriculture to add to the item 1.4 that the government also has supported the declaration of the World Food Summit, held in Rome, 13 - 17 November 1996. For the item 3.2.1 of page 34, the Council of Ministers decided to deliver this task to the Ministry of Agriculture, Forestry and Fisheries to cooperate with the Ministry of Planning to work out on correction of the item so that it is accordingly to the 3 key points and not just 2 of the agricultural field: irrigation system, and an increase of growing season to two each year.

1.2 The Council of Ministers decided to include a case of twin or more as a priority in an appropriate chapter and there should be measures to be taken to support a poor woman with a twin or more in nutrition.

1.3 In priority 6, regarding the most vulnerable group of people (page 55-62), should be added a specific action to be taken on handicapped or disabled person. It is to promote nutritional status of those living in a rehabilitation center and in a center for disabled or handicapped and to provide medical services to anyone of them who has got a problem with their old injury.

1.4 Concerning the wording and terminology, the Council of Ministers decided to give this task to the Ministry of Planning to do re-correction of the text such as "measurement of height for age". Besides, it is also a need to include the contents on giving the task to the Ministry of Health in cooperating with Ministry of Education, Youth and Sport and the Ministry of Information so that health, food

education and education on hygiene and sanitation can be integrated into the school curriculum and disseminated through media systems such as radio, TV and newspaper.

1.5 In principle, there was a need to establish a National Council for Nutrition to be formed at two levels: the central and provincial or municipal levels. And these levels are mandated to monitor and evaluate the processes in term of coordination as raised in the report.

1.6 Apart from the re-correction work above, the Council of Ministers fully agreed to the Draft National Nutrition Plan of Action.

4.0 Other Issues

The Council of Ministers decided and gave this task to the co-Ministers of Council of Ministers to review the contents and to work with concerned Ministries on integrating the Council or a Committee or a Commission who share the same concerns so that they will make a reform in reducing the number of councils and/or committees that are now already too many in number and that they perform similar tasks.

Co-Ministers of the Council of Ministers

Sok Ann **Nou Kanon**

cc:
- Cabinet of the King
- Secretariat of the National Assembly
- Department General of the Royal Palace
- Ministries and State Secretariats
- Cabinet of the First Prime Minister
- Cabinet of the Second Prime Minister
- Archives

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TABLE OF CONTENTS

PAGE

Supported by

CHAPTER II

CHAPTER III

INTRODUCTION

Despite considerable progress in recent decades, the world still falls far short of the goals of adequate food and nutrition for all. Large numbers of people still do not have enough food of adequate quantity and quality, and it is estimated that over two billion people live on diets that lack the essential vitamins and minerals, that are required for normal growth and development.

In Cambodia, such problems have been caused or exacerbated by war and the economic embargo endured by the country over the last fifteen years or so. These have led to the almost total destruction of national infrastructure, production systems and social services, in particular for health and education.

Financial and human resources remain limited in Cambodia for a variety of reasons. However, in some countries of the world, commitment, well-conceived policies and concerted actions have been shown to dramatically reduce hunger and malnutrition, even where there are limited resources. Actions taken at the local and national levels in Cambodia could improve the nutrition status of the population. These actions will require an understanding of the present situation, including the strengths and the difficulties that exist in the country, in order to establish practical priorities.

All major forms of malnutrition affecting children and adults, particularly women, have been shown to exist and to be widespread in the whole country, with a higher prevalence in the rural area than in the urban area. In Cambodia, malnutrition seems to be a result of the combined efforts of a lack of household food security, a high level of morbidity, and poor quality of maternal and child care.

It is encouraging that the development of Cambodia's rural economy is central to the Royal Government's plan for raising the living standards of all Cambodians. Eighty-five percent of the country's population live in rural areas and the agricultural sector accounts for almost half of the real GDP. Given the importance of the rural population and the rural economy to the national economy, the Royal Government of Cambodia is committed to foster integrated rural development by using strategies for raising the living standards of the population, for eradicating poverty, and for reducing disparities in incomes and economic opportunities between rural and urban populations. These strategies, translated into projects and activities, would certainly contribute to improve the household food security and the nutrition status of the population.

Although progress has been made in Cambodia, the situation remains precarious and self-sufficiency in food production has not yet been reached. It is expected, however, that Cambodia will soon be self-sufficient in rice. There are other factors apart from household food security, such as health, environmental sanitation, safe water, caring for

mothers and children, special policies for vulnerable groups, which are also essential to be addressed, if the nutrition situation in Cambodia is to be improved.

It is hoped that the NPAN will serve as an important instrument in developing the country, and in mobilizing all sectors and national and foreign resources to overcome both malnutrition and poverty in Cambodia.

CHAPTER I

1.0 POLICY GUIDELINES

Assuming office in July 1993, the first Provisional National Government, and then the Royal Government of Cambodia have devoted attention to defining long-term development objectives, to defining national strategies to achieve these objectives and to laying the policy and institutional foundation for their realization. In a short period of time, Cambodia has approved a new constitution and the Government has launched a national programme to rehabilitate and develop Cambodia, and the Ministries have formulated brief sectoral development plans. At the time of finalizing this document (October 1995), the Government was drafting the first five-years national development plan for 1996-2000.

1.1 The Constitution of the Kingdom of Cambodia

The Constitution of the Kingdom of Cambodia, adopted on 21 September 1993, recognizes and respects the human rights, as stipulated in the UN Charter, the Universal Declaration of Human Rights, the covenants and conventions related to human rights, and women's and children's rights (article 31). The Constitution adopts specifically the Convention on the elimination of all forms of discrimination against women (article 48). The Constitution recognizes the rights of the citizen to universal quality education (article 65) for at least nine years (article 68), and to universal access to basic health services (article 72). By its Constitution, the State is also responsible to help women and children who have inadequate support (article 73), and to assist disabled people (article 74).

1.2 The National Programme on Rehabilitation and Development of Cambodia

The over-riding objective of the Royal Government of Cambodia is to achieve a fair, just and peaceful society. The core strategy to achieve this national objective, is based on the implementation of the mechanisms of a market economy, which requires a strengthening of the Government's role in directing the economy, in promoting an efficient private sector, and in providing the social services and infrastructure facilities. The economic growth, planned to be doubled from the present level of GDP in a ten year period, is to be directed towards achieving equity and social justice. The growth per se, establishing macroeconomics stability and a conducive, legislative and regulator environment, is only one way to move towards a more equitable society.

The development policies of the Government are regulated by a triple delicate balance between economic efficiency and social justice, promotion of urban and rural development, and natural resource exploitation and environment protection. Reconciliation, security and peace remain a major strategic objective, but also a condition for the socio-economic development of the country.

The stated development policies of the Government include:

- extend health, education and social services to the entire population so as to ensure, within a decade, a substantial improvement in the standard of living;
- improve rural living by promoting rural development as a central feature of the Government's development priorities;
- ensure that the pattern of development is sustainable socially, politically, fiscally and environmentally.

1.3 Sectoral Policy

The policies of the individual Ministries define in more detail how these overall policies are to be met.

1.3.1 Ministry of Agriculture, Forests and Fisheries

To grow enough food - rice and subsidiary crops - for the needs of the family, and to obtain financial returns in terms of both cash income and returns for labors and management, are prerequisite conditions before a quick response from farmers to increase production.

The Ministry of Agriculture, Forests and Fisheries (MAFF) has formulated inter-related objectives as follows:

- to ensure food security at both national and household level;
- to improve the well-being and income of the rural population-on;
- to produce surplus for export, not only of rice, but also for other crops.

Several priority programmes have been identified to achieve these objectives:

- strengthening support services for agricultural education, research, extension, supply and input distribution;
- improving water and flood control and drainage;
- establishing a sustainable agricultural credit system for farmers' groups
- de-mining of agricultural land;
- natural resources conservation.
- promote aquaculture and animal husbandry.
- promote marketing services.

1.3.2 Ministry of Health

The mission of the Ministry of Health (MOH) is to improve the well being of all Cambodian people by:

- making full use of both the public and private health care systems, and by improving both;
- giving special attention to health education, and preventive and curative health care in rural areas;
- reducing the infant, child and maternal mortality rates through mother and child health care;
- controlling communicable diseases, especially malaria, tuberculosis, dengue hemorrhagic fever and acute respiratory infections;
- interrupting the spread of sexually transmitted diseases, especially HIV/AIDS;
- improving the supply of drugs, where possible by local production using local raw material.

The priority health services goals include:

- to improve and extend primary health services through a district health systems approach, with special emphasis on participation by the community and religious leaders;
- to promote good nutrition, hygiene and birth-spacing practices within families;
- to reduce the incidence of communicable diseases, including diarrhea and acute respiratory disease;
- to ensure acceptable standards of medical and nursing care throughout the health services, and to update health staff skills through in-service training.

The MOH has formulated a detailed 1994-96 national Health Development Plan, specifying its priority health strategies and activities. Following the international Conference on Population and Development (Cairo, 1994), the MOH developed and approved a comprehensive Birth Spacing Policy, that encompasses reproductive health.

1.3.3 Ministry of Rural Development

The Ministry of Rural Development (MRD) has formulated several policy objectives linked with nutrition and food security objectives:

- to improve the economic and social conditions of the rural population;
- to focus on poverty-stricken rural areas;
- to develop infrastructure such as water supply for drinking and small irrigation systems and roads;
- to provide a rural banking system;
- to encourage community organization;
- to coordinate the role of the public and private sectors to improve the living conditions of the rural population.

The MRD is expected to play a key role to ensure the successful operation of community processes and participatory structures that are being formally established through a system of Village Development Committees (VDC) and Commune Development Committees (CDC). It is also expected that a supportive environment and close collaboration will be established at the grass-roots level between the MRD and the technically concerned Ministries, such as Agriculture, Health, Industry, Mines and Energy, Commerce and Education. The Council of Agricultural and Rural Development (CARD), chaired by the two Prime Ministers, are responsible for the decision-making regarding the roles and responsibilities of the concerned Ministries.

Some new programmes supported by UNDP (CARERE) and UNICEF (Community Action for Social Development) are based on the capacity to coordinate the planning, implementation and monitoring of a package of interventions, undertaken by the village community with the assistance of the technical Ministries. Within both these programmes, the MRD has been identified to carry out the coordination between the Village/Commune Development Committees and the technical provincial departments of the concerned Ministries.

1.3.4 Ministry of Education, Youth and Sports

The Government has embarked on the re-building of its Quality Education and Training Programme, divided into several phases of implementation, according to availability of funding. Improving the access to basic education for children of lowland and remote areas, especially girls and disadvantaged groups, is a top priority for the Programme. Non-formal education is also a priority concern of the Government. The non-formal education sector includes the development of pre-school services, focused on community-based education for children under six years of age, and the improvement and expansion of literacy in women.

1.3.5 Ministries of Commerce and Industry, Mines and Energy

The allocation of the responsibilities and tasks of the Ministries concerned with food safety and quality control (Agriculture, Commerce, Health, Industry and Interior) is not yet defined. There is an urgent need to define the responsibilities of these Ministries according to their technical competencies in food legislation and regulation, fraud and falsification control, procedures for food inspection and sampling, microbiological and physico-chemical analysis, metrology, enforcement facilities and consumer education.

1.3.6 Ministry of Social Affairs, Labour and Veteran Affairs

The Ministry of Social Affairs, Labour and Veteran Affairs (MSALVA) has been given responsibility to support, protect and promote the well being and understanding of all vulnerable groups, such as street children and families, orphans, disabled children and adults, widows in difficult circumstances, single heads of households with many children,

internally displaced persons and returnees. It is also responsible for providing or facilitating the provision of emergency assistance.

At present, MSALVA is in a phase of organizational restructuring, and plans to promote as a priority, the development of its human resources, and to initiate action research in order to define plans of action, targeted to vulnerable groups.

1.3.7 Ministry of Women's Affairs

The National Policy for Women calls for equal rights and participation of women in all sectors of development. It emphasizes areas where special efforts have to be made to reduce gender gaps, for example in the field of general education, and to meet the practical needs of women for access to income, basic services in health and education, rural credit and family food production activities. The Ministry of Women's Affairs (MWA) will also play an important role in promoting and supporting the VIIIage/Commune Development Committees.

1.4 Governmental Commitments on International Declaration

In addition to the human and social commitment of the Constitution and its socioeconomic plans, the Government subscribed to the World Declaration and Plan of Action of the World Summit for Children in 1990, and endorsed the Declaration of the International Conference on Nutrition (ICN) in 1992 and the Declaration of the World Food Summit (WFS) 1996.

1.4.1 International Conference on Nutrition

Cambodia was one of the 159 States that attended the International Conference on Nutrition (ICN) in Rome (December 1992), and supported the declaration to eliminate hunger and to reduce all forms of malnutrition, and affirmed the World Declaration on Nutrition and the Plan of Action for Nutrition. Cambodia pledged with the other country States at the ICN to make all efforts to eliminate before the end of the decade:

- famine and famine-related deaths;
- starvation and nutritional deficiency diseases in communities affected by natural and man-made disasters; iodine and vitamin A deficiencies.

The countries, including Cambodia, also pledged to reduce substantially within the decade:

- starvation and widespread chronic hunger;
- under nutrition, especially among children, women and the aged;
- other important micronutrient deficiencies, including iron;
- diet-related communicable and non-communicable diseases

- impediments to optimal breast-feeding;
- inadequate sanitation and poor hygiene, including unsafe drinking water.

1.4.2 World Summit for Children

The Government subscribed to the World Summit's Declaration for Children and Plan of Action in February 1993. The global goals for children will be adapted for inclusion in the Five Year Socio-Economic Development Plan 1996-2000. The Nutrition Goals of the World Summit to be reached by the Year 2000, are particularly relevant to the development of this NPAN, and are detailed below:

- reduction in severe, as well as moderate malnutrition, among under-five children by half;
- reduction of low birth-weight (2.5 kg or less) to less than 10 percent;
- reduction of iron deficiency anemia in women by one-third;
- virtual elimination of iodine deficiency disorders;
- virtual elimination of vitamin A deficiency and its consequences, including night blindness (Khmer-chicken-blind);
- encourage all women to breast-feeding their children exclusively for 4-6 months, and to continue breast-feeding with complementary food, well into the second year;
- growth promotion and its regular monitoring to be institutionalized by the end of the 1990s;
- dissemination of knowledge and supporting services to increase food production in order to ensure household food security.

According to the availability of baseline data, planned to be collected during the first year of the implementation of this NPAN, the goals of the ICN and of the World Summit of Children will be quantified and adapted to the situation of the country.

1.4.3 World Food Summit

The World Food Summit (WFS) was held in Rome, Italy, 13-17 November 1996 and was participated by heads of states and delegations from over 100 countries including Cambodia. The Summit discussed the prioritized issues of mankind concerning food production to meet the needs of the constantly increasing number of population since in many parts of the world food production is still limited. The Summit made a universal declaration on world food security and made a plan of action to achieve major objectives as below:

- to ensure social environmental policies and economic conditions for eliminating poverty and to maintain peace with active participation by both men and women for assuring food for all.
- to implement the policies on elimination of poverty and social in-equity.

- to continue implementing the policies and strategies on participation of all concerned to ensure sustainable development of food, agriculture, aquaculture, forestries and rural communities.
- to make all efforts in making the commercial policies on food and agricultural production to contribute in providing food security to all.
- to make all of the efforts in preventing all forms of natural and man-made disasters to respond to the needs of food by everyone and also take actions to strengthen and extend the capacity to meet the future needs.
- to encourage the public and private investments to effectively develop human resources, agricultural, food, equacultural and forestries systems and sustainable rural development.
- the Conference unanimously agreed to abide by the policies and strategies to ensure the planning and all measures for world food security effectively implemented.

1.5 Overall Aim

It is assumed that a healthy, properly nourished and caring people are both the result of successful development and their contribution to it. Therefore, the overall aim of the NPAN is:

- to ensure continuous access by all people to sufficient and adequate food, and to give access to basic health, education and care services and safe drinking water, with special emphasis on vulnerable groups, such as children, child-bearing women, families headed by women, orphans, frail elderly and disabled people, internally displaced people and returnees.

According to the Public Investment Programme 1996-98 and the first Five Year Socio-Economic Development Plan 1996-2000, the following national objectives have been identified:

1. to reduce infant mortality rate from an estimated 115 infant deaths per thousand live births to 80;
2. to reduce the under-five mortality rate from 181 child deaths per thousand live births to 120;
3. to reduce the maternal mortality rate from an estimated 650 deaths per 100,000 births to 300;
4. to virtually eliminate vitamin A deficiency;
5. to complete the universal iodation of edible salt;
6. to reduce malnutrition among children under five years from an estimate of underweight of 40-50 percent (under 2 standard deviations below standard weight for age) to 25 percent.

1.6 National Strategies

The overall strategy of the National Development Plan is to reduce poverty. Although no poverty line has yet been constructed for Cambodia, it can be suggested that about 30% of the population is living below a poverty line. Even among those living above the estimated poverty line, the majority is living close to this line, and can be immersed in poverty and deprivation in case of illness and accident. Reducing poverty is an imperative towards a more equitable society and nutrition well-being. General national strategies can be identified to reduce poverty, which is a structural cause of deprivation and malnutrition.

1.6.1 Commitment to Promoting Household Food Security and Nutrition Well-being.

Household food security and nutrition well-being are the major aims of national development. It is critical to ensure that household food security and nutrition well-being of people are seen as an integral consideration of all policies, plans and programmes in the social, economic and political areas of the Government, both in the short- and long-term, in particular in the proposed Five Year Socio-Economic Development Programme 1996-2000.

The sectoral plans of development of Agriculture, Health, Education, Planning, Rural Development, Social Affairs, Women's Affairs and other sectors are encouraged and required to formulate precise nutritional objectives and activities for inclusion in their programmes. These sectors are invited to incorporate a nutrition and food security component in their human resources development activities, and to incorporate nutrition and household food security indicators in baseline socio-economic surveys and into the evaluation of the impact of activities.

Household food security and nutrition well-being are a convergent result of a multi sectoral approach and, thus, intersectoral coordination of activities. The national coordination role between Government and the private sectors, bilateral, international and non-governmental cooperation will be assumed by a National Interministerial Committee on Food and Nutrition. However, great attention has to be paid to the coordination tasks of the Village and Commune Development Committees and the intermediate development committees for planning at grass-roots level, and the implementation of activities to improve household food security and the nutrition situation as a factor and result of community development.

1.6.2 Sharing the Benefit of Economic Growth

The need for both economic growth and equity in distribution of benefits has to be an important consideration to avoid an increased division between people with access to goods and services, and those without access. An absolute priority needs to be given to vulnerable groups, including women of child-bearing age, children below ten years of

age, orphans, returnees and displaced people, disabled people, frail elderly, families headed by women, families without access to land or with access to a small area of land.

1.6.3 Rural Development

The development of the rural areas will contribute to the alleviation of poverty and disparity reduction between rural and urban areas, and decrease of migration pressures on urban areas contributed by refugees and rural immigrants seeking work. Rural development is based on the development of the physical and social infrastructure, the widening access to social services, and the up-grading of human skills, and adapting these skills to the market economy.

Rural development is guided by several operational strategies or principles: community cost-sharing, access to a credit system and community-level water resources for drinking and small irrigation, diversification of food production systems for small land-holders, handicraft, promotion of inter-linked activities for health, education and child/maternal care, fully participatory approach, and enhancement of community management capacities.

1.6.4 Capacity Building

National capacity building is a key strategy to reduce poverty, to achieve growth with equity, and to ensure rural development. Its aim is to meet and support the demands of families and communities in the country. National capacity building refers to:

- the enhancing of the professional capacity at national and intermediate levels for analysis, policy-making; monitoring, evaluation, social communication and management;
- the coordinated inter-sectoral support needed to increase the level of awareness, knowledge, confidence and cooperation in the community;
- the coordinated inter-sectoral support for the participatory structure.

1.6.5 Human Resource Development

Human resource development represents a productive input into the growth process of a country, and is an essential strategy to reduce poverty. Investment in people with all educational, social training and health implications will contribute to the major up-grading of the country's managerial and technological skills and capacity.

Nevertheless the strategy of rural development and of sharing the benefits at the grassroots level, cannot be developed without the participation of the families and the communities. Within the strategy of human resource development, priority attention will have to be paid to the enhancement of the capacity and creativity of the family and the community to address their main problems, through their increased level of awareness,

information, managerial capacities and self-confidence. Recent experiences in Cambodia give sufficient evidence of community participation, so that when properly trained, motivated bad encouraged, the people can make a positive contribution to the multi-sectoral approach on nutrition issues at the grass-roots level, through Village/Commune Development Committees.

The national and intermediate professional capacity will also need to be up-graded to be able to deliver quick and appropriate responses to community demand.

1.7 National Plan of Action for Nutrition: *An on-going process*

The NPAN presently formulated up to the year 2000, is an ongoing process. It is expected that rapid change will continue in Cambodia. So short- and long-term priorities for social development, and in particular for food security and nutrition, will need to be clarified, revised and re-identified.

The Government is presently embarked on a path of deep administrative reform. The division of the responsibilities and tasks for each Ministry is yet to be completed. Some mechanisms for integrated activities at grass-roots level, involving the competence of several Ministries, is yet to be resolved and details may be determined in the near future. Some priority surveys and data analysis have to be planned and carried out, according to the NPAN, in order to clarify and quantify the national and sectoral objectives of this Plan.

Other reasons advocate for an on-going process of revision and adjustment of this Plan. The multisectoral nature of the effective nutrition planning and programmes implementation depends on input from a wide range of sectors. The management of this approach is delicate and requires new mechanisms of coordination. Also the Plan focuses on the community as both beneficiaries and participants in the decisions and interventions. The planners have to listen to the learned lessons from the grass-roots level, and be aware of the need to re-adjust the plan, according to the acquired expedience.

Based on the rapid implementation of some action, the availability of funds, and the expected rapid economic and social change, it is considered it will be necessary to re-assess the situation for re-orientation of the NPAN.

CHAPTER 2

2.0 CURRENT FOOD AND NUTRITION SITUATION

Cambodia occupies a compact territory covering 181,035 square kilometers in the southwestern area of Indochina, bordered by Thailand to the west, by the Lao People's Democratic Republic to the north, by the Socialist Republic of Vietnam to the east, and by the Gulf of Thailand to the south. The Tonle Sap Great Lake dominates the central plains and plateau area with the Mekong River valley on the east. Half to two-thirds of the land surrounding the central plain are covered by tropical forests and mountains. The Cardoman and Elephant Mountains to the south separate the coastal region from the rest of the country. In its course through Cambodia, the Mekong River averages about two kilometers in width, but its flow varies widely from season to season. The Mekong, Tonle Sap and Bassac river system provides an effective and low cost transportation network for Cambodia.

The country has pronounced wet and dry seasons, with a long dry season occurring between November and April. Rain, which can be torrential, falls mainly in May-June, and again around September-October. The heaviest rainfall is recorded along the coast south of the Cardamon Mountains and to the east of the Annamite Mountains, with averages between 2,000 and 3,800 mm per year. In the central plains, annual rainfall is between 1,000 and 1,400 mm per year. In recent years including 1994, floods and drought have significantly reduced food production in the country. The temperature ranges from 21 to 35 degrees Celsius with the highest temperatures in March and April at the end of the dry season.

Within the country, there are 20 provinces, 3 municipalities, 170 districts, some 1,544 communes and about 12,728 villages. Cambodia has an estimated population of 10,200,000, with approximately 1,000,000 living in the capital Phnom Penh. The crude birth rate is 45 per 1,000 population and the total fertility rate is 4.9 per woman. The population increase is estimated as 2.8 percent per year. Eighty-five percent of the population live in the rural areas, and women comprise 56.2 of the adult population in these areas. One in five rural households is headed by a woman and 1 in 3 in Phnom Penh. More than 50 percent of the population comprises children under 17 years of age. These demographic imbalances result from the extensive wars that the country has experienced within the last 20 years : Besides its human toll, these wars have adversely affected the agricultural productivity and land area available for farming. The number of uncleared land mines in the country is estimated in the range of 50 million square meters of potentially productive farming land. The average income in Cambodia is estimated to be around US$ 200 per head per year.

With the restoration of private property ownership in 1989 and the consequent abandonment of collective production of agriculture, Cambodia has steadily moved to a

market economy. The economy has registered an average growth rate of 5.9 percent per year over the last five years. Macroeconomics stability has been largely maintained, reflecting the prudent macro-economic policies of the Government since 1993. Notwithstanding these achievements, the prospects of steady economic growth in Cambodia still face a number of constraints, in particular the poor condition of the physical and social infrastructure and the availability of human resources.

2.1 Food Security

2.1.1 National Food Security

An adequate food supply at national level is a necessary, but not the only essential condition to achieve household food security.

Rice consumption represents the major source of energy in the Cambodian meal. The precise role of rice, as a source of dietary energy, is not known, but appears to be high. An estimate could be made of a 70 percent contribution (or more) to the daily energy requirement. The other sources of dietary energy are roots and tubers, fish, some pulses vegetables and fruit.

In the absence of precise demographic data, the energy requirements of the population cannot be calculated. However, food requirements are assessed by the Ministry of Agriculture (MAFF) and FAO/ESN as 162 kg of rice per head per year (about 450g of rice per head per day). This amount of rice provides about 1,600 kcal (100g rice is equivalent to 355 kcal), or 69 percent of the 2,300 kcal diet, that is the rough estimate of average energy requirements per person per day. One other assessment made by FAO/OSRO (1991) estimates 126kg of rice per head per year (345g of rice per head per day) as the "emergency" daily food requirement. This requirement represents 1,225 kcal per head per day, around 53 percent of the estimated average energy requirement per head per day.

Allowing 20 percent for post-harvest losses, including seeds and a conversion rate of 62 percent from paddy to rice, the required paddy production should be:

- according to the MAFF-FAO/ESN requirement of 162 kg of rice per head per year.
  2,940 million tones of paddy for 9,000,000 people
  3,070 million tones of paddy for 9,400,000 people.
- according to FAO-OSRO requirement (126 kg of rice per head per year)
  2,286 million tones of paddy for 9,000,000 people
  2,388 million tones of paddy for 9,400,000 people.

According to the statistics of the Ministry of Agriculture, the paddy production, with an estimated national average yield of 1.3 -1.4 tones of paddy per hectare is calculated to be

2,500 million tones in 1990-91; 2,400 million tones in 1991-92; 2,221 million tones in 1992-93; and 1,800 million tones in 1993-94. These statistics may be affected by the absence of a centralized system for data collection, and the lack of direct observation and measurement of production.

During the last five years, the country seems to be far from self-sufficient in paddy, according to the paddy production figures of the MAFF. The paddy production would be just sufficient to ensure an emergency daily requirement, that roughly represents half of the energy needs. If it is accepted, as suggested, that the paddy yield is better, for example 1.6 tones per hectare, the paddy production would have been sufficient to cover the food requirement as assessed by MAFF in the 1990-92 period, but would remain below the needs in 1992-93 and 1993-94.

In addition to these observations and the tentative analysis of paddy production, other factors contribute to increasing the national food insecurity. The paddy production is fluctuating, due to frequent climatic variation, such as the flooding and drought of 1992-93. There is no national food security reserve stock, and the weak infrastructure of transport does not allow the transfer of paddy in the event of a surplus, from the surplus region to a deficit area. The low price of local rice is an encouragement for the non-official export of rice to neighboring countries, where the rice price is higher. Lending and borrowing with rice is widely practiced in rural Cambodia, leading to speculation and economic loss.

Although the subsidiary crop production is almost certainly under-estimated, there is little promotion of the need to diversify food production. This contributes to the mono-crop dependency of the country. The fish consumption, the primary source of animal protein for the population, is estimated to be in the range of 13.3 to 16.0 kg per head per year in 1991, considerably below the estimated fish consumption of 20-25 kg per head per year in 1970. The subsistence fish production is probably important, and could be estimated to be 50 percent of the commercial inland production. However, the increased use of fertilizers and pesticides, as well as deforestation, are threats to subsistence fisheries and to the availability of wild foods, that are gathered as a dietary source for families.

2.1.2 Household Food Security

Household food security (HFS) is the ability of the household to secure enough food to ensure adequate food intake for each of its members, everyday during the whole year.

Given the overwhelming role of rice in the Cambodian diet (70% of the energy intake is derived from rice consumption), the capacity of rural households to secure their rice requirement, is the critical element in determining the degree of HFS. A UNICEF survey shows that households are only self-sufficient for an average of 6 - 7 months/ year.

The seasonality of food access is also assessed by vegetable production in home gardens.

During the rainy season, 70.8 percent of the households grow green leafy vegetables. This percentage decreases to 32.1 percent in the dry season. The availability of water is the main constraint to sustaining vegetable home gardens throughout the year.

The area of land available for rice cultivation is another constraint. In the rain-fed lowlands (Pursat Province), the annual rice deficit of families is less than two months for those with at least 1.5 ha of land, while it is 5 months for those with less than 0.5 ha. Over 82 percent of households surveyed possessed 1.0 ha or less of rice land. On the basis of a hypothetical and reasonable paddy yield of 1.7 tone of paddy per hectare (843 kg of rice per year per hectare), the rice availability per household with an average of 5.3 persons would be 160 kg of rice per person. Under these conditions, each household with access to less than 1.0 ha of cultivated rice area is at high risk of food insecurity.

"Rural household income is mainly derived from sales of rice or other crops during the harvest, when the prices are lower. Land of poor quality, insufficient household labor, poor communication infrastructure, monocrop system and lack of water represent other factors of household food insecurity. Rural poverty is aggravated by market purchase of rice during food shortfalls, especially during the rainy season, when the prices are higher. These factors have to be taken into account for further implementation of HFS activities."

Another constraint is linked with the specific problems; recurrent for the last 20 years. Internally-displaced persons and returnees generally depend on food aid and land availability; and women-headed households have problems related to lack of household labor, agricultural inputs, draught animals and water pumps. Finally lack of a rural banking system, providing low interest credit for small farmers is a factor restricting the generation of income and increased food consumption.

2.2 The Nutrition Situation

2.2.1 Nutrition Status of Children

Most nutrition surveys conducted in Cambodia have collected anthropometric data only on young children, because they have the highest risk of malnutrition and are most likely to suffer malnutrition-related death. Growth-faltering in early life is responsible for small size in later childhood, and is associated with a measurable deficit in behavior and cognitive performance, that can remain well into school-age years. As a result, work performance and mental function may be adversely affected in late adolescence. The nutrition situation in young children is generally accepted to be representative of the overall nutrition status of a population.

Various nutrition surveys conducted over the last several years have indicated that under-nourishment is a chronic problem among children, and is an important contributing factor to the high infant and child morbidity and mortality rates. Although some local surveys have shown gradual improvement in the nutrition status of children over the last few

years, it should be noted that their results are not comparable due to differing methodology and population groups surveyed. They were also conducted at different times of the year and utilized different standards or indicators. The results for wasting prevalence (acute malnutrition) in different surveys undertaken in different regions of the country indicate a rate of wasting between 4.4 and 18.9 percent (weight for height of less than 80% - 2 SDs of the median of the NCHS/WHO standard). Surveys conducted in 1994 in displaced residential areas in Ratanak Mondol District, Battambang Province by World Vision International and Medicines Sans Frontiers (MSF), and in Banteay Meanchey by MSF showed a high prevalence of wasting in infants and children, aged 6-60 months, of 12.0 and 18.9 percent respectively.

There is a seasonal difference in nutrition status among young children, because of the impact of food availability. UNICEF's nutrition surveys in 12 villages participating in the Family Food Production programme, conducted in 1993 and 1994, demonstrated that 43.1 percent of children under five years of age, were underweight in July, at the time that rice stores are getting low in mid-year. This figure had dropped to 39.8 percent in February shortly after the harvest, when there is the most rice in the villages. Malnutrition affects the 6 - 35-month old children, especially during the weaning period from the age of 6-18 months. As reported in the 1993 survey conducted in Kompong Speu by CONCERN, 78 percent of the children who were less than 80 percent of the standard for weight for length/height were in the age group of 0-36 months.

A high prevalence of chronic malnutrition (stunting) has been noted, especially among the older age-group of children. The UNICEF nutrition survey mentioned above, indicated levels of stunting of 42.3 percent in 1993 and 38.4 percent in 1994 (height for age of less than 2 SDs of standard). A survey conducted in Svay Rieng in 1991 by MSF showed a prevalence of stunting of 62.1 percent.

In general, the nutrition status of children is better in urban than rural areas. High malnutrition rates are found especially in remote rural areas, which are inland and isolated from main roads. Some older populations are at-risk, and include returnees, internally displaced persons and inhabitants of peri-urban areas. Chart 1 in Appendix 1 provides a summary of various nutrition surveys conducted in Cambodia from 1993 to 1994.

2.2.2 Micronutrient Deficiencies

✿ Vitamin A Deficiency

Vitamin A deficiency has been recognized for many years as a significant public health problem in parts of, if not throughout Cambodia. In 1993 population-based surveys on vitamin A deficiency were conducted by the Ministry of Health (MOH) and Helen Keller International (HKI) in four provinces and in urban slums of Phnom Penh. In every site except Phnom Penh, results of the eye examinations either matched or exceeded the criteria adopted by WHO to identify vitamin A deficiency as a major public health

problem. The prevalence of night blindness (5.6 percent) was much higher than the WHO criteria of 1 percent.

The MOH-HKI survey also showed that there was a low consumption of vitamin A-rich foods by children. The availability of these foods is a problem especially in the dry season, because during this time there are few vegetables grown in home gardens and in the fields due to the lack of water. Chart 2 in Appendix 1 provides a summary of the vitamin A deficiency surveys conducted in Cambodia.

✿ **Iodine Deficiency and Disorders**

A survey carried out in 1990 by the Center for National Hygiene and Education (CNHE) in the northern province of Ratanakiri (sample size 14,103) reported a goitre rate of 21 percent among school-age children (6 -12 years). The prevalence of goitre was 19 percent for all age groups (0 - 89 years) with a range by village of 5 to 37 percent. Women were seven times more likely to be affected than men.

✿ **Iron Deficiency Anemia**

The Maternal and Child Health Department of Svay Rieng Hospital conducted a study of women attending antenatal consultants over a six-months period from September 1991 to February 1992. A total of 223 women were screened for blood hemoglobin level. Four (1.1 %) had severe anemia (less than 6.5g/dl), 60 (18.6%) had moderate anemia (6.5 to 8.6g/dl), and 82 (25.5%) had mild anemia (8.7 to 10g/dl).

2.2.3 Maternal Nutrition

Food taboos during pregnancy, birth and postpartum - especially "eating down" and restricting food intake from fear of producing a large baby - continue to negatively influence women's nutrition status. The UNICEF nutrition survey stated that 34.5 percent of mothers had restricted their diet during pregnancy and 77.8 percent had restricted food intake, while lactating. In Cambodia, pregnant women keep working just as hard as when non-pregnant. Negative caloric balances from heavy labor and insufficient diet throughout pregnancy before and after delivery, result in inadequate maternal weight gain and low birth-weight infants.

Of the birth-weights reported at the National Maternal and Child Health Center in 1993, 18 percent were below 2500g. This figure is consistent with the one of 17 percent, reported in 1989 by the MOH. The prevalence of low birth-weights at provincial level is higher. The provincial hospital of Preah Vihear recorded the proportion of low birth-weight as 26 percent in 1993 (Action International Contre La Faim).

It is estimated that iron deficiency anemia is one of the most common nutrition problems among pregnant and lactating women.

2.2.4 Infant Feeding Practices

✿ **Breast-feeding**

In rural areas, mothers usually breast-feed their children for more than one year. A nutrition survey conducted in Kandal in 1993 by Enfance Espoir showed that more than 50 percent of children were still breast-fed at age two years. A UNICEF nutrition survey in 1993 demonstrated that 45.0 percent of mothers breast-fed their children over the age of two years.

Mothers typically discard colostrum and delay the start of breast-feeding after delivery. The 1993 UNICEF survey showed that 76.4 percent of mothers did not give colostrum to their infants, and 56.7 percent did not commence breast-feeding until more than two days after delivery. A survey conducted in Svay Rieng in 1992 by the International Medical Corps demonstrated that 34 percent of mothers started breast-feeding on the second day after delivery.

There is some concern that bottle-feeding is increasing in urban and peri-urban areas. A survey in 1992 conducted in Kandal Stung district in Kandal province by WVI, indicated a growing use of bottled milk at the village level.

✿ **Complementary Feeding Practice**

There are nutrition problems with complementary food practices. The age for the commencement of complementary feeding ranges widely from three months to more than one year of age. The 1993 UNICEF survey showed that 15.6 percent of mothers did not commence complementary feeding until their child was more than one year of age. A survey conducted in Svay Rieng in 1992 revealed that 62 percent of mothers introduced solid foods, either too early or too late.

Complementary foods especially in rural areas, are often low in energy density and poor in supply of micro nutrients. Eighty-four percent of mothers in the 1993 UNICEF survey gave only rice gruel with sugar or salt. A survey conducted in Prey Veng in 1992 by Christian Outreach demonstrated that 81 percent of mothers gave only rice and salt to their children. The frequency of meals during weaning periods is low. In the UNICEF nutrition survey, 45.2 percent of mothers only fed their small children once or twice a day. A survey conducted in Prey Veng province by Christian Outlook showed that 39 percent of children received meals only once or twice a day.

2.2.5 Conclusion

There is a paucity of data on the nutrition situation of the Cambodian people. There have been no surveys, based on a regional or national data collections. As indicated above, there are some limited nutrition statistics and results from local surveys, that indicate that

the level of malnutrition in the population is high and is more severe than that in the neighboring countries of South-East Asia.

2.3 Health Services

Due mainly to the disruption of services during the war years, access to public health care services apart from immunization and some maternal and child health care is extremely limited. It has been estimated that only 25 percent of the rural population, compared to 80 percent of the urban population, has access to health services. The main problems, especially in the rural areas are lack of equipment, drugs and inadequate staffing due to low salaries. Often there is no clinic at commune or village level, and primary health care is virtually non-existent, outside of District level. As a result most people must rely on private health practitioners and most public health workers earn income from private practice.

The percentages of the population in rural and urban areas with access to safe water are 26 and 65 percent respectively. Sixteen percent of households in Phnom Penh and 82 percent of rural households do not have toilet facilities.

There are many long-term problems to be addressed within the health sector, as indicated by an estimated infant mortality rate of 115/1,000 live births and an under 5 years mortality rate of 181/1,000 live births. The maternal mortality rate is currently estimated to be higher than 650/100,000 live births. Leading causes of death are malaria, dengue fever, diarrhea, acute respiratory infections, typhoid, tuberculosis and anemia. Acute respiratory disease and diarrhea are the two major childhood diseases. However, there are little reliable data available to provide accurate morbidity and mortality rates and there is an urgent need for an updated baseline for health data.

Over the last two years significant steps have been taken to improve the health sector and its delivery of primary health care services throughout the country. A new national Health Coverage Plan has been developed and is being implemented to provide first level primary health care services, based on population numbers and geographical access. A Minimum Package of Activities (MPA) has been established by the MOH to be provided at first level of services. These activities or services include: consultations for healthy infants aged 0-4 years, including for vaccinations, management of severe malnutrition and prevention of vitamin A deficiency; care for pregnant women, including for antenatal and postnatal care and prevention of anemia; and health promotion integrated into all activities.

The re-vitalization of basic health services is the first priority of the Government, with districts, communes and villages becoming the main focus for implementing primary health care

2.4 Illiteracy

Educational level is a further factor that impinges on nutritional status, with the well-being of children closely associated with the educational level of the mother. Because of the break-down of the education system in the war years in Cambodia, there are significant numbers of the country's population over 15 years of age, who are illiterate (50.5 and 22 of women and men respectively), or without any schooling (38.4 and 16.6 of women and men respectively). Rural rates of illiteracy and no-schooling are higher in rural compared to urban areas.

The number of qualified teachers at both primary and secondary levels is low and many school buildings urgently require repairs or replacement or may not even exist in some rural areas. The Asian Development Bank is providing a loan of US$ 25 million for a Basic Skills Project (1995 - 2000) to develop human resource manpower in the education system.

2.5 Poverty

The entitlement of Cambodian families to sufficient rice and other foods to eat in order to maintain good health and nutrition is largely determined by poverty. Whilst the GDP per head is estimated at US$ 200 for 1992, distribution of wealth is not equitable and leaves some families particularly vulnerable. The factors affecting individual family opportunity are capacity for the production of food and opportunities for income generation, and freedom from the excursions of war or other forms of social unrest.

The nutrition status of many Cambodians is determined by factors that could be addressed by community-based social action. Families need assistance in improving their productivity. They need improved and inexpensive access to health services, both preventive and curative. Children and adults need access to an education system and the community needs to care for the vulnerable. Effective inter-sectoral strategies to achieve these objectives will result in improved nutrition for the population.

2.6 Conceptual Framework of Causes of Malnutrition

Cambodia has considerable problems of malnutrition, including Protein Energy Malnutrition (PEM), vitamin A deficiency and iron deficiency anemia.

The immediate cause of this malnutrition is primarily inadequate dietary intake, particularly in young children due to poor breast-feeding and complementary feeding practices. Infectious diseases also affect dietary intake and nutrient utilization. In most cases, malnutrition is the combined result of inadequate dietary intake and disease.

Dietary deficiencies are caused by an inadequate supply of food or by mothers having too little time to prepare food or to feed their children. Similarly, diseases may result from

any one or a combination of causes, such as the lack of or low utilization of health services, inadequate water supplies and sanitary facilities; and poor food hygiene or child care. These underlying causes can be numerous and are usually interrelated. They can be clustered into three main categories:

- household food insecurity
- inadequate basic health services and an unhealthy environment
- poor maternal and child care

Of these three categories, the first two i.e. household food security and adequate basic health services and a healthy environment are prerequisites for an adequate dietary intake and the control of common diseases among children. However, no matter how plentiful is food of good quality, if adequate health services and a healthy environment are not available, these factors are not enough in themselves to ensure adequate nutrition or proper health for children and women. There also has to be a system to ensure that the foods and health services are appropriately used.

Most of the underlying causes reflect an unequal distribution of resources in society. These can be considered "basic causes".

Household food insecurity is caused by lack of land, lack of water sources and lack of labor, low soil fertility, frequent natural disasters, low incomes and general insecurity.

Maternal and child malnutrition is caused, amongst other things, by illiteracy, especially in adult females, lack of birth-spacing programmes and some traditional beliefs/ attitudes/behaviors.

The food security situation and poor infra-structure like poor roads and lack of public transportation, decrease access to basic health services as well as to food and income opportunities.

Lack of human resources, limited availability of information, education, and communication sources, and weak community networks also contribute to the nutrition problems.

Chart 3 in the Appendix details a summary of the typical causes of malnutrition for young children in Cambodia.

CHAPTER 3

3.0 SECTORAL PLAN OF ACTION

In March 1995, an inter-ministerial meeting held at the Ministry of Planning established a *Technical Secretariat* to develop a draft National Plan of Action for Nutrition for the country. Members of the Secretariat included representatives from: the Ministries of Planning; Agriculture, Forests and Fisheries; Health; Rural Development; Social Affairs, Labor and Veteran Affairs; Education Youth and Sports; Industry, Mines and Energy; Women' s Affairs; in collaboration with UNICEF; WHO; FAO and Helen Keller International.

A National Nutrition Workshop was held in Phnom Penh from 20-22 June 1995, at which Phase 1 of a draft National Plan of Action for Nutrition (NPAN), developed by the Secretariat, was presented and considered in detail within a series of discussion groups. The priorities to be specifically addressed within the NPAN, as follows:

1. Incorporating nutrition objectives, considerations and components into the policies and programmes of all relevant sectors.
2. Improving household food security.
3. Protecting consumers through improved food quality and safety.
4. Preventing and managing infectious diseases.
5. Better infant and young child feeding.
6. Caring for the socio-economically deprived and nutritionally vulnerable.
7. Controlling micronutrient malnutrition.
8. Promoting appropriate diets and healthy lifestyles through nutrition information.
9. Operational research, assessment, analysis and monitoring of the nutrition situation.
10. Water development for household consumption and irrigation.
11. Institutional feeding.
12. Human resources development in the Ministry of Health.

The twelve issues of the draft NPAN, as endorsed at the National Nutrition Workshop, are detailed in this Chapter, together with the specific activities associated with each of these issues. These activities comprise the Action component of the NPAN and consist of a series of do-able projects and programmes, consistent with the present situation, relating to planning and programme development in Cambodia. As noted in Section 1.7, it is expected that rapid change will continue in Cambodia, so that the NPAN will need to be re-assessed, and its short- and long-term priorities relating to food security and nutrition will need to be clarified, revised or further identified.

3.1 Priority 1: *Incorporating Nutrition Objectives, Considerations and Components into the Policies and Programmes of the Other Relevant Sections*

Human resources in Cambodia have been weakened due to the fact that the country's production base was damaged by more than two decades of war, there is a lack of adequate health services and poverty is widespread. Prolonged war, civil strife as well as political and economic isolation have turned Cambodia into one of the poorest countries in the Western Pacific Region. The social consequences of war such as a large number of handicapped people, widows, orphans and other vulnerable groups contribute to Cambodia's problems of malnutrition.

Even though there was a noticeable progress in the socio-economic rehabilitation process during the past several years, the production of food has not reached pre-war levels. Agricultural production has suffered from floods and droughts that often cause food shortages among Cambodians and put a large proportion of the population in difficult circumstances with regard to their general nutritional status. Moreover, inadequate knowledge and nutrition education exacerbate malnutrition in Cambodia, especially amongst women and children.

The poverty of the Cambodian people in general and especially among those who are living in rural areas, combined with poor hygienic practices and limited nutritional knowledge, are closely related to the under-nutrition problem in Cambodia.

The Royal Government of Cambodia, during the recent past has paid much attention to promoting nutrition and will continue to do so. It is a key priority, along with other necessary actions to be taken in sound social development. As clearly stated in the two year National Rehabilitation and Development of Cambodia Plan (published in 1994 and 1995), it is necessary to promote nutrition, vaccination coverage, the disseminating of hygiene practices and birth spacing services. However, it has not so far been possible to coordinate these activities in a systematic well - organized way and develop and put into practice a national programme for promoting nutrition in Cambodia. This programme will be part of the socio-economic development plan for the whole country, in which concrete goals and priorities and measures to be taken should be clearly set out.

Promoting nutrition cannot be seen as an independent issue related to only one government institution. There needs to be a high level of inter-ministerial coordination and cooperation so that the implementation of a National Plan of Action for Nutrition can proceed in an effective manner. In this sense, the establishment of a National Council on Nutrition (NCN), co-chaired by the two Prime Ministers, and the Minister of Planning as the Deputy is necessary. This NCN is responsible in making policies relating to nutrition for the country. Also, there has to be an Inter-ministerial Technical Committee to assist the NCN in preparation, monitoring and evaluating the progress of implementation of the nutrition plan. And in order to appropriately and effectively coordinate the work, the

Inter-ministerial Technical Committee has to establish a Secretariat to be located in the Ministry of Planning.

- **Activities**

1. Provision of technical assistance, attached to the Ministry of Planning, to carry out in-job training on nutrition and household food security, and to assist it in the assessment of the nutrition and food situation.
2. Support for overseas training on Nutrition and Food Policy and Planning for one high level technician in the Ministry of Planning.

TIME FRAME: 1996-2000

BUDGET: US$ 600,000.00

3.2 Priority 2: *Improving Household Food Security*

Household food security means ensuring that every household has access to enough food through the year to guarantee the healthy development of all members of that household, and that the distribution of food within households ensures the same for every individual, without serious detriment to the sustainable development of the livelihood of those households.

Rice production is a key factor in household food security in Cambodian rural areas. Many households are not self-sufficient in rice. (The FFP/UNICEF survey in 12 villages in four provinces: Kompong Speu, Kompong Chhnang, Kampot and Prey Veng showed that about 70 percent of households produce less than 50 percent of their rice requirement.

In addition, it is noted that household food security fluctuates seasonally. Usually the most serious time is between June and October, when rice stocks are finished, there is only limited availability of vegetable and secondary crops are not available, fish is in reduced supply in rice fields and streams, and the prices of basic foods, such as rice, fish and vegetables have increased. People also need more calories at this time for transplanting rice and are unable to earn other income, because they need to concentrate on work in their own fields.

- **Objective:**

To improve household food security particularly for the rural population and the most food insecure households among those population. This can be achieved among other things: diversifying crop production development, improved cropping technologies and their extension ensuring further access to cultivable land to those who require it for basic food security; creating income generating opportunities and strengthening household food monitoring and food deficit response systems.

- **Activities**:

1. Development of strategies should be adopted, which particularly focus on poverty alleviation, food security especially at the household level, income generation and the development of suitable agricultural systems.

2. Food production and agricultural trade should be increased, while minimizing any adverse impact of structural adjustment programmes on the food security of the poor, as has happened in some other countries adopting such programmes.

3. Additional investment should be made in agricultural research and the expansion of agricultural extension activities to develop farming systems applicable to small-scale agriculture, using appropriate improved technologies. This will help to overcome seasonal imbalances in household food supply. Particular attention should be given to improving traditional production systems at the household and community level. Animal husbandry should be included to increase the household income.

4. Much more attention should be paid to natural conservation, particularly of forests and water courses. (Forests provide significant supplies of food, such as wild fruit and green vegetables, that poorer people gather, as well as small animals. Forests also help to keep the soil fertile, prevent erosion, influence climates and water run-off, and influence fish spawning in some places. Deforestation and changes in water courses are having a considerable negative impact on household food supplies).

5. Losses during harvest and post-harvest should be reduced, where these are found to be significant.

6. Land-use policies that ensure that land is made available for cultivation, particularly from previously cultivated land, should be adopted and implemented. [This should enable all potential food crop producers who wish to cultivate to have adequate tenurial control of land to enable them at least to ensure household food security].

7. The Family Food Production Programme should be developed into a broad - based community development programme, while still paying particular attention to ensuring the food supplies of the most food insecure groups in the areas, where the Programme operates. Research into other approaches, particularly ones already successfully tried in Cambodia, should be undertaken as a longer term priority, to indicate other models.

8. Birth spacing initiatives should be supported, as high dependency ratios in families have been seen to be a significant factor in household food insecurity in some instances, particularly where the children are small. There are no immediate prospects of developing other social security systems to help such households.

9. Policies and programmes should be adopted to strengthen local leadership (particularly of women leaders), enhance community development, empower women both as producers and consumers, and develop rural areas to stem rural-urban migration.

10. Employment opportunities and various income-generating activities should be increased, particularly in rural areas, and particularly for those groups in these areas that have limited alternative income-earning possibilities and are food insecure. Public sector policy which supports labor-intensive public works programmes should be strengthened and should help, provided these programmes are well-managed and targeted.

11. Food supplies should be stabilized in different regions, through limited but adequate stockholding and release measures, to limit the extent of market fluctuations and respond to emergency needs.

12. Food-related assistance programmes should be strengthened, so that they reach the most food insecure populations without disrupting the local economy, local food habits, local food production and marketing systems.

13. Irrigation systems should be promoted, particularly in dry-season cropping of vegetables and secondary crops to help overcome household food deficiencies in these periods.

14. More research should be conducted into household food insecurity, and particularly into the coping and adaptation strategies of the most food insecure households in Cambodia, as a basis for better policy and programme provision to alleviate household food insecurity.

15. Food monitoring systems and food deficit response systems at the household level, should be established or improved, as appropriate.

3.2.1 Enhancing the Diversification of food Crops Production for Household Food Security

The Ministry of Agriculture, Forestry and Fisheries (MAFF) is planning for the future to produce an average of 151 kg of rice per person per year. This quantity represents 1,400 kcal per person per day, about 60 percent of the average energy needs, roughly estimated

to be 2,200 kcal. It is forecast to supply the remaining 40 percent of the required energy needs through the diversification of food production.

The MAFF has embarked on a programme to strengthen its organization, human resources development, and the restoration of its research and extension activities, through three key projects:

1) the Agricultural Productivity Improvement Project, for five years period, aims at using the budget from WB-IFAD to be provided to the Royal Government of Cambodia starting in 1998. The main purpose of the Project is to improve production especially rice, rubber plantation, animal raising and aquaculture. The activities and strategies will be implemented as below:

   - implementation of small and medium scale of irrigation system.
   - measures and activities in the area of agronomy and rubber plantation.
   - animal raising.
   - aquacultural management
   - measures to implement the services such as : research, agri-statistics, etc.

   Further, the project deeply emphasizes on human development through training and delegation of technologies that are the major strategies. The project will enable the agricultural area to improve accordingly to the development policies of agriculture, in which the first priority is the food security and the production for export. The project will contribute the indicators of the increase in agricultural field that was expected with 4.5% per year from 1997 to 2001.

2) The ADB's Agricultural Credit Programme is one of the programmes established to assist the Royal Government in reforming the area of agriculture. The aim of the programme is to ensure agricultural changes for improvement based on the marketing competition. The reform of this field will enable the farmers of rural areas change their living conditions at a certain level based on strengthening and extension of agricultural productivity. In this sense, such reform will enable a change for improvement of the Cambodia's economic growth as a whole. The reform process is a necessary and important phase where steps are to be included such as liberalization, market privatization, stabilization of land ownership, elimination of centralized decisions on agricultural products. This project is to focus on taking initiatives from key selected sectors aiming at increasing sustainable agricultural production.

   - Measures incorporated into this project are considered necessary to promote the agricultural field and effective implementation according to the current situation of Cambodia.

The Agricultural Credit Programme primarily aims at using all potentiality of production of the agricultural area for the purposes:

- extend and increase the impetus of the growth in the national economy as a whole.
- improve and promote the farmers' living standards.
- increase the people's occupation and employment opportunities.
- reduce the migration to urban area by rural people.
- increase opportunities of productivity on existing land in a link with environmental protection.
- extend the ability and increase national revenue for development of other areas such as health, education and social affairs.

The agricultural credit programme will provide benefits to the national economy including:

- increased yield will be acquired through the use of new technologies including other agricultural materials well prepared and improved.
- the rural people or farmers will earn a lot more income from selling their high quality of agricultural products.
- the state can get more foreign currency through the export of paddy, rice, rubber and other agricultural products.
- the people nationwide may live in a better and improved living situation accordingly to their increased productivity, working opportunities, and a reduction of migration to urban areas by rural people.

3) The "Cambodia - Australia Agricultural Extension Project, 1996-2000" aims to achieve a sustainable rural economic and social development through improved delivery and utilization of agricultural information. This project plans to develop a manageable agricultural extension service and to empower the rural community to make a more effective use of available agricultural information.

These three projects will contribute to develop the capacity of the MAFF to offer services for the promotion of the diversification of food crops. As an interface between the three projects, an activity has been identified to enhance the diversification of food crop production for household food security.

■ **Specific Objectives**

The objectives of this activity are:

- to ensure access to a more diversified diet;

- to reduce the risk of seasonal shortage;
- to increase food availability at home and in the local markets;
- to increase cash income of rural households.

■ **Activities**

The main strategies will focus on the empowerment of farmer groups to manage a multi-crop system of production into small plots and home gardens, and on the more effective use of nutrition information. The identified activities are:

1. *Human resource development in nutrition*

   - incorporation of a training component on participatory nutrition into the training of extension workers;
   - conduct a workshop on nutrition and household food security issues for technicians of the MAFF;
   - on-job training on participatory nutrition for the staff of the Agricultural Development Centers;
   - adaptation of the policies for participatory nutrition projects, elaborated by FAO-ESN.

2. *Diversification of food crop production on small plots and home gardens*

   - demonstration of proven techniques of food crop diversification with farmer groups;
   - demonstration of food preparation, including weaning foods from the diversification of food crops.

3. *Development of the diversified food production*

   - formulation of a project on household food security and food crops diversification in one agro-ecological zone to test the mechanisms of extension of the multi-crop production systems.

4. *Technical assistance*

   - technical assistance is required for each component of this activity.

5. *Monitoring and evaluation*

   - collection of data on risk of household food insecurity and malnutrition (refer Section 3.9.1).

TIME FRAME: 1996-1998

IMPLEMENTING INSTITUTIONS

- *Ministry of Agriculture through Departments of:*
  - Planning and Statistics
  - Agronomy
  - Techniques, Economics and Extension
  - Fisheries
  - Production and Animal health.

- *Ministry of Industry, Mines and Energy*
- *Ministry of Rural Development*
- *Provincial Office of Women's Affairs*
- *NGOs*

BUDGET: US$ 450,000.00

3.2.2 Community Action for Rural Development

The rural population, 85 percent of the Cambodian population, is the basic human resource for the development of the country. More than 1.3 million households are dependent on agricultural activities with most of them living at or below the poverty line. Unbalanced economic growth with concentration of the benefits in Phnom Penh and in urban areas generally, could lead to more disparity in economic status.

To fight against poverty, it is necessary to strengthen the local implementation capacity. The national rural development strategy is directed to reduce disparity, and to involve the rural communities as participants and beneficiaries of the national development. The general objective is the socio-economic development of rural households through community mobilization, involvement and initiative.

- **Specific Objectives**

  - to make operational the community processes and participatory structure at the village level;
  - to enable organized groups to play a role in community self-development, and to achieve socio-economic goals in the sectors of nutrition, health, education, care, water supply, household food security, and income generating activities.

The final objective or outcome is the reduction of malnutrition, the virtual elimination of vitamin A deficiency, and achieving household food security.

■ Activities

1. Community Building Capacity

- training of Village Development Committees (VDC) on situation analysis, accountability, management, communication for behavior change, technical skills and monitoring;
- training of District and Provincial Development Committees on managerial and coordination skills;
- training for organized community groups in the absence of VDCs, as detailed above.

2. Education and Child Care

- creating enabling conditions for formal education (of children), and for informal education (for literacy);
- coordination of child care activities managed by the community
- cooperation with the education system (e.g. teachers), and organizations supporting education and care activities at community level.

3. Food, Water and the Environment

- family food production through diversification of food production in small plots and home gardens;
- establishment of water supply for drinking water and small irrigation;
- planting of trees for firewood and prevention of flooding;
- coordination with technical support of extension workers.

4. Health, Hygiene and Caring Practices

- training of community health workers according to the guidelines of the Ministry of Health;
- promotion of participation in cost recovery schemes for health under the management of the VDC or organized community groups.

5. Protection of vulnerable groups

- organization of the commune structure for care and protection of vulnerable groups in the community.

6. Credit and Income-generating Activities

- credit and saving schemes for water and community projects;

- training on credit management and income opportunities.

IMPLEMENTING INSTITUTIONS

- ✦ Ministry of Rural Development (Coordinator)
- ✦ Ministry of Women's Affairs
- ✦ NGOs.

BUDGET: Funded by UNICEF and UNDP

3.3 Priority 3: *Protecting Consumers through Improved Food Quality and Safety*

A safe food and water supply is essential for proper nutrition. Every country needs to regulate food for consumption either locally or externally produced, and should have provisions, within its national health strategy to protect consumers through food quality and safety legislation, and to include provisions for appropriate enhancement of the nutritional value of the food supply, through fortification with essential vitamins and minerals. It is appreciated that the difficulty of undertaking such a program and monitoring such measures, with limited resources and manpower will be considerable.

■ **Activities**

1. The appropriate level of priority for food quality and safety programmes should be established.

2. Measures should be established to protect the Cambodian community from unsafe, low quality, adulterated, misbranded, contaminated, or "expired" foods through the development of national food standard guidelines (eventually legislation), based on those of Codex Alimentarius.

3. These measures should be monitored through a food quality and safety control system.

4. Foods for emergency feeding programmes for disadvantaged and displaced persons should be of adequate quality and quantity and safe for consumption.

5. Departments in the Ministry of Health, the Ministry of Commerce, the Ministry of Industry, Mines and Energy and in local authorities, responsible for ensuring food/water quality and safety should be strengthened to establish resources and processes for:

- setting standards for food quality and safety;
- inspection of food/water sources and outlets, including markets, restaurants, hotels, foodhawkers, abattoirs, groceries and food-processing plants; and
- certifying and monitoring of the above establishments (with the authority to open or to close).

6. Food/water quality functions of the relevant Ministries should be decentralized by setting-up municipal and provincial bureaus.

7. Curricula for manpower training and continuing education should be restructured to offer certificate courses for food/water inspection.

8. Laboratory test/controls for food/water samples should be established in relevant ministries (or an existing laboratory commissioned, e.g. the Pasteur Institute).

9. Public information and education programmes on food quality and safety, need to be established.

10. Ministry of Industry and Ministry of Commerce should be involved in the legislative process for food safety and quality.

11. Use the mass media, formal and informal education to create awareness for the necessity of food and water hygiene.

12. Policy guidelines such as a national food standards code should be established, eventually as legislation, by the relevant Ministries, involved in food and water quality and safety.

3.3.1 Implementation of Food Quality Control Activities

The control of the quality and safety of food in Cambodia is carried out by several Ministries without clear allocation of the tasks and without legal support. The Ministry of Health through its Department of Hygiene, is conducting some food inspection activities. At its request, the Pasteur Institute can manage microbiological analyses. The Ministry of Commerce (Camcontrol) is officially responsible for the control of imported goods and of fuel. The Ministry of Industry, Mines and Energy is officially in charge of food control. The Ministry of Agriculture is concerned with the quality control of the production of food crops. The lack of skilled human resources, appropriate infrastructure and mechanisms of coordination, is also impairing food quality control.

Recently the Ministry of Commerce with the assistance of FAO, the European Union and French Cooperation has re-initiated some activities related to legislation and management

matters. In addition to this technical assistance, the UN Industrial Development Organization (UNIDO) is supporting initiatives on food quality and safety.

- **Specific Objective**

The principal objective of this activity is to design and implement an operational system for food safety and quality control.

- **Activities**

1. *Legislation*

   - food law preparation and inter-ministerial regulations to give the legal basis for food quality and safety control, to allocate the responsibilities and tasks according to the technical competencies of the concerned Ministries and to protect the health of consumers;
   - creation of a national committee of coordination or advisory board on food safety and quality control;
   - definition of national food standards and technical guidelines.

2. *Human resource development*

   - training on management, inspection and sampling techniques;
   - information and education in safe food handling for food vendors;
   - support for consumer education.

3. *Infrastructure development*

   - national capacity building in food quality control analysis (laboratories), physicochemical and microbiological analysis, water analysis, and metrology;
   - training for required skills and qualifications for food analysis.

IMPLEMENTING INSTITUTIONS

Clarification of responsibilities and mechanisms of coordination remains a prerequisite condition of implementing an operational system of food safety and quality control.

BUDGET: US$ 3,400,000.00

3.4 Priority 4: *Prevention and Treatment of Infectious Diseases*

Not only do infections favor malnutrition, but malnutrition favors most infections. In other words, malnutrition and infections are interrelated. Preventing and improving

infectious disease management will also have an effect on people's nutritional status. Health personnel play a major role in the improvement of the nutritional status of people through the prevention and management of infectious diseases.

- **Activities**

1. Access to health facilities should be improved, especially in remote rural areas.

2. Health services at all levels should be improved, through appropriate training of health personnel, particularly regarding the major diseases that affect the nutritional status of people such as diarrhea, acute respiratory infection (ARI), measles, tuberculosis, HIV infection, and malaria.

3. Collaboration of the health sector should be strengthened with other sectors, organizations, associations and communities, which aim to improve environmental and sanitation conditions, including water quality and waste disposal systems.

4. The teaching of nutrition, especially the importance of breast-feeding and the introduction of complementary foods for infants at age 4-6 months, as well as sanitation should be promoted at health facilities.

5. Nutrition education should be integrated into the school curriculum at primacy and secondary levels.

6. The training in nutrition and hygiene in health institutions should be improved and strengthened, and the training and associated programmes extended to community level.

7. The "baby friendly hospitals" initiative should be extended; and in so doing, the education of mothers and girls should be emphasized in regards to the importance of breast-feeding and the need to prolong it to at least 18 months.

8. Clear protocols should be established for the diseases affecting nutrition and they should concern not only the diagnosis and treatment, but education and measures to be taken for controlling the spread of infectious diseases.

9. Health personnel should be encouraged to make every patient visit to the health facility, an opportunity to detect malnutrition, and to correct nutritional practices during illness, especially pulmonary infections, diarrhea or measles.

10. Prevention and detection of infectious diseases should be improved, through a systematic search for current infections when there are signs of malnutrition. This systematic search should be part of growth monitoring as well as immunization sessions.

11. Immunization coverage with the six antigens, should be reinforced at the earliest possible age, and with particular attention to pertussis and measles.

12. Oral rehydration and the importance of maintaining food intake for all children under 5 years old with diarrhea, should be promoted.

13. Management for diarrhea and ARI disease should be promoted within the family and at home.

14. The Department of Hygiene of the Ministry of Health should be strengthened to improve its capacity to develop protocols for food and water safety, and increase its ability to implement activities to prevent food-borne and water-borne diseases.

15. An information system should be established to collect data not only concerning malnutrition, but also in regard to its relation to infectious disease.

16. Misconceptions and misinformation which lead to improper dietary practices and sometimes dangerous misuse of medicines, should be researched and addressed.

17. Operational-based research should be undertaken, on nutrition-related aspects of transmission and management of infectious diseases, taking into account all socio-economic aspects.

3.4.1 Integrating Nutrition Services into Primary Health Care

In the revitalization of the basic health services, the districts, communes and villages are the main points for implementing primary health care for the community. It is planned that district level services be developed and personnel trained to manage government health facilities and services, run the district referral hospital and health centers, implement community-based programmes, control the district health budget and collect health information. The implementation of district level health services will be in the framework of the recently formulated Health Coverage Plan, which rationalizes the location of health centers and referral hospitals close to where villages converge, and where geographical access will be maximized.

Services to be provided at every health center and referral hospital are detailed in a defined Minimum Package of Activities (MPA), which include:

1. care for pregnant women, including ante-natal and post-natal care, anti-tetanus vaccination and prevention of anemia;
2. consultations for healthy infants aged 0-4 years, including immunization, growth monitoring and promotion, and prevention of vitamin A deficiency and iodine deficiency disorders; birth spacing, health promotion and education.

The MOH has now approved the implementation of the Accelerated District Development Programme, under which District level health services will be established in an operational district in each of the ten Provinces, in which a Provincial Health Adviser provides support to the Provincial Health Directorate

- **Specific Objectives**

To support and evaluate the implementation of the nutrition activities in the MPA into the Accelerated District Development Programme, covering the ten Districts.

- **Activities**

1. Collect baseline data on indicators of nutritional status
2. Develop protocols for nutrition services in the MPA
3. Review draft protocols through a workshop process.
4. Assist with the implementation of nutrition services into the delivery of primary health care to commune health centers and referral hospitals.
5. Evaluate the impact of the delivery of these services on nutrition indicators after 24 months.
6. Modify the nutrition activities, as indicated from the evaluation

TARGET: Commune population, particularly mothers and young children

TIME FRAME: 1996-1997

Outcomes

- Attendance rates for nutrition services
- Decrease in % low birth-weights
- Quality and impact of the growth monitoring activities
- Increase in the percentage of pregnant mothers taking iron supplements
- Improvement in breast-feeding and weaning food practices
- Decrease in incidence of ARI and DD

BUDGET ESTIMATE: US$ 250,000.00

3.4.2 Strengthening the Nutrition Component of Infectious Disease Programmes

This objective supports the mission of the Ministry of Health (MOH) to control communicable diseases and improve the health and well-being of all people. Infectious diseases, including diarrhea disease (DD), acute respiratory infection (ARI) and tuberculosis, are major causes of morbidity and mortality in Cambodia, especially in children. Poor nutrition adversely affects immune function and lowers resistance to infection and disease. Improved nutrition has been demonstrated to reduce mortality and morbidity, including from ARI and DD in young children. A strong nutrition component in these prevention and control programmes presents an effective strategy to reduce infant and under 5 years mortality rates - targets of the Government.

- **Specific Objectives**

To increase the effectiveness of programs for the prevention and treatment of infectious/communicable diseases; and reduce the morbidity and mortality from these diseases.

- **Activities**

1. Review the policies and programmes of the Ministry of Health for the prevention and control of infectious/communicable diseases.
2. Improve the nutrition component of these programmes, both in regard to prevention and treatment.
3. Conduct training workshop for MOH Central staff and Provincial health staff on nutrition component of infectious/communicable diseases.
4. Review the nutrition/ infection component of pre-service and in service training in communicable diseases.

TARGET: Health workers at National and Provincial levels

TIME FRAME: 1996-1997

Outcomes

- Completion of review process of policies and programmes for communicable diseases.
- Completion of training courses for health workers at National and Provincial levels.

IMPLEMENTING INSTITUTIONS

- Ministry of Health
- UN Agencies

BUDGET: US$ 50,000.00

3.5 Priority 5: *Better Infant and Young Child Feeding*

✿ *Breast-feeding*

Breast-feeding has a range of valuable roles :

- provides infants with the ideal nutrition;
- provides important nutrients to young children;
- has an important effect on child spacing;
- provides the best form of infant feeding up to about 6 months;
- provides immunization through colostrum; and
- provides protection from recurrent infections as breast-milk contains antibodies.

In Cambodia, breast-feeding is commonly practiced, but it is important to protect this existing, good practice. Experience in other countries shows how important it is to continue protecting, promoting and supporting, breast-feeding. The high infant mortality rate due to acute respiratory infections and diarrhea diseases shows the need for protecting breast-feeding and ensuring mothers breast-feed frequently and on demand. Only exclusive breast-feeding will dramatically prevent more diarrhea and infection and help to ensure lactational amenorrhoea (to facilitate child-spacing).

In 1994, the Baby Friendly Hospital Initiative Task Force was established to address the protection and promotion of breast-feeding, implementation of the International Code for the Marketing of Breastmilk Substitutes, IEC development, and advocacy for these measures. The Government and Ministry of Health ' s policy statement for breast-feeding/marketing of breast-milk substitutes has been approved and signed.

✿ *Complementary Feeding :*

The period after 4-6 months is a very critical phase in a child's life as it is during this period that children are susceptible to infectious diseases and also because their nutritional requirements are increased. In Cambodia, children older than 6 months are usually still breast-fed and also given rice soup which is a food low in energy and poor in nutrients. In addition, this soup is only given 2 or 3 times a day, which is not frequent enough. The main reasons for these poor practices are traditional feeding habits, lack of the knowledge of care-takers and the little time that mothers have for caring for children.

■ Activities

1. Social, community and legislative support should all reinforce breast-feeding.

2. The Government, through appropriate Ministries including Health, and their service delivery to village level, should be responsible for providing education and information about breast-feeding and other aspects of young child-feeding.

3. Action should be taken to provide national legislation to implement the International Code of Marketing of Breastmilk Substitutes, which was adopted by the 1981 World Health Assembly. (Cambodia is now a signatory to the updated Code).

4. Health and other care providers should receive high-level and up-to-date training on lactation management and birth-spacing, so they can provide information on the feeding of infants and young children that is consistent with current scientific research

5. The importance of feeding colostrum should be strongly promoted

6. Collaboration between health care systems and mother support networks, including the family and community, should be encouraged and supported.

7. All health care facilities should take part in the UNICEF/WHO "Baby Friendly Hospital Initiative". Targets should be set for the number of hospitals to have adopted the baby-friendly hospital initiatives by the year 2000 (e.g. 11 by December 1995, 6 in Phnom Penh and 5 in the provinces). There should be an award and/or incentive system for hospitals to sustain baby-friendly initiatives.

8. The IEC strategy on adequate weaning practices, including national guidelines/protocols on home-based infant and young child feeding, should also be strongly promoted.

9. Awareness should be promoted of contraindications to breast-feeding, especially mothers infected by the HIV and/or who have AIDS. Awareness of risk/benefit issues should be raised, while at the same time avoiding panic reaction. The risk of HIV by a non-infected baby exists, but cases are rare.

10. The importance of birth spacing should be strongly promoted, as a means of ensuring adequate food for family members, including infants and young children, and reducing the maternal burden of pregnancy.

11. Action should be taken by Government on companies promoting breast-milk substitutes, feeding bottles and teats, bottle-fed complementary food, and other food for infants (including advertising via newspapers, calendars, flyers, and distributing free samples to doctors and hospitals).

3.5.1 National Breast-feeding Campaign

There are two primary messages to be given in this campaign. The first is for mothers to breast-feed following birth so that the baby receives the maximum benefit from the anti-infection properties of colostrum and it assists the mothers' recovery after birth. Many mothers in Cambodia do not breast-feed their infants until up to three days after birth, by which time the immuno-globulin levels in breast-milk have fallen significantly and the infant is more at risk of infection. The second message is to promote exclusive breast-feeding for 4-6 months to protect the infant against diarrhea diseases and maximize nutritional status. Such a campaign would support other nutrition education and breast-feeding activities of the Government, including health education services provided through primary health care. The campaign would have the particular advantage of reaching those communities, especially mothers, yet to be the recipient of health services.

- **Specific Objectives**

To promote universal breast-feeding immediately following birth and exclusive breast-feeding for 4-6 months after birth.

- **Activities**

1. Establish some baseline data on the percentage of mothers breast-feeding immediately following birth and exclusively breast-feeding for 4-6 months.
2. Develop and test a series of simple, brief nutrition messages about the need for mothers to breast feed immediately after birth, and to exclusively breast-feed for 4-6 months to protect their babies against disease and to promote their nutritional well-being.
3. Adapt and evaluate messages for breast-feeding for disseminating as brochures, posters, on radio, video and TV.
4. Plan, implement and evaluate a pilot mass media programme on breast-feeding
5. Expand the programme through the community networks of Women's Affairs, health services, and the school and outreach education services.
6. Evaluate the effectiveness of campaign on impact on breast-feeding practices.

TARGET: The whole community, especially mothers in rural and poor areas.

TIME FRAME: 1996-1997

Outputs

- Increase in percentage of mothers immediately breast-feeding following birth
- Increase in percentage of mothers exclusively breast-feeding for 4-6 months.
- Production of effective audio and visual materials for breast-feeding education.

IMPLEMENTING INSTITUTIONS

- Ministry of Health
- National Maternal and Child Health Center
- Ministry of Women's Affairs
- UN Agencies and NGOS

BUDGET: US$ 450,000.00

3.5.2 Promotion of Healthy Complementary Food Practices

Limited surveys have shown that traditional complementary foods are deficient in energy and micro nutrients, quantities given are inadequate and complementary foods are not given sometimes until the infant is over 12 months of age. These practices result in poor nutrition of the infant and child and increased risk of infection, so they impact on the morbidity and mortality of infants and young children. An improvement in complementary food practices, coupled with improved breast-feeding practices would have a significant impact on infant and under 5's mortality rates.

- **Specific Objectives**

To promote improved complementary food practices of mothers.

- **Activities**

1. Establish some baseline data on the complementary food practices of mothers.

2. Develop and test a series of simple, brief nutrition messages about appropriate complementary food practices, concerning the time to introduce complementary foods, an increase in their nutrient density, and the

frequency of feeding.

3. Adapt and evaluate messages for complementary foods for disseminating as brochures, posters, on radio, video and TV.

4. Plan, implement and evaluate a pilot mass media programme on complementary foods.

5. Expand the information programme through the community network of the Nutrition in Development Programme of the Provincial Offices of Women's Affairs, health, agriculture extension and rural development services.

6. Promote home gardens to grow fruit and vegetables and for small animal production.

7. Develop a programme of demonstrations on the preparation of complementary foods.

8. Evaluate the effectiveness of campaign on complementary food practices.

TARGET: The whole community, especially mothers in rural and poor areas

TIME FRAME: 1996-1997

Outputs

- Increase in percentage of mothers providing complementary foods which include some vegetable, fruit, and animal products
- Increase in percentage of mothers introducing complementary foods after infant age of 4- 6 months.
- increase in the percentage of mothers providing several complementary feedings per day to infants and young children.

IMPLEMENTING INSTITUTIONS

- Ministry and Provincial Offices for Women's Affairs
- Ministry of Health
- National Maternal and Child Health Center
- Department of Agricultural Extension (MAFF)
- Department of Rural Department (MRD)
- UN Agencies and NGOS

BUDGET ESTIMATE: US$ 500,000.00

3.5.3 Implementing the International Code of Marketing of Breastmilk Substitutes and the Baby Friendly Hospital Initiative

This activity will support and extend the initiatives of the National Center for Maternal and Child Health to promote and protect breast-feeding, including adherence to the International Code through legislation. It also supports the Center's programme for the participation of all health care facilities in the Baby Friendly Hospitals initiative, the delivery of health education programmes on breast-feeding to village level through health and other service networks, and training on lactation management.

- **Specific Objectives**

  - To prevent the availability of free or low-cost supplies of breast-milk substitutes in all hospitals and maternity facilities, and the advertising and direct marketing of infant formula to mothers.
  - To provide appropriate maternal delivery services in hospitals in Cambodia for the successful establishment of breast-feeding.
  - To support nutrition services and training on breast-feeding.

- **Activities**

  1. Legislation passed by the Government to establish a legal basis for adherence to the International Code of Marketing of Breastmilk Substitutes.
  2. Monitor the implementation of the WHO Code for violations.
  3. Through advocacy and training of staff in hospitals and health care facilities, promote the adoption of the UNICEF/MOH guidelines for Baby Friendly Hospitals.
  4. Promote appropriate breast-feeding through health education networks to village level.

TARGET: The Government (for legislation), mothers and health workers.

TIME FRAME: 1996-2000

Outputs

1. Legislation passed for the WHO Code
2. Increase in the number of hospitals and health care facilities adopting the Baby Friendly Hospital initiative.

3. Continuation of high level of breast-feeding.

IMPLEMENTING INSTITUTIONS

- Royal Government of Cambodia
- Ministry of Health
- National Center for Maternal and Child Health

BUDGET ESTIMATE: US$ 60,000.00

3.6 Priority 6: *Caring for the Socio-economically Deprived and Nutritionally Vulnerable*

There are some age and social groups that are more nutritionally vulnerable due to either biological and/or social factors. Young children, and women as well as the elderly have nutritional requirements that vary from those usually adequate for male adults. During illness, people need special food as a result of their disease.

■ *The Socially Disadvantaged*

Many groups are socially disadvantaged which creates barriers for access to nutritionally adequate diets. This problem is particularly pronounced when people become displaced because of either man-made or natural disasters. Displaced persons are an especially vulnerable group, because they have lost their regular food source and production systems. They are also susceptible to many infectious diseases affecting their nutritional status, caused by over-crowding and lack of sanitation in temporary living areas.

There are various groups that are at risk for nutrition problems because they may not receive proper social care and/or have a secure source of food. These include:

- orphans;
- Twins of a poor family (twin or more)
- "children living outside their natural families" (example being street children, children working at factories or in other people's homes);
- mentally and physically disabled people;
- women who are alone without other family members who can give economic support;
- elderly without descendants; and
- inmates of institutions which rely on feeding from authorities(example being orphanages, prisons, etc.).

■ *The Nutritionally Vulnerable*

Young children, especially those of 6-36 months of age, are more prone to malnutrition

than other age groups. This is because of the necessity of adding foods other than breast-milk, and the introduction of complementary foods, that are inadequate in both quantity and quality. These foods are often poorly prepared and unhygienic, leading to infectious diseases that further decrease the child's nutritional status.

Pregnant and lactating women need more food energy and protein than non-pregnant women and some men, because of increased demands on their bodies for the fetus and subsequent lactation. Women and men need to be aware that these women need more and better food instead of *less* food, which is usually the situation, because of local food taboos for pregnant and lactating women.

School-aged children, 5-15 years also are at risk for malnutrition because they are often left to feed themselves without regard to whether or not they receive a balanced diet. The elderly are often forgotten as nutritionally vulnerable. They are at risk because they need quality food in a nutritionally balanced diet to counteract possible chronic illness. They also may have absorption problems which require them to eat a special diet. They need to be encouraged to eat instead of restricting their diets, and so increasing their risk for vitamin and mineral deficiencies.

People with tuberculosis and leprosy need more and better quality food than healthy persons. Tuberculosis/leprosy place increased demand on the body and these people cannot recover from these diseases, unless their diets are adequate. Frequently their actual death is not from the primary disease, but from malnutrition or another disease condition, which also adversely affects their nutritional status.

- ***Nutritional Needs of Girls and Women***

Because of the very great importance to the whole nation of the need for an improvement in the nutritional status of girls and women in Cambodia, it is necessary to take into account many aspects of the role of women and girls. First is the importance of the nutritional status of the women for their own health and survival, for the health and survival of the babies and children they produce, and for the future of the nation. Secondly are the reasons that girls and women are biologically more susceptible to malnutrition, and that culture and society may contribute to their vulnerability.

Cambodia has probably the highest maternal mortality in Asia, estimated to be as high as 650/100,000. This is due to many causes, but among the most important ones is the stunting of many women with too narrow pelvises, who then reproduce before their own bodies have reached full maturity. Stunting is due to chronic malnutrition. This same malnutrition means that little energy, protein or micronutrient reserves are shared with the unborn child. As the malnutrition continues usually during the pregnancy the latter drains the mother and makes delivery and even moderate postpartum bleeding life endangering. Badly spaced pregnancies add to the nutritional problems of the mother and the babies both born and yet to be born.

The importance of maternal nutrition for the baby's birth-weight, the quantity of breast-milk the mother can produce, the age at which the baby needs supplementary feeding and the danger of loss of appetite in the early months of life because of iron deficiency, all influence infant survival rates: In turn high infant mortality leads to a desire to conceive again soon, and therefore high child death rates lead to short spacing and worsen the nutritional status of the mother.

Girls are future women, and it is between the ages of 9 and about 20 years that they can grow to a mature size with sufficient reserves for reproduction. Girls who have been moderately undernourished before the age of 9 can usually recuperate and grow to a height of over 1.5 meters and reach a pelvic size permitting normal child-birth of a baby of normal birth-weight. Chronic malnutrition beyond puberty becomes in general largely irrecoverable, in terms of height, but the reserves can be improved considerably even during the last three weeks of a pregnancy.

Girls and women have higher nutritional needs because of menstruation (iron and protein loss), lactation (very high energy, protein, vitamins and minerals), pregnancy (high protein and energy demands, and micronutrient reserves especially iron and some vitamins). Poor women who need to work long hours and do hard physical labor almost invariably have an energy deficiency even more pronounced than the protein deficiency, especially during pregnancy and lactation.

Apart from the fact that women of reproductive age and girls form 50 percent of the population, the importance for the whole nation cannot be overestimated as every maternal death leaves orphans, every child born with low birth weight is at high risk both of chronic malnutrition and infant death, and all survivors among children of malnourished women, have higher morbidity. In general they also have a slower psycho-motor development and therefore difficulties in learning. Given the frequency of the problem, the national development of Cambodia is adversely affected.

There is a biological dimorphism between men and women. But most cultures, and Cambodia is no exception, have sought to increase the dimorphism by certain food taboos that impact on little girls, pubescent girls and adult women. Moreover misunderstandings of the physiology of pregnancy and childbirth and lactation have introduced rules to which women in reproductive age are subjected, that often produce negative effects.

- **Objective**

  Community leaders, health and social service workers and the community will be made aware through education which groups are nutritionally vulnerable. They will be able to identify these groups and then make plans on how to ensure that sufficient quantity and quality of food will reach them. This could be done through programs that focus on general poverty eradication and target these groups.

■ **Activities**

1. Community leaders, health and social service workers, and the community should be educated about those socio-economically deprived people, who may be at risk for malnutrition.

2. The aid of the above groups and the community should be enlisted, to plan measures to improve the nutrition of these people.

3. Programmes for general poverty eradication should be targeted to socially-economically deprived persons, at nutritional risk.

4. Instruction at all levels should take place on the importance of exclusive breast-feeding for 4-6 months with continued breast-feeding until the child is at least 18 months of age.

5. Instruction should also take place at all levels, on the importance and preparation of nutritionally adequate complementary foods to be given to infants, no later than when they are four to six months of age.

6. Women and men should be made aware through education programmes, that women need more and better food instead of less food, during pregnancy and lactation.

7. Special attention should be paid to the diets of school-age children, to ensure that their nutrient needs for growth are met.

8. The elderly and people with debilitating diseases, such as tuberculosis and leprosy, need to be encouraged to eat a nutritionally balanced diet, rather than restricting food intake, thus increasing their risk for nutrient deficiency diseases.

9. Current perceptions and practices in relation to food taboos should be clearly studied, before there is an attempt to correct them.

10. Sound nutritional knowledge about the needs of girls and women should be part of all formal and informal education; and should be taught in all primary and secondary schools as well as to all health workers and extension workers.

11. Pre-natal services and services for children should give special attention to the problems of nutrition of girls and women, without neglecting small boys, and systematically use this period to educate couples and the eventual mothers and mothers-in-law on the needs of girls and women.

12. Networks of Women's groups should undertake participatory education of women and girls, and encourage inter-generational communication on this issue.

13. As nutritional knowledge and family support will not be sufficient for many women, opportunities should be provided for income-generating activities or means to produce more food and more diversified food. (This will mean access to land, to inputs and to credit).

14. All women should be encouraged to have at least a 30 month space between each child. Malnourished women especially should be able to "rest", until they have recuperated nutritionally.

15. There should be institutional provision for food supplementation for malnourished girls and women and appropriate measures to support nutritionally poor women who have twins or more children.

16. The detection and treatment processes and programmes for female malnutrition need to be formalized, both during and outside of pregnancy.

3.6.1 Development of a Nutrition Programme for the Orphanages and Centers for Homeless Families and for Disabled People

There are some 20 orphanages throughout Cambodia, administered by the Ministry of Social Affairs, Labor and Veteran Affairs (MSALVA). They provide a home for about 2,200 children. Some of these orphanages also include a center for homeless families, who remain resident in the Centers from one to three months. The monthly allowance provided by the Ministry to cover food and other needs of residents in these institutions, is 13, 000 riels/month for men and women, and 12,000 riels/month for boys and girls (US$1=R2,500). The World Food Programme is currently providing supplies of rice, canned fish and oil as food assistance to the orphanages. Such support is likely to continue through to at least the end of 1996. This activity supports the mission of the Government to pay particular attention to the special needs of those who have suffered as a result of conflict, including orphans, the homeless and disabled people.

- **Specific Objectives**

To improve the nutrition status of children in orphanages, and families in homeless centers, particularly mothers and children, centers for disabled people; introduce a basic dietary regime to meet the nutritional needs of the children; and raise the awareness of nutritional issues and care among Government orphanage staff.

■ **Activities**

1. Conduct a survey to assess the prevalence of malnutrition in orphans, and food availability and nutritional value of meals in orphanages, rehabilitation centers, skills training centers for disabled people, health reoccupation centers administered by MSALVA.

2. Develop dietary standards for the feeding of children, according to age.

3. Train workshop for selected orphanage and MSALVA staff in nutritional care of children, nutrition monitoring and evaluation, and food security systems.

4. Incorporate the ration scales and feeding guidelines into the procedures and systems of the orphanages and health reoccupation centers for disabled people.

5. In collaboration with Agriculture Extension and Women in Development programme (MWA), establish institutional gardens and irrigation systems for the production of fruits vegetables and other crops and small animal husbandry.

6. Establish and implement a nutrition monitoring system to support development and growth of children.

7. Establish a nutrition and health programme for the homeless families, disabled people, in co-operation with the District/Commune health services.

8. Promoted caring for those who have re-fallen sick through providing them with treatment.

TARGET: Orphans, homeless families and disabled people

TIME FRAME: 1996-1998

Outputs

- Increased food security in orphanage system, including garden production.
- Improvement in food intake of children
- Improvement in growth pattern of children
- Improved nutrition and health status of homeless families and disabled peopie.

IMPLEMENTING INSTITUTIONS

- MSALVA (major implementing Ministry)
- Ministry of Health
- Ministry of Agriculture
- MWA
- UN agencies and NGOs

BUDGET ESTIMATE: US$ 175,000.00

This important issue of the National Plan for Action is also covered in a number of the other project outlines, for which the focus is on reaching the disadvantaged and most at risk groups. Attention is also drawn to the World Food Programme (Cambodia 5483102 (WIS No. KAM 548302) for rehabilitation to assist returnees, internally disabled persons and vulnerable groups. The components of the programme are:

- Rural Infrastructure development and employment creation
- Assistance to the Social Service sector
- Human resource development
- Rural credit schemes
- Emergency assistance
- Nutritional aspects
- Food rations and requirements.

3.7 Priority 7: *Controlling Micronutrient Deficiency*

Special emphasis should be given to controlling micronutrient malnutrition or " hidden hunger" in the Kingdom of Cambodia. A recent national survey has shown the rates of vitamin A deficiency to be six times higher than the WHO level for a significant public health problem. There are regional data that show that iodine deficiency disorders are a public health problem, and there are reported cases of goiter and possible subclinical cases throughout the rest of the nation. Iron deficiency anemia is highly prevalent especially in women and children, and in those areas of Cambodia where there is high incidence of malaria. Micronutrient malnutrition is an important problem for Cambodians because it affects not only health but their economic status and quality of life. Lack of adequate intake of micro nutrients affects children's learning capacity, creates disabilities, and decreases adults' work capacity. Livestock are also vulnerable to debilitating effects of iodine and vitamin A deficiency.

■ Activities

Vitamin A Deficiency (VAD)

1. Efforts should be made to increase the number of children and women

consuming an adequate amount of locally available vitamin A/beta carotene-rich foods through:

- increased community based food production employing improved home gardens/animal husbandry/food preservation techniques;
- particular attention to improved water conservation and irrigation to extend dry season home gardening;
- community nutrition education and social marketing techniques to increase the consumption of locally available vitamin A/beta carotene-rich foods; and
- greater production of oil seed crops and promotion of consumption of edible oils by children and women.

2. Vitamin A capsule distribution for prevention should be undertaken in vitamin A deficiency areas. This can be done in a variety of ways, including:

   - National Immunization Days;
   - normal immunization contacts such as for measles vaccine; and
   - special distribution through primary eye care.

3. Vitamin A capsules should be available in essential drug kits for clinics at all levels for treatment of vitamin A deficiency (xerophthalmia), and other illnesses associated with vitamin A deficiency such as measles, malnutrition, severe diarrhea, and acute respiratory infection.

4. All health workers should be trained in the identification, treatment, and prevention of vitamin A deficiency as specified by the National vitamin A policy. Other community development workers and school teachers also should be trained in identification and prevention of vitamin A deficiency.

5. Strengthening of measles vaccination program should continue.

6. Quick and inexpensive ways of monitoring the vitamin A deficiency situation and program coverage, should be devised, then enacted with the cooperation of government and other organizations.

Iodine Deficiency Disorders (IDD)

Iodine deficiency has been acknowledged to be a problem in North-eastern Cambodia but there are indications of its existence in other parts as well, particularly the South. Iodine deficiency affects people's health in several ways, especially in regard to mental development, childhood mortality, and reproductive failure. It is the leading cause of preventable mental retardation.

IDD affects the economy because people become less vigorous and mentally slower. They are harder to teach and less productive. Those that are mentally disabled become a burden to their families and the community. Also animals suffer from IDD producing smaller offspring and having more stillbirths.

- **Activities**

7. Since IDD control is a new intervention for Cambodia, external advice should be sought, and an analysis of the situation undertaken.

8. Following the situation analysis, a plan for iodine fortification and education should begin. Usually salt is the best means for addition of iodine due to its use by every section of society and its relatively cheap price. Other forms for fortification should be considered, such as iodination of drinking water in schools.

9. Salt fortification should be supported by legislation, so that all imported and domestically produced salt is iodized.

10. Regular testing and monitoring of salt iodization production should be undertaken. Market coverage should also be monitored and evaluated. Rapid assessments of the goiter rates of school-aged children should be considered.

11. Government or other organizations should give a commitment to subsidize the cost of the iodization of salt, market forces and demand lead the private sector to decide to bear the full price of the iodized salt production. (Social marketing could help accelerate the pace for this process).

12. Research should be undertaken to determine the feasibility of fortifying other traditional foods with iodine in regard to acceptability, consumption and iodine stability.

13. Education on iodine deficiency disorders for all community sectors and training for health workers should be provided.

14. Iodized oil capsules for women of child-bearing age should still be available for those living in remote IDD areas until iodized salt consistently reaches their area.

15. Iodized oil capsules should be provided for treatment of those with goiter, especially women of child-bearing age and children.

Iron Deficiency Anemia (IDA)

Iron deficiency anemia is probably the most prevalent of the micronutrient deficiencies, but also the hardest problem to solve. Children and adults, who are deficient in iron, have a harder time learning, working, and even breathing. Some may even die, due to IDA, especially women during child-birth. Iron deficiency anemia is also a special concern for Cambodia because of the prevalence of malaria. Malaria often causes severe iron deficiency anemia, that can result in death.

- **Activities**

16. Community production and consumption of foods rich in iron, should be increased. As the iron in plant foods is less bio-available than that in animal sources, simple animal husbandry solutions should be sought to produce more cheap animal foods rich in iron, such as incorporating fish ponds into family gardens.

17. Nutrition education should be provided to promote iron-rich foods, particularly for women. The use of fruits and vegetables rich in vitamin C, should be encouraged in order to increase absorption of iron.

18. All pregnant women should be encouraged to attend antenatal sessions, where they should receive iron supplements as prescribed by the National MCH Center guidelines.

19. Health workers and other community development workers should be trained to identify clinical signs of iron deficiency anemia, and how to treat and prevent this condition.

20. Iron tablets should be available at clinics at all levels for treatment of those with anemia, especially women and children.

21. Sanitation and personal hygiene education should be strongly encouraged and expanded throughout Cambodia. This should be accompanied by the promotion of latrine building and their use. A leading cause of iron deficiency anemia in children is hookworm infection that can be prevented through hand-washing and proper use of latrines.

22. As malaria causes many people including adult males to become iron deficient, the current malaria control efforts should be continued and expanded to reduce the amount of deaths and possible stillbirths, associated with iron deficiency anemia.

- **Objective**

Control programs for all three major micronutrient deficiencies should be strengthened and expanded with the goal of reducing vitamin A deficiency to under 1% in known deficient areas making iodized salt or other fortified products available to most Cambodians especially those in iodine deficient areas and reducing iron deficiency anemia in women and children.

3.7.1 Virtual Elimination of Vitamin A Deficiency

This activity supports the target of the Government for the virtual elimination of vitamin A deficiency by the Year 2000. The minimum package of activities to be made available at every health center and district hospital, includes the prevention of vitamin A deficiency. A national vitamin A policy and plan of action has been developed by the National Maternal and Child Health Center and the Ministry of Health to implement a three-year programme (1995-97). The programme components are administration of vitamin A capsules to infants 6-12 months (100,000 IU every 3-6 months), children 1-6 years (200,000 IU every 3-6 months) and lactating mothers (200,000 IU once within 2 months of delivery); training of trainers; nutrition education; and promotion of breast-feeding, with associated programmes on home garden production.

The current program has now been delivered to 15 Provinces, primarily involving the national bodies in training at Provincial level, and the provision of vitamin A capsules. Through the Health system, the capsules are distributed during the second National Immunization Day (NIDS), held in March in 1995, and then at the time that non-polio immunizations are given to infants and children. Vitamin A capsules are included in the essential drug kits for Provinces and Districts. Achievement of the target for the Year 2000 will mainly depend on an adequate supply of vitamin A capsules and an effective system for their distribution, together with the implementation of a household garden programme and improvement in household food security.

- **Specific Objectives**

To ensure that all children have access to an adequate intake of vitamin A, particularly from dietary sources; and there are virtually no new cases of irreversible blindness or other ocular manifestations of vitamin A.

- **Activities**

1. Extend the existing training component of the vitamin A programme to cover all provinces.

2. Continue to combine the provision of one vitamin A capsule with the NIDs and other immunization programmes.

3. Conduct surveys to monitor the prevalence and high risk areas of vitamin A deficiency.

4. Extend the vitamin A capsule programme at commune and village. level as a component of the delivery of health services, and as these services are progressed to cover commune and village levels, support with nutrition education about a healthy diet and dietary sources of carotene and vitamin A.

5. Collaborate with Women in Development (MWA) and Agriculture Extension programmes to promote home gardening/small animal husbandry/food preservation to increase availability and consumption of vitamin A/beta-carotene-rich foods through community education and dissemination campaign.

TARGET: Mainly children under 6 years and new mothers.

TIME FRAME: 1995-2000

Outputs

- Increase in percentage of children given vitamin A capsules on national immunization days.
- Increase in percentage of health services providing a capsule programme, preferably with immunization.
- Number (%) of trained personnel.
- Number of communities, educated in nutrition and home garden production.
- Greater production and consumption of carotene and vitamin-rich foods.

IMPLEMENTING INSTITUTIONS

- Ministry of Health
- National Maternal and Child Health Center
- Ministry of Agriculture, Forests and Fisheries
- Ministry of Women's Affairs
- UN agencies and NGOs.

BUDGET ESTIMATE: US$ 950,000.00

3.7.2 Iodine Deficiency Disorders Control

In 1990, a survey carried out in Ratanakiri Province indicated a prevalence of 21 percent of goitre in a 6-12 years-old population (N=14,101). Recently in October 1995, a short assessment in primary school-children (N=223) in a suburb of Phnom Penh revealed a

rate of goitre of 20.4 percent. The total salt production in Cambodia is around 80,000 tones per year and covers the needs of the population. The salt production is localized in Kampot province and processed for human consumption in the country.

- **Specific Objectives**

The elimination of iodine deficiency disorders (IDD) by: a) the progressive universal salt iodization for human and animal consumption; and b) iodine supplementation during an interim period of two years, 1996-1998.

- **Activities**

1. *Monitoring and evaluation*

   - national IDD survey including clinical signs and KAP for baseline data, identification of most at-risk provinces for further evaluation, and for the design of the marketing campaign;
   - survey on salt production and commercialization.

2. *Supply and equipment*

   - supply of iodate of potassium, iodized oil capsules, salt mixing machine, plastic bags and test kits.

3. *Education and social communication*

   - social marketing campaign on iodized salt consumption;
   - production of education material.

4. *Interim period*

   - supplementation of iodized oil capsules for all primary school children and child-bearing women in provinces where the goitre rate exceeds 30 percent;
   - alternative experimentation and further evaluation of iodization of drinking water at schools.

TIME FRAME: 1996-2000

IMPLEMENTING INSTITUTIONS

- Ministry of Health
- Ministry of Industry, Mines and Energy .
- Sub-committee for IDD control of National Council on Food and Nutrition

(coordinator).

BUDGET: US$ 830,000.00

3.7.3 Reduction of Iron Deficiency Anemia, in Women of Reproductive Age

Iron deficiency anemia is considered to be one of the causes of the high maternal mortality rate in Cambodia (estimated as 650 per 100,000 births). Prevention of anemia in pregnant women is included in the Minimum Package of Activities to be made available in the health services to be provided at every health center and referral service. Few data are available on the prevalence of iron deficiency anemia in the country, although it is considered to be high, particularly among women who are poor. Although iron and folic acid supplements are provided to some mothers within the limited MCH services now provided, there is no overall planned programme for the reduction of iron deficiency anemia in Cambodia, as for vitamin A deficiency and iodine deficiency disorders.

- **Specific Objectives**

Improve the nutritional status of mothers and their infants by iron supplementation, especially during pregnancy, improve the nutritional quality of their diets, and reduce the risk of maternal mortality.

- **Activities**

1. Establish some baseline data on the prevalence of iron deficiency in pregnant mothers, through a survey in some sentinel communes.

2. Develop a national plan of action to reduce iron deficiency anemia in mothers, including a schedule for iron and folic acid supplementation of women during pregnancy, and simple methodology for assessing hemoglobin status at commune level.

3. Conduct a workshop to review proposed national plan of action for iron deficiency anemia.

4. Provide iron and folic acid supplements for distribution through commune health centers and referral hospitals.

5. Train health service personnel for primary health care delivery of the iron deficiency programme.

6. Introduce health education about consumption of foods with a good iron content to improve the nutrient content of diets, based on home garden

production of the foods.

7. Collaborate with Women in Development (MWA) and Agriculture Extension programmes to promote home gardening/small-scale animal husbandry/food preservation to increase availability and consumption of iron-rich foods through community education and social marketing.

TARGET: Women of reproductive age (15-49 years) and their infants

TIME FRAME: 1996-2000

Outputs

- Increase in percentage of pregnant women receiving iron and folic acid supplements in health service delivery at commune centers.
- Decrease in percentage of pregnant women with hemoglobin levels < 11 g/dl.
- Decrease in the percentage of women (aged 15-49 years) with hemoglobin < 12g/dl.
- Increased production and consumption of iron-rich foods.

IMPLEMENTING INSTITUTIONS

- ✦ Ministry of Health
- ✦ National Center for Maternal and Child Health
- ✦ Department of Agriculture Extension
- ✦ MWA
- ✦ UN agencies and NGOs

BUDGET ESTIMATE: US$ 1,200,000.00

3.8 Priority 8: *Promoting Appropriate Diets and Healthy Lifestyles through Nutrition Education*

Increased production and availability of quality food is not enough in itself to ensure good nutrition. People need to have education to promote the proper use of foods which will sustain normal health. This means investigating what are peoples' useful and harmful practices with respect to food consumption, preparation and production, and socio-cultural beliefs that either promote or hinder good nutrition. It is important to remember that education is needed for every group: for the disadvantaged to increase their consumption of an adequate amount of food: and for those who are better off financially, who also need to know the dangers of improper or over nutrition. Nutrition education should not be limited to just use of the media but include practical demonstrations on how to produce, prepare, preserve, and store food in a safe and beneficial manner.

■ Objective

Nutrition education programs appropriate to Cambodian nutrition problems socio-economic situations and customs should be designed and then implemented throughout the country.

■ Activities

1. Nutrition education should be a systematic part of training for all workers involved with nutrition. This should involve training in how to develop and provide effective nutrition education through participatory methods, media, and other communication methods. Training of nutrition educators in developing useful messages should involve the following:

   - researching the causes of nutrition problems including socio-cultural practices or beliefs;
   - deciding on what will be the best way of presenting the nutrition education messages for each group;
   - practical training in the use of different approaches such as participatory group education, print, mass media and drama;
   - pre-testing messages and materials to evaluate their appropriateness and effectiveness with their audiences; and
   - evaluation of techniques for further planning of nutrition education interventions.

2. A nutrition education network should be established, linking central, provincial, district, and village levels, and funds should be available for nutrition activities at all these levels.

3. Nutrition education should be provided in a variety of ways such as interpersonal consulting, home visits, group education, classes at health centers or hospitals, posters, printed material, cartoons, and mass media.

4. Traditional means of education should be utilized such as folk stories, dramas, songs, painting, shadow puppets, and kites.

5. Community leaders, religious leaders, media personalities, women, traditional healers, and traditional birth attendants, and other influential members of Cambodian society should be encouraged to participate in or support nutrition education activities.

6. Nutrition education should be incorporated into the national education curriculum for training of children and young adults as they will be the future mothers and fathers, who will in turn be responsible for the nutrition

of their families.

5.8.1 National Community Campaign to Promote Healthy Diets

There is little understanding in the community of the relationship between food and health and the need to diversify the diet to meet the essential requirements for energy, protein and vitamins and minerals. While many Cambodians do not have enough to eat even in terms of the energy content of their diets, even for those who do there is an excessive dependence on rice. Rice is estimated to provide over 70 percent of the calories/kilojoules in the Cambodian diet. A national diet campaign would support the other activities of Government programmes, including health education services to be provided through primary health care and the nutrition component of the promotion of household gardens through agriculture extension and the Women in Development programme of Women's Affairs. The campaign would have the advantage of reaching those communities yet to be the recipient of health services or agriculture extension.

- **Specific Objectives**

To promote understanding of the relationship between diet and health; and promote the consumption of a nutritious diet, including the diversification of the diet.

- **Activities**

1. Develop and test a simple series of brief nutrition messages about the need to have a varied diet each day to promote well-being.

2. The messages should be based on the existing food group plan already used in health education in Cambodia.

3. Adapt and evaluate messages for food diversification and the food group plan for disseminating as brochures, posters, on radio, video and TV.

4. Plan, implement and evaluate a pilot mass media programme, based on social marketing techniques.

5. Expand the programme through the community networks of Women's Affairs, health services, agriculture extension, schools, youth and sport clubs etc.

6. Evaluate the effectiveness of campaign.

TARGET: The whole community, especially rural people

TIME FRAME: 1996-1997

Outputs

- Increased home-garden production of foods
- Increased consumption of vegetables and fruits and non-red meat foods.

IMPLEMENTING INSTITUTIONS

- Ministry of Health
- Ministry of Agriculture, Forests and Fisheries
- Ministry of Women's Affairs
- Ministry of Rural Development
- Ministry of Education, Youth and Sports
- Ministry of Information

BUDGET: US$ 450,000.00

3.8.2 Incorporating Nutrition into the National Education Curriculum for Formal and Non-formal Education

Formal and non-formal education programmes of the Ministry of Education, Youth and Sports should provide an important strategy to provide education on nutrition and a healthy lifestyle to the community, particularly for children of lowland and remote areas, women who are illiterate, and other disadvantaged groups. This activity will involve establishing a link between the National Institute of Education Research and the implementing process of the National Plan of Action for Nutrition. The Institute is finalizing the first draft of the primary school curriculum, which it will be evaluating in the field over the next six months. There are four subjects included in this curriculum and nutrition and health are included under the subject of Social Sciences. A local group has been working on the curriculum with nutrition covered by a sub-group of the Social Sciences working -group, considering community issues.

- **Specific Objectives**

To establish links between the curriculum development activities of the Ministry of Health and the NPAN; to promote good nutritional practices through an effective nutrition component, firstly in the primary and then in the development of the secondary school curriculum and in pre-service and in-service training of teachers.

■ **Activities**

1. Review the nutrition component in the Social Sciences subject in the primary school curriculum.

2. Participate in the field evaluation of the primary school curriculum.

3. Contribute to the development of a nutrition component in the curriculum for secondary schools.

4. Contribute to the development of textbooks and teacher guides for nutrition teaching and to the incorporation of nutrition into pre-service and in-service training of teachers.

5. Provide support for the continuing activities of the school-gardens programme.

TARGET: Children of school age and their families

TIME FRAME: 1996-1998

Outputs

- Inclusion of an effective nutrition component in the primary and secondary school curriculum.
- Development of adequate textbooks and teachers' guides for primary and secondary education.
- Inclusion of a nutrition component in the training of school-teachers.
- Increase in the number of schools with vegetable and fruit gardens.
- Participation of the education sector in the implementation process of the NPAN.

IMPLEMENTING INSTITUTIONS

- ✦ Ministry of Education
- ✦ Ministry of Health
- ✦ Department of Agricultural Technical Extension
- ✦ Offices of Women's Affairs
- ✦ UN Agencies and NGOs

BUDGET: US$ 90,000.00

3.9 Priority 9: *Operational Research, Assessment, Analysis and Monitoring of the Nutritional Situation*

To date, the only nutrition surveys undertaken in Cambodia are those conducted in response to specific situations and for short-term project needs. There is growing recognition that data bases must be available on the prevalence of nutrient deficiencies and on food and nutrient availability for effective program implementation. Programme managers should ensure that baseline data are available to measure progress and evaluate projects, no matter how small.

Given available resources, the collection of food intake data during small surveys may continue to be the only method of assessing nutrient intakes. However, future surveys should all use the same methodology. One way of ensuring this is for the Government to require all international agencies, non-government organizations (NGOs) and any academic or other research organizations to have survey methodology approved by a National Council on Food and Nutrition.

The Government is presently planning a series of national surveys to obtain a range of information, including indicators of socio-economic status and household expenditure. These surveys may provide an avenue for collecting some national nutrition data, e.g. on anthropometric data and breast-feeding practices.

- **Activities**

  I. Appropriate indicators of nutritional status should be agreed and used consistently in surveys, so that data can be collected using standardized and valid methods. Such surveys can also monitor social and economic progress, as well as nutritional well-being.

  2. As soon as appropriate and no later than the year 2000, a monitoring system should be established to provide regular information on the population's nutritional status and the factors affecting it. Such monitoring should be targeted to vulnerable groups, and information collected should be provided to policy makers and planners and all interested sectors, both private and public for follow-up.

  3. As a priority, Cambodia should develop the capacity to conceive and execute essential operational research in nutrition. Many questions about causal factors of malnutrition, their nature and their importance as well as their cultural and political "fit" can so far only be conjectured.

4. The most effective methods of communication and the credibility of communicators with different groups in Cambodian society should be researched.

5. Both the methodological capacity to undertake research, and the institutional capacity to raise the issues that need resolution through research, should be developed.

6. National monitoring of nutritional status should be coordinated by the National Institute of Statistics.

3.9.1 Assessment of the Nutritional Situation and Food Consumption

The National Institute of Statistics of the Ministry of Planning carried out the first Socio-Economic Survey of Cambodia (SESC) in 1993-94, sponsored by the Asian Development Bank (ADB) and UNDP. The SESC covered 15 out of 21 Provinces, about 80 percent of the total population. It was carried out in four rounds to capture the effect of seasonality. A two-stage stratified random sampling design was adopted with villages as the primary sampling units and households as secondary sampling units. The results of the first round (N=1,327) were published in August 1994. The results of the four rounds (N=5,578) were available in November 1995.

The questionnaire developed for the SESC assesses demographic, housing, household expenditure and income characteristics, but not nutritional status. Presently, the National Institute of Statistics is conducting a second Socio-Economic Survey of Cambodia which will be partially funded by the ADB. The proposed activity consists of incorporating a nutrition module in the second SESC with the general objective of assessing the nutrition situation of children and adults, and feeding practices, mainly of children under two years of age.

- **Specific Objectives**

  - to establish baseline data for the monitoring and the evaluation of the nutrition goals of the NPAN;
  - to identify household characteristics associated with risk of malnutrition;
  - to assess the average energy requirement;
  - to upgrade the skill of the technical staff of the Ministry of Planning and other concerned Ministries, on nutrition data collection and analysis;
  - to contribute to the formulation and evaluation of household food security activities.

■ **Activities**

1. *Survey preparation*
   - elaboration of a questionnaire including anthropometrical data on children, adolescents and adults, breast-feeding and weaning food practices, and appropriate questions on infant mortality;
   - elaboration of a data bank, data processing plan and tables of data association;
   - supply of scales, length/height measuring apparatus, software and personal computer equipment.

2. *Human resource development*
   - training on data collection, including anthropometrical measurements (WHO guidelines), data processing (FAO/WHO software for nutrition indicators), and data analysis (statistical software such as EPI-INFO).

3. *Survey implementation*
   - data collection : two rounds of field data gathering in association with the second round (April-May 1996), and the fourth round (November 1996) of the second SESC;
   - data processing and checking;
   - data analysis: uni- and multi-variate analysis, measurement of the seasonality.

4. *Information and communication*
   - drafting the survey documents and introduction;
   - conduct of workshop to present and provide comment on the food and nutrition situation assessment;
   - broad communication of the results of the survey.

5. *Technical assistance*
   - technical assistance is required in nutrition and computerized analysis.

TIME FRAME: 1996-1997

IMPLEMENTING INSTITUTIONS

- ✦ Institute of Statistics of the Ministry of Planning
- ✦ Ministry of Women's Affairs
- ✦ Ministry of Health.

BUDGET: US$ 171,000.00

3.10 Priority 10: *Water Development for Household Consumption and Irrigation*

The access to safe water is among one of the most urgent needs of the population. It is a necessary condition for the improvement of living conditions. An adequate water supply is available for around 35 percent of the total population and only for one-fourth (26%) of the rural population. The lack of water during the dry season is also a serious constraint for the diversification of food crops production into small plots and home gardens.

Clean water supply and water resources management for small irrigation schemes are essential components for development of, and poverty reduction in, the rural population.

The thrust of the rural development strategy is to enhance the capacity of the community to take a lead in their own development and in achieving basic social and economic goals. The selection of appropriate and sustainable technologies is also an element for the success of this strategy. The rural communities have to be able to manage and maintain water resources systems. For the NPAN, the access to water for drinking and small irrigation is not a separate activity, and it is an integrated element of rural community development.

In Section 3.2 "Improving household food security", the water component is fully integrated in the activity "Community actions for rural development", coordinated by the Ministry of Rural Development.

In Section 3.6 "Caring for the socio-economically deprived and nutritionally vulnerable", a water component is also included in activities, targeting vulnerable groups. The Ministry of Agriculture and the Cambodian Red Cross are implementing a "Rural Infrastructure Development and Employment creation" project, that stresses the participatory approach. This project encourages villagers to identify their own priorities and to organize the implementation of the activities. Water development for household consumption and irrigation receives the support of the WFP through "food for work" aid. Several local NGOs are also associated with this activity, with promotion of the same spirit of community ownership.

Poor water supply accounts for a high percentage of child deaths in Cambodia. Improvement of household water supply will contribute to the decrease of diseases by reducing transmission of and exposure to pathogens. Children repeatedly infected with malaria, diarrhea and intestinal parasites fail to grow normally. They become prone to more infection with increasingly serious consequences, the outcome of which is either death or stunted development. In addition, the burden of water collection which falls mainly on women and girls, contributes to maternal malnutrition and reduced opportunities for income generation. Food production depends on small-scale irrigation for additional water supply especially in the dry season.

The Ministry of Rural Development is responsible for coordination and implementation of programmes and activities to improve drinking water. It has developed general guidelines which should assist in improving access of families to safe and adequate water supply.

- **Objective**

To improve access to water for household purposes and irrigation using community participation and measures that are suitable technically and economically to the specific environment.

- **Activities**

1. The recommendation for drinking water as stated by United Nation Water and Sanitation Decade (1981- 1990, now extended to the year 2000), should be implemented, so that water quality conforms to the international standard.

2. Technologies used should be appropriate, culturally relevant, affordable and meet the needs of the beneficiaries, with emphasis on the traditional ways of conserving water.

3. Technologies should be selected, that are locally adoptable.

4. The service delivery and monitoring of water supplies, should include the village level.

5. Cost-sharing and recovery should be promoted, with consideration of the ability of the poor to pay.

6. Community involvement should be an essential element for sustainable water resource utilization.

7. Pilot projects should be undertaken on cost-effective approaches, including participation and management by the community, inter-sectoral linkages and dissemination of learning experiences.

8. Capacity-building in the water section should include health as well as technical expertise.

9. Achievement of water supply coverage should continue to be accelerated.

3.11 Priority 11: *Institutional Feeding*

There are certain institutions run by the government which are responsible for providing food for people residing in those places. These institutions include hospitals, orphanages and prisons, etc. Sufficient quantity and quality of food for each patient or resident should be provided everyday.

Hospitals. in particular, need to have provisions for special feeding programmes for such nutrition-related diseases as malnutrition, micronutrient/vitamin deficiencies, diabetes. hypertension/oedema/kidney diseases, tuberculosis, and for post-operative diets. In the case of malnutrition, mothers of children in the recovery phase should be instructed in the preparation of suitable children's food.

■ Objective

Every government institution in Cambodia where people are resident should provide food of adequate quantity and quality to insure the health of the institution residents.

■ Activities

1. Particular attention needs to be given to the development of minimum levels of energy, and macro- and micro-nutrients in the diets of patients and institutional residents, both adults and children and for pregnant and lactating women.

2. There needs to be protocols developed and implemented by the Ministry of Health for therapeutic diets and for other special feeding programmes, such as for malnourished children.

3. Herbs should be grown at the hospital compounds in order to substitute for salt or sugar or other prohibited ingredients for patients with specific condition, requiring special diets.

4. Every institution with a feeding responsibility should presents an important opportunity for promoting good nutrition of the patient or resident and for nutrition education and therefore the food served should be of good nutritional quality, affordable by most people. There should be institutional gardens to provide an additional source of fresh vegetables and fruits, and sanitary cooking facilities in order to demonstrate good nutrition practices and preparation.

3.11.1 Review and Update of the Diet Regimes for Patients in Hospitals

This activity provides an opportunity to improve the nutrition of hospital patients, who are disadvantaged through sickness, and include many who have suffered through conflict. This activity supports the mission of the Government to pay particular attention to the special health needs of the disadvantaged, because in many cases hospital patients are both nutritionally vulnerable and socio-economically deprived. The provision of good nutrition during hospitalization should significantly aid recovery and reduce length of stay in the institution. The feeding of hospital patients is assisted by the provision of rice, oil and canned fish by the World Food Programme with likely extension through 1996.

- **Specific Objectives**

To improve the quality of food available for dietary treatment of patients in hospitals; to improve their nutrition status; to aid recovery; and reduce length of hospitalization.

- **Activities**

1. Review the present hospital regimes for therapeutic diets and for other special feeding programmes, such as malnourished children in one maternity and one pediatric hospitals and 1-2 referral hospitals at Provincial and District level.

2. Develop a basic manual of appropriate diets, in regard to the foods and their quantities to be included and their nutritional value.

3. Train health staff in the delivery of nutrition services, e.g. use of basic diet manual.

4. Promote good nutrition to patients through education.

5. Develop institutional gardens to provide fresh fruit and vegetables for hospital meals.

TARGET: Hospital staff and patients

TIME FRAME: 1996-1997

Outputs

- Improvement in the dietary treatment of patients
- Increased nutrition knowledge of nursing staff

IMPLEMENTING INSTITUTIONS

- Ministry of Health
- National Maternal and Child Health Center
- Department of Agricultural Technical Extension
- UN Agencies and NGOs

BUDGET: US$ 40,000.00

3.12 Priority 12: *Human Resource Development in the Ministry of Health*

There is an urgent need to train some Cambodians in the specialty of nutrition. At present there are no professionally trained nutritionists in the Government. Some medical officers in the National Maternal and Child Health Center have undertaken short-term courses in nutrition in such countries as Thailand and Indonesia. However, such short-term training cannot provide the needed expertise for the implementation of the National Plan of Action for Nutrition, the development and implementation of sectoral nutrition activities, or for nutrition training of health workers.

There should be at least two professionally-trained specialist nutritionists in the Ministry of Health, one attached to the National Center for Maternal and Child Health and the other one located within the main Ministry of Health to work with the Department of Planning and Statistics, the programme to establish basic health services and the programmes on specific disease prevention and control. The Ministry of Health together with the Ministry of Agriculture, Forestry and Fisheries will be the lead agency in the implementation of the NPAN, in collaboration with other concerned Ministries and agencies in order to improve the nutrition status of the community. Short-term specialist courses also need to be provided for other officers in the MOH to provide specialist training for nutrition activities. Local medical training would generally provide a suitable but not exclusive education background for selection of candidates for overseas training.

Human resource development in nutrition is also important to support the needed pre-service and in-service training of other health workers to implement the nutrition-based initiatives of the Government, including the nutrition activities in the Minimum Package of Activities, to be delivered in the health services programme.

■ Specific Objectives

To increase the specialist nutrition capacity in the Ministry of Health

■ Activities

1. Provide two overseas fellowships for officers in the Ministry of Health to undertake a Master's Degree in Nutrition.

2. Provide three short-term fellowships for officers to undertake courses, e.g. in nutrition epidemiology, iron deficiency programmes and nutrition education.
3. Review and revise nutrition content and teaching methodology in the training programmes of health workers for both in-service and pre-service training, including the courses of the National Maternal and Child Health Center, and the National Institute of Public Health.

TARGET: Officers in the MOH

TIME FRAME: 1996-1998

Outcomes

1. Two professionally trained nutritionists available to work in the MOH in 1997-98.
2. Three short-term overseas courses provided for nutrition training of MOH staff.
3. Provision of adequate level of in-service and pre-service training in nutrition.

IMPLEMENTING INSTITUTIONS

- Ministry of Health
- UN Agencies
- Bilateral donors

BUDGET ESTIMATE: US$ 410,000.00

APPENDIX 1

Chart 1: Nutrition surveys in Cambodia, 1983-1994

YEAR	AGE/SIZE NO.	DISTRICT/PROVINCE	METHOD	%	FINDING/COMMENTS	AGENCY
1983	0-13(m) 1418	7 food deficit provinces.	Wx100/ HxH	60	High prevalence of moderate and severe malnutrition.	FAO (?)
1986	N/A	Phnom Penh	H/A W/H	20.1 2.6	There had been an improvement since an earlier survey in 1983.	Enfants-Cambodge/ UNICEF
1991	0-5 (y) 177	Kandal stung Kandal	W/A H/A W/A	57.6 25.8 12.7	High percentage of underweight. Stunting is more prominent in older children.	WVI
1991	6-59 (m) 337	3 Sites in Kompong Thom	W/H	5.1 5.2 8.7		MSF/HB
1991	6-59 (m) 2962	25 IDP's sites in 9 provinces	W/H	1.4 to 20.6	Alarming nutritional problem in 2 sites (20.6% & 20.3%)	MOH/ UNICEF/ NGO's
1991	0-60 (m) 576	Oudong Kompong Speu	W/A H/A W/H	59 38 8	Wasting Worse in period 6 months to 3 years	PMI/WVI
1991	0-5 (Y) 203	Kop Sreou resettlement Kompong Speu	W/A H/A W/H	63 42 6.5		Concern
1991	6-59 (m) 783	6 districts Svay Rieng	W/A* H/A* W/H*	51.2 62.1 6.6	High prevalence of stunting continue to deteriorate after weaning age group. Prevalence of wasting is higher in the weaning age group.	MSF/HB
1992	0-5 (Y) 113	Prey Veng Prey Veng	W/A H/A W/H	60.1 27.3 6.1	Sample size too small to be significant.	COR
1993	12-71 (m) 320	Srok Mean Chey Phnom Penh	MUAC	10		Servants
1993	0-5 (Y) 1005	Samrong Tong Kompong Speu	W/H	4.6	Malnutrition affect the 13-36 months old children	Concern
1993	6-59 (m) 595	Stung Mean Chey Phnom Penh	W/H	4.4		Enfant du Cambodge
1993 - 1994	0-60 (m) 554	4 provinces	W/A* H/A* W/H*	43.1 39.8 42.3 38.4 8.9 7.6	High prevalence of malnutrition. Seasonal differences in nutritional situation.	UNICEF

YEAR	AGE/SIZE NO.	DISTRICT/PROVINCE	METHOD	%	FINDING/COMMENTS	AGENCY
1993	0-36 (m) 346	Ratanak Mondol Battambang	W/H*	6.0	Sample is displaced children.	WVI/MSF
1994	6-60 (m) 529	Ratanak Mondol Battambang	W/H*	12	High prevalence. Deterioration from the last survey in 1993	WVI/MSF
1994	703	Chul Kiri & Kp. Leng Kg. Chhnang	MUAC	16.9		IRC
1994	945	Banteay Meanchey	W/H	18.9	High prevalence among displaced children	MSF/HB

(m): months (y) : years
W/A: Weight for Age H/A: Height for Age
W/H: Weight for Height MUAC: Mid Upper Arm Circumference

* The cut off point was used less than - 2SD. The others' cut off points were used less than 80% of weight for age, 90% of height for age and 80 iþ of weight for height.

* The cut off point of MUAC was used less than cm.

Chart 2: Vitamin A Deficiency surveys in Cambodia, 1990-1995

YEAR	DISTRICT PROVINCE	SIR. SIZE	VAD RESULTS	COMMENTS	AGENCY
3/90	Phnom Penh Hospital	1446	.5% Corneal ulcers	Sample size too small. Only hospital based.	MOH
5/91	Ondong Kandal	576	.3% Night Blindness .1% Bitot's spots	Sample size too small.	WVI/MOH
12/92	Svay Tiap Svay Rieng	540	4% Night Blindness	Sample size too small. Children do not eat VA rich foods regularly.	IMC
5-8/93	Takeo, Ratanakiri, Kompong Thom, Koh Kong, Phnom Penh	10116	5.6% Night Blindness .6% Bitot's spots .05% Corneal Xeroisis Ulcer .19% Corneal Scaring	sample size valid. 1124 families show low consumption of VA rich food.	HKI/MOH
8/93	Banan & Bavel Battambang	1662	2.9% Night Blindness	Sample size valid	CRS
9/93	Stung Meanchey Phnom Penh	595	2% Night Blindness rate in P.P		Enfant du Cambodge
2/94	Preah Sdach Prey Veng	541	6% Night Blindness	sample size too small. Low consumption of VA foods	CONCERN
3/94	Cheung Prey Kompong Cham	550	10+% Night Blindness	Sample size too small. Low consumption of VA foods	SCF-Aust.
3/94	Somrong Takeo	1204	5% Night Blindness	Validated with night blindness	HKI/EDC/ MOH
3/94	Chul Kiri & Kg. Leng Kg. Chnnang	703	5.8% Night Blindness	Sample size too small Low consumption of VA foods	IRC
9/94	Treand & Somrong Takeo	2230	12.3% Night Blindness .3% Bitot's spots .3% Corneal Xerosis .04% Corneal Ulcer .9% Corneal Scar	An eye care screening. Sample size valid for night blindness	
8/94	Banteay Meanchey	586	6.0% Night blindness 2.9% Conj.Xerosis 1.4% Bitot's spots .17% Kelatomaracia	Universal sample of Displaced Children	MSF/HB Help-age
2/95	Pon Nhea Leu, Kandal	800	4.3% Night blindness	A screening Suggests VAD Problem	Goal/MOH

APPENDIX 2

CHART 3: CONCEPTUAL FRAMEWORK OF CAUSES OF MALNUTRITION