CHAPTER - I

INTRODUCTION
1.1. IMPORTANCE OF NUTRITION IN PHYSICAL DEVELOPMENT AND
EDUCATIONAL ACHIEVEMENT:

Education plays a vital role mostly in all aspects of development of a country. A developing country always needs good doctors, engineers, farmers, scientists and other skilled personnel. If we like to see a country to develop faster, then we should see that its every child should be clever as well as capable and skillful as he can be. Presently, the technological and economic development of a nation essentially depend on trained brain power of its citizens.

One of the most important resources of any community is its children. Children are the citizens of tomorrow who would substantially contribute to the social, economic and an around development of the country. Invariably the parents and society would desire that its children should possess healthy body and mind.

Poor nutritional status of children reflects poor developmental potential and prospect. Nutrition plays an important role in national development. People with malnutrition contribute little to national progress and become a big burden. Malnourished children who grow into adulthood have poor stamina, poor mental and psychomotor competencies. Chronic malnutrition in the early years of life causes not only stunt in growth of children but leaves permanent mental and physical scars which hinder the process of brain development to its optimum, affect their intelligence and make them unable to attain their full intellectual potential. So it is very imperative to assess the nutritional status of school-going children who are the future citizens of the country. Teply (1979) has stated that over 15 million children die each year in developing countries and in over
half of these deaths, malnutrition is either a direct or an associated cause (p.3-5). India is one of the developing countries which is essentially a land of children and where more than 1/3 of all children born alive die from malnutrition and disease before they reach the age of five and those who survive, a major segment suffers from several nutritional maladies. Orissa being one of the poorest states of India requires top priority in the assessment of nutritional status of school-going children.

Health is wealth. A healthy person has sound mind. "Health is a dynamic balance between individual, the group and the environment. Health reflects harmonious development of the person on all levels; biological, psychological and social. It depends on the way in which each individual adjusts to a constantly changing environment" (Ghorai, 1987, p.212).

There are evidences indicating severe malnutrition experienced in the initial phase of life of a growing child-affecting not only expression of a genetic potential for physical growth and development but also intellectual development and personality. In this context the school children need special care and attention from nutritional point of view. Adequate, good and balanced nutrition is one of the most influential factor for the development of physical fitness, good health status and sound mind. There are numerous studies in the past in developing countries indicating the close relationship between malnutrition and subsequent impaired intellectual development and school performance (Winick, 1970, p.1413; Latham and Cobos, 1971, p.1307; Hertzig et.al. 1972, p.814; EL-Wakeil et.al., 1980 a; Karla et.al., 1980, p.109 and Zaki et.al., 1985).

Hunger and malnutrition seem to be serious problems around the whole world affecting the daily life of millions of people, predominantly
in Asia, South America and Africa. In this context poverty is the significant factor to cause this malady. Malnutrition seems to be a serious hazard since it shares in retardation of development of mind and body along with several deteriorating diseases and prolonged period of illness in developing countries like Africa, South America and Asia. Also it has been seen that malnutrition plays an important role to cause high death rates amongst young children in the developing countries.

The quality and quantity of child's food always reflect the rate of his physical and mental development. Nutrition is one of the major factors responsible for maintenance of health and physical fitness of man. It has been well recognised that protein deficiency is one of the commonest deficiencies seriously affecting the physical and mental health of children and this deficiency not only affects the physical growth but also leads to retardation of mental development of growing children. School children constitute an important vulnerable group that needs special care and attention, particularly the nutritional status of school children in India.

It is clear from the research in the area of nutrition and development that brain development is also influenced by food (qualitative and quantitative) like other organs. It is true that a sound mind is in a sound body because for either of them to be sound, good nutrition is very essential. Bailur (1972) in a recent review has highlighted the nutrition and dietary survey of pre-school children which he conducted under the auspices of the Indian Council of Medical Research (ICMR) at six different research centres in India, i.e. Delhi, Calcutta, Bombay,
Poona, Hyderabad and Vellore. The results of the survey have shown that 35% of children do not get adequate protein in their diet and 92% do not get adequate calories. The 35% of children whose intake of protein was inadequate, had an inadequate intake of calories also. Thus, 57% of children had only an inadequate intake of calories. So it is clear that since 92% of children had calorie deficiency, the protein they had, though adequate in amount, was being utilised for energy production in the body and hence became inadequate due to primary deficiency of calories. Therefore, 92% of children could be expected to have various degrees of protein-calorie-malnutrition (PCM). PCM has become a world-wide problem, especially in societies of developing countries (p.256).

When we think of past history in respect of the problem of nutrition it has been evident that in the scientific era of ancient Egypt, as depicted on stones, it has been noted that in those days people knew the art of preparation of food. From the Old Testaments of Bible it has been noted that there were laws formulated for use of food by Hebrew people. Hippocrates (b.460 B.C.), the father of medicine, attached great importance to dietary treatment and according to him persons who are naturally very fat apt to die earlier than those who are slender (Robinson, 1978, p.5) Jean Mayer also claims that thin people live longer than fat people. He believes that with the exception of a few medical psychiatric situations, weight reduction can show curative and preventive effects in diabetes, hypertension and arthritis (Donn, 1983, p.64).

As identified by United Nations, India is one of thirty least developed countries and as per the World Bank Report 1980, India is one of the
lowest income group of countries where the infant mortality rate (IMR) according to UNICEF Report, 1984, is very high amongst forty-four very high infant mortality rate countries (Chowdhury, 1984, p.14-15) India is one of the developing countries in the world and this country has been striving hard to equalize its status with other developed countries of the world. With this aim the country has prepared a Five Year Plan Scheme in order to achieve a target in respect of its development in every aspect in par with other developed countries and by now it has already passed seven such Five Year Plans.

India is a country where diverse socio-cultural and socio-economic groups and sub-groups have their own pattern of living with different types of food habits according to their own available resources at their own localities. The effects of socio-cultural and environmental processes on the physical and mental development of Indian children have not been extensively studied, especially in the poor state like Orissa where 80 percent of its population live in rural and urban slum areas. Most of the inhabitants of the rural and urban slum areas are economically poor. The children in these areas are taken to be disadvantaged children of the deprived population of the State. For this reason they suffer from continuing inadequacy of the basic needs of the life and are deprived in various ways — nutritionally, educationally, socially, linguistically. Such a situation amongst the school children of the deprived areas of the state has got serious effect on the education and personality development.

India is predominantly an agricultural and rural country. The majority of her people live in country side (Dube, 1955). According to various
estimates about 70 to 80 percent of her population live in the villages. An Indian village denotes to an aggregation of several families sharing the same habitation. The rural community has a number of common cultural characteristics and social forms and values. A man from the smaller village has by nature admiration and respect towards the people residing in bigger villages.

Rising population, epidemic, famines, drought and flood situations are still the great problems of villages even today in spite of green revolution and various measures taken by the Government. Poverty, unemployment and under-employment, indebtedness, land alienation and exploitation by so called superiors or headman of the village or outsiders are some of the major problems of Indian countryside. The poor villager does not entertain high aspirations to reach his life potential, nor he has the scope of getting his minimum needs for survival as other superior villagemen enjoy. These factors increase the incidence of mal-nutrition due to deprivation in rural and urban slum areas. As Carvioto (1970) has said malnutrition is most prevalent in poor population living under adverse socio-economic and environmental condition including poor housing and sanitation, exposure to disease, inadequate health care, limited food availability, restricted educational opportunities, large family size, unfavourable feeding and child care practices. From the above it is evident that people residing in the villages are more deprived culturally and nutritionally which are ultimately responsible for their educational as well as cognitive backwardness.

People in urban areas are more conscious of their education and have high aspirations for white collar jobs. So also children in urban areas
are brought up in more enriched environment which helps them for better cognitive as well as personality development. Better standard of living in towns and cities focuses the children to better food habits for the good health.

The child's future success or failure depends upon his personal-social adjustment which in return depends upon social, environmental and nutritional conditions of the child.

Poverty is the basic reason behind malnutrition in India. Sen (1976) has conducted a survey in the district of Bankura in West Bengal which revealed that only 5% of the rural population of that district could have an income of Rs.2.12 on an average per day in 1972-73 and each of these earners had to support 2.5 persons with this money. So with this obvious inadequate money the wage earners could not provide the dependant members with required quantities of calories. This abnormally low income associated with other factors forced the rural people to live in an intake of calorie much below the required quantity and subjects its victims to severe malnutrition (p.33-43).

Rath (1976) found that at the age of 5 or 6 years when the child comes to the primary school his cognitive growth is already depressed due to his home environment which is devoid of any intellectual condition and adequately educated parents (p.2).

Stoch and Smythe (1967, p.1027) suggested that the inactivity and lack of energy associated with malnutrition and inadequate home environment were responsible for the decreased receptiveness to the stimuli and
impaired learning process of malnourished children. They also concluded that first year of the life is crucial because maximum brain growth occurs during that time.

A child of an urban area suffers less from malnutrition because of various factors. In an urban area the father of the child may be a government employee or an employee of any industry or public sector undertaking for which he earns a steady income and can provide a regular diet to his family members. And he is a literate and exposed to modern ideas, and is aware of nutritive values of food, causes of infection, diseases and their effect on the child. Even if the mother of the child is uneducated or has no formal education she knows about the child care, proper nutritional requirements, preventive methods of diseases through sheer exposure to the modern civilization and attitudes for which the child suffers less from malnutrition and the child can have better progress in his academic career.

In developing country like India the enormous increase in population is going to expose several hundred thousand children to the effects of malnutrition during the formative years of life. Those children who would survive the exposure may remain handicapped in terms of physical and mental development. In the present situation of India out of a total population of 600 million the child population is about 225 million out of which nearly 100 million children belong to the category of the deprived and 65 million children are malnourished (Sen, 1985, p. 35). While considering the nutritional status of school going children of India, 22 percent show one or more signs of nutritional deficiency and anaemia. When we consider
their weight, 56 percent show Grade II malnutrition and 15 percent in Grade III malnutrition. As per the Indian Council of Medical Research (ICMR) report in respect of nutritional status of children in nine states of India each of them show a deficit of calorie 400 to 500, Vit.A, iron and calcium. The rate of dropouts from the schools in India is also high which is more amongst girls and a large number of children are found to be suffering from physical handicaps.

Nutritional status has been taken to be one of the causal factors of mental impairment in addition to social, environmental, obstetrical and genetic factors. Malnutrition during infancy and early childhood is found to have long term repercussions on both physical growth and intellectual performance in later life. Studies on experimental animals have shown that even moderate malnutrition imposed at a time when the central nervous system (CNS) is developing, if persistent enough, interfere with neuronal division, adversely affecting myelination, impairing learning ability, and also leading to abnormal behaviour. Malnutrition during early childhood has been found to be associated with smaller head circumference, lower brain weight and altered biochemistry of brain but the functional significance of these neurochemical alternations is, as yet, far from clearly understood. However, malnourished children have been found to perform poorly in intelligence tests, thus, it has been opined that protein calorie inadequacy during childhood can lead to irreversible impairment of mental function in later life (Sen, 1985, p.36).

Chronic malnutrition can adversely affect mental ability either indirectly through the child's general state of health and resistance or
more directly by influencing growth. Malnutrition makes the individual more susceptible to infection and infection in turn is one of the principal contributory factors in malnutrition. The inter-relationship between malnutrition and infection has been stressed by several expert committees of WHO (Sen, 1985, p.40). A more direct relationship between nutritional state and mental development has been suggested by growth deficiencies in children in under-developed countries.

Malnutrition may not always be due to deficiency of food. Almost all researchers have agreed that malnutrition arises from a common group of adverse social conditions, including poverty, ignorance, poor hygiene, over crowding and lack of education, parasitic and communicable diseases. In rural India where malnutrition is more common, a child can not achieve maximum genetic potential. It can not be denied that correlates of poverty suggest poor nutrition, inadequate health care, lack of stimulation and general impoverished environment which are indeed deliterious for the cognitive development of the child. Continuing deprivation particularly at crucial point of development would cause damage. There are instances for malnutrition which is associated with factors of poverty and low socio-economic conditions. For example, when adequate protein is available in the child's diet, it may not be readily absorbed due to some defects in the digestion and absorption in the alimentary canal in the presence of infections and infestations interfering with proper utilization and absorption of dietary protein. Traditional food habits of the family or community such as habits of eating polished rice or avoiding intake of animal proteins and frequent fasting on religious grounds, personal habits...
F. Mönckeberg et. al., (1972) have stated that mother's intellectual level is also one of the important factors responsible for causing malnutrition of her children (p.771). The major influence of nutritional deficits may be displayed in the child in attention span, perceptual abilities and learning competence in children (Martin, 1973, p.773).

Children from lower socio-economic strata find adjustment difficulties and may lead to get inferiority complexion and other feelings of inadequacy.

Unbalanced diets, unhygienically prepared food, lack of cleanliness, untidy surroundings, lack of timely medical care are some of the factors that lead to recurrent infections, chronic diseases of liver, bronchial trouble and blindness amongst deprived children. Cumulative nutritional deprivation results in severe malnutrition which interferes with optimal development of cognitive functioning and may have severe implications for learning in later years.

Most of the school children are vulnerable to malnutrition caused by above mentioned malady. They need proper education, recreation and mental and psychological growth in addition to adequate nutrition. Schooling is a formal educational system which is taken to be one of the most potent socialising agents. It has beneficial effects on psychosocial development and on the acquisition and utilization of knowledge, contributing to the economic and social development of the individual and society, both in developed and developing countries. Significant positive associations have been reported between education, personal income and occupational
Nutrition is an endogenous factor that affects learning ability and skills before and after the schooling period of the child. There is evidence which clearly shows that malnutrition in infants and children is a potent contributor to school wastage (Pollitt, 1984, p.7).

The high prevalence of malnutrition among infants and children has serious developmental implications because these periods are critical for the growth and development of children. During these developmental periods there is high demand for energy to meet biological and social challenges of growth and maturation. Also socio-economic context of malnutrition becomes particularly relevant when it is seen in the light of environmental determinants of psychobiological development. Children with history of malnutrition are generally born in the families with lowest income and with the lowest level of education within the community.

Study on malnutrition in any country denotes to mainly ecological study. These ecological factors include quality of the house environment, the individual qualities of the parents, affectionate care of the parents towards their own children and the social context into which the child is born. Besides this, mother's intellectual status and educational background, her attitude towards her own children, her ability in respect of verbal capabilities, child rearing practices and her aspiration for the child and family characteristics in respect of the stability of the family and social relation between family, friends and neighbours, the child's relationship with peer group and community and his activities in the school are also taken to be ecological factors.
Orissa is a South-Eastern coastal province in India and it is one of the least developed states in India. It has got a population of 26.3 million out of which 80 percent live in rural areas and only 45.9 percent of males and 21.1 percent of females are literate in this province. Further, 43 percent in urban areas live below the absolute poverty line. According to the IVth Educational Survey Report of the Government of Orissa, 1982, the drop out rate by Grade 5 in rural areas is about 80 percent (Chowdhury, 1984, p.18).