

# **MALNUTRITION IN SAARC : A REGIONAL PERSPECTIVE**

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C E R T I F I C A T E

Certified that the dissertation entitled,  
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her original work and has not been submitted for the  
award of any other degree of this University or any  
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CHAPTER 1

INTRODUCTION

- 1.1 APPROACHES TO HUNGER AND MALNUTRITION
- 1.2 LITERATURE SURVEY
- 1.3 OBJECTIVES
- 1.4 SOURCES OF INFORMATION AND METHODOLOGY

## CHAPTER 1

### INTRODUCTION

Among the various socio-economic problems which the societies confronting today, the problem of hunger and malnutrition is the most perplexed one. Although, the problem of malnutrition is omnipresent around the globe, it is found to the greatest extent where poverty is the rule and where ignorance and superstitions are rampant. In other words, the problem of undernutrition is widely prevalent in the underdeveloped countries than in the developed ones.

Malnutrition is fundamentally, a manifestation of underdevelopment, poverty and inadequate food supply. There exists a close association between them. With the rapid population growth and the growing poverty and unemployment, the extent of malnutrition has been further aggravated in the developing world. In contrast, the developed countries are encountered with the problem of overnutrition i.e. a condition resulting from the consumption of excessive quantity of food.

The concept of malnutrition simply refers to "a pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients."<sup>1</sup> Undernutrition and overnutrition are thus two different forms of malnutrition. The problem of malnutrition implies an imbalance in nutrition rather than a lack of quantity. Undernutrition is defined as "an inadequacy in the quantity of a diet specifically lack of calories"<sup>2</sup>. A malnourished person may not

feel hungry and may even eat too much but, like the undernourished person, may still suffer from such dietary diseases as Vitamin A deficiency, iron deficiency, or iodine deficiency. The term hunger or starvation is an acute and persistent condition of undernutrition that causes physical discomfort and pain.<sup>3</sup> All those who are undernourished are necessarily malnourished but not the vice versa. Malnourished people are victims of number of nutritional deficiency diseases. The deficiency diseases that require highest priority action are protein calorie deficiency diseases such as Kwashiorkor and Marasmus, vitamin-A deficiency leading to Keratomalacia and blindness, nutritional anaemia, endemic goitre and so on. Thus, malnutrition accounts for higher rate of morbidity and mortality in infants and young children.

Nutritional problem results from the wide population-food supply imbalances coupled with widespread poverty, unemployment and low socio-economic development. There exists a strong causal relationship between the levels of economic development and nutritional status i.e. higher the levels of economic development, higher will be the nutritional status. A "vicious circle" exists between underdevelopment, poverty and malnutrition.

Malnourished people may be less productive as malnutrition leads to inferior labour force. The inferior labour force lowers down the working efficiency and thus reduces productivity, which in turn slows down the economic growth and consequently affects the nutritional status.

Owing to the spatial variation of population growth, food supply, levels of poverty, and economic development, there persists a wide regional variation within the developing nation.

Though malnutrition is a common problem in the countries of the Third World, yet it is more widespread in over populated, poverty stricken South Asian nations. In Latin America, "severe malnutrition is concentrated in north eastern Brazil and in the parts of Central America."<sup>4</sup> Besides, pockets of malnutrition are found in Argentina, Uruguay, Chile, Brazil and Mexico, among the poorest section of population.<sup>5</sup> In Africa, though malnutrition is found in pockets throughout the continent<sup>6</sup>, it is most prevalent in the countries of the Sahelian zone where outright starvation as well as severe malnutrition is now threatening the lives of many.<sup>7</sup>

Within Asia, there exists a wide regional variation in the extent of malnutrition. Most of the countries of east and south-east Asia like Japan, South Korea, Taiwan, Hongkong, Singapore, Malaysia have achieved an adequate average food intake level and have almost eliminated malnutrition.<sup>8</sup> Similarly, in West Asian countries like Israel and Lebanon, the people are adequately nourished.<sup>9</sup>

The South Asian countries, with varied physical, socio-economic set up, depict a wide inter country variations in the extent of malnutrition and nutritional deficiency diseases. The region as a whole is plagued with widespread poverty, malnutrition and nutritional deficiencies. According to FAO

reports, there are 460 million population i.e. 15 per cent of the world's population, are malnourished<sup>10</sup>. At least 40 per cent of them are children and their number is growing in an alarming proportion.

The extent of malnutrition has a clear geographical expression. The 'geography of malnutrition' has a close bearing on the "geography of poverty", "geography of food supply", and "geography of diseases".

With the advent of 'medical geography', the Geographers have focused their attention on the 'geography of malnutrition'. As the problem of malnutrition is the product of an interplay of various socio-economic, environmental, geographical and political factors, the study on malnutrition calls for an inter disciplinary approach.

### 1.1 APPROACHES TO HUNGER AND MALNUTRITION

The problem of malnutrition is inseparable from the problem of poverty. The fundamental factors leading to malnutrition in developing countries are the rapid population growth and inadequate food supply. The problem of poverty, population growth, inadequate food supply and poor environmental conditions and their inter relationships with the problem of hunger and malnutrition, have been the main concern of many thinkers. They study malnutrition and its interacting elements from different perspectives. Many argue, that the prime cause of hunger and malnutrition depends not only on the levels of

food production but also on its maldistribution. The various approaches seeking answers to the fundamental causes of malnutrition with its interacting elements and its implications on national development may be briefly summarized as follows.

#### 1.1.1 Ecological Approaches:

Ecological approaches focus on the relationship between population growth and resources. Thinkers of this approach argue that the carrying capacity of the environment is exceeded because of rapid growth of population and limited global resources and this condition leads to food scarcity and hunger.<sup>11</sup> Under this approach the works of Malthus and that of neo-malthusians, are the most prominent ones.

According to Malthus, the problem of hunger and malnutrition results from over population. He argued that "the reproductive power of population is indefinitely greater than the power of the earth to produce subsistence for man."<sup>12</sup> This condition will create a gap between population growth and food supply. According to him, "the increasing gap between population and resources shall ultimately lead to misery and poverty in the society."<sup>13</sup> The poverty and misery result in the condition of hunger and malnutrition.

The works of neo-malthusian thinkers like Ehrlich, Meadows, Hardin, Lucas and Ogletree are prominent ones. They view that poverty and hunger arise mainly from geographical misfortune and natural catastrophe (eg. floods, droughts, earthquakes etc.) and hence are beyond human responsibility or

remedy.<sup>14</sup> One of the leading neo-malthusian theorists, Ehrlich,<sup>15</sup> argued that underdeveloped countries would be "unable to escape from poverty and misery," unless their population were controlled. He also points out the importance of unequal distribution of the world's resources in the context of hunger and malnutrition.

The neo-Malthusian focus on the question of the carrying capacity and "limits to growth"<sup>16</sup> in the context of population-resource disequilibrium, which is the fundamental cause of hunger and nutritional imbalances.

#### 1.1.2 Structural Approach: Marxian Frame Work

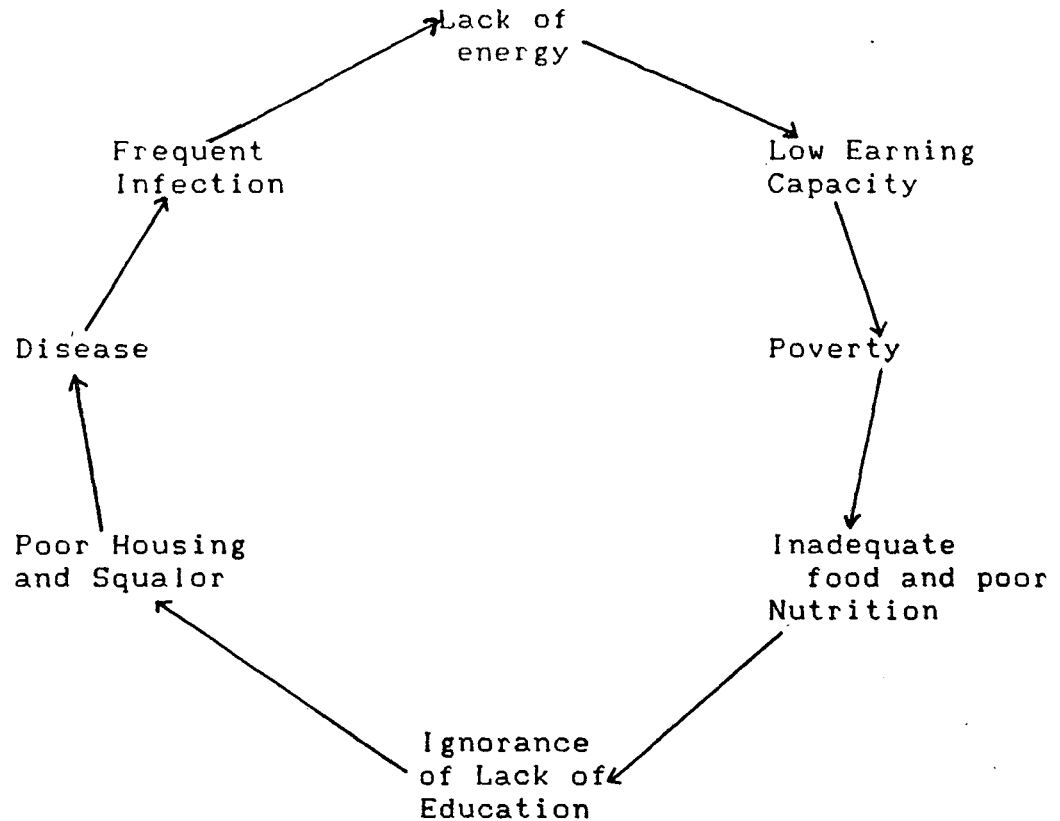
Under this approach the works of Karl Marx, Fredrick Engels and others, are important. They strongly oppose 'the Malthusian and neo-Malthusian views on hunger and malnutrition. Marxists argue that, "there is adequate food today in the world to provide everyone with a healthy diet."<sup>17</sup> The problem of hunger, malnutrition, according to them, is not due to over population and scarcity of food, but due to the capitalist mode of production and its inevitable results: Poverty, unemployment and inequality.<sup>18</sup> Marxist thinkers claim that hunger and malnutrition are social problems rather than natural ones and are produced by economic, political and ideological forces, rather than by biological and climatic constraints.<sup>19</sup>

### 1.1.3 Population And Economic Development Theory:

Gunar Myrdal argues that, over population resulting in unemployment and underemployment, is the main cause of poverty and inequality<sup>20</sup>

Because of high population growth and limited agricultural land, there exists a high agricultural density. Because land is over crowded, much of the available labour supply remain unemployed.<sup>21</sup> Hunger, malnutrition and the diseased condition are engendered by poverty. These conditions decrease the amount of labour input and also the intensity and efficiency of the work, actually performed on the land by the labour force. Low productivity is attributed to low amount of labour input and low work efficiency of the labour force. Conversely, the factors like poor nutrition, housing and sanitation, lack of health-care facilities result in diseased condition which in turn reduce the vitality and work efficiency of the labour force. Low agricultural productivity are resulted in by low vitality and work efficiency of the labour force. The condition of poverty and misery are attributed to low-productivity. Eventually, hunger and malnutrition are the inevitable consequences. A close relationship exists between the labour efficiency, food and nutrition, health and Socio-economic progress. They are caught in a 'vicious circle',<sup>22</sup> which may be illustrated as follows:



Fig 1.1

(Relationship between Poverty, health nutrition, diseases and Social Progress) [Adapted from M.E Lowenberg]

#### 1.1.4 Distributive Justice Approach:

Distributive justice approach deals with the causes or maldistribution of food. According to this approach, the problem of world hunger and malnutrition results from the maldistribution of food between the rich and the poor nations, rather than the shortages of food.

Within the broad category of distributive justice, there are two general views: (i) the first group emphasizes an ethical or moral approach; (ii) the second group presents a more radical political perspective. First group argues that, "hunger is a moral problem. The policies and practices of nations reflect not only political and economic choices but moral choices as well. They reflect the choice of certain goods or values over others. The choice by the First world to structure the world economic order to its own advantage, despite the poverty and hunger in the Third world, is a moral choice."<sup>23</sup>

The second group, which adheres to radical political perspective, argues that the cause of hunger and malnutrition is due to "the existence of gross inequalities in wealth, income and power."<sup>24</sup> The poor in the Third world, are unable to feed themselves properly, just because they do not have access, to their own resources.<sup>25</sup>

## 1.2 LITERATURE SURVEY:

Most of the works in the field of malnutrition have been done by the health experts, economists, sociologists and demographers. But the study of the problem of malnutrition from spatial perspectives by the geographers, is of recent origin.

The concept of the 'geography of nutrition finds its origin in some of the later works of May. May and Donna<sup>27</sup> compiled a series of surveys on the state of nutrition over the world in the early 1970s. Following May, a few studies were

done on nutrition and related aspects of health, particularly that of the Third world countries. Those who worked on nutrition and related aspects of health of the third world countries, were J.M. Hunter,<sup>28</sup> J.L. Newman,<sup>29</sup> W.C. Edmundson,<sup>30</sup> C.G. Knight and R.P. Wilcox<sup>31</sup>, S.K. Aggarwal and S.M. Bhardwaj.<sup>32</sup>

Recently, Knight and Wilcox<sup>33</sup> have summarized dietary balance, i.e. the differences between excessive, and deficit calorie consumption on an international scale.

Warnock,<sup>34</sup> focuses on different nutritional deficiency diseases and emphasizes that there exists a close relationship between malnutrition and infectious diseases. He also described different techniques for determining the existence of undernutrition. In addition, he deals with various approaches to world hunger. W.W. Murdock<sup>35</sup> describes the relationship between food supply and malnutrition. According to him, the problem of malnutrition is caused by uneven distribution of food supply. T.J. Marchion,<sup>36</sup> critically analysed different approaches to the hunger problem.

Alan Berg,<sup>37</sup> focuses on the impact of malnutrition on human development. According to him, "malnutrition adversely affects physical and mental development, productivity and span of working years, all of which significantly influence the economic potential of man."<sup>38</sup> He also highlights the effects of agricultural advances on nutritional status.

The problem of malnutrition in the context of India, is studied by S.K. Aggarwal, R.P. Mishra, P.V. Sukhatme, P.K. Shukla, C. Gopalan, G.C. Chatterjee, Ashok Mitra et al.

Aggarwal,<sup>39</sup> dealt with perspectives on the malnutrition problem of India and focused on geo-ecological determinants of malnutrition. One of his studies focuses on the nutritional problem of children with reference to Haryana in India.

Mishra,<sup>40</sup> highlights the problem of hunger and malnutrition in India. He makes a comparison between the food consumption pattern of India and that of other parts of the world. He indicates that, "one-third of the people of India are under-nourished"<sup>41</sup>. In addition, he focuses on the prevalence of various nutritional deficiency diseases in Indian context.

Shukla,<sup>42</sup> dealt with the impact of malnutrition on national development. He emphasized the effect of various socio-cultural factors on nutritional status. In addition, he focuses the interrelation of poverty and malnutrition.

C.Gopalan and K.V. Raghavan,<sup>43</sup> illustrated various nutritional deficiency diseases prevalent in India. Similarly Chatterjee,<sup>44</sup> studied nutritional problems of India and suggested some solutions to the problem of malnutrition. He also emphasized the prevalence of different nutritional deficiency diseases in India. Ashok Mitra<sup>45</sup> also highlighted the nutritional situation in India.

P. Chaudhuri<sup>46</sup> made an attempt to outline the nature and

magnitude of the nutritional problems affecting the women and children population in India. He viewed that, Accordingly to him, there are three major sources of identification of the existence and intensity of malnutrition among population: measurement of nutritional intake in relation to some norm of adequacy; anthropometric measurements in relation to some accepted standard of normalcy, and the presence or absence of particular clinical signs of malnutrition.

### 1.3 OBJECTIVES:

The present study focuses on the problem of malnutrition in SAARC region from geographical perspectives. The objectives of the present study are as follows:-

- (i) To study the concept of undernutrition and malnutrition, their inter relationships with socio-economic phenomena, and a focus towards the concept of geography of malnutrition.
- (ii) To identify the geographical as well as non-geographical determinants of malnutrition and their interrelation and also to identify the common indicators used for measuring the extent of malnutrition.
- (iii) To analyse the problem of malnutrition in SAARC countries from a regional perspective on the basis of health-nutrition related indicators. The study intends to analyse the cross country variations within SAARC region.

- (iv) To identify the major nutritional deficiency diseases and its prevalence in SAARC region with special reference to India.
- (v) To make a critical appraisal of integrated health-nutrition policies and programmes as undertaken by various governments. Finally, to spell out the role of international agencies and their efforts in the solution of problem of hunger and malnutrition particularly in the SAARC region.

#### 1.4 SOURCES OF INFORMATION AND METHODOLOGY

The study is based on both primary and secondary sources of informations, such as the government documents, country monographs, census reports, books and journals etc. It is heavily relied on the reports published by various international agencies like United Nation and its subsidiary agencies such as, WHO, UNICEF, FAO, World Bank etc. The study also gathered informations from various survey reports undertaken by various governments and non government organisations in the SAARC Region.

The methodology of the present study is mainly based on cross country analysis of extent of malnutrition in SAARC region on the basis of health-nutrition related indicators. Cartographic techniques are also used as geographical tools for such analysis.

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## CHAPTER 2

### GEO-ECOLOGICAL DETERMINANTS AND INDICATORS OF MALNUTRITION

#### INTRODUCTION

- 2.1 GEO-ECOLOGICAL DETERMINANTS
  - 2.1.1 Geographical Determinants
  - 2.1.2 Demographic Determinants
  - 2.1.3 Environmental Determinants
  - 2.1.4 Socio-economic and Cultural Determinants
  - 2.1.5 Political Determinants
- 2.2 CLASSIFICATION AND FEATURES OF MALNUTRITION
- 2.3 INDICATORS OF MALNUTRITION
- 2.4 MEASUREMENT OF MALNUTRITION

GEO-ECOLOGICAL DETERMINANTS AND INDICATORS OF MALNUTRITION

Malnutrition is a complex phenomenon. It is the product of an interplay of many factors such as, geographical, demographic, socio-economic, cultural, environmental and political. Among them, some have direct bearing on malnutrition, while others have indirect effects.

The food resource and nutrition equation are directly influenced by some geographical factors which in turn determine the extent of malnutrition and prevalence of nutritional deficiency diseases. Among the physical factors, climate is by far the single most determinant, as the cropping pattern and levels of food production depend on it. Other factors such as soil and topography of the geographical region not only influence the climate but also have bearing on the nutritional status through cropping pattern and levels of production. With the variation of these geographical factors, there exists a wide regional variation in the nutritional status and thus the extent of malnutrition. Extreme climatic condition may bring drought in one region and flood in another. However, in both the cases there is an impact on the levels of production and food supply, which in turn determine the condition of hunger and malnutrition. Therefore, the geographical determinants have a close bearing on 'geography of hunger' and 'geography of malnutrition'. Various geographical determinants and their interrelationships with the nutritional status, malnutrition and

nutritional deficiency diseases, may be explained in detail in the following lines.

#### 2.1.1 GEOGRAPHICAL DETERMINANTS:

Climate and soil, directly affect the amount and type of food available in an area. A particular type of crop can be grown under particular climatic and soil conditions. Consequently, keeping other factors constant, the consumption pattern may depend on the cropping pattern of an area. Since different crops have different amount of nutritional contents, with the variation of consumption pattern, the nutritional status also varies accordingly. For example, wheat is generally grown in western part of India and hence it is the staple food in that region. Similarly, rice is the predominant crop in the eastern region and people generally prefer rice to wheat. Since each of these foodgrains has different nutritional values, (Table- 2.1) the nutritional status varies accordingly.

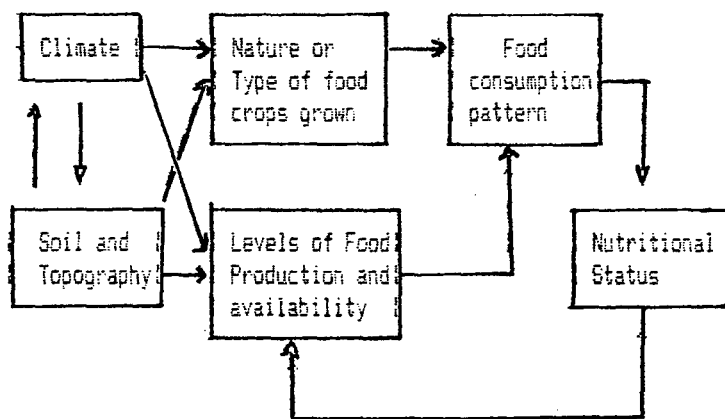
Table 2.1

<u>Composition of Rice and Wheat (Values per 100 gm)</u>		
<u>Composition</u>	<u>Raw rice milled</u>	<u>Wheat whole</u>
Protein (g)	6.8	11.8
Fat (g)	0.5	1.5
Carbohydrate (g)	78.2	71.2
Thiamine (mg)	.06	.45
Niacin (mg)	1.9	5.0
Riboflavin (mg)	.06	.12

Source :- J.E. Park and K. Park (1985), Preventive and Social medicine, M/s. Banarsidas Bhanot, Jabalpur, p.96.

Similarly, topography and soil impinge on cropping patterns which in turn, affect consumption pattern and nutritional status. With the variation of topography, the nature of soil also varies. Hence, both topography and soil, affect the types of crop grown and the quantity and quality of food available, which in turn, influence food consumption pattern and eventually, affect the nutritional status. For example, in Gangetic plain in India with fertile and thick soil, wheat and rice are generally cultivated and are the staple food for the people living in that region. While in mountainous and hilly areas with infertile and thin soil, maize, a type of coarse grain is commonly grown and taken by the people of that particular regions. Owing to variation of consumption pattern in two different topographic regions, the nutritional status of the people gets affected accordingly. The influence of physical factors like, climate, soil and topography on the nutritional status is illustrated diagrammatically as follows:-

Fig 2.1

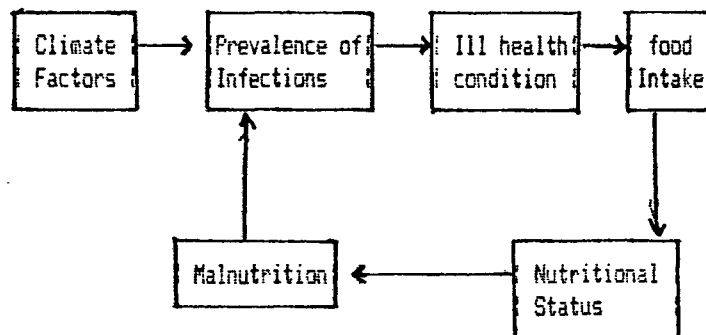


(Interrelations of physical factors and nutritional status)

Besides the impact of climate on food production and availability, it is also associated with the prevalence of certain types of diseases. A particular climatic condition leads to certain types of diseases, which in turn, affect nutritional status. For example, under the tropical climatic condition, certain infectious and parasitic diseases such as, diarrhoea, cholera, measles, tubereculosis, malaria etc. are more prevalent. Those diseases cause ill-health which in turn reduces the food intake and results in nutritional imbalances leading to malnutrition particularly among the children. The influence of physical determinants, particularly, the influence of climatic factors on the condition of malnutrition through diseases may be illustrated as follows:-

TH-3659

Fig 2.2



(Interrelations of Climatic factors, diseases and malnutrition)

The influence of climate and soil causing nutritional deficiency diseases is also important. Particular types of nutritional deficiency disease are associated with the consumption of particular types of food crops grown in



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N1

particular climatic and soil condition. For example, "Pellagra, a nutritional deficiency disease, is prevalent in the Deccan plateau where jowar forms the staple food".<sup>1</sup>

Similarly, soil and its types, apart from affecting levels of food production, cause nutritional deficiency diseases. For example, "The incidence of endemic goitre in the mountainous and sub-mountainous regions is due to deficiency of iodine in the soil and water".<sup>2</sup> So, food crops grown in that region are deficient in iodine content and precipitate endemic goitre. As it is said, "World's biggest 'goitre belt' is found in the sub-Himalayan region of India".<sup>3</sup>

The Iodine deficiency disorder (IDD) are more prevalent in river washed and sandy regions e.g. western part of India, is more prone to goitre. Iodine deficiency diseases are less prevalent in the coastal locations, as the proximity of the sea is the source of iodine. Sea food is a rich source of iodine. For example, a survey conducted by Bangladesh Government with WHO in 1981-82 revealed that, the coastal districts of Bangladesh are less affected by iodine deficiency disorder.<sup>4</sup> Thus nutritional deficiency diseases are location specific and shows a clear spatial pattern.

#### 2.1.2 DEMOGRAPHIC FACTORS

An explosive population growth resulting from high birth rate is not keeping pace with the rate of food supply. This gap has led to wide nutritional imbalances, which in turn, make the problem of malnutrition more universal. The population



explosion has aggravated the situation of poverty, unemployment and other socio-economic problems. The pressure of population growth on the limited agricultural land has resulted in high agricultural density and low productivity. Due to low man-land ratio resulting in low productivity, there exists wide prevalence of hunger and malnutrition. Population growth is considered to be the key determinant for the condition of malnutrition and other socio-economic problems.

Levels of food production and consumption pattern are directly related to the nutritional status. Increased food production leads to increased food consumption and hence improve the nutritional status. Per capita land in India is 0.6 hec. compared with per capita land of 5.8 hec. in the developing countries.<sup>5</sup> Scarcity of food as a factor responsible for malnutrition may be true at the family level; but it is not true on a global basis, nor is it true for most of the countries, where malnutrition is still a serious problem. It is a problem of uneven distribution among the countries and within a country.

### 2.1.3 ENVIRONMENTAL FACTORS

Owing to the population pressure on the total environment: physical and social, all kinds of environmental degradation are resulted in. Poor environmental conditions i.e. poor housing, mushrooming growth of slums and squatters, poor water supply and insanitary conditions lead to infectious diseases. Infectious and parasitic diseases such as worm infestations, diarrhoea, measles, Tuberculosis and so on, stemming from such

environmental conditions, are rampant. These infectious diseases are considered to be an important determinant in accentuating the prevalence of malnutrition. There exists a 'vicious circle' between the infectious diseases and the condition of malnutrition, that is, infectious diseases reduce intake capacity among children leading to poor nutritional status and deficiency diseases which in turn, reduce the resistance and vitality of the body which predispose to other diseases. Thus, poor environmental conditions are the root cause of infectious diseases which aggravate condition of malnutrition.

#### 2.1.4 SOCIO-ECONOMIC AND CULTURAL FACTORS

Malnutrition is largely the by-product of poverty, unemployment, ignorance, lack of knowledge regarding nutritive value of food. Among the economic determinants, level of income and occupation are important ones.

The income of a family largely determines the purchasing power which in turn, affects level of food consumption and thus the nutritional status. There is a positive relationship between the level of income and nutritional status. For example, in case of Bangladesh, the prevalence of stunting among children decreases with increase in per capita income. viz., the prevalence of stunting stands at 62.6 per cent, when the per capita income is 2000 taka, whereas it declines to 54.3 per cent with increase in per capita income to 5000 and above (Table-2.2).

Table 2.2

Prevalence of Stunting of Children by Annual per Capita Income  
in Bangladesh, 1985-86

Per capita income (Taka)	Urban (%)	Rural (%)	National (%)
2000	63.0	62.4	62.6
2000-2999	56.9	57.4	57.3
3000-3999	56.3	61.5	61.1
4000-4999	48.3	56.6	55.6
5000-5999	45.3	55.7	54.3
<b>Total</b>	<b>44.2</b>	<b>57.6</b>	<b>56.1</b>

Source: Bangladesh Bureau of Statistics, Report of the Child Nutrition Status Module: Bangladesh Household Expenditure Survey 1985-86, Dhaka 1987, p. 31.

Similarly, at the family level, both quantity and quality of diet changes substantially with increasing income. For example, a family with higher income can spend more money on food and will be able for consuming more calorific and nutritious foods like meat, fish, milk, vegetables and fruits etc. Thus nutritional status may be improved by raising the level of income and standard of living.

Occupation affects the level of food consumption and nutritional status. Occupation and the levels of personal income also depend on the levels of education. Both occupation and income have bearing on one's dietary consumption. The

nutritional status of the people belonging to 'White Collar' jobs will be better than that of the people belonging to 'blue collar' jobs.

Socio-cultural factors such as, female education, religion, food habits, customs and tradition, cooking practices etc. have an impact on the nutritional status. Female education has significant relationship with child malnutrition. Because child-rearing practices, which directly affect the nutritional status of a child, largely depend on the educational status of a mother. A positive relationship exists between female education and child malnutrition. The higher the female education the lower will be the prevalence of child malnutrition. A study revealed that in case of Bangladesh, high percent of stunting was found among children belonging to mothers having no education, whereas it was reverse in case of high maternal education. (Table 2.3).

Table 2.3

**Prevalence of stunting of children by maternal education in Bangladesh.**

Maternal Education	Prevalence of stunting (in percent)
No education	59.8
Passed I - V	45.1
Passed VI - IX	35.7
Passed SSC	16.5
Passed HSC	17.5
Graduate and Post Graduate	10.5

Source: UNICEF Report, "An analysis of the situation of children in Bangladesh", UNICEF, 1987, P.38.

Religion has a powerful influence on the food habits of the people which in turn, affect the nutritional status of the people concerned. For example, Hindus do not eat beef and Muslims do not take pork. Some orthodox Hindus, Jains and Budhists do not take flesh foods like meat, fish, egg etc. These Socio-cultural taboos prevent people from consuming nutritious foods.

Food habits, customs, beliefs, traditions and attitude etc., thus have bearing on the nutritional status, particularly on the expectant and lactating women. For example, in western part of India, valuable foods like, green leaf, rice and fruits are avoided by the nursing mothers. Similarly, papaya is avoided during pregnancy because it is believed to cause abortion.

Faulty cooking practices like over cooking of foods, peeling of vegetables and other faulty methods of cooking lessen the nutritive value of foods and thus affect the nutritional status.

#### **2.1.5 POLITICAL FACTORS:**

Political factors affect distribution system, food price policy, storage and buffer stock policies and so on and thus have bearing on the nutritional status. Mere increase in food production will not solve the basic problem of undernutrition and malnutrition, rather equitable distribution of food produced is important and can help to improve the nutritional status.

For example, "China has become successful in reducing the problem of malnutrition. Her success appears to have gained not so much by increasing the food production but by a more equitable distribution of food among the people".<sup>6</sup>

Food price policy of a country affects the purchasing power of consumers which in turn, affect their nutritional status. For example, if the market price of the basic food commodities is high, the consumers belonging to low income groups can not be able to purchase the basic food needed. Hence, they become unable to satisfy their basic needs and eventually it affects their nutritional status.

Effective storage and buffer stock policies of a country influence food supply and nutritional level. Such policies can improve the volume and quality of food availability, particularly in the months proceeding the main harvest period, and in the period of adverse weather conditions. They can also stabilize food prices and control price rise that commonly occur following harvest failure. Hence such policy may be able to avoid seasonal shortage of food and to improve food consumption level of the people concerned.

## 2.2 CLASSIFICATION AND FEATURES OF MALNUTRITION

Malnutrition is attributed to the deficiencies of various compositions of food e.g. Carbohydrates, Protein, fat, minerals and vitamins. But since the major victims are the growing children where protein and calori requirements are proportionately higher. Protein-Energy Malnutrition is the most

wide-spread form. Besides, other mineral and Vitamin deficiencies are mostly Vitamin A deficiency, Vitamin B complex deficiency, Iron deficiency causing nutritional anemia and Iodine deficiency leading to goitre.

There have been several attempts at classification of Protein-Energy malnutrition. The widely accepted classification is the Wellcome classification (Table 2.4). Here the weight (Harvard Standard) has been taken as the dividing line between normal and malnourished.

Table 2.4

**'Wellcome' Classification of Protein Energy Malnutrition**

Weight (% of Harvard Standard)	Oedema	
	Present	Absent
80-60	Kwashiorkar	Undernutrition
below 60	Marasmic Kwashiorkar	Marasmus

Source: J.E. Park and K. Park (1985), Preventive and Social Medicine, p. 79.

**Features of Protein Energy Malnutrition (PEM):**

There are two prominent forms of PEM: Kwashiorkar and Marasmus. The PEM shows changes in physical features particularly amongst the growing children.

Essential features include:

- i) Swelling of leg, face and body on Kwashiorkor but not in Marasmus
- ii) Wasting of muscles is prominent in Marasmus causing 'Monkey face' than in Kwashiorkor where 'Moon face' is found.
- iii) Growth retardation in form reduced weight and height.
- iv) There may be mental changes in Kwashiorkor.

Other features are changes in skin and hair and loss of appetite etc.

### 2.3 INDICATORS OF MALNUTRITION

The indicators of malnutrition may be grouped into four broad categories as follows:

a) Statistical:

Infant mortality rate, Mortality in the age group of 1-4 years and the ratio of under five deaths to total deaths.

b) Anthropometric:

Weight of new born baby, Percentage of low birth weight baby (below 2500 gm), weight for age and weight for height are two important indicators.

c) Clinical:

Number of cases of malnutrition admitted to the hospitals and health centres, diagnosis of individual nutritional deficiency diseases.



d) Dietary Examinations:

- i) Intake of Calories, Proteins and other nutrients
- ii) Studies of dietary habits
- iii) Daily Calorie per capita supply

2.4 MEASUREMENT OF MALNUTRITION

Body measurements such as height, weight, etc. are important tools used in anthropometric measurements in evaluating the nutritional status of a person. Weight-for-age, weight-for-height and height for age are used as indices of malnutrition, particularly measuring the child malnutrition. Although, height and weight are important indicators of malnutrition, however, too much reliance can not be placed on them in assessing the nutritional status. For example, underweight does not necessarily mean malnutrition. Similarly, normal weight does not necessarily account for good nutrition. Diagnosis of nutritional deficiency diseases by clinical examination and examination of dietary composition are used in the nutritional surveys in assessing the nutritional status of individuals or groups. Due to complexity and multidimensional nature of the problem of malnutrition, assessment of individual measurement may produce little result. Therefore, a sound analysis of nutritional status and problem of malnutrition calls for the combination of all methods of measurements and also an assessment of socio-economic variables affecting the concerned individuals or groups.

The severity of malnutrition in a country or an area can be defined on the weight values of a reference standard. The degrees are referred to First degree, Second degree and Third degree malnutrition depending on the reference standard.

The various indicators as mentioned above are influenced by the socio-economic variables. For example, infant and child mortality have a positive relationship with the female literacy, i.e. higher the female literacy, lower will be the infant and child mortality. Similarly, other indicators of malnutrition are influenced by such factors.

With the variation of both geographical and ecological factors, influencing the nutritional status, the extent of malnutrition and nutritional deficiency diseases show a wide regional variation.

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## CHAPTER 3

### MALNUTRITION IN SAARC: A CROSS COUNTRY ANALYSIS

#### INTRODUCTION

- 3.1 DEMOGRAPHIC TRENDS IN SAARC
- 3.2 SOCIO-ECONOMIC AND ENVIRONMENTAL CONDITIONS
- 3.3 LEVELS OF FOOD SUPPLY AND NUTRITIONAL GAP
- 3.4 NUTRITIONAL STATUS AND CONSUMPTION PATTERN
- 3.5 EXTENT OF MALNUTRITION IN SAARC COUNTRIES
  - 3.5.1 Inter-regional Variations of the Extent of Undernutrition
  - 3.5.2 Intra-regional Variations in SAARC
- 3.6 MORTALITY IN SAARC

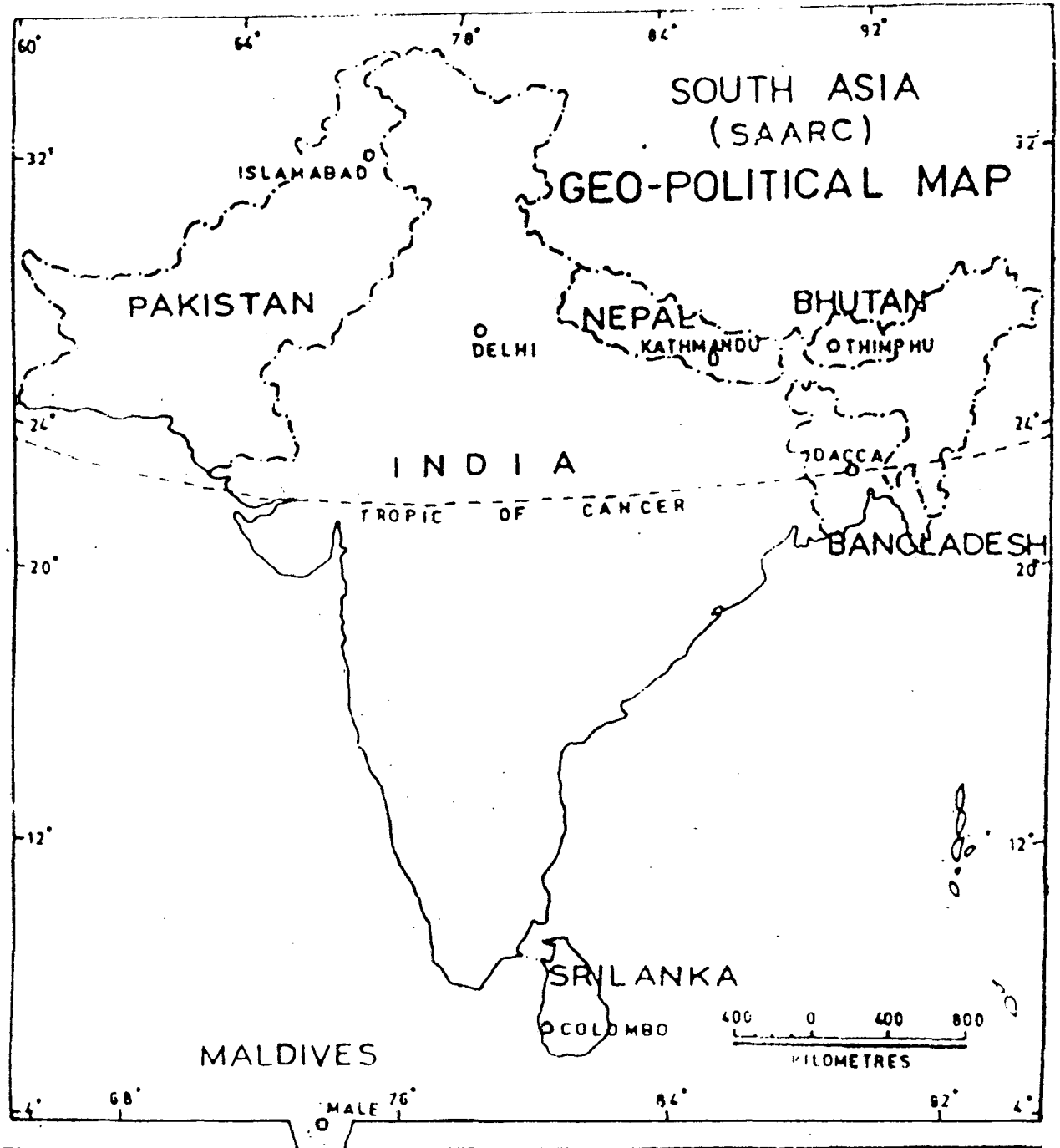
## CHAPTER 3

### MALNUTRITION IN SAARC: A CROSS COUNTRY ANALYSIS

South Asia is a distinct geographic region with well-defined physical, socio-economic and demographic characteristics. The region lies in the tropical and sub-tropical belt with monsoonal climatic regime. The newly formed South Asian Association for Regional Cooperation (SAARC) countries, namely, India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan and Maldives, maintain a high degree of homogeneity in terms of climatic, socio-economic and cultural characteristics. These seven countries together constitutes nearly one fifth of the world's population.

The countries in the SAARC region are low economic and agricultural nations and stand at the lowest ladder of world development. These countries are characterised by low GNP per capita, low industrialisation with galloping population growth. All countries in the region are over-populated, showing a wide population-resource imbalance. Wide-spread poverty, unemployment, income-inequalities, low-standard of living, illiteracy, growing land-lessness are the major socio-economic problems in these countries. Poor environmental conditions and poor quality of life reflected through poor housing, collapsing dwellings, widespread slums and squatters, environmental pollutions are the major issues of concern. Inadequate water supply, insanitary conditions associated with diseased-environment have endangered the health and hygiene of teeming

FIG. 31



millions. Resulting from multi-faceted socio-economic and environmental adversities, coupled with population growth and scarcity of food supply, the problem of hunger and chronic malnutrition in all these countries are the rule of the day. Calorie consumption per person in developed countries is over 3000 a day on an average, while in developing countries it is barely over 2000. Almost all countries of SAARC are in short supply of calorie value than the required level which is equivalent to 2400 K Cal. per person per day. Scarcity of food due to low level of production, maldistribution and wastage along with widespread poverty has led to poor quality of food consumption, bringing nutritional imbalances in almost all countries of SAARC.

Although, SAARC countries are homogenous in character in terms of socio-economic problem, ethnic composition, food habits and customs, there exists wide inter country disparities in demographic changes, levels of food production and consumption, in extent of poverty and the prevalence of malnutrition and nutritional deficiency diseases.

Therefore, before one proceeds to study inter-regional variation in the extent of malnutrition, it is necessary to focus on the basic demographic, socio-economic, environmental conditions, levels of food supply and nutritional gap that persist in the region.

### 3.1 DEMOGRAPHIC TRENDS IN SAARC REGION

Rapid population growth in all countries of SAARC is the root cause of all socio-economic evils in the region. It has brought about economic imbalances and environmental degradations which are too serious in scale and intensity. The region constitutes about thirty per cent of the Asiatic population and more than one fifth of the population of the developing world. About 85 per cent of the total population live in rural areas. In absolute term, the population in the region is large, with varying growth rate of 2-4 per cent during 1980-87. India dominates the demographic scene of SAARC region in that it contributes more than three fourth of the population of the region. India has above 800 million people in 1988 with an average annual growth rate of 2.2 per cent during 1980-87. Similarly, Pakistan and Bangladesh constitute about one-fifth of the population of the region (Table 3.1). The two island countries - Sri Lanka and Maldives and the two land-locked countries - Nepal and Bhutan, together, contributed only 3 per cent of the region's population. The average annual population growth remains high in Pakistan, Maldives, Bangladesh, Nepal than the rest of the countries during 1980-87 (Table 3.1).

The population growth in all countries of the region has out-paced the growth rate of GNP leaving a wide population development imbalance.



FIG.3.2

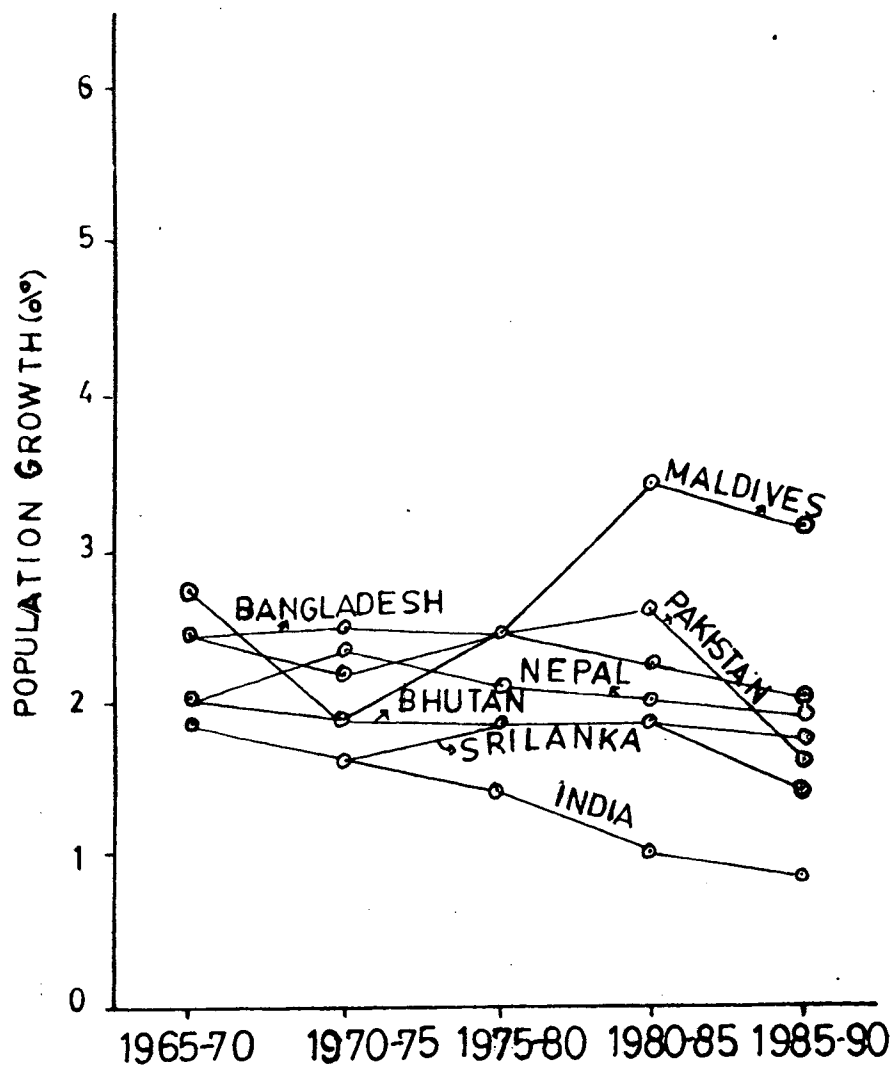
TRENDS OF POPULATION GROWTH  
IN SAARC COUNTRIES,  
1965-90

Table 3.1

GNP Per Capita and Population Growth in SAARC Countries

Countries	GNP		Population	
	Per capita (US \$) (1988)	Average annual growth rate (%) (1965- 88)	Total (in mil- lion) (1988)	Average annual growth rate(%) (1980-87)
1. Bangladesh	170	0.4	109.6	2.7
2. Bhutan	170	-	1.5	1.9
3. Maldives	410	2.3	0.2	3.2*
4. Nepal	180	-	18.2	2.6
5. India	340	1.8	818.8	2.2
6. Pakistan	350	2.5	114.9	3.7
7. Sri Lanka	420	3.0	16.8	1.6

Source: UNICEF, "The State of the World's Children 1970", pp. 76-77, pp. 84-87.

\* For 1977-85

The figure-3.2 showing the trend of population growth in the region indicates that almost all countries in the region have shown rapid population growth during 1970-85. In recent years India has shown a decline trend in population growth.

### 3.2 SOCIO-ECONOMIC AND ENVIRONMENTAL CONDITIONS

South Asian countries are predominantly agrarian economies. They are low economic countries with GNP per capita

less than 450 US \$. In the two island countries - Sri Lanka and Maldives, the per Capita income remains relatively higher i.e. nearly 400 US \$. Bangladesh stands at the lowest ladder in the world economy with GNP per capita of 170 US \$. The problem of absolute poverty in the world still has its centre of gravity in South Asia. Nearly half of world's poor live in South Asia.<sup>1</sup>

The SAARC countries suffer from high degree of poverty and diseased environment. The extent of poverty is highest in Bangladesh - and nearly more than 85 per cent of people lived below the poverty line in both rural and urban areas during 1987-88 (Table 3.2). In Pakistan the extent of poverty is relatively low, affecting thirty per cent of the population. In case of India half of the rural population live below poverty line.

Table 3.2

**Extent of Poverty in SAARC Countries, 1987-88**

(percentage)

Countries	Proportion of population below Poverty (absolute)	
	Urban	Rural
Bangladesh	86	86
Bhutan	-	-
Maldives	-	-
Nepal	55	61
India	40	51
Pakistan	32	29
Sri Lanka	-	-

Source: Ibid.

Widespread poverty coupled with poor socio-economic state and adverse environmental and sanitary conditions, the incidence of malnutrition has been aggravated on all countries of SAARC region. According to WHO, 90 per cent of the population in developing countries utilise unclean water.<sup>2</sup> Poor quality of housing with lack of basic services such as safe drinking water and sanitation, aggravate the condition of malnutrition through infectious diseases. Almost all countries in the region have a very high proportion of slums and squatters in urban areas which are breeding grounds of infectious diseases.

The problem of safe water supply and sanitation which is by far the most challenging environmental issues in the developing world in general and South Asia in particular, is contributing to diseased environment and malnutrition. According to UNICEF, nearly 80 per cent of the population in the developing countries have access to safe water in urban area whereas only 40 per cent have access to safe water in the rural areas. Similarly, 60 per cent of the population in developing countries have access to adequate sanitation in urban areas but less than 20 per cent get adequate sanitation in rural areas.

The Table 3.3 showing the proportion of population with access to safe water supply in the SAARC region indicates, that more than half of the population of most of the South Asian countries have no access to safe water. A cross country analysis in this regard reveals that in Nepal more than 70 per cent people have no or little access to safe water. Similarly, in case of Bangladesh, Pakistan and Sri Lanka, 55-60 per cent of

the people use unsafe water. The safe water problem in urban areas of Bangladesh is more acute than in the rural areas (Fig 3.3).

Table 3.3

Proportion of Population with access to safe water in SAARC Countries (areawise) in 1985-87

Countries	Percentage of Population		
	Total	Urban	Rural
Bangladesh	46	24	49
Bhutan	-	-	19
Maldives	-	-	-
Nepal	29	70	25
India	57	76	50
Pakistan	44	83	27
Sri Lanka	40	82	29

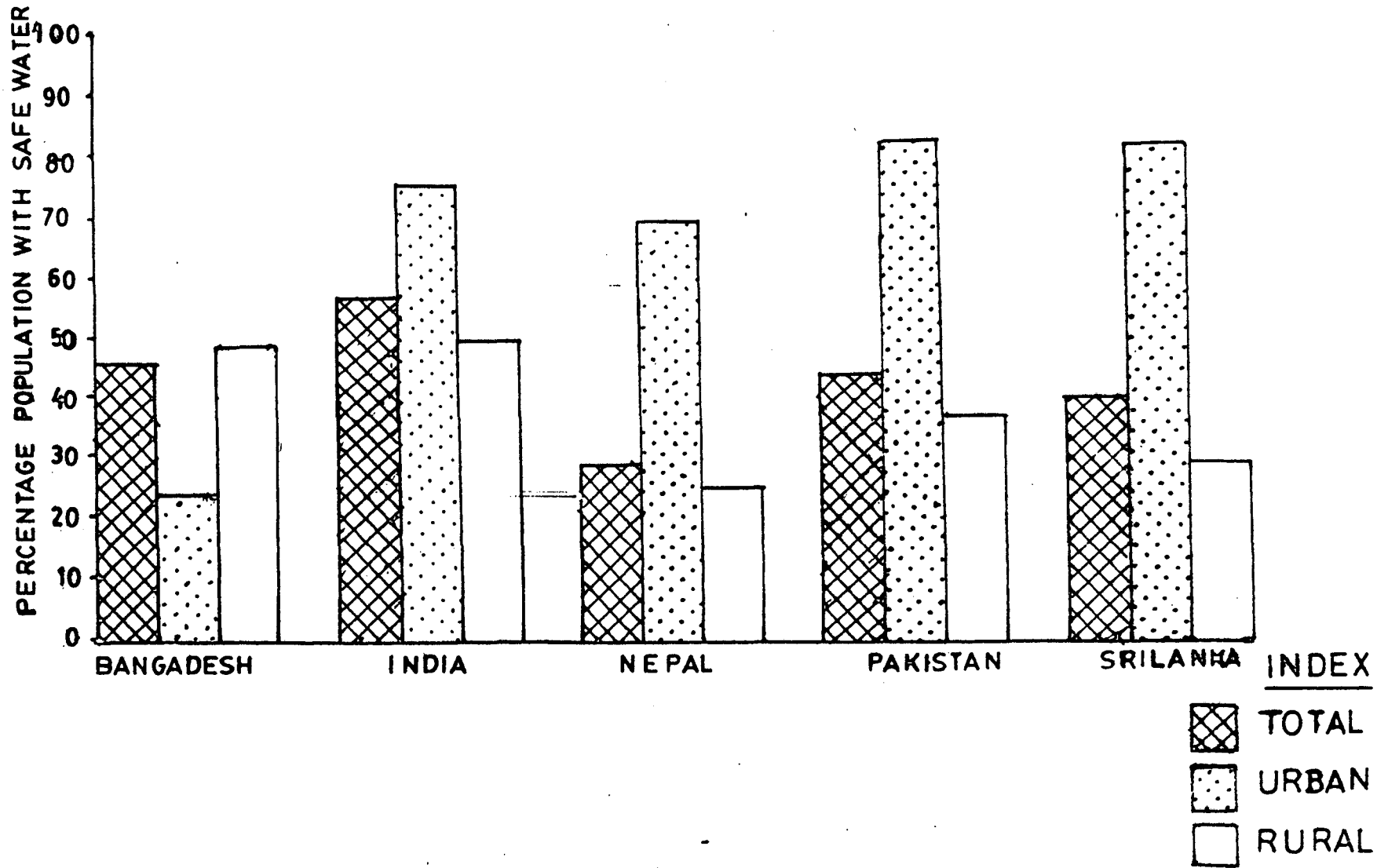
Source: Ibid.

India, in this regard, has achieved relative success in that more than three-fourth of the urban population and half of the rural population have access to safe water. Except India and to some extent Bangladesh, more than 70 per cent of the rural people in other countries use unsafe water.

Resulting from poor environmental condition and diseased state, the extent of malnutrition and deficiency diseases are

FIG.33

AVAILABILITY OF SAFE WATER IN SELECTED SAARC COUNTRIES (AREA WISE) 1985-87



rampant in South Asian nations. However, the problem of malnutrition and various deficiency diseases stemming from acute scarcity of food supply, faulty food habits lead to the nutritional gap which perpetually persists in the region.

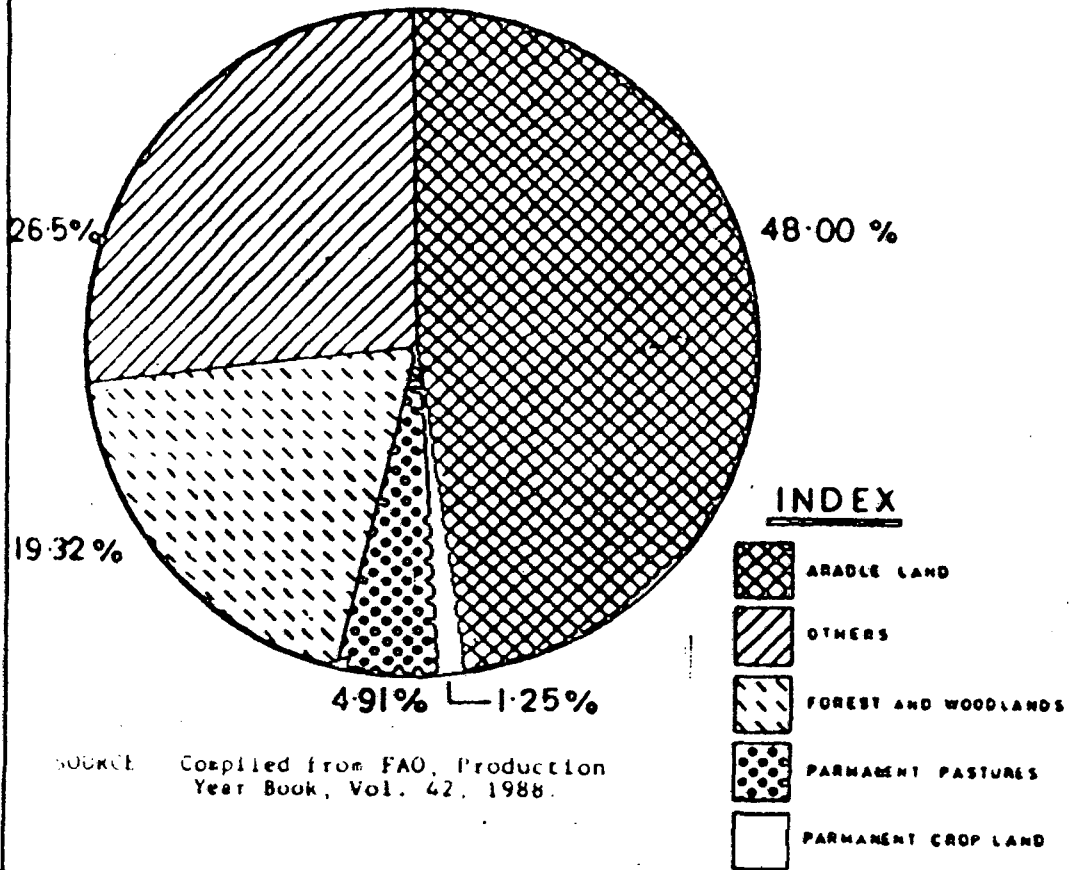
### 3.3 LEVELS OF FOOD SUPPLY AND NUTRITIONAL GAP

The quantity of food and its spatial and temporal distribution are the first order determinant of the nutritional status and severity of malnutrition. The fundamental problem underlying malnutrition in developing countries in general and in South Asia in particular, is the shortage of food supply. SAARC region suffers from a skewed land-use pattern. Nearly 48 per cent of the land in South Asia is arable land. Permanent crop land constitute only 1.3 per cent of the total land-use (Figure 3.4). The region as a whole has a very low man-land ratio. Acute shortage of arable land in the over-populated SAARC region is one of the major causes of low level agricultural production, leading to shortage of food.

The rapid 'demographic explosion' is far ahead of the levels of food supply, leading to a wide nutritional gap which is the root cause of hunger and malnutrition. As already discussed, the levels of food production of a country depend on the cropping pattern, which depends on the climatic condition. Being located in the monsoonal climatic regime, all countries in the SAARC region have a fluctuating levels of food production depending on the monsoonal rhythm. Consequently, there exists an inter and intra country variation of cropping patterns. The

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LAND USE  
1987

FIG 3.4





major common staple crops grown in the region are cereals, pulses and millets. Among the cereals, rice and wheat, are by far the most common crops grown in all countries of the region with varying proportions. Consequently, the dietary pattern of the socio-cultural groups vary accordingly.

The cereal productions show a wide regional variation. In India, the level of food production in general and cereal production in particular, have increased manifold. More than 90 percent of the total food-grain production in the country is contributed by cereals, mainly rice and Wheat. Similarly, in Bangladesh, Nepal, Bhutan and Sri Lanka, the cereal crops predominate the agricultural scene and are composed of rice, wheat, barley etc. In Pakistan, Wheat, is the leading cereal crop followed by rice.

The total grain production in India has increased from nearly 145 million tonnes during 1984-85 to 151 million tonnes during 1986-87. However, the annual growth of food grain production is at a slow pace as against the rapid growth of population, thus leaving a wide gap between demand and supply. The production of pulses, which are considered to be the 'poor man's meat', could not achieve the desired level in India between 1983-87 (Fig 3.5).

FIG.35

## FOOD GRAIN PRODUCTIONS IN INDIA, 1983-87

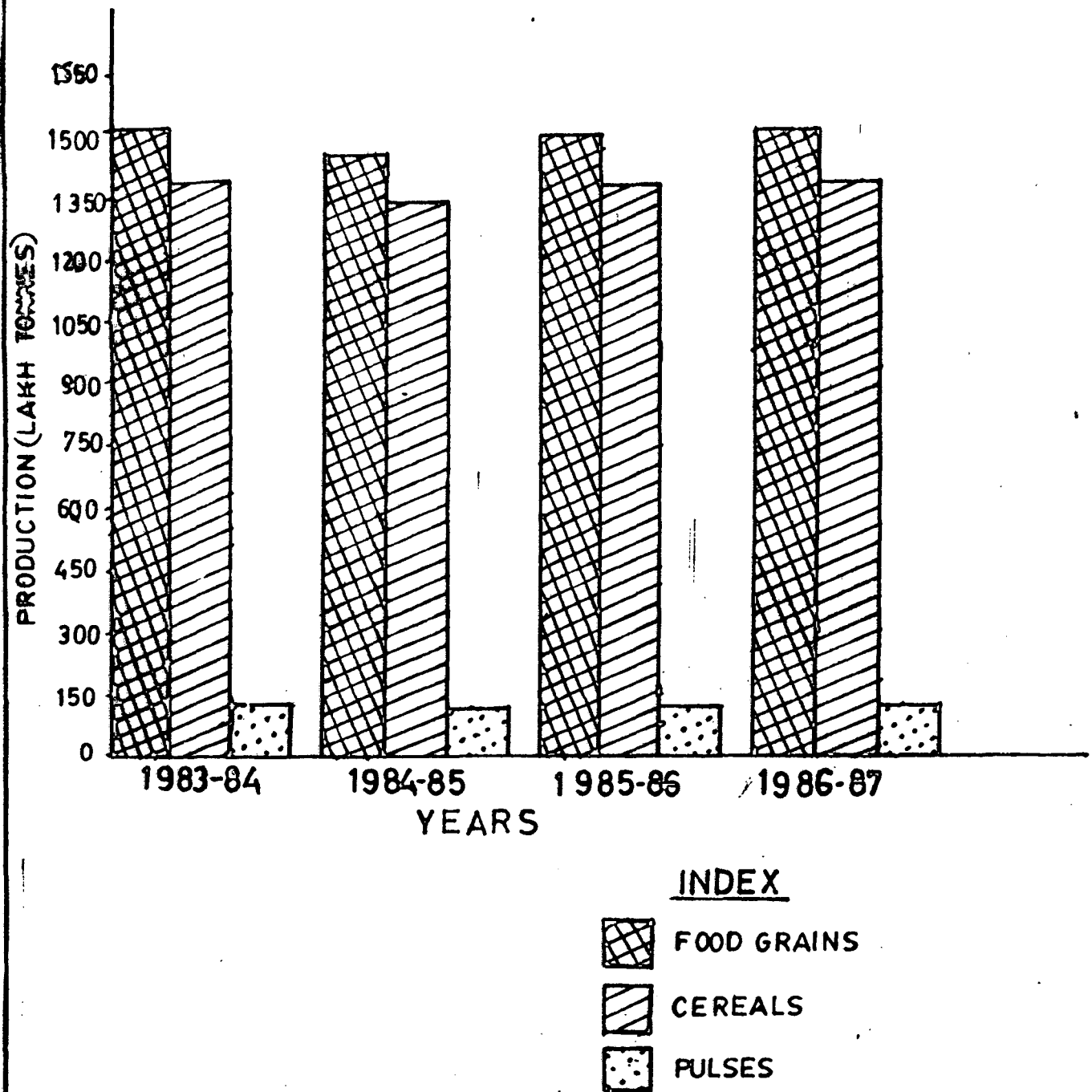


Table 3.4

Levels of Food Grain Production in India, 1983-84 to 1986-87

(In Lakh Tonnes)

Years	Cereals			Pulses	Total Food grains
	Rice	Wheat	Total		
1983-84	601	455	1395	129	1524
1984-85	583	441	1336	119	1455
1985-86	641	469	1375	130	1505
1986-87	600	490	1380	130	1510

SOURCE : - Ministry of Information and Broadcasting, Government of India, "India 1987", Table 15.1, 1988, p.342.

In terms of food production, the countries like India, Pakistan have achieved self-sufficiency. Due to maldistribution and wastage of food grains common to all SAARC countries, the per capita food availability in the region remain low. As it is observed that in Pakistan, "there is little or no shortage of food within the country. Maldistribution nonetheless remains throughout the country affecting millions of women and children."<sup>3</sup> In Pakistan, the per capita availability of cereal has declined from 155 to 154/capita/year between 1982-83 to 1985-86. Similarly, the per capita availability of pulses has remained almost stagnant during the same period. The food availability in Pakistan from plant sources: cereals and pulses, shows a fluctuating trend, while from the animal sources, it has

increased progressively during the afore-mentioned period (Table 3.5).

Table 3.5

Per Capita Food Availability in Pakistan, 1982-86

Year	Plant Source		Animal Sources		
	Cereals	Pulses	Milk	Meat	Egg
1982-83	155.5	6.0	93.0	14.6	1.9
1983-84	152.1	6.0	90.0	15.0	2.0
1984-85	154.5	6.1	93.4	15.6	2.2
1985-86	154.0	6.1	95.8	16.3	2.4

SOURCE : - UNICEF, "A Review of the situation of children - Pakistan", 1986, p.16

The level of production of rice in India, Pakistan and Bangladesh stands at 600, 33, 143 lakh tonnes respectively during 1983-84. Similarly, the Wheat production remained 455, 111 and 12 lakh tonnes respectively during the same period (Fig. 3.6). In case of Nepal, the production level of the major cereal crops: rice and wheat, were 28 and 6 lakh tonnes during 1983-84.

Bangladesh has a chronic deficiency (Table 3.6) of food availability for which the country mainly depends on food imports and aids.

FIG.36

MAJOR CEREAL PRODUCTIONS IN SELECTED SAARC COUNTRIES ( 1983-84 )

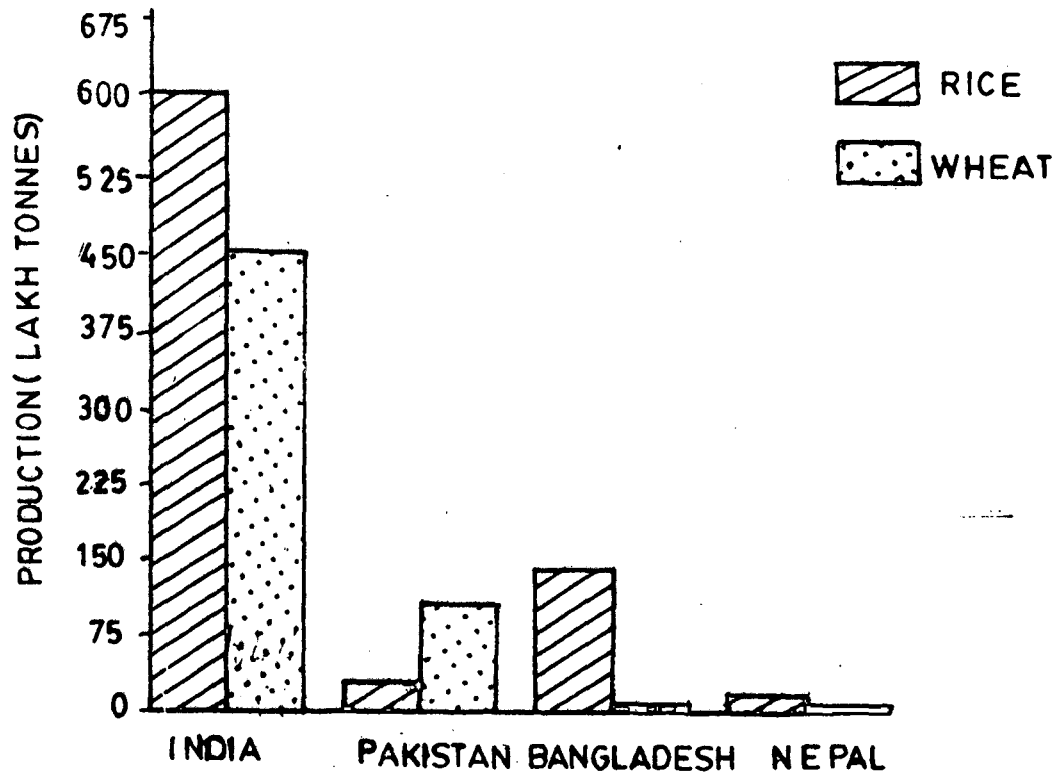


Table 3.6

Levels of Food Supply in Bangladesh, 1984-88

(in lakh tonnes)

Year	Food Production	Net Availability	Food Grain Requirement	Food Deficit/Surplus
1984-85	160.8	144.8	163.0	+ 18.2
1985-86	160.8	143.8	166.0	- 22.2
1986-87	165.0	148.5	169.7	- 21.2
1987-88	165.0	148.2	172.3	- 24.1

SOURCE :- Government of Bangladesh, Ministry of Food and Agriculture, Bangladesh Bureau of Statistics.

The percentage share of food imports to the total merchandise import is highest in case of Bangladesh followed by Sri Lanka. The percentage share of food imports to the total merchandise import of these two countries remained at 23 and 17 percent respectively in 1988. The food import of Pakistan is also comparatively higher than the rest of the countries in the region. The two land-locked countries- Nepal and Bhutan, are less dependent on outside supply in the form of import or aid. In this regard, India places herself in a better position and the percentage of share of food import constitutes only 5 percent of her merchandise import. (Table 3.7).

Table 3.7

Index of Per Capita Food Production and Levels of  
Food Dependence of SAARC Countries

Countries	Average Index of Food Production per Capita (1979-81=100) 1986-88.	Food Dependence		
		cereal Imports	food Aid (Thousand million tonnes)	% share of Food Import Total Mer- chandise Import
Bangladesh	92	3010	1397	23
Bhutan	118	30	2	N.A.
Maldives	N.A.	N.A.	N.A.	N.A.
Nepal	100	52	21	6
India	105	2985	223	5
Pakistan	107	602	657	14
Sri Lanka	79	940	361	17

SOURCE :- World Development Report, 1990.

The average index of food production per capita remained relatively high in case of Bhutan, Pakistan, India and Nepal during 1986-88 (Table 3.7). Bangladesh and Sri Lanka had low indices as compared to the other SAARC countries. The indices in these two countries were 92 and 79 respectively.

Overall, the countries show fluctuating levels of food production probably as a result of varying climatic condition. In an unfavourable climatic condition, the problem of food shortage becomes worse. Extreme climatic condition and natural calamities, still aggravate the condition of hunger and are

leading to chronic undernutrition. For example, the country like Bangladesh, very often becomes the victim of climatic hazards such as floods, cyclones etc., as a result of which the country faces serious food crises and is heavily dependent on foreign assistance in the form of food aid. The nutritional status and the consumption pattern show high degree of co-relationship with the levels of production.

#### 3.4 NUTRITIONAL STATUS AND CONSUMPTION PATTERN.

Resulting from low levels of food supply and the prevailing poor socio-economic conditions, the whole region suffers from chronic deficiency in per capital calorie supply. Bangladesh, Nepal and Bhutan, fall behind the required nutritional value which is equivalent to 2250 K.Cal./day. Bangladesh suffers from severe calorie deficiency having the lowest per capita calorie supply on the region, which is only 1927 K Cal in 1986. The daily calorie per capita supply in Bangladesh falls short by 17 per cent of the total requirement during 1984-86 (Table 3.8). Sri Lanka is the only country in the region which shows more than cent percent of her daily calorie requirements. In this regard, India is in better position in meeting the expected daily calorie requirements. The average Indian diet consists primarily of cereals and pulses which together account for three-fourth of the calorie intake. Cereals and pulses are important constituents of food, contributing to the major calorie requirements alongwith 85% of protein, 40% fat, 70% of Iron, 40% Calcium, 15% of Vitamin A



and other. The limiting factor in average Indian diet is calorie but not protein.<sup>4</sup> A study indicates that, "50% of children had diet short of calories while only 15% had a diet short of proteins."<sup>5</sup> On the whole, most of the countries of the region suffer from low nutritional status, as reflected by low per capita calorie supply from the required value (Table 3.8).

Table 3.8  
Level of Daily Calorie per Capita Supply in  
SAARC Countries

Countries	Daily calorie per capita supply (K cal/person/day) 1986	Daily calorie per capita supply as percentage of requirements 1984-86
Bangladesh	1927	83
Bhutan	2200*	-
Maldives	-	91
Nepal	2052	93
India	2238	100
Pakistan	2315	97
Sri Lanka	2400	110

SOURCE :- World Development Report 1990 UNICEF Report, "The State of World's Children, 1990".  
\* UNICEF Report, "A review of the situation of Children: Bhutan", 1986.

Although, the food habit of all the countries in the region depends on the socio-economic environmental parameters, their cultural heritage, however, it is largely determined by the existing cropping pattern. In all countries of the developing world in general and South Asiatic countries in particular, the average diet is composed of nutrients obtained mainly from plant sources. The per capita consumption of nutrients particularly the amount of calorie and protein from animal sources is very low in the SAARC countries as compared to developed and many other developing countries (Table 3.9). About 90-96 percent of the calorie value in these countries is obtained from plant sources and a very low value from the animal products. In the average diet, the amount of protein supply from plant sources is 80-90 percent of total protein intake and the rest is supplemented by animal products.

Table 3.9

**Sources of Calorie Value in the Average Diet of  
Selected SAARC Countries, 1986**

Countries	Proportion of Calorie Values	
	Plant sources	Animal sources
Bangladesh	97.0	3.0
India	94.0	6.0
Nepal	93.0	7.0
Pakistan	89.0	11.0
Sri Lanka	96.0	4.0

SOURCE :- FAO Production year book, Vol. 40, 1986.

The supply of calorie is positively correlated with the economic development. A country with higher economic development, the supply of calorie from animal sources remains high, e.g., in the diet of U.S.A., about 27 percent of the total calorie supply is obtained from animal sources. Similarly, in Japan this figure stands at 19 percent.

Consumption of cereal dominates the average diet in the SAARC countries, which contributes to more than 60 per cent of the total calories obtained from the plant sources. For example, out of 812 gms of food obtained from plant sources in Bangladesh, cereal constitutes 528 gms, i.e. 65% of the consumption value of plant origin. Similarly, in Sri Lanka, in the average diet, cereal accounts for 51 percent of the total diet from plant sources. The protein supplementation from both plant and animal sources remains low, i.e. less than 60 gms in all countries of the region. The daily per capital protein supply in an average diet of Bangladesh is the lowest in the region, i.e. only 39 gms. The protein supply in the dietary pattern of Pakistan and India remains relatively higher than the rest of the countries. (Table 3.10).

Table - 3.10

Dietary Composition Pattern in Selected SAARC Countries

Country	Daily Per Capita Nutrient Supply (gm)			
	Protein	Fat	Calcium	Iron
Bangladesh	58.6	18.5	137	6.5
India	52.3	35.7	408	15.4
Nepal	53.0	27.5	296	10.9
Pakistan	56.4	47.5	510	16.8
Sri Lanka	47.3	49.9	337	13.2

SOURCE : Ibid.

Major source of Protein supply in South Asian countries is mainly derived from the plant origin. Between 75-90 percent of the protein supply in these countries come from plant sources and the rest from the animal products. Pakistan is the only country in the region where the per capita consumption of animal protein is higher, nearly one-fifth of an average diet. The annual per capita availability of milk and meat remains at 96 and 16 kg respectively.<sup>6</sup> The protein-calorie supply from animal sources is the lowest in Bangladesh, while the country tops the list in the consumption of cereals. Severe nutritional deficiency is rampant, resulting in a high rate of infant and childhood mortality. Nearly 26 percent of children die before attaining the age of 5. The consumption of vegetables, roots,

tubers and fruits is the lowest in the country.

The household consumption pattern on the basis of income (Table 3.11) reveals that all countries in the region spent major share of the household income on food. Cereal takes the larger share amongst the dietary compositions. Except Sri Lanka, all other countries spent 50-60% of the household income on food during 1980-85. More than one third of the household income in Bangladesh and Nepal was spent on cereals. Very low share was received by education (one percent) during the same period. Countries like, India, Pakistan and Sri Lanka spent almost half of that was spent by Bangladesh and Nepal on cereals. It is clear from the present analysis that in Bangladesh and Nepal, the importance placed by the households on food in general and cereals in particular is much more than it is an education, medical care and so on. The household consumption pattern by income reflects the country's level of poverty as there exists a positive relation between poverty and levels of cereal consumption.

Table 3.11

Household Consumption Pattern in Selected South  
Asian Countries

(percentage)

Countries	Household Income Spent on					
	Food		Education	Medical Care	Others	
	cereals & tubers	others	total			
Bangladesh	36	23	59	1	2	38
Nepal	38	19	57	1	3	39
India	18	34	52	4	3	41
Pakistan	17	37	54	3	3	40
Sri Lanka	18	25	43	3	2	52

SOURCE :- World Development Report, 1990, Table 10, P 196.

The countries of SAARC suffer from wide nutritional gap. This gap may be illustrated in case of Bangladesh (Table 3.12) which suffers from acute under-nourishment and hunger.

Table 3.12

Nutritional Gap in Bangladesh, 1989

Sources	Daily per Capita		Nutritional gap (gm)
	Requirement (gm)	Availability (gm)	
Cereals	438	410	28.0
Vegetables, Roots and Tubers	185	86	99.0
Oils	3	2	1.0
Pulses, Gur and Sugar	83	19	64.0
Fruits	63	40	23.0
Animal Sources	44	32	12.0
Calorie	1900	1650	250.0

SOURCE :- Bangladesh Observer, 26th March 1990.

The existing gap between requirements and availability is met from imports and food aid. The situation of undernutrition in the country is widespread and about 95 per cent of people of Bangladesh do not get adequate food and nutrition to maintain their normal health.<sup>7</sup>

### 3.5 EXTENT OF MALNUTRITION IN SAARC COUNTRIES

Although, the whole of SAARC region is inflicted with the condition of hunger, malnutrition and infectious diseases, the extent of malnutrition and deficiency disease show a high degree of inter-country variations depending on their level of poverty, state of economy, socio cultural toboos, levels of food

supply and dietary pattern. According to FAO reports, more than 460 million people suffer from hunger and malnutrition, of which about 300 million live in SAARC countries.<sup>8</sup> This accounts for nearly 65 per cent of the total malnourished people of the world. About one quarter to one third population of the developing countries, suffer from ailments associated with protein-calorie- malnutrition, of which major proportion of population is from South Asian region. With unchecked population growth, their number is growing to an alarming proportion. According to UNICEF, 40 per cent of young children who die in the world each year 45 per cent of children malnourished and 50 per cent of those who live in absolute poverty, are to be found in just three countries: India, Pakistan and Bangladesh.<sup>9</sup>

The proportion of malnourished children and the percentage of babies born with low birth weight, are falling slowly, is still significantly higher in South Asian region than in any other regions of the world.

The percentage of infants with low birth weight remains high. It is as high as 25-30 per cent as against 5-10 per cent in many other developing and developed countries. The high proportion and low birth weight babies reflect maternal malnutrition, which is quite high in the region.

### **3.5.1 Inter-Regional Variations in the Extent of Undernutrition**

More than one fifth of the population in developing countries, i.e., 512 million people, were undernourished during



1983-85. About 32 per cent was found in Africa, 22 per cent in Asia and Pacific and 14 per cent in Latin American and the Caribbean countries. In absolute term, Asia and Pacific accounted for 291 million people affected by undernutrition. (Table 3.13).

Table 3.13

The Extent of Undernutrition in Developing Countries

Region	1979-1981		1983-85	
	Total (in million)	Percentage of region's population	Total (in million)	Percentage of region's population
Africa	110	29	140	32
Asia and the Pacific	288	24	291	22
Latin America and the Caribbean	52	15	55	14
Near East	24	12	26	11
<b>TOTAL</b>	<b>475</b>	<b>22</b>	<b>512</b>	<b>21</b>

SOURCE: FAO: Revised and updated estimates based on methodology of the Fifth World Food Survey.

**3.5.2 Intra-Regional Variations in SAARC**

Malnutrition in the developing countries is found in the form of protein-energy malnutrition (PEM), nutrition anemia, particularly iron-deficiency anemia, Vitamin-A deficiency and

many micro-nutrient deficiencies such as iodine deficiency. Stunting (Chronic undernutrition) and wasting (acute undernutrition) are the common forms of PEM. Nearly 45 per cent of world's children who are malnourished, are found in South Asia, mainly in three countries: Bangladesh, Pakistan and India.

In Bangladesh, incidence of infants with low birth weight and children suffering from underweight (0-4 years), stunting and wasting are the highest in the region. Nearly 60 per cent of children on the age group 0-4 years in Bangladesh suffered from underweight, 59 per cent from moderate and severe stunting during 1980-87. (Table 3.14)

Table 3.14

Prevalance of Protein-energy Malnutrition among Children  
in Selected SAARC Countries

Countries	% of infants with low birth weight 1985	% of children suffering from		
		moderate and severe underweight (0-4 yrs)	moderate and severe stunting (24-59 months)	moderate and severe wasting (12-23 months)
Bangladesh	31	60	59	17
India	30	41	-	-
Pakistan	25	39	42	17
Sri Lanka	28	38	34	19

SOURCE :- UNICEF, The State World's Children, 1990, Table 2

In Bangladesh, 85 per cent of pregnant women suffer from nutritional anemia, 45 per cent from protein deficiency, 42 per cent from Vitamin-A deficiency, 40 per cent from endemic goitre and more than 10 million children between 1-4 years of age suffer from physical and mental retardation as a consequence of malnutrition.<sup>10</sup> A vast majority of population in Bangladesh is subjected to chronic Protein and energy deprivation. Nearly 95 per cent of population in Bangladesh is malnourished. Incidence of severe malnutrition in the country accounts for nearly 11 per cent of total malnourished population. The high prevalence of maternal malnutrition exists in Bangladesh and is evidenced by high incidence of low birth weight babies. The proportion of children 0-4 years of age in Bangladesh suffer from severe malnutrition and the rate is more than double of the age group 5-14 years.<sup>11</sup> Poor weaning practices coupled with inadequate dietary supplementation are the common explanations for such severity.

Majority of women and children in Pakistan suffer from some degree of malnutrition. Nearly 25 per cent of infants in Pakistan are with low-birth weight (less than 2.5 kg). More than 40 per cent of children in age group 29-59 months of age suffer from stunting. Apart from protein--energy malnutrition, this vulnerable group is severely affected by iron deficiency anemia and other micro-nutrient deficiencies. Overall, 60 per cent of population in Pakistan suffered from mild to severe malnutrition during 1976-77 (Table 3.15).

In case of India, the prevalence of malnutrition is less severe than that in Bangladesh and Pakistan. The extent of malnutrition in India is in order of 58 percent leaving only 42 per cent of well-nourished people. However, the incidence of third degree (severe) malnutrition is relatively high accounting for 8 per cent of total population in 1976-77 (Table 3.15). Like any other country in the region, cases of maternal, malnutrition in India remain high, which is reflected by high proportion of low birth weight babies. Inadequate food supply, wide-spread poverty, high incidence of unemployment, low calorie intake etc are the main explanations given for such high incidence of malnutrition in the country.

Table 3.15

Extent of Malnutrition in Some

SAARC Countries, 1976-77

Countries	Malnutrition ( per cent)				Normal
	Mild	Moderate	Severe	Total	
Bangladesh*	31.1	52.9	11.0	95.0	5.0
Pakistan	43.4	9.5	7.1	60.0	40.0
India	13.0	36.9	8.1	58.0	42.0
Nepal	41.5	24.0	5.1	70.6	29.4

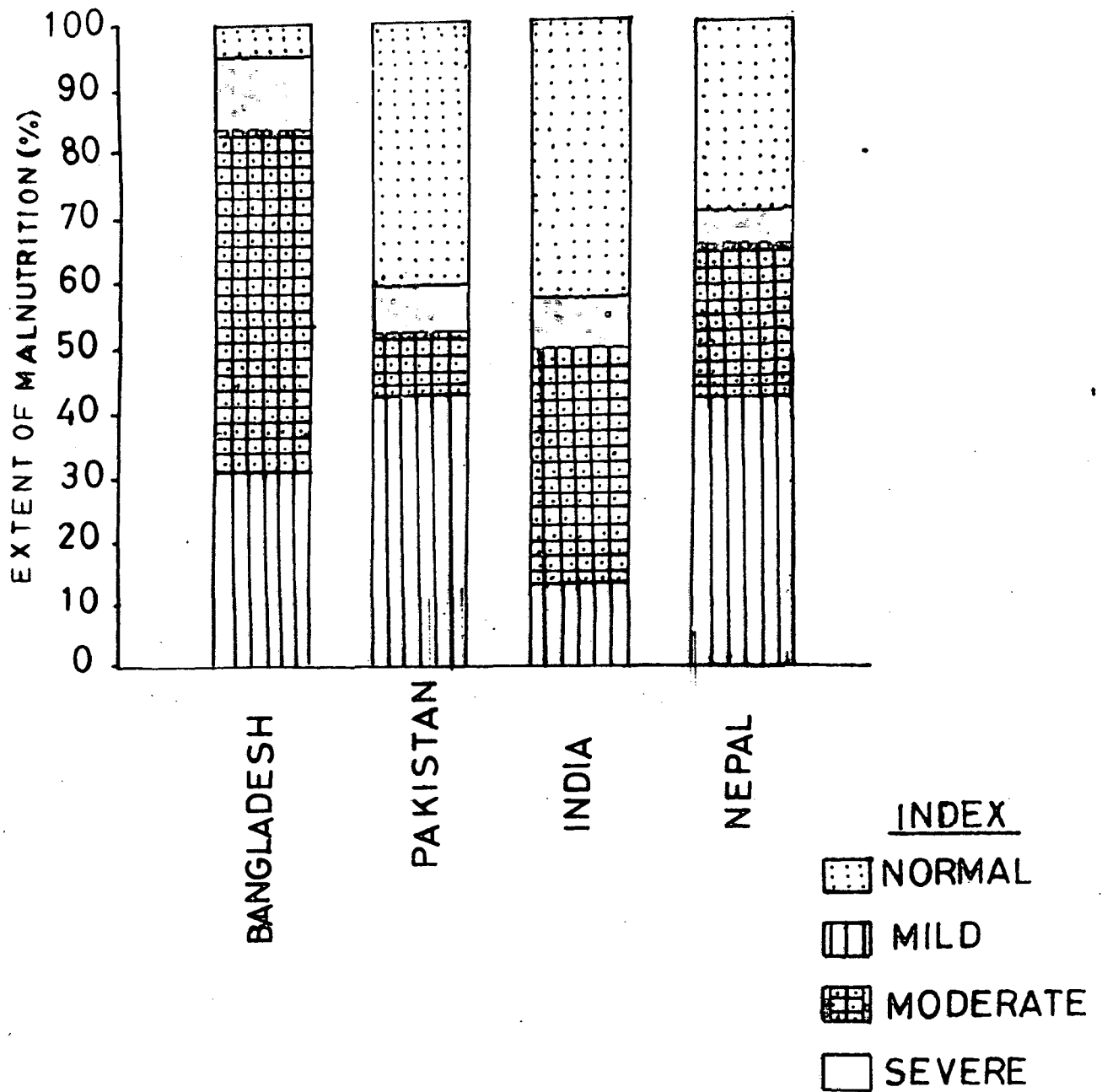
SOURCES :- Report of the Child Nutrition status, Bangladesh Household expenditure survey, 1985-86, Bangladesh Bureau of Statistics, 1987.

UNICEF, "A review of the situation of children: Pakistan" 1986, p 19.

\* Data for 1985-86

FIG. 3.7

EXTENT OF MALNUTRITION AMONG CHILDREN  
UNDER FIVE YEARS IN SOME SAARC  
COUNTRIES



In two island countries - Sri Lanka, Maldives, with relatively high GNP per capita income, high female literacy rate, low levels of poverty and unemployment, high calorie intake, the degree of prevalence of malnutrition is low. has led to reduced prevalence of malnutrition. The levels of poverty and unemployment in Srilanka are in the order of 40 and 20 percent respectively.<sup>12</sup> The percentage of children suffering from underweight was relatively low (.i.e. 38 per cent) in Sri Lanka during 1980-87. Similarly, the proportion of children in 24-59 months of age, suffering from chronic undernutrition was 34 per cent during the same period.

Malnutrition, although, represents a public health problem in Maldives, many observers reported that "there are no avert evidence of acute malnutrition studied."<sup>13</sup> However, incidences of PEM, iron-deficiency anemia and to a lesser extent Vitamin-A deficiency are reported from the country.

The two Himalayan Kingdoms - Nepal and Bhutan, are primarily agricultural economies with low GNP per capita, high incidence of poverty and unemployment, showing high prevalence of PEM. The children are the hardest hit of poor nutritional condition. The childhood malnutrition in Nepal is alarmingly high. A survey indicates that, "levels of malnutrition among children was 41.5 per cent of the first degree, 24 per cent of second degree and 5.1 per cent of the third degree."<sup>14</sup> The incidence of malnutrition in Nepal accounts for over 70 per cent. "Wasting and stunting in Nepal have been widespread with

the prevalence of 6.8 per cent, and 51.4 per cent respectively."<sup>14</sup>

Informations on the nutritional status of the people of Bhutan are scarce.<sup>16</sup> Sample survey of Household in Bhutan indicates that "calorie and protein deficiencies were observed in 9 and 13 per cent respectively in these households".<sup>17</sup> The common nutritional deficiencies, endemic in Bhutan are iron and iodine. The protein-energy malnutrition in Bhutan, though not posing a major problem for the population as a whole, yet it remains high in the most critical age of 0-5 years.<sup>18</sup>

The above cross-country analysis on extent of malnutrition and its form of expression reveals that, there is a high prevalence of wasting and stunting common to all countries of the region but its worse victims are found in three countries: Bangladesh, Pakistan and India. Bangladesh is by far the leading country in the region showing widespread poverty and severity of malnutrition.

### **3.6 MORTALITY IN SAARC REGION**

Stemming from the widespread hunger, malnutrition and infectious diseased environment, the morbidity and mortality rates are quite high in the region, particularly amongst the vulnerable groups i.e. children and women in the child bearing age. Although, the death rate of all age groups is high in the region, yet, the infant and childhood mortality rates in the region are is considerably higher than in the other regions of the world, warranting enhanced economic, public health and

nutritional measures to reduce these indices. According to an estimation, nearly 20 million people in the world die each year from hunger related causes, of which 14 million are children.

Infant mortality is considered to be an indicator of the levels of socio-economic development of a country. Higher the levels of economic development, the lower will be the infant mortality. In all the regions of the developing world, the infant mortality remains high compared with developed countries. In the developing countries, high maternal and infant mortality are attributed not only to the poor socio-economic environment but also to the widespread malnutrition. According to WHO, "more than half of child death, in Latin America, are due to undernourishment, in Africa and India, hunger is the direct cause of death among infants".<sup>19</sup> Two-third of deaths in Asia, Africa and Latin America involve children under the age of five. Thus hunger and chronic undernourishment take the lives of more than ten million children every year.<sup>20</sup>

The table 3.16 showing maternal and child mortality rate in SAARC region showed that Bhutan was the leading country in terms of maternal mortality. The rate was more than 1700 per thousand during 1980-87. Nepal took second position in this regard. At the other extreme, such rate was the lowest in Maldives, which was only 4 per thousand. The countries like Bangladesh and Pakistan showed relatively high rate as compared to India. In Sri Lanka, maternal mortality rate was also very low i.e. only 60 per thousand during the same period. India was



ranked fourth position in terms of both maternal and infant mortality with a rate of 340 and 97 per thousand respectively. In SAARC countries, the deaths among children, particularly among infant, remain still high, despite the concerted efforts made by several governments to reduce it by various policies. Two Himalayan kingdoms - Nepal and Bhutan showed the highest rate of infant mortality (Fig 3.8) in the whole region which was as high as 126 per thousand as against 5-10 per thousand in the developed countries, such as USA, UK and Japan. Nearly 40 per cent of infant death in Nepal occur 4 weeks of life. The infant mortality rate was the lowest in Sri Lanka (21/1000) followed by Maldives (68/1000). Both Bangladesh and Pakistan accounted for higher rate of infant mortality. Similarly, mortality rate of under five years of age followed almost the same pattern as the infant mortality rate. It remained high in all countries of the region except in the two islands countries (Table 3.16).

Table 3.16

Mortality Rate in SAARC Countries

Countries	Mortality Rate (per thousand)		
	Maternal mortality (1980-87)	Infant mortality (1988)	Children under 5 years of age (1988)
Bangladesh	600	118	188
Bhutan	1710	127	197
Maldives	4*	68	91
Nepal	830	126	197
India	340	97	149
Pakistan	500	107	166
Sri Lanka	60	21	43

Sources: World Development Report, Table - 28, 1990, p. 232.

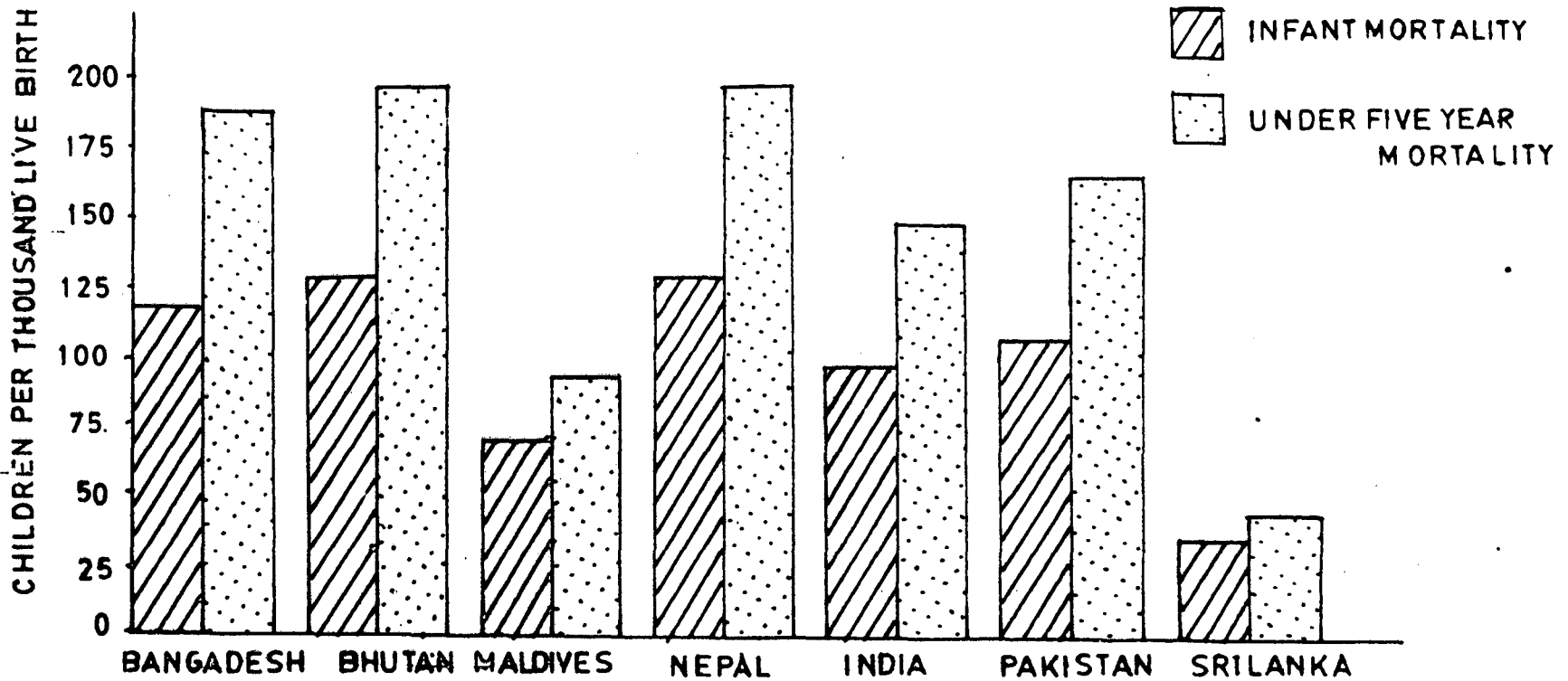
UNICEF Report, "The State of the World's Children, 1990".

\* Statistical Year Book of Maldives, 1989.

Though, the overall picture of mortality in the SAARC region remains high as compared to other regions of the developing world, however, there exists wide intra-country variations within the region. Low infant and maternal mortality are found in Maldives and Sri Lanka. At the other end of the mortality scale, Bhutan, Nepal and Bangladesh, show high rate of mortality among women and children owing to high prevalence of

FIG.3.8

CHILD MORTALITY IN SAARC COUNTRIES, 1988



malnutrition. The high mortality rate among children in the region is accounted mainly for diarrhoeal diseases, often complicated by malnutrition and other infectious diseases.

The afore-mentioned analysis on the problem of malnutrition and its various facets reveals that malnutrition is a common problem in all countries of SAARC region. The problem is intertwined with the problem of poverty, unemployment and economic inequalities. Though, all countries show a high prevalence of malnutrition, but, it is more severe in Bangladesh, India and Pakistan. Wide prevalence of malnutrition in these countries has accounted for high mortality particularly, among the vulnerable groups. It has become a serious hindrance for the national development.

The problem is deep rooted with underdevelopment that persists in the region. Malnutrition in the region is both the cause and the consequence of underdevelopment. The region is caught in a 'vicious circle' of underdevelopment, poverty, and malnutrition.

Although, scarcity of food is closely associated with nutritional imbalances, the problem of malnutrition in some countries like India and Pakistan is not due to low levels of food production but due to wide income disparities and distributional flaws that persist in the region.

The region shows a wide inter-country variation in terms of the extent of malnutrition and prevalence of nutritional deficiency diseases, depending on the socio-economic and

environmental conditions of an area. With the variation of different forms and degree of malnutrition, there exists a wide spatial variation in the nutritional deficiency diseases. Both malnutrition and deficiency diseases have, thus, a clear geographic expression.

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CHAPTER 4

SPATIAL DIMENSIONS AND PREVALENCE OF MAJOR NUTRITION DEFICIENCY  
DISEASES IN SAARC REGION WITH SPECIAL REFERENCE TO INDIA

INTRODUCTION

- 4.1 IDENTIFICATION OF MAJOR NUTRITIONAL DEFICIENCY DISEASES
- 4.2 EXTENT OF THE DEFICIENCY DISEASES IN SAARC REGION
  - 4.2.1 Protein-energy Deficiency
  - 4.2.2 Iron Deficiency Anaemia
  - 4.2.3 Vitamin A Deficiency Diseases
  - 4.2.4 Iodine Deficiency Diseases
- 4.3 NUTRITIONAL DEFICIENCY DISEASES IN INDIA



SPATIAL DIMENSIONS AND PREVALENCE OF MAJOR NUTRITIONAL DEFICIENCY DISEASES IN SAARC REGION WITH SPECIAL REFERENCE TO INDIA

Nutritional deficiency diseases are simply the manifestation of malnutrition. Nutritional deficiency diseases are thus the indices of the extent of malnutrition condition in an area. Greater the incidences of nutritional deficiency diseases, greater will be the extent of malnutrition. The deficiency diseases are closely associated with many factors such as, low food intake both in terms of quality and quantity, infectious diseases, low birth weight, faulty child rearing practices etc. It has been well documented that a close synergistic relationship exists between protein-calorie malnutrition and infectious and parasitic diseases, notably diarrhoea, measles, intestinal worms etc, in the developing nations. Similarly, in many instances low birth-weight "culminates in severe malnutrition during infancy and results in a greater susceptibility to infections, primarily due to low resistance".<sup>1</sup> Faulty child rearing practices like premature curtailment of breast feeding and inappropriate weaning practices result in protein-calorie malnutrition.

4.1 IDENTIFICATION OF MAJOR NUTRITIONAL DEFICIENCY DISEASES

Malnutrition caused diseases are well known. They may affect all age groups but are more common among children.

Five principal nutritional deficiency diseases which are most prevalent in the developing countries in general and in South Asiatic region in particular are identified as Kwashiorkor, Marasmus, Xerophthalmia, nutritional anaemia and endemic goitre. Kwashiorkor is caused by severe protein deficiency while marasmus is attributed to disproportionate deficiency, of calorie. Both these deficiency diseases occur frequently among infants and young children. It is documented that "Kwashiorkor and Marasmus are not only an important cause of childhood mortality and morbidity, but also lead to permanent impairment of physical and possibly, of mental growth of those who survive".<sup>2</sup> Xerophthalmia caused by vitamin A deficiency affects the eyes and leads to blindness. Young children are more prone to this deficiency disease. Nutritional anaemia is due to deficiency of iron. It is also caused by intestinal parasitic infestation.<sup>3</sup> Endemic goitre is caused by deficiency of iodine in food.

In addition to major nutritional deficiency diseases, other deficiency diseases like beriberi, angular stomatitis, pellagra, scurvy, rickets, etc. are also found in South Asiatic region. Beriberi caused by lack of Vitamin B1 (Thiamine) is prevalent in those areas where people have acquired the habit of eating polished rice.<sup>4</sup> Angular Stomatitis is due to deficiency of riboflavin or Vitamin B2. Pellagra is due to deficiency of niacin and is found in areas where there is heavy reliance on maize, sorghum or millet as a staple food.<sup>5</sup> Scurvy caused by lack of Vitamin C, is found in areas where diet is deficient in

fruits and vegetables. Rickets is attributed to lack of Vitamin D. It occurs among infants and children. The disease is characterized by deformities of bones.

#### 4.2 EXTENT OF THE DEFICIENCY DISEASES IN SAARC REGION:

##### 4.2.1 Protein-Energy Deficiency

Protein-energy deficiency diseases are the most prevalent in all countries of South Asia. It is a major public health problem in this region. Various studies at the country level reveal that the magnitude of protein-energy deficiency is more severe in the SAARC countries.

A study in Bangladesh shows that "56.1 per cent of children aged 6-71 months, suffer from chronic malnutrition (Stunting) and 8.1 per cent suffer from acute malnutrition (Wasting)".<sup>6</sup> Another study shows that the proportion of children between 0-4 years in Bangladesh suffer from severe forms of malnutrition at a rate more than double that of children in the age group, 5-14 years.<sup>7</sup> This wide incidence of malnutrition among young children is due to poor weaning practices coupled with inadequate food supplementation during the most critical period of their growth and development.<sup>8</sup> Evidence also shows a sex-differential of malnutrition in Bangladesh. Female children have chronic malnutrition than the male children.<sup>9</sup> This is because of the fact that "male children are getting more priority both in feeding and in health care than the female children".<sup>10</sup>

A study in Pakistan revealed that 60 per cent of children under five were undernourished in 1976/77.<sup>11</sup> The major reasons for high incidence of undernutrition among children of under 5 years of age may be due to inappropriate infant feeding practices, prevalence of infections like intestinal respiratory infections and maternal malnutrition etc.

In Sri Lanka, acute undernutrition (wasting) among pre-school children (6-60 months) was 12.2 per cent while chronic undernutrition (stunting) was around 34.6 per cent.<sup>12</sup> A study in Sri Lanka shows that the highest rate of acute undernutrition is found among children in the 13-24 months old. While the rate of chronic undernutrition increases progressively with higher age.<sup>13</sup> The causative factors for prevalence of protein-energy malnutrition among children in Sri Lanka may be due to improper weaning practices and prevalence of infections like intestinal and respiratory ones.

In case of Nepal, the level of protein-energy malnutrition (PEM) among children is 41.5 per cent of the First degree, 24 per cent of the second degree, 5.1 per cent of the third degree<sup>14</sup>. Acute and Chronic undernutrition has been widespread in Nepal with only 7.3 per cent of the children categorized as normally nourished. Acute malnutrition is particularly serious among children 12-23 months old.<sup>15</sup> Evidence shows that 51.4 per cent of Nepal children aged 6-71 months old suffer from chronic malnutrition, while 6.8 per cent suffer from acute malnutrition.<sup>16</sup> The factors attributable to high prevalence of PEM among children may include high prevalence of gastro-

intestinal and respiratory infections, poor weaning practices, widespread maternal malnutrition etc.

The extent of PEM among children in Maldives is not known due to the absence of adequate national data relating to nutritional status of children.

#### 4.2.2 Iron Deficiency Anaemia

It is another major public health problem in SAARC Region. It is also prevalent in all the countries of this region. Iron deficiency anaemia is particularly seen among Pregnant and lactating women and pre-school children. The dimension of iron deficiency anaemia is revealed by various studies at the country level.

In Bangladesh, "Iron deficiency anaemia is very high among young children and women in the reproductive age group. Approximately 82 per cent of under 5 years old children and 74 per cent of adult women suffer from nutritional anaemia.<sup>17</sup> High per cent of anaemia among adult women may be due to increased demand and low availability of iron in the diet.

A study in Pakistan shows that "41 per cent of the population to be anaemic. Pregnant women are most seriously affected with 54.4 per cent of them, is found to be anaemic."<sup>18</sup> The main reason of anaemia in Pakistan may be the poor rate of absorption of iron from the wheat based diet.<sup>19</sup> Malaria, which is widespread throughout the country also seems to have contributed towards these high rates of anaemia".<sup>20</sup>

In Sri Lanka, study indicates that the incidence of nutritional anaemia among pre-school and school going children is as high as 50-60 per cent, whereas in pregnant and lactating mothers and estate workers, the incidence is about 40-50 per cent.<sup>21</sup>

In Nepal, about 30-50 per cent women are anaemic.<sup>22</sup> Similarly, in Maldives, the nutritional anaemic affects 30 per cent of children and adults.<sup>23</sup>

#### 4.2.3 Vitamin-A deficiency diseases

Each year, at least 250,000 young children lose their sight for the lack of a small amount of Vitamin A in their diet. World wide, about 40 million pre-school children suffer from some degree of Vitamin A deficiency.

Vitamin A deficiency is the main cause of childhood blindness. A study in Bangladesh reveals that each year nearly 9 lakh children under the age of six years suffer from some form of Xerophthemia, 30,000 children are blinded and 50 per cent of the blinded children die within few months.<sup>24</sup> Xerophthalmia and night blindness are less prevalent in Nepal and are to the extent of three per cent and one per cent respectively.<sup>25</sup> Similarly, night blindness is seen in many islands of maldives.<sup>26</sup>

Table 4.1 showing the prevalence of blindness in SAARC region, reveals that, the rate of blindness was widespread in Pakistan, Sri Lanka and Bangladesh and the rate was as high as

20 per thousand population. The rate of blindness in Nepal was low and it was 8 per thousand population in 1980. In case of India, the rate of blindness according to WHO, was 15 per thousand population in 1976.

Table 4.1

Prevalence of vitamin - A deficiency diseases  
(Blindness) in selected SAARC Countries

Extent of Blindness		
Countries	Reference Year	Prevalence rate (per '000 population)
Bangladesh	1980	20
India	1976	15
Nepal	1980	8
Pakistan	1981	23
Srilanka	1981	20

Source: United Nations, Asian Population Studies Series, No. 78, Table 11, 1987, p. 120.

#### 4.2.4 Iodine Deficiency Diseases

Iodine deficiency disease such as goitre is most prevalent in the mountainous regions. A study in Bangladesh indicates that about eleven million people suffer from iodine deficiency goitre in the country<sup>27</sup>. It is mainly concentrated in the northern highland regions of Bangladesh<sup>28</sup>. Similarly, northern Pakistan which is the mountainous area, is "one of the more severely affected areas in the world"<sup>29</sup>. In case of Sri

Lanka, it is endemic in certain localised areas<sup>30</sup>. Similarly, the iodine deficiency disorders (IDD) are highly endemic in the highlands of Nepal<sup>31</sup>.

It is evident from the foregoing analysis that the deficiency diseases have a geographic expression. Certain zone is endemic in certain type of disease. For example, goitre is more prevalent in the highland regions of Bangladesh, Pakistan and Nepal. The five major nutritional deficiency diseases are common to all countries in South Asia.

#### 4.3 NUTRITIONAL DEFICIENCY DISEASES IN INDIA

Among the several nutritional deficiency diseases, prevalence of protein-energy malnutrition (PEM) has been identified as the most important one. It is a "widespread nutritional problem of India"<sup>32</sup>. In India, protein-energy malnutrition is widely prevalent among the children belonging to low-income social groups. The most serious forms of PEM are kwashiorkor and marasmus.

"India has the maximum number of children suffering from severe or moderate protein-energy malnutrition in Asia"<sup>33</sup>. According to the estimation of Chatterjee, the prevalence of PEM among children in 1-5 years of age-group is very high with about 2 per cent showing acute deficiency and 85 per cent showing a relatively milder forms of deficiency<sup>34</sup>. According to him, nearly a million children die every year due to PEM.



The map showing the spatial distribution of protein-energy malnutrition among children in India reveals that a severe form of such malnutrition occurs mainly in the rice cultivated areas of eastern and southern states (map 4.1). These include states like West Bengal, Orissa, parts of Maharashtra and all southern states. It occurs in mild form in Punjab, Haryana and north-eastern states and the remaining areas depict a moderate form of PEM.

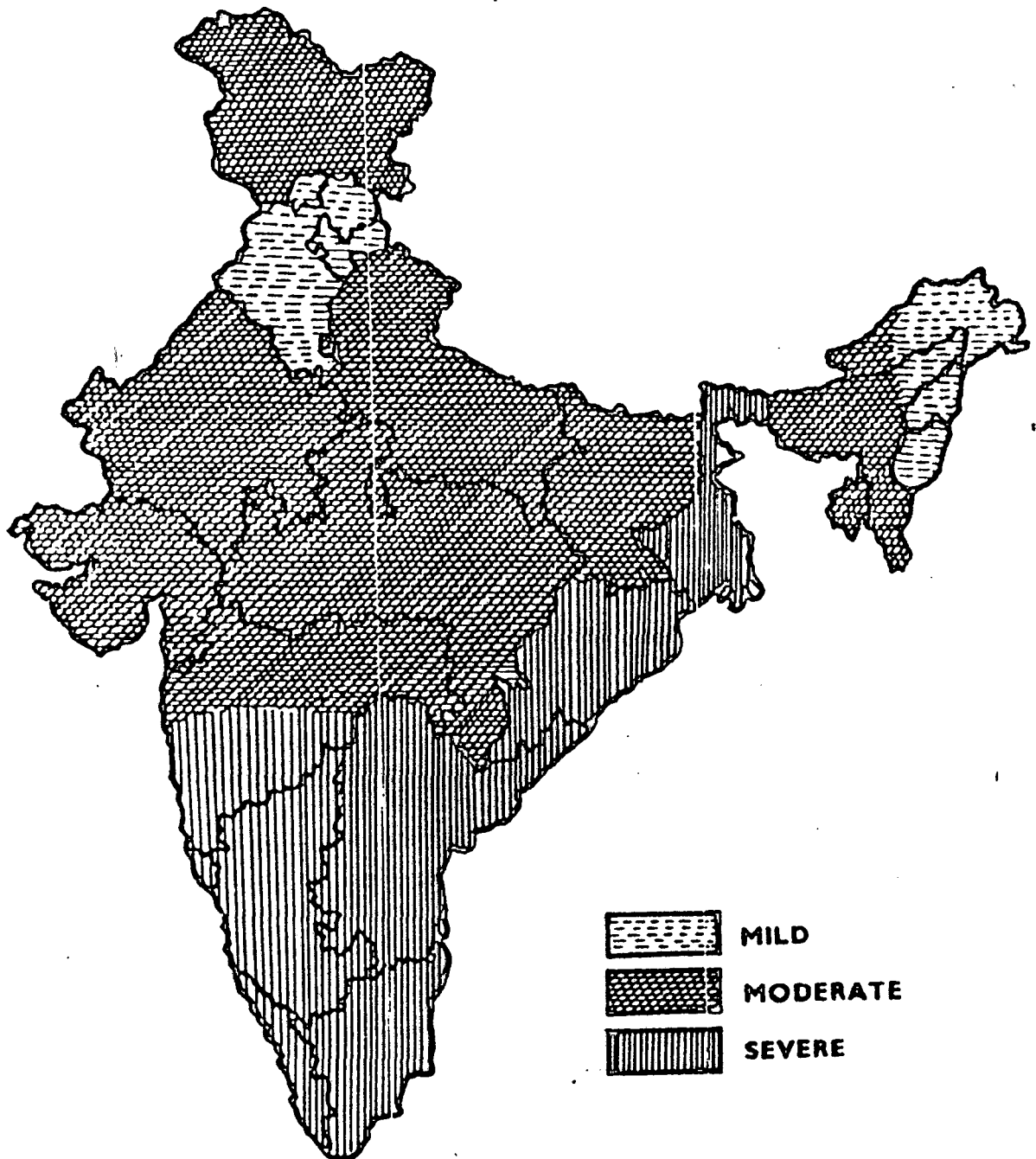
Nutritional anaemia is another health problem in India, and it is particularly seen among pregnant women and pre-school children as their requirements for essential nutrients are relatively high<sup>35</sup>. The nutritional anaemia is prevalent in all parts of the country. It is one of the causes of high maternal mortality in India. It is estimated that "approximately 10 per cent of all maternal deaths are directly due to anaemia"<sup>36</sup>. "It is also responsible for many abnormal, premature and still births"<sup>37</sup> and even "low birth weights among Indian infants are attributed to anaemia"<sup>38</sup>.

The incidence of vitamin A deficiency disease in India is high among pre-school children belonging to the low income groups<sup>39</sup>. It is believed that in India, "there may be over one million cases of blindness caused by xerophthalmia"<sup>40</sup>.

Xerophthalmia is most prevalent in the southern and eastern states of India notably Andhra Pradesh, Tamil Nadu, Karnataka, Bihar and West Bengal, but relatively few cases of xerophthalmia are found in the northern states<sup>41</sup>. The main

FIG. 41

INDIA  
GEOGRAPHIC DISTRIBUTION OF  
PROTEIN CALORIE MALNUTRITION  
IN CHILDREN



(AFTER C.GOPALAN)

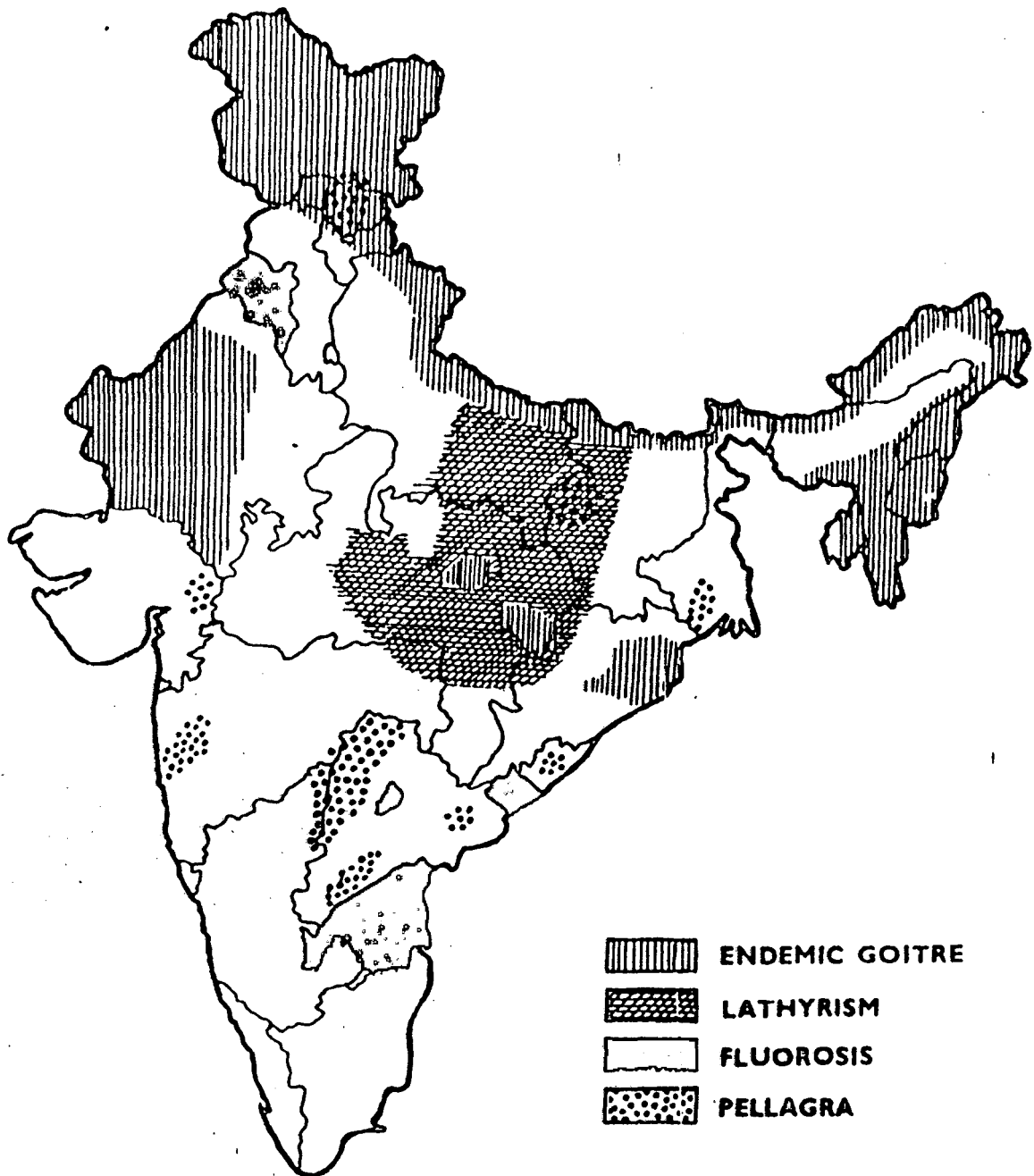
reason for the spatial variation in the prevalence of xerophthalmia is that the former states are predominantly rice consuming areas and rice is devoid of carotene, an element that prevents the disease.

The iodine deficiency goitre is the most prevalent in India. "India has the world's biggest 'goitre belt' along the sub-Himalayan region, extending from Ladakh, Jammu and Kashmir in the west, and passing through Himachal Pradesh, parts of Uttar Pradesh, Bihar, West Bengal, Sikkim, Assam and the north-eastern states of Arunachal Pradesh, Meghalaya, Nagaland in the east"<sup>42</sup>. (Map 4.2) The average prevalence rate of goitre in endemic zone is around 40 per cent and about 9 million people are estimated to be affected by goitre in India<sup>43</sup>. The main cause of high incidence of endemic goitre along the Himalayan belts is due to deficiency of iodine in the water and soil. The food crops grown are, therefore deficient in this nutrient and precipitate endemic goitre.

In addition to the above mentioned deficiency diseases, other deficiency diseases such beri beri, pellagra, lathyrism, rickets etc are also found in India. The high incidence of beri beri is seen in the districts of Ganjam, Vishakhapatnam, Godevari, Krishna, Guntur and Nellore in Andhra Pradesh<sup>44</sup>. Pellagra though reported from many parts of India, is peculiar to the Deccan Plateau where jowar forms the staple<sup>45</sup>. Lathyrism caused by the excessive consumption of khesri dhal is endemic in central India in Madhya Pradesh, eastern Uttar Pradesh and adjoining parts of Bihar<sup>46</sup> (Map 4.2).

FIG. 4.2

INDIA  
GEOGRAPHIC DISTRIBUTION OF  
ENDEMIC GOITRE, LATHYRISM, FLUOROSIS,  
AND PELLAGRA.



(AFTER C.GOPALAN)

The foregoing analysis of the prevalence of nutritional deficiency diseases reveal that, all forms of malnutrition diseases are commonly found in SAAR Countries. However, there exists a wide regional variation in diseases in terms of their dimension and occurrence. Among the nutritional deficiency diseases, the protein and calorie deficiency diseases are the most prevalent in all SAARC Countries and particularly in countries such as Bangladesh, India and Pakistan. Prevalence rate of Vitamin A deficiency disease leading to blindness is high in case Bangladesh, Pakistan and Srilanka. As far the endemic goitre is concerned, it is wide spread in India, Pakistan and Bangladesh and mostly occur in the highlands and mountainous regions of these countries.

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CHAPTER 5

CRITICAL APPRAISAL OF NUTRITION-HEALTH POLICIES AND PROGRAMMES  
IN SAARC REGION

INTRODUCTION

- 5.1 NUTRITION AND HEALTH PROGRAMMES IN SAARC REGION
- 5.2 COMMITMENTS OF SAARC COUNTRIES TOWARDS HEALTH FOR ALL BY THE YEAR 2000 AD
- 5.3 ROLE OF INTERNATIONAL AGENCIES AND THEIR EFFORTS ON HEALTH AND NUTRITION

## CHAPTER 5

### CRITICAL APPRAISAL OF NUTRITION HEALTH POLICIES AND PROGRAMMES IN SAARC REGION

There is a growing realization that adequate nutrition is a necessary step in the improvement of the quality of life. The importance of undernutrition and malnutrition as obstacles to social and economic development, has brought nutrition to the forefront at the national and international level.

The problem of malnutrition is multidimensional in nature. It is closely related to such factors as population growth, inadequate food supply, poverty, insanitary condition, infectious diseases etc. The policies of health and nutrition call for an integrated approach. It must be integrated with other policies like agricultural and food policies, population policies, family planning policies and programmes and so on. In order to solve the problem of malnutrition and to improve the nutritional status, both short-term and long-term measures are undertaken at the national level. The short-term measures include nutrition intervention programmes, health-related programmes like programme for eradication of infectious diseases, programmes of immunization and improvement of environmental sanitation, family planning programme etc. Similarly, the long-term measures include, agricultural and rural development, improvement of educational and literacy standards and of women status and above all the socio-economic development. Like many other countries of the Third World, SAARC

countries have undertaken various policies and programmes to reduce the incidences of malnutrition.

### 5.1 NUTRITION AND HEALTH PROGRAMMES IN SAARC REGION

Various governments in SAARC region have initiated several programmes in nutrition to control major nutritional problems. These programmes may be classified as: (i) programmes designed to improve the nutritional status, (ii) programmes aimed at over-coming specific deficiency diseases, (iii) other programmes such as Integrated Child Development Services, Food Stamp Scheme and so on.

#### 5.1.1 Programmes Designed to Improve Nutritional Status

Several feeding programmes undertaken by different governments in SAARC countries with a view to improving the nutrition status of the people are as follows --

Applied nutrition programmes was launched by the government of India in 1963 with the assistance of UNICEF, FAO and WHO for improving the nutritional status of the lactating and expectant mothers and children. The chief aim of the programme is to stimulate the production of protective foods such as eggs, fish, milk, vegetables and fruits and by means of health education to promote their consumption by mothers and children who are the vulnerable group from the nutritional standpoint.<sup>1</sup>

In India, it now covers 1375 community development blocks and serves 1.7 million women and children.<sup>2</sup> The programme has not been successful in achieving its aims and objectives.<sup>3</sup>

The special nutrition programme was started by government of India in 1970 for the nutritional benefit of pre-school children (6 months to 6 years), pregnant women and nursing mothers. The supplementary food supplies 300 cal. and 10-12 gm protein per child per day and 500 cal. and 25 gm protein per woman per day.<sup>4</sup>

Mid-day meal programme has been operating many parts of India since 1962-63, after it was first organized successfully in Tamil nadu in 1957. Improvement in the nutritional status of children and imparting nutritional education are the two basic objectives of this programme.<sup>5</sup>

Government of Sri Lanka have undertaken supplementary feeding programmes. The Thriposha programme was developed in 1972 in collaboration with CARE. Its major objective was to provide nutritious supplement to the nutritionally vulnerable poor segments of the population, namely pregnant women, nursing mothers, infants and pre-school children.<sup>6</sup> Thriposha consisted of local maize, soyabean (produced indigenously) and imported product and was distributed to the beneficiaries.<sup>7</sup> At present, annually nearly 6 lakh persons are estimated to be receiving the supplement.<sup>8</sup>

School biscuit programme has been in operation since 1968. It was designed to combat undernutrition among school children

and promote school enrolment and school attendance.<sup>9</sup> It provides a nutritional supplement (biscuits fortified with soya) to school children (age 6-9 years).<sup>10</sup> Over 7800 schools are included in the programme.<sup>11</sup> Recent evaluations have shown that the feeding programme is not producing the nutritional benefits due to implementation problems.<sup>12</sup>

"Nutritious Food programmes - Expansion 2", which is a supplementary feeding programme has been launched by government of Nepal. It is based almost entirely on food aid.<sup>13</sup> The main objectives of the programme are to improve the diets and the nutritional status of pre-school children and of pregnant and lactating mothers.<sup>14</sup> Improvement of basic knowledge of health and nutrition is also one of the objectives of this programme.<sup>15</sup>

The government of Pakistan has lacked a proper coordinating mechanism for nutrition activities, resulting in a low rate of implementation of nutrition programmes.

In Bhutan, apart from the programme for the control of goitre and related iodine deficiency, there are as yet no major programmes for concerted action directed towards improvement of the nutritional status of the population.<sup>16</sup>

#### 5.1.2 Programmes Aimed at Over-coming Specific Deficiency Diseases

To control nutritional deficiency diseases different governments in SAARC region have initiated several deficiency control programmes. These are as follows:

The government of India have launched following deficiency control programmes.

National goitre control programme was in operation since 1962. Government aims at reducing prevalence of goitre under the programme of "Health for all by 2000 AD".<sup>17</sup> Reduction of 50 per cent of goitre cases by 1985 and 95 per cent by 2000 AD is targetted.<sup>18</sup> Government also has decided to iodise the entire salt in the country in a phased manner by 1992.<sup>19</sup>

Vitamin A prophylaxis programme was launched in the country to minimise nutritional blindness due to Vitamin A deficiency. A large dose of Vitamin A (66,000 Ug) is given orally every six months to children in the endemic areas.<sup>20</sup> An evaluation of the programme has shown that ocular signs of Vitamin A deficiency have declined considerably by nearly 70 per cent in Kerala and Karnataka following the initiation of the programme.<sup>21</sup>

Anaemia control programme has been launched by government of India. It consists of distribution of iron and folic acid (Folifar tablets) to pregnant women and young children.<sup>27</sup>

Government of Bangladesh have adopted the following deficiency control programmes.

Nutritional Blindness prevention programme focuses on the distribution of high potency Vitamin A capsules and aims to cover all children 0-6 years of age, and children with night blindness of 7-15 years.<sup>23</sup> Education activities aimed at

encouraging home production, preservation and consumption of Vitamin A rich foods are also part of this programme.<sup>24</sup> The target population is 23 million children per year.<sup>25</sup>

Goitre control programme concentrates on the ten hyper-endemic areas in the country.<sup>26</sup> Its aim is to promote the nationwide supply and consumption of iodinated salt through universal salt iodination by 1990.<sup>27</sup>

In Nepal, Salt iodination programme was launched in 1973 to control endemic goitre. During the seventh plan, the target is to distribute iodinated salt or injection of iodized oil to 90 per cent of the population in 23 northern districts of Nepal.<sup>28</sup>

Besides the above nutrition programmes, other interventions like Integrated Child Development Services (ICDS) and Food Stamp Scheme are also worth mentioning.

In India, Integrated Child Development Services (ICDS) has emerged as the most extensive national programme related to overall child development with a major nutrition component. It currently covers one-fifth blocks of the country.<sup>29</sup>

Food Stamp Scheme has been adopted by government of Sri Lanka. It is an income-support plan directed towards the low-income groups, who are provided with food stamps for the purchase of rice, sugar, bread, dairy products etc.<sup>30</sup> The stamps are available to all households receiving a monthly income of less than Rs.300 regardless of the nutritional status of the occupants.<sup>31</sup>

### 5.1.3 Health Related Programmes in SAARC:

Several programmes within the field of health, seemingly unrelated to nutrition, may have a profound impact on the nutritional status. Since malnutrition is closely related to infection, all programmes of immunization, diarrhoeal disease control programme and improvement of environmental sanitation will inevitably have beneficial effect on nutrition status. Similarly maternal and child health programme can make a major contribution to the improvement of nutritional status of mothers and children. Almost all countries of SAARC have undertaken maternal and child health programmes and Expanded Programme on Immunization to provide basic health services to mothers and children.

Since six major diseases like Tuberculosis, diphtheria, whooping cough, tetanus, poliomyelitis and measles are the main causes of child morbidity and mortality, thus the basic objective of Expanded Programme on Immunization is to prevent these major diseases and to reduce child morbidity and mortality condition through vaccination services.

Performance of different countries of SAARC in relation to the five year immunization programme launched in the SAARC countries (aimed at immunizing 80 per cent of children by December '90) were that India had fallen 10 per cent short of the goal, Sri Lanka had achieved the goal i.e. 80 per cent of the children were immunized.<sup>32</sup> Bangladesh, which had begun with a figure of only two per cent, had reached India's level within



five years due to a vigorous campaign.<sup>33</sup> In Pakistan, Nepal and Bhutan, there has been substantial progress.<sup>34</sup>

Success of SAARC countries in immunizing infants against six killer diseases and pregnant women against tetanus may be revealed. (Table 5.1).

Table 5.1

**Child-Maternal Care: Immunization Success Rate in SAARC Region**  
**Percentage Immunized (1987-88)**

Countries	One year children				Pregnant women
	TB	DPT	POLIO	Measles	Tetanus
Bangladesh	26	15	16	13	11
Bhutan	86	70	76	36	42
Maldives*	97	79	79	91	80
Nepal	91	71	71	52	31
India	72	73	64	44	58
Pakistan	77	64	64	55	26
Sri Lanka	81	83	85	68	38

\* Data for 1989.

Source: UNICEF "The State of World's Children 1990", pp. 80-81.  
Situation Analysis of Children and Mother in Maldives,  
UNICEF, 1989, p. 26.

Above table showing percentage of immunization coverage reveals that Maldives has achieved the highest success in the region. On an average, the country has immunized more than

three-fourth of her children below one year and women against the common infectious diseases. The Maldives achieved universal immunization in the beginning of 1989, a year ahead of the global target date. The Maldives has been "polio free" since 1981. Sri Lanka's achievement in immunizing infants against six killer diseases is fairly high. However, the success rate in immunizing pregnant women against Tetanus in Sri Lanka is low compared with Maldives, Indian and Bhutan. Bangladesh is the only country in SAARC region which is lagging behind other SAARC countries in this regard. The percentage of immunized children and women in Bangladesh is the lowest in the region. In Bangladesh, success rate of immunization of less than 20 per cent is found in all infectious diseases except Tuberculosis. In Bangladesh 11 per cent of pregnant women are immunized against tetanus. The country depicts the lowest rate of success in maternal and child care, though the extent of malnutrition is widely prevalent in the country. Countries like Nepal and Bhutan have achieved high success in immunizing their children and women. India's success, in this regard, is fairly well and more than half of her infants and women were immunized by 1987-88. In this regard Pakistan's achievement is low compared with India. The success rate of immunization against measles in all countries but Maldives and Sri Lanka is low compared with that of other infectious diseases. Overall, the countries in SAARC region have given high priority to child-maternal care through immunization programme. However, the only country lagging behind in the region in this regard is Bangladesh. In order to achieve its target the country has to go a long way.

Since diarrhoea is a major cause of child malnutrition and mortality in SAARC region, all countries in this region have launched diarrhoeal disease control programme with a view to preventing diarrhoeal disease.

5.2 COMMITMENTS OF SAARC COUNTRIES TOWARDS HEALTH FOR ALL BY THE YEAR 2000 AD

In 1977, WHO had declared "Health for All by the Year 2000 AD". In 1978, the Alma Ata Conference reaffirmed "Health for All" as the major social goal of governments. The concept "Health for All" refers to an attainment of "a level of health that will enable each and every individual to lead a socially and economically productive life".

Alma Ata declaration stated that the best way to achieve the goal of Health for All is by providing primary health care, especially to the vast majority of under-served rural people and urban poor.

To achieve the goal of Health for All, a number of intermediate goals have been set in:

providing right kind of food for all (1985),  
providing essential drugs for all (1986),  
Adequate basic sanitation for all (1990),  
Adequate supply of drinking water for all (1990) and  
Immunization of children against six common diseases, viz. measles, whooping cough, tetanus, diphtheria, polio and tuberculosis (1990).

The concept of primary health care has been accepted by all countries as the key to the attainment of Health for All by 2000 AD. It has also been accepted as an integral part of the country's health system. The concept primary health care refers to "an essential health care made universally accessible to individuals and acceptable to them, through their full participation and at a cost the community and country can afford".

Primary health care is based on four principles:<sup>35</sup> equitable distribution, community participation, multisectoral approach and appropriate technology. Equitable distribution implies that health services should be accessible to all sections of the society with special attention to the needy and vulnerable groups. Community participation refers to the involvement of individuals, families and communities in promotion of their own health and welfare, including self-care. Multisectoral approach needs the joint efforts of the health sector and other health-related sectors such as, education, food, agriculture, social welfare etc. for achieving the goal, i.e. attainment of good health. Appropriate technology refers to scientific technology that is socially acceptable, directed against relevant health problems, for example, oral rehydration therapy for Cholera and other diarrhoeal diseases.

Commitments of different countries of SAARC region for achieving the goal Health for All by 2000 AD are as follows:

India is a party to the universal commitment to secure Health for All by 2000 AD and she has set the following health indicators to achieve the goal (Table 5.2).

Table 5.2  
Selected Indicators of Health for All by 2000 AD in  
India

Indicators	Target
Infant mortality rate	Below 60/1000 live births
Crude death rate	9/1000 population
Pre-school (1-5) years mortality	10/1000 children in age group 1-5 years
Maternal mortality	Below 2/1000 births
Birth weight below 2500 gm	10 per cent
Life expectancy	Male - 64 years Female- 64 years
% Pregnant mothers receiving antinatal care	100 per cent
% of deliveries by trained birth attendants	100 per cent

Source: Government of India, Report of the Working Group on Health for All by 2000 AD, New Delhi, Ministry of Health and Family Welfare, 1981, pp. 30-34.

In addition to above indicators, other health indicators for achievement by 2000 AD have also been worked out for immunization status for infants and pregnant women, coverage by Vitamin A prophylaxis (0-5 years) and nutritional supplement for

expectant mothers and children upto 12 years of age and so on.<sup>36</sup>

Bhutan subscribes to the goal of access to health for all by 2000 AD through the primary health care strategy.<sup>37</sup>

Pakistan is also one of the signatories of the Alma Ata declaration "Health for All by the year 2000 AD" and fully endorses the concept of primary health care.<sup>38</sup>

In 1980, the ministry of Health of Sri Lanka developed strategies based on the concept of primary health care in order to reach the goal of Health for All by 2000 AD.<sup>39</sup> These strategies are based on the provision of basic health services, greater involvement of the community in decisions regarding their health and the strengthening of intersectoral coordination in recognition of the multisectoral approach towards health development.<sup>40</sup>

Nepal has also adopted the objective of providing basic health services to all by the turn of the century.<sup>41</sup> It recognizes primary health services as one of the basic needs of the people.<sup>42</sup>

Maldives is firmly committed to the policy of health for all by 2000 AD.<sup>43</sup> The country lays emphasis on providing an adequate and equitable distribution of health services to all its citizens through the primary health care approach.<sup>44</sup>

Efforts of various national governments of SAARC countries in providing health services may be revealed (Table 5.3).

Table 5.3

Available Health Services in SAARC Region

Countries	% population with access to health services (1985-87)	population per physician (1984)
Bangladesh	45	6,730
Bhutan	65	23,310
Maldives	-	7,692
Nepal	-	32,710
India	-	2,520
Pakistan	55	2,910
Sri Lanka	93	5,520

Source: World Development Report 1990, p. 232, UNICEF, "The State of the World's Children 1990", pp. 80-81.

Above table shows that among the SAARC countries, the facilities of health services are better in Sri Lanka and over 90 per cent of people have access to health services. In Bangladesh health care facility is poorest in the region and only 45 per cent of country's population have access to health services. In Pakistan and Bhutan, this figure is 55 per cent and 65 per cent respectively. In the two landlocked countries - Nepal and Bhutan, the population per physician was very high in 1984. Similarly, in the two island countries - Maldives and Sri Lanka and in Bangladesh population per physician was moderately

higher than Pakistan and India. India's position in this regard is fairly well in the whole region.

Governments spend more on military activities than on health in all the major geographic regions. While military and health expenditure as a proportion of national budget, are about equal for Latin America and the Caribbean, the other extreme is represented by South Asia where military expenditures are more than eleven times and thirty times those for health in India and Pakistan respectively (Table 5.4).

Table 5.4

**Allocation of Governments' Expenditure in three Selected Sectors in SAARC (1986-87)**

Countries	Sectors		
	Health	Education	Defence
1. Bangladesh	10	11	10
2. Bhutan	42	17	-
3. India	2	3	22
4. Maldives	8*	14*	-
5. Nepal	5	12	6
6. Pakistan	1	3	30
7. Sri Lanka	5	8	10

\* - indicates data for 1987.

Source: UNICEF Report, "The State of the World's Children 1990", p. 86, Situation Analysis of Children and Mother in Maldives, UNICEF, 1989, p. 9.



Table 5.4 showing allocation of governmental expenditure in three key sectors reveal that although health is the most vital sector in South Asian countries, yet all countries except Bhutan give less priority to this sector. In India and Pakistan, the sectoral allocation for defence is much higher than that of health and education. The sectoral allocation for health is lowest in Pakistan (i.e. 1 per cent). During 1986-87, Bangladesh invested an equal proportion of its budget in the three selected sectors. Similarly, in Sri Lanka the allocation for sector was double the health sector.

### **5.3 ROLE OF INTERNATIONAL AGENCIES AND THEIR EFFORTS ON HEALTH AND NUTRITION IN SAARC:**

Endeavours of United Nations' agencies to improve nutritional status of the people in the developing countries in general and SAARC countries in particular are worth mentioning. The United Nation's agencies most directly concerned with health and nutrition are: WHO, UNICEF, FAO, United Nations University (UNU), UNESCO, World Bank, ILO and others.

The nutrition unit of WHO is concerned with maternal and child nutrition, nutritional surveillance and malnutrition of all types. It also seeks to draw attention to nutrition in all of the programmes of WHO, including primary health care, maternal and child health, infectious diseases, health education and health manpower development.

UNICEF co-operates with governments in almost all fields with direct relevance to child development. These fields

include special studies, planning, programming, implementation, monitoring and evaluation. The main target groups are needy infants and young children and pregnant and lactating women.

In addition to substantive interaction with governments in the abovementioned fields and in the provision of funds, supplies and equipment, UNICEF also provide consultant services. Activities supported by UNICEF include, applied nutrition, promotion of breast-feeding, promotion of home and village-level preparation of weaning foods, control of diarrhoeal disease, strengthening of nutrition in primary health care and maternal and child health programmes, control of deficiency diseases and nutrition education, training and surveillance.

In principle, the FAO is dedicated in raising levels of nutrition and standards of living and securing improvement in the production of all food and agricultural products. Its food policy and Nutrition Division assists member nations in formulating food and nutrition policy; integrating nutrition objectives in agricultural and rural development projects; assessing the needs for nutrition intervention and feeding programmes; planning, executing and evaluating national improvement programmes, with emphasis on training, education and better utilisation of food aid and local resources; strengthening overall food control systems. The FAO is thus closely concerned with food quality and safety. It also cooperates with governments in the design and implementation of various intervention measures, including nutrition education,

income-generating activities, food subsidies, weaning food development, food fortification, and reduction of food losses and waste.

The United Nations University (UNU) is a newcomer to the United Nations system with a major interest in nutrition. Its World Hunger Programme (WHP), began in 1975, serves to strengthen the competence of existing institutions in developing countries. It has three priority areas.<sup>45</sup> "Hunger and Society", "Hunger and Technology" and "Hunger and Health".

Various specialised agencies of United Nations such as, UNICEF, FAO, UNESCO, WHO and bi-lateral and multi-lateral institutions such as, UNDP, World Bank, ILO, UNIDO etc. are involved in the developmental process of SAARC region. Apart from direct interventions in nutrition and health programmes, their emphasis is on increasing employment, meeting the basic needs; food, clothing and shelter, reducing poverty, inequalities in income and raising the productivity of the poorest section of the society. Different multi-lateral agencies have been funding different projects in SAARC region.

Table 5.5, shows the ongoing projects by various international agencies in SAARC region. These projects relate to sectoral development and for overall socio-economic development of the region.

Table 5.5

Number of On-going Projects by Selected International Agencies  
in SAARC as of 31st December, 1988

Countries	International Agencies						
	UN	FAO	WHO	UNESCO	WORLD BANK	ILO	UNDP
Bangladesh	18	19	2	6	15	9	8
Bhutan	24	11	0	1	0	0	3
India	26	15	3	5	0	6	7
Maldives	3	1	1	0	0	2	7
Nepal	-	9	2	3	12	8	10
Pakistan	8	16	0	1	5	10	5
Sri Lanka	5	17	4	8	1	8	7
Total	84	88	12	24	33	43	47

Source: United Nations Development Programme, UNDP, Series A, No. 19, 1988.

The foregoing analysis of the nutrition-health policies and programmes show, that various governments have undertaken nutrition and health programmes to raise nutritional status and to reduce the prevalence of malnutrition. Government of India have undertaken several nutrition programmes to control the nutritional problems and to improve the nutritional status of mothers and children. Similarly, governments of Sri Lanka and Nepal have initiated various feeding programmes to improve the nutritional status of vulnerable groups. But in these countries, implementation of programmes pertaining to preventing

deficiency diseases seem to be slow. Whereas in case of Bangladesh and Pakistan, very few nutrition programmes have been implemented and this may be due to inefficiency of the governments concerned. Though in these countries Malnutrition affects millions of women and children. Similarly, in Bhutan no major nutritional programmes have launched.

With regard to health programmes, though immunization programme has been undertaken by all countries of SAARC yet countries like Sri Lanka and Maldives have been successful in achieving the goal in immunization. But the progress in immunization is very slow in Bangladesh. It seems that government of Bangladesh have not given much effort for improving the health status of women and children. While in other SAARC countries progress in immunization appears to be better.

However, a poor quality of health services exist in the rural areas of the region mainly due to inadequate technical and management systems coupled with an inadequacy of essential services. The coverage under various programmes tends to be at a slow pace.

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## CONCLUSION

The problem of hunger and malnutrition is perhaps the most challenging issue in the developing world in general and SAARC region in particular. The problem of malnutrition has been aggravated with rapid population growth and food supply imbalances. Most of the countries in Third World mainly in Africa and Asia, widespread poverty, malnutrition and diseased condition persist. It is more widespread in the agricultural, low economic countries of South Asia, where almost half of the malnourished people of the world, live. Protein deficiency malnutrition is by far the most important form of malnutrition, that is commonly found in the SAARC countries.

The most vulnerable group, affected by malnutrition condition, are the children and the women in the reproductive age group. As a result of the high prevalence of malnourishment, the infant and maternal mortality remain high in the region. Among the seven countries in the SAARC region, Sri Lanka and Maldives have achieved a relative success in curbing malnutrition. It is said that, bulk of the malnourished people of the world is concentrated in the SAARC region and particularly in the three highly populated countries, such as India, Bangladesh and Pakistan.

Bangladesh, the country which stands at the lowest ladder of world development, is infested with malnutrition and infectious diseases and it is the worst affected country in the

world with regard to hunger and malnutrition. Frequent natural hazards, coupled with slow social and economic development, have made the country - a leading one, in terms of poor nutrition, health and hygiene.

Hunger and malnutrition in SAARC countries are not a problem of enough food but the problem of too many people depending on limited resource. Good nutrition, though, recognized by United Nations as a basic human right, but the incidences of malnutrition is still severe in major geographic regions including South Asian region. Hunger is not simply a matter of quantity of food available, it is the question of distributive justice and equity in distribution of resources. It is estimated that there is plenty of food in the world to feed the existing population. If the world food supply were to be divided equally, there would be plenty for everyone with some to spare. The question of equal distribution of food resources and international trade balance in the developing countries are the major issues.

The etiology of malnutrition is well known to-day. Some are of natural origin and others are deep-rooted in the socio-economic, environmental conditions. The crux of the problem, lies in the problem of poverty, regional inequalities and underdevelopment. The problem of malnutrition is the part of the 'vicious circle' of population growth, poverty and underdevelopment. Therefore, policies aiming at improvement in nutritional status of population, can only be partly successful in combating the problem of malnutrition. The challenges before

the societies of developing world are not the problem of malnutrition but the question of basic socio-economic development and environmental issues. Adequate food along with clean water and safe sanitation, are the three most powerful medicines for combating the severity of malnutrition. Health and nutrition can not be diverged from the economic circumstances and the basic services.

A sound nutrition policy of a country must rest on a combination of various types of measures, such as, augmentation of food production and a fair distribution of food, measures to improve income distribution, direct nutrition intervention programmes, promotion of education and literacy especially among the women, the nutritional consideration into rural and agricultural development programmes and so on.

For the acceleration of food production, a sound land-use policy, realistic farm policy, proper delivery system, land reform measures and overall agricultural development policies constitute an essential part of government's responsibility. The food and agricultural sector plays an important determining role in nutrition. Policy with respect to augmentation of food production and distribution must take nutritional considerations into account. Unfortunately, this has not been taken into consideration by the most of the countries in SAARC region. The substitution of food crops by the cash crops in situations where there is overall food shortages, is essential. Horticultural development is also given low priority in most of the countries

of SAARC region, although, vegetables and fruits are the major source of nutrients. The per capita calorie consumption from animal sources remains low in almost all countries of the region.

The linkage between land resources and undernutrition is well established. The wide disparity in distribution of land resources and inequitable land tenure system that prevails in the developing countries in general and SAARC countries in particular, are the vital issues. Hence, the implementation of effective land reform policies is critical in resolving nutritional problems. The land reform policy will be ineffective, unless it is the part of a broader agricultural strategy.

Undernutrition and malnutrition in SAARC countries, commonly arise from extreme seasonal variations in food supply and prices, depending upon the climatic variations and natural calamities like, droughts, floods and pest-epidemics. Hence, food security must be a primary agricultural policy objective. Food security, purchasing power of the vulnerable groups can be raised significantly by changes in agricultural input policies. Policy options aimed at reducing inequitable distribution of land, supply of irrigation, credits, fertilizer etc. can have considerable nutritional benefit. National planning in response to tackling nutritional problem must not be restricted to only problem of nutrition. Rather, an integrated approach aimed at improving agricultural production and equitable distribution of

land and income, increasing educational status coupled with limitations of family size by appropriate methods may be expected to pay dividends.

High population growth is considered to be the basic thrust areas in the context of poverty and malnutrition. Family planning programmes designed to lower population growth are, therefore, of great importance for the nutritional welfare of poorer section, particularly in the rural areas. There is a considerable scope for rural services that combined family planning programmes with the primary health care and nutrition-health education.

In order to improve the nutritional status and eliminate the problem of malnutrition, both short-term as well as long-term measures have to be undertaken. Among the short-term measures, various specific nutrition interventions are called for. Similarly, the long-term measures include programmes for alleviating poverty increasing employment and income and so on. Both short-term and long-term measures are interdependent. For example, the short-term nutrition intervention programmes depend on the success of the long-term measures.

Rural development and anti-poverty programmes can be considered as the most significant contribution to nutritional upliftment of the poorer section. They must be targeted to the weakest section in order to raise their income to the levels that can enable them to have access to the food they need. The developmental programmes must include not only income generating

programmes but also educational and nutrition-health programmes. Socio-economic disparities being the root cause of the problem of malnutrition, thus the removal of such disparities calls for radical measures. Social welfare programmes have to be integrated with the health-nutritional programmes. Social welfare can encompass a number of nation-building activities and not just a relief operations. The integrated child development service which has been in operation in India, must be undertaken by various governments and integrated with other social welfare programmes. Supplementary feeding programmes, food subsidies and social welfare programmes must go hand in hand with nutrition education.

The concept of primary health care should include all operations at the community level designed to improve health and nutritional status. It may include operation like, integrated child development service (ICDS) carried out by non-health sector. The specific nutritional deficiency diseases, such as Vitamin A deficiency, nutritional anaemia, endemic goitre and so on, which are so widespread in the countries of SAARC region, need to be controlled more effectively. They are preventable even under the prevailing conditions of poverty.

The problem of hunger and malnutrition being an interplay of multi-factors, there is no single described way to achieve success for ending persistent hunger in an unequal world. However, some countries by adopting land reform measures, food subsidies, price policies and overall agricultural development policies, became successful in ending the problem of hunger.

For example, Taiwan, China and Sri Lanka are the testimony to achieving success in ending hunger. Sri Lanka, in the whole of SAARC region, is a success story of development, in achieving food self-sufficiency. The achievement of ending hunger in these three countries provides a strong foundation for the probability of ending hunger in other countries. In a study, National Academy of science concludes that

"if there is a political will.....  
..... it should be possible to overcome  
widespread hunger and malnutrition  
in one generation".

The efforts to eliminate malnutrition can be successful, only if, they are accompanied by political, economic and educational measures at governmental level. Health and nutrition education should be an integral part of the educational process in areas where cultural and religious beliefs seriously affect the food intake of mothers. Hence, every educational effort should be made to overcome these adverse practices.

As malnutrition and infectious diseases combined by pose the most health hazards of the poor people, policies aiming at reducing infectious diseases must be integrated with nutrition policy. National, regional and international efforts are highly called for, ending the problem of hunger and malnutrition.

Although, policies and programmes on health and nutrition in the SAARC countries have multiplied manifolds, the progress in the eradication of hunger in those countries except Sri Lanka, has been slow. The political will and a sense of urgency

which are so essential for achieving this success have been lacking in the region. In the whole region, health generally received low priority and so did the nutrition. But the efforts at promotion of overall economic growth have apparently triumphed over the efforts at ensuring equity and social distributive justice in the planning process of the most of the countries in the region.

Following the United Nations convention under rights of girl child, SAARC declared 1990 as the "Year of Girl Child" to focus on gender related prejudices and inequality in their countries. Similar thrust areas of nutrition-health and environmental issues must be focused on the regional level. Health and nutrition can be included as a major areas of cooperation among the nations.

At the national level, the developmental policies adopted by various governments have not succeeded in achieving a breakthrough in ending hunger, alleviating poverty and eliminating malnutrition. Therefore, regional co-operation and more international assistances can be of great help in implementing various vital nutritional and socio-economic programmes.

Active nutritional research and inter-departmental interaction programmes in the SAARC region are to be intensified. SAARC could set up a Nutritional Advisory Committee composed of member countries, who are actively engaged in the implementation of nutritional policies and research.



Moreover, within the developing countries and between the developed and developing countries, more co-operation is called for combating the most challenging problem of the mankind. 'North-South cooperation' and 'South-South Cooperation' should not remain a mere slogan.

There is a wide recognition of the important role being played by the non-governmental organizations. There is also a wide scope for them to undertake various issues relating to health and nutrition. International agencies like, WHO, UNICEF, UNESCO, World Bank etc. can play more active role than at present in forging co-operation and exchange between nutrition research centres in different countries of the region.

Nutritional policies can not be treated in isolation. As the problem of malnutrition is deep rooted in the socio-economic and environmental conditions, thus, an independent treatment to the problem of malnutrition and nutritional deficiency diseases will bring no substantial result. The poverty, inequality, unemployment and underdevelopment, which are at the heart of the problem of nutrition and health, call for an overall socio-economic development. In order to combat the problem of malnutrition, a close integration of all inter-related policies is essential. Various policies like agricultural and rural development, population growth and family planning, nutrition and health, water and sanitation, educational and the like, have to be integrated under the umbrella of national planning policies, if they are to be effective in eliminating hunger and malnutrition.

## Appendix I

Socio-Economic Indicators of Some Developed  
and Developing Countries

Countries	GNP per capita US \$ 1988	Daily Calorie Supply (per capita) 1986	Babies with low birth- weight (%) 1985	% of Children suffering from Moderate & Severe wasting (12-23 months) 1980-87	% of Children suffering from Moderate & Severe stunting (24-59 months) 1980-87	Mortality rate (per thousand)		Life Expectancy at birth (years) 1988
(1)	(2)	(3)	(4)	(5)	(6)	Infant Morta- lity 1968	Maternal Morta- lity 1980-87	(9)
<u>Developed Countries</u>								
USA	19840	3645	7	..	..	10	8	76
UK	12810	3256	7	..	..	9	9	75
Japan	21020	2864	5	..	..	5	16	78
<u>Latin America</u>								
Brazil	2160	2656	8	2	31	61	120	65
Argentina	2520	3210	6	..	..	31	69	71
Chile	1510	2579	7	1	10	20	47	72
<u>Africa</u>								
Tanzania	160	2192	14	17	..	104	340	53
Zimbabwe	650	2132	15	1	29	49	490*	63
Zaire	170	2163	..	11	40	96	..	52
Kenya	370	2060	13	10	42	70	170(a)	59

(contd....)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
South East Asia								
Malaysia	1940	2730	9	12	33	23	59	70
Indonesia	440	2579	14	17	..	68	450	61
Thailand	1000	2331	12	10	28	30	..	65
West Asia								
Saudi Arabia	6200	3004	6	..	..	69	..	64
Iran	..	3313	9	23	55	64	..	63
Iraq	..	2932	0	..	..	68	..	64
South Asia								
India	340	2238	30	..	..	97	340	58
Pakistan	350	2315	25	17	42	107	500	55
Bangladesh	170	1927	31	17	59	119	600	51
Sri Lanka	420	2400	28	19	34	21	60	71

Source: World Development Report 1990.  
 UNICEF, "The State of the World's Children 1990".  
 \* For 1979  
 (a) For 1977.

## Appendix II

Average Annual Growth of Population

(per cent)

Countries	Years				
	1965-70	1970-75	1975-80	1980-85	1985-90
Bangladesh	2.4	2.5	2.4	2.2	2.0
Bhutan	2.0	1.9	1.9	1.9	1.7
India	1.8	1.6	1.4	1.0	0.8
Maldives	2.7	1.9	2.5	3.4	3.1
Nepal	2.0	2.3	2.1	2.0	1.9
Pakistan	2.4	2.2	2.4	2.6	1.6
Sri Lanka	1.8	1.6	1.8	1.9	1.4

Source: United Nations, "The Prospects of World Urbanization", Revised as of 1984-85, New York, 1987.

Appendix IIIArea, Production and Yield of Principal Crops in India

Crops		1950-51	1980-81	1985-86
Rice	A	308.10	401.52	409.12
	P	205.76	536.31	641.53
	Y	668.00	1336.00	1568.00
Wheat	A	97.46	222.79	230.74
	P	64.62	363.13	468.85
	Y	633.00	1630.00	2032.00
Jowar	A	155.71	158.09	157.89
	P	54.95	104.31	101.23
	Y	353.00	660.00	641.00
Bajra	A	90.23	116.57	106.89
	P	25.95	53.43	36.83
	Y	288.00	458.00	345.00
Maize	A	31.59	60.05	58.79
	P	17.29	69.57	68.90
	Y	547.00	1159.00	1172.00
Cereals (Total)	A	782.30	1042.10	1032.44
	P	424.14	1189.62	1375.05
	Y	542.00	1142.00	1332.00
Pulses (Total)	A	190.91	224.57	238.18
	P	84.11	106.27	129.64
	Y	441.00	473.00	544.00
Gram	A	75.70	65.84	76.54
	P	36.51	43.28	56.83
	Y	482.00	657.00	743.00
Foodgrains (Total)	A	973.21	1266.67	1270.62
	P	508.25	1295.89	1504.69
	Y	522.00	1023.00	1184.00

Notes: A - Area in Lakh Hectares,  
P - Production in Lakh Tonnes,  
Y - Yield in Kg. per hectare.

Source: Manorama Year Book, 1988, p. 522.

Appendix IVLanduse Pattern in SAARC Region, 1987

Landuse	Proportion of Land use (%)
Arable Land	48.0
Permanent Crop Land	1.3
Permanent Pastures	4.9
Forest and Woodlands	19.3
Others	26.5
Total	100.0

Source: Compiled from FAO Production Year Book, vol. 42, 1988.

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