

**SOCIOLOGY OF NUTRITION  
PROGRAMMES AND POLICIES IN  
INDIA**

*Dissertation submitted to the Jawaharlal Nehru University  
in partial fulfilment of the requirements  
for the award of the Degree of  
MASTER OF PHILOSOPHY*

**SUPERNA GOEL**

**CENTRE OF SOCIAL MEDICINE AND COMMUNITY HEALTH  
SCHOOL OF SOCIAL SCIENCES  
JAWAHARLAL NEHRU UNIVERSITY  
NEW DELHI-110 067  
INDIA  
1992**



**CENTRE OF SOCIAL MEDICINE & COMMUNITY HEALTH  
SCHOOL OF SOCIAL SCIENCES  
JAWAHARLAL NEHRU UNIVERSITY**

New Delhi-11006

**CERTIFICATE**

Certified that the dissertation entitled "Sociology of Nutrition Programmes and Policies in India", submitted by Superna Goel, in partial fulfillment of the requirements for the award of the degree of Master of Philosophy, has not been previously submitted for any other degree of this or any other University and is her own work.

We recommend that this dissertation may be placed before the examiners for evaluation and consideration.

(Dr. IMRANA QADEER)  
(Supervisor)

(Dr. D. BANERJI)  
(Co-Supervisor)

20.7.82

(Dr. S.K. SAHU)  
(Chairperson)

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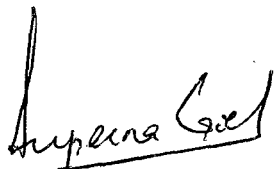
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SUPERNA GOEL

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**CHAPTER - I**

***INSIGHTS INTO HUNGER***

"The history of man from the beginning has been the history of his struggle for daily bread."

----- Josue de Castro.  
'In The Geopolitics of Hunger'.

Food is the basic necessity for all forms of life on this planet. Changes in the availability of food have been responsible for both rise and fall of civilizations. The main reason why man organized himself into a society was to ensure an adequate food supply for all its members. Progressively as he was able to produce, preserve, and distribute food more efficiently, larger and more complex societies developed. With the passage of time, the organized complexity, that is human society, has assumed innumerable shapes and forms, and amassed unlimited knowledge and wealth, by exploiting nature; but still, a number of its members do not get enough food to eat.

One can locate reasons for this in the given social explanations.

## **1. SOCIAL BASIS OF HUNGER**

### **1.1 POVERTY AND INEQUALITY**

Today there is no shortage of food in the world. There is enough food presently being produced to provide everyone in the World with a fully adequate diet. But then, why do we



see galleries of hunger of the poor of both the developing and developed countries?

It has been shown that the struggle for existence is no longer a battle between man and nature but one between man and man. Man has exploited his fellow-beings by introducing caste and class differentiation, slavery and serfdom, to mention a few. As man has advanced more and more, so have the forms of exploitation and cruelty against his fellow-beings. The attitude of greed, and materialistic pursuits, stripped of all ethics and morality afflicts our society today.

Hunger (both famines and endemic deprivation) is the most obvious manifestation of inequality in society. It has been observed that malnutrition is not only a consequence of gross inequalities in society, but also a mechanism for maintaining them.<sup>1</sup> Such analysts, however, describe the vicious cycle of hunger but do not go into the deeper structural and sociological issues responsible for it.

It has been argued that if people have enough to eat,

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1. Behar, (1975), "Nutrition and the future of mankind", 13th Pacific Science Congress, (Vancouver : Canada).

there is no nutritional problem even in diverse ecological situations.<sup>2</sup>

Data from a study covering nineteen villages from seven states in India<sup>3</sup> revealed prevalence of hunger in rural India even under normal conditions. As many as half of the rural populations do not get two square-meals all the year round to satisfy their hunger. They are compelled to remain hungry for varying periods during a 'normal' year. 4.6% of them do not have two full meals for six months or more; 31.6% do not get two full meals for 3 months or less and 3.8% get food irregularly.

The study further revealed that a substantial group of rural population comprising small farmers and artisans who manage to get two full meals all the year round live in almost a perpetual fear of being pushed down the "hungry classes" by a variety of natural calamities and individual catastrophes such as prolonged sickness and death of the breadwinner, old age, and crushing social obligations like marriage expenses and accommodating destitute relatives. The

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2. Banerji, D., (1988), "The knowledge of human nutrition and the peoples of the world", World Review of Nutrition and Dietetics, Vol.57, pp.1-23, Karger Basel.
  3. Banerji, D., (1982), Poverty Class and Health Culture in India, Vol.I. (Prachi Prakashan : New Delhi).

money lender and exploiting upper classes prey on these individuals when they are in distress and take advantage of such distress conditions to swallow their lands, livestock, ornaments, and other available assets.

Broadly therefore, the rural population in India has three major components, a vast majority of oppressed people who are caught in the vicious cycle of poverty-degradation-deprivation-illness-poverty; a group comprising of small farmers and artisans who struggle hard to avoid getting caught in the vicious cycle, and a small upper class which owns substantial assets, and which gets richer by exploiting the poverty and helplessness of the masses and by using its political power to usurp community sponsored activities and financial allocations for its own benefit.<sup>4</sup> Shiela Zurbrigg in 'Rakku's Story' also gives a graphic account of the misery of rural Indian women<sup>5</sup>.

While there have been innumerable debates on the number of poor in our country, the fact remains that 20% of the population at the bottom shares 8% in the total consumption

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4. Ibid.

5. Zurbrigg, S., (1984)., Rakku's story: Structure of Ill Health and the Source of Change. (Madras).

while the top 20% consume 39% & 42% in rural and urban areas respectively.<sup>6</sup>

The inequalities in entitlement to food are brought to the fore at the time of famine.<sup>7</sup> The proximate causes of famines might lie in some apparently unpredictable 'natural disaster' like a flood or a drought or in a manmade calamity like a civil war or invasion, but these are no more than precipitating factors. Famine is essentially a social problem of dearth and poverty, a reflection of the collapse of society under exogeneous shock.

The crisis created by famine reveals the workings of the economic and social system of society and affords an insight into the structural violence which has the effect of denying the poorest members of society the right to feed themselves in order to stay alive.<sup>8</sup> During the Great Bengal rural areas. Not a single inhabitant of Greater Calcutta died of hunger, while millions of people were suffering and

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6. Qadeer, I., (1977), Population Problem - Myth and Reality. In Search for Diagnosis. MFC, pp.63-80.
  7. The entitlement theory of famines has been postulated by A. Sen. In Poverty & Famines. An essay on entitlement and Deprivation. (OUP : Oxford), 1981.
  8. Spitz, P., (1978), "Silent Violence : Famines and Inequality", International Review of Social Sciences, Vol.30, No.4, pp.867.

dying of hunger in the country.<sup>9</sup> The correlation of famine with the exploitation of the lower order by the ruling elite was established by B.M. Bhatia.<sup>10</sup>

Famine only accentuates or brings into sharper focus the already existing inequalities. The situation of Bengal, prior to the 1943 famine, can be summarized in the words of the 1944 Famine Commission. "Even in normal times however, considerable number among the poorer classes live on the margin of subsistence because they do not grow enough food and do not earn enough money to buy the amount of food they need. Food shortage in this sense, may and does exist, even when crops are good and prices low, and works are abundant and are exported. It is the result, not of a shortage in the total supply of food but the lack of purchasing power in the hands of the poorer classes, that is, of their poverty".<sup>11</sup>

The problem of mass poverty was first highlighted by Dadabhai Naoroji in his 'Poverty and Un-British Rule in India.'<sup>12</sup> Although Naoroji's main concern was the colonial

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9. Report, Famine enquiry commission Bengal, (1945), Government of India.

10. Bhatia, B.M. (1963), Famines in India - a study of some aspects of the economic history of India (1860-1965), 2nd edition. (Bombay, India).

11. Quoted from Spitz, (1978)., op. cit.

12. Naoroji, Dababhai, (1901), Poverty and Un-British Rule in India. (Swan Sooneschein : London).

drain of India's wealth to England, he also made the first ever statistical computation of the gross as well as per-capita national income of India. In order to show the contrast between the Indian and British standards of living, Famine of 1943, jobs and foodgrains were reserved for the inhabitants of Calcutta and as is noted by the official commission reports on famine in Bengal, the thousands which lay strewn about the streets of Calcutta had all come from Naoraoji pointed out that the British national and per-capita incomes at that time were 800 million and 30 million respectively. He observed that Indians were "extremely poor" and that India was the "poorest country" in the world after hundred and fifty years of British rule, to the disgrace of the British name. He attributed the recurrent famines and pestilence characteristic of the absolute poverty of the Indian people to the colonial drain.

Dutt's thesis<sup>13</sup> is based on the premise that Indian poverty was the result, to a large extent of a highly defective system of land taxation. Indian agriculture during the colonial period was subject to a heavy and uncertain land tax and the financial arrangement required one half of

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13. Dutt., R., (1960), The economic history of India, Publications Divisions, Ministry of Information & Broadcasting. Government of India.

the revenue to be annually remitted out of the country. The land tax levied by the British Government was fixed at over 90% of the rental in Northern India at over 80% of the rental between 1793 and 1882. The British Government only followed the precedent of the previous Mohamedan rulers who always claimed an enormous land tax. But the difference was, what the Mohamedan rulers claimed, they could never fully realize, what the British rulers claimed, they realized with rigour. During the Moghul rule, the proceeds of taxation flowed back to the people and fructified their trade and industry. However, the imperialist power of Great Britain destroyed the indigenous industrial base of the colony without replacing it by a modern industrial structure. The investments which were made in the mines and plantations, railways and ports led to the imposition of a small capitalist urban sector on a vast pre-capitalist agricultural sector. This urban capitalist sector represented the transit point of the colonial drain rather than the terminal point of exploitation, although a small cut of the drain was retained by the new comprador bourgeoisie located in this sector.<sup>14</sup>

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14. Bandopadhyaya, J., (1987), The Poverty of Nations: A Global Perspective of Mass Poverty in the Third World. (Allied Publishers : India), pp.82-123.

In the post-colonial period, the extent of appropriation by the small urban sector of the surplus generated by the vast rural sector had increased considerably partly on account of the growth of the national bourgeoisie and also due to the relative decline in the direct colonial drain. But the rural urban dichotomy has remained. Industrialization is mostly concentrated in the existing small urban sector thus increasing the existing inequalities and perpetuating and even, aggravating, the poverty of the rural masses.

## 1.2 STRUCTURE OF POVERTY

Some scholars<sup>15-16</sup> have talked of the "culture of poverty" which states that the poverty breeds its own distinctive culture. The culture is characterised among other things by overcrowding, large family size, frequent desertion of family, illiteracy, ignorance, superstition, non participation, in social and political institutions and so on.

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15. Lewis, D., (1969), "The Culture of Poverty", In Daniel P. Moynihan (eds). On Understanding Poverty: Perspectives from the Social Sciences, (Basic Books : NY), pp.189.
  16. Valentine, C.A., (1972), Culture and Poverty: Critique and Counter Proposals, (Chicago : The University of Chicago Press).



The study of poverty as a cultural phenomenon though of undoubted sociological significance does not, however, reveal the structural dimensions of poverty. Banerji in *Poverty Class and Health Culture*<sup>17</sup> has stated that it is simplistic and culturally arrogant to label the culture of lower classes as a 'culture of poverty'. It is contended that the prevailing high levels of illiteracy, ignorance, superstition, obscurantism, and fatalism are certainly not passive phenomenon. They are not the consequences of any peculiarities of the culture of these poverty stricken people. For a proper understanding of cultural practices, it is necessary to relate its culture to the social, economic and political forces which maintain the ecological settings.

The exploitative nature of social, economic and political structures tends to reinforce and perpetuate mass poverty. Examples of socio-economic structures are class and caste structures which must be both regarded as integral elements of the relations of production and inseparably connected with the problem of poverty. The power structure determines to a great extent as to why people who produce food have to starve. As early as 1893, Leo Tolstoy talked about the need to change the power structure before people can have food.

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17. Banerji, D. (1982), op. cit.

"Feed the people who then has taken upon himself to feed the people? It is we the civil servants who have taken it upon ourselves to feed the very men who have always fed us and who go on feeding us every day ----. It can be said that bread, not to mention all other forms of wealth, is produced directly by the people---. How is it then, that this bread is to be found, not in the possession of the people, but in our hands, and that, by a peculiar, and artificial process, we have to return it to the people, calculating so much for each person----? Must we delude ourselves by saying, that the people were poor merely because they have not yet had time to adjust to our civilization, but come tomorrow, we shall set about imparting all our knowledge to them, concealing nothing, and that then they will doubtless cease to be poor ---. Do not all enlightened folk continue to live in the towns for what they claim to be a very exalted purpose-and to eat in the towns the sustenance which is brought there and for want of which we have suddenly started to assure ourselves and everyone else that we are very sorry for the people and that we want to save them from their wretched plight, a plight for which we ourselves are responsible and which is indeed necessary to us. Here is the cause of the futility of the efforts made by those who, without, changing their

relationship with the people, wish to come to their help by distributing the riches which have been taken from them".<sup>18</sup>

The exploiting classes are often sustained and protected through the state machinery. The state generally appropriates a larger portion of the national surplus largely for the performance of unproductive functions. In the name of development and often of planning, a considerable expansion of the state apparatus had taken place in the post-colonial period. The concentration of development in the small capitalist sector, mostly located in the urban areas, and the non-involvement of the people in the development process have converted the so called developmental efforts of the Government into an inert bureaucratic gesture without motion.<sup>19</sup>

But this obviously does not mean that forty five years of post independence have seen no improvement. Development as a process is a mixed bag of virtues. What one really needs to question are the inequalities of the system and their impact on the nutritional and health status of the people.

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18. Tolstoy, L., La Famine In Spitz, P., op. cit., pp.890.

19. Bandopadhyaya, J., (1987), op. cit.

### 1.3 STRUCTURAL ROOTS OF MALNUTRITION

Exploitation of man by man has historically given rise to various types of nutritional disorders. Under-nutrition is essentially a social problem linked to a web of economic, political, cultural and biological factors.

The struggle of the poor begins from the intrauterine existence of the child through the hazards of child birth, infancy and adulthood when those who manage to survive live through a battered life and produce progeny under similar conditions. Being biologically more vulnerable, ecological hazards affect children most. By limiting access to education, skills, good health, job opportunities etc., the poor become more prone to exploitation by the affluent classes who control production and distribution and exact labour.<sup>20</sup>

The most florid forms of undernutrition Kwashiorkor and Marasmus are found in the infant and child populations of Asia, Africa, Central America, West Indies and South America. These communities are unable to secure even breast

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20. Banerji, D., (1982), "Cultural and Biological consequences of hunger". In Proceedings of the Indian Statistical Institute, Golden Jubilee International Conference on Human Genetics and Adaptation, Vol.2, pp.309-325.

milk and weaning foods for their children. The living conditions predispose the children to recurrent infections disease and death.

Desperate conditions of living resulting from the exploitative social relations during the Industrial Revolution in the West, brought into sharper focus some of the ecology related nutritional disorders-Rickets, Osteomalacia, Nightblindness, Keratomalacia, and Infantile scurvy. These disorders were mere symptoms of the wider malady of the conditions which compelled large masses of people to live under most degrading ecological settings. It is, therefore, logical that these disorders became virtually unknown when the living conditions of the masses were improved in Western countries.<sup>21</sup> Similarly, large outbreaks of beri-beri occurred only under extreme conditions of famines and wars. Rickets, was especially, an urban disease of the industrialised Europe, Pellagra was in the U.S., a disease of the poor, underprivileged, and the deprived whose whole livelihood depended on inadequate remuneration for labours in the Southern cotton plantations.<sup>22</sup>

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21. Banerji, D., (1988), op. cit.

22. Latham, M.C., (1973), "A historical Perspective". In Nutrition National Development and Planning, (eds.) Berg. A., Scrimshaw, N.S., Call, D.E, pp.313-328.

It may be noted that people did manifest deficiency symptoms when they colonized some special regions. Iodine deficiency areas and areas having high fluoride content in drinking water are classical examples. Scurvy occurred on a large scale mostly under very exceptional conditions i.e., during Trans-Atlantic voyages, during long sieges, and when mothers had to go for work and substitute mothers milk with improperly prepared milk powder.<sup>23</sup>

Thus outbreaks of some of the classical cases of nutritional disorders are rooted in the special ecological, social and economic conditions. They can be traced back to widespread disruption of economic balance which is associated with exploitative relations of production. Social and economic forces which create such conditions also ensure that such issues are kept out of the body of knowledge of nutrition sciences.

## **2. HISTORY OF THE SCIENCE OF NUTRITION**

The science of nutrition originated in the laboratories. It borrowed concepts, ideas and techniques from the basic sciences- Chemistry, Physical sciences and Medicine. This gave both scientific respectability and sophistication to nutrition. Slowly the science of nutrition

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23. Banerji, D., (1988), op. cit.

was seen to move from Macro to Micro context. According to Banerji<sup>24</sup> the focus of studies moved farther and farther away from the study of problems of nutrition in humans in their ecological settings. Biochemical laboratories and animal houses became the major places for study of human nutrition. Research in laboratories and animal houses was actively promoted by the market interests because nutrition became a happy hunting ground for rapid growth and proliferation of the food and drugs industry of Western countries. The market forces also influenced the formation of a profession of nutritionists and nutrition educators. These professionals were mostly inward looking and insular.

The mechanization of the organic through the chemical technique had considerably taken place upto the 1950's. Nutrition turned into yet another paradigm after the onset of the World Wars.

## **2.1 PRE WORLD-WAR PERIOD**

The story of the history of modern nutrition begins with the seventeenth century, often called the golden age of science, when modern science began to develop because instruments were invented to make experimentation and measurement possible.

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24. Ibid.

The Greeks and Romans had believed in using diet in the treatment of disease, although they had no understanding of which foods were really helpful or why. An early Greek physician introduced the idea of four elements-fire, water, earth and air. These four elements, made up the four qualities-hot, dry, cold and wet. In the second century A.D. Galen, a physician, dissected animals and wrote on human anatomy.

From the time of the downfall of the Roman Empire (476 A.D.) through the Middle Ages was the period of the spread of Christianity and little attention was given to medicine or science. Voyages of exploration particularly the discovery of America by Columbus (1492) turned people's thoughts to broader horizons. The invention of movable type printing press helped in the wider spread of knowledge and ideas.

In the seventeenth century, ocean voyages and land discovery was joined with a new type of discovery scientific discovery. The Great works of Galileo, Anton Leewenhoek, William Harvey, Robert Boyle, Sir Isaac Newton gave way to experimental approach. The 17th Century thus saw the beginnings of science.



Sanctorious (1561-1636), an Italian physician, probably was the first person to do nutrition studies on humans. For weeks he weighed himself, his food and all body excretions. But he could not solve the problem of differences between his body weight and what he ate and excreted. One hundred years passed before the next steps were taken to discover how food is changed into the human body. Studies on digestion were carried out by R'eaumur, Spallanzani, Beaumont etc.

Lavoisier in the late 18th Century began his experiments on combustion that led to studies on animal respiration and paved the way for the development of calorimetry. Some of the prominent names in the field of calorimetry were Liebig (1803-1873), Voit (1831-1908), Rubner (1854-1932), Atwater (1844-1907) and Lusk (1866-1932)<sup>25</sup>. While these 19th Century scientists were engaged in calorimetry, the chemists were delving into the composition of foods and the mysteries of metabolism, and physiologists were attempting to elucidate the mechanisms involved in digestion, the means by which food becomes available to the body for oxidation. In the following century and a half, the physiological and biochemical aspects of the digestive process were studied and clarified.

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25. Lowenberg, M.E., Savage, J.R., Todhunter E.N., Lubawski, J. Wilson, E.D., Food and People, 3rd. (edn.) (John Wiley), 1979.

Outside the main-stream of science, stemming from the best of well equipped laboratories, there began to emerge experimental clinical research in human nutrition.

Even in the seventeenth and eighteenth centuries there had been wide awareness of the association between food and the cure or prevention of deficiency diseases like scurvy, pellagra, beriberi etc. The essential nature of protein as a source of nitrogen had been suggested by the work of Magendie (1816) and was confirmed by Mulder (1802-1880) who coined the term 'protein' from the Greek word proteus which roughly may be translated as "first". It came to be recognized that protein was necessary for life in a more fundamental way than could be attributed to either carbohydrate or fat. By 1900, sixteen different amino-acids had been isolated from hydrolysates of various biological materials.<sup>26</sup>

Thus near the end of the nineteenth century, chemical methodology had progressed considerably so that relatively purified foodstuffs could be isolated from foods. Purified foodstuffs provided the tool needed for studying the physiological effect of various combinations of the

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6. Pike, R.L., Brown, M.L., (1984), Nutrition An Integrated Approach, (John Wiley), Chapter 1.

nutrients, then believed to be essential and thus for determining the function of individual foodstuffs in biological systems. Animal feeding experiments, however, produced unexpected results.

Eruption of interest in nutrition - experimental, basic, chemical and clinical followed the elaboration of the vitamin hypothesis stemming from the classical studies of Sir Frederick Gowland Hopkins. The furore created by the discovery of the minute factors' in food reached the peak between 1930-1940. The literature of this period is crowded with new discoveries, wrong turns and rediscoveries. R.R. Williams discovered thiamine, Charles Glen King-Vitamin C, E.V. McCollum-Vitamins A & D, Osborne & Lafayette Mendel-vitamin A and protein. This was followed by the discovery of trace elements. Hart & Elvehjem-iron, copper, and niacin. Gyorgy riboflavin, Gyorgy, Lepkovsky & Hogan-pyridoxine and many others. It was highlighted by landmark discoveries by many physician scientists such as Joseph Goldberger, William. B. Castle, Emmett. Holt. Jr., Randolph West & Alfred Hess.<sup>27</sup>

There had been diffusion of interest in nutrition in among a large number of colleges and universities, land

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27. McCollum, (1957), A history of Nutrition, (Houghton: Mifflin-Boston).

grant institutions, departments of Home Economics, and in the schools of medicine, particularly departments of paediatrics and of internal medicine as well as biochemistry, physiology and other basic sciences.

In the excitement attending the discovery of the vitamins, many nutritionists tended towards over enthusiasm. This over-enthusiasm probably helped to encourage the development of multimillion dollar vitamin business.

Meanwhile, many descriptions of Kwashiorkor had come from Asia, Africa and Latin America. This, however, was the era of vitamins and as we would see later, bacteria, and medical scientists were reluctant to accept a new syndrome whose cause was due neither to avitaminosis nor to an infection.

Cicely Williams, working in Ghana, gave her classical description of the disease and in 1935 introduced the name Kwashiorkor into written medical literature. However, for the next ten to fifteen years there was much dispute as regards these findings. The principal antagonists were convinced that the disease was pellagra. Trowell published his material on "pellagra of infants" in 1937. At this time, Nicotinic Acid had achieved remarkable success in the treatment of black-tongue in dogs. It was therefore tried on humans. Nearly all the children died.<sup>28</sup>



This was the time when chemistry was gaining popularity. Chemical techniques was also applied to the fabrication of food.

Following the French revolution, Napoleon's extensive military campaigns demanded an improved food supply for his army. This motivated Appert to come out with the first ever method of food preservation in 1810. The canning revolution soon followed.

While the food industries related to canning and dairy products were being set up in the United States, food science and technology as a field of study started finding its way into universities.<sup>29</sup> Slowly nutrition education, food processing, food safety and animal nutrition became additional components of nutrition science.

Although chemical science in its early development strove for a better understanding of life, but later, it quickly dropped this goal and went on to develop its own theory and practice independent of living processes. Other

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28. Latham, M.C., (1973), op. cit.

29. Mark, E.M., (1976), "Food Science and Technology. Past, Present and Future", W.O. Atwater Memorial Lecture, Nut. Rev. Vol.34, No.7, pp.193-200.

specialised fields of knowledge, Home Economics and Medicine also originated on similar narrow lines.

In the late 19th century, Ellen. S. Richards often known as the 'Mother of Home Economics' who sought professionalism and dignity for the homemaker set women's feet on the path towards scientification of food. This initiated a process wherein the home increasingly became a consumption unit. Gussow has observed that "fearing ---- that we would not be taken seriously as scientists - we have attended to the ever smaller and smaller; breaking down food, foodhandling, food processing, food functions into manageable microscopic pieces; looking at the isolated effects of the isolated behaviour on isolated food substances in isolated biological systems -----".<sup>30</sup>

This mental climate of the mechanistic reductionist form had also been building up in medicine. In 19th century Europe, improvement in the way of life (Sanitary reform movement) reduced the mortality rates in respect of many infectious diseases. These improvements in health were recorded before either the etiology or measures for the

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30. Gussow, J.D., (1981), "Growth, Truth and Responsibility: Food is the bottom line", Institute of Nutrition of the University of North Carolina, Occasional Paper Series, No.6, Vol.2.

control and the prevention of such diseases were known.<sup>31</sup> However, no sooner had the cause of disease was identified by Louis Pasteur and Robert Koch, bacteriology and immunology took over.

Elimination of diseases (both infectious and deficiency) required advances in technology. It is interesting, perhaps even frightening to consider how many nutritional deficiency diseases have been adversely affected by industrialization, by the so called technological advancement. Although beriberi is the classical example, because of its association with milling which removed some protective nutrients, there are similar associations between rickets and the growth of cities, pellagra and the cotton industry, scruvy and the availability of prepared milks to replace more desirable breast feeding.

The discovery of vitamins was only 25 years old when the decision was taken in World War II to add vitamins to food-stuffs.<sup>32</sup> The "class concept" of proteins created a large market for the protein food industry. The sale of

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31. George, Rosen, (1971), "Historical Trends and Future Prospects in Public Health", In Medical History & Medical Care. Symposium by Nuffield Provincial Hospital Trust, (OUP), pp. 57-82.

32. Ross, Hume, Hall, (1974), Food for Nought : The Decline in Nutrition, (Harper and Row).

'essential' aminoacids was boosted by exploiting the experiments of Rose on rats. Later it turned out that very few cases of specific amino acid deficiency were observed in humans even after they were exposed to prolonged conditions of food deprivations; for example, during stay in concentration camps, during hunger strikes or famines. The sale of vitamins, minerals including so called trace elements and various forms of foods skyrocketed. Bottles of specially developed combinations of vitamins and minerals became common features of dining tables of affluent people. Later, epidemiological analysis revealed that less than one in hundred of the consumers would have suffered any form of avitaminosis or other deficiency conditions had they not taken the pills prescribed by physicians and nutritionists.<sup>33</sup>.

The chemistry paradigm dissociated itself from nutrition after 1950's and incorporated ideas from other scientific paradigms such as genetics, microbiology and physiology and continued to flourish. Whereas nutrition turned to study living organisms in communities among natural phenomenon to revitalize and enrich its field.

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33. Banerji, D., (1988), op. cit.



## 2.2 POST WORLD WAR PERIOD

The World War gave a different orientation to the science of nutrition. Immediately after the World War I, the league of Nations was formed. In the Covenant of the League, it was stated that it was to endeavour to take steps in matters of international concern for the prevention and control of diseases. A health organisation was formed within the League for this purpose and it was in its health section that the first international programmes of food and nutrition had their beginning. A number of reports like "Nutrition and Public Health", "Agriculture and Economic Policy", "Food, Health and Income" etc. were published. Stanley Bruce gave a call to marry health and agriculture.<sup>34</sup>.

The League of Nations became non functional after World War II but it succeeded in bringing together a small group of nutritionists including W.R.Aykroyd, E.Y.Bigwood, John Boyd Orr, Burnet and Andre Mayer, who all tried to study nutrition among large populations in their natural settings. The results of their work demonstrated that the higher incidence of disease and higher mortality rate among the

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34. Passmore, R., (1983), "Historical introduction to food, Health and nutrition. Policies in the U.K.", In Nutrition in the Community (ed.) McLaren, D.S., (John Wiley), pp.19-49.

poor occurred because they were relatively under- nourished.

This was also the time when the Great Economic Depression hit the World in 1929. Agricultural over-production, particularly of food, was considered to be the primary cause of the economic crisis. A general fall in prices of food and other commodities removed the profit from production, which led to widespread unemployment and the unemployed and those living on low wages lacked the money to purchase even the relatively cheap food. Large unsold stocks of food and goods accumulated. "Hunger in the midst of plenty" was a phrase used at the time to describe the condition of the World. Thus the nutritionists came to grips with the problems of under-nutrition and poverty. The contradictions which form the basis of poverty also came to be recognised.

During the years between the wars and during the Great Economic Depression the idea of Welfare State started gaining ground. It was felt that investment at this point in the health of children would pay dividends and of-course it was realized that stimulating an increase in consumption would improve health as well as create a demand for agricultural products.

It was during this period that the National Councils of Nutrition came to be established in various countries. International organisations like FAO, UNICEF & CARE also started functioning. Thus the campaign for better nutrition was becoming an integral component of National and International endeavours.

The Health Organisation of the League of Nations (1936) had recommended certain standards of physiological requirements.<sup>35</sup> These served a useful purpose, as international yardsticks, for comparison of the nutrition of the people in relation to their dietaries. It was soon realised that these standards were not necessarily the last word on the subject and that they were capable of being revised in the light of further knowledge was also recognised.

This fact prompted studies on dietaries in various regions of the World. The interest of the countries in the South East Asian Region was further aroused by the recommendations of the Inter-governmental conference of Far Eastern Countries on Rural Hygiene which met at Bandoeng (Java) in 1937 under the auspices of the Health Organisation of the League of Nations.

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35. League of Nations, The Problems of Nutrition, Vol.I, Interim Report of Mixed Committee, 1936.

In India<sup>36</sup>, Robert McCarrison, an army medical officer, had already pioneered nutrition research in the first decade of the twentieth century. Associating the nutritionally deficient diet of the Indians with their poor physical development and susceptibility to various illnesses, he laid the foundation for studies on nutrition in India. After his initial interest in endemic goitre, the Indian Research Fund Association(I.R.F.A.) with which he was associated came into existence as a semi-official organisation in 1911, supported by funds from the Central Government. His studies on beri-beri, which later widened in scope to become the 'Deficiency Disease Inquiry' were started in 1918 at Coonoor, Madras Province. This was the fore runner of the central institution, Nutrition Research Laboratory (N.R.L.), established in 1929. One finds, from 1930 onwards, an increasing number of scientific workers contributing their quota to the growing knowledge of nutrition. Large number of diet and nutrition surveys came to be conducted. While only two dietary surveys were conducted in 1931 and 131 were carried out between 1937-42,

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36. Patwardhan, V.N, (1961), "Nutrition in India", Indian Journal of Medical Sciences, (Bombay).
37. I.C.M.R., (1961), "Review of Nutrition Surveys Carried out in India", ICMR Special Report Series, No.36, (New Delhi).

the next five year period saw the completion of 700 surveys.<sup>37</sup>

During this period of intense Public Health Nutrition activity, Dr. W.R.Aykroyd succeeded Mc Carrison as Director N.R.L. Dr.Aykroyd took the initiative to systematically define the nutritional problem of people living in different regions. State Nutrition Divisions in several states came to be established. It was also during his tenure that the provincial Governments in India deputed personnel for training at the N.R.L., Coonoor, where a course on theoretical and practical nutrition was held for the first time in the summer of 1937 and annually thereafter. These trained personnel were to function as nutrition officers in the nutrition sections of various provinces. They collected valuable information on dietary habits and the state of nutrition of the population, particularly of school children. Realising that no standard procedures were adopted by the various agencies, the I.R.F.A. which came to be known as Indian Council of Medical Research (I.C.M.R.) in 1949 introduced standard methods and schedules for collection of data.<sup>38</sup>

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38. Pandit, C.G., Someswara Rao, K., (1960), Nutrition in India (1946-58), ICMR, (1960).

Dr. Aykroyd was followed by Dr. V.N. Patwardhan who continued as the director of the Institute until 1960. During this period, there was considerable expansion of the research programme on the clinical, biochemical and public health aspects. In the year 1959, the laboratories were shifted from Coonoor to Hyderabad. This shift was prompted by the consideration that Hyderabad with its excellent clinical and university facilities offered far better facilities.<sup>39</sup>

In the beginning of 1961, Dr. Gopalan took over as director, NRL. During his tenure, he introduced various new disciplines. The divisions of Food Toxicology, Endocrinology, and Genetics were introduced. Operational details of many National Nutrition Programmes were investigated. Thus, began an era of 'specialisation', 'superspecialisation' and 'action'. There was not only a move away from 'basic community research' to 'action oriented research', but also a fragmentation of nutrition science, keeping in line with the growth of science of the Industrial revolution.<sup>40</sup>

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39. Gopalan, C., (1970), "Introduction: Nutrition Research Laboratories", AJCN, Vol.23, No.1, pp.33-34.

40. This is evident in the NIN annual reports of the years 1970, 1971, 1973, 1974. In 1974, C Gopalan became the Director General ICMR, A number of Directors followed his foot-steps thereafter.

Both the paradigms, the clinical paradigm of the Industrial Revolution and the public health paradigm of the post World War II period existed in a strange mix in the growth of science of nutrition in India. Although the public health approach was more relevant in the Indian context because of widespread poverty, the clinical approach had a great appeal among our scientists, planners and also businessmen (food industry sold the products of science!).

Besides active research centres, the country was also able to develop an advisory body during the formative years of nutrition research in India.

The IRFA formed the Nutrition Advisory Committee(NAC) in June, 1936. The primary function of this committee has been to advise the scientific advisory board of the parent organisation on the various research proposals and programmes submitted to the latter for financial support. In 1937, the Government accorded recognition to the committee which made it the National Nutrition Committee. In its capacity as a national body, the committee tried to review and coordinate work in Public Health Nutrition carried out in various administrative units of India. It took part in planning for post-war reconstruction. It also considered such practical problems as techniques of diet - surveys, methods, for evaluation of nutritional status,

dietary allowances, etc. It also tried to coordinate nutrition researches in India and to prepare fresh plans. The committee could, however, enjoy the coveted status of a solitary National Advisory Body only until 1957. Whereafter in pursuance of the recommendations made by the ninth session of the FAO conference held at Rome in 1957, the Government of India established a separate national Nutrition Committee with the Union Health Minister as its Chairman. Representatives from the Ministries of Food and Agriculture, Commerce & Industry, Community Development, Scientific Research & Cultural Affairs, and Defence were also included in this committee in addition to those from the DGHS (Director General of Health Services). The NAC came to be fully represented in this new National Nutrition Committee. This high-powered committee acted as an advisory board to the Government in formulating and implementing policies and plans relating to food production and consumption in all its aspects taking into account the nutritional needs of the population.

Field work carried out under the auspices of I.R.F.A. and later I.C.M.R. and largely Biochemical and Clinical work at N.I.N. provided valuable material regarding the nature and extent of nutritional problem in India.



From the above account, it can be seen that nutrition developed along two broad streams and that there was a distinct dichotomy amongst them. Nutrition in clinical and biochemical labs developed high scientific sophistication in basic science research and animal research. Field nutrition, on the other hand, called into question some results that emerged out of the lab. This led to the realization that many "scientific" claims confirmed by painstaking laboratory research were irrelevant. These issues were later put into a proper perspective when epidemiological research in nutrition was conducted.

**CHAPTER - II**

***EPIDEMIOLOGY OF HUNGER***

Early nutrition work in India, clearly developed along two broad lines. The Clinical and Biochemical approach of the Industrialised West and the Community or Public Health Nutrition approach initiated by McCarrison and Aykroyd. The data sources, methodology, of operation as well as the focus of these approaches were entirely different.

#### 1. THEORIES OF UNDER NUTRITION

The International experts focussed on the protein problem utilising 'stimulating new research' in laboratories and animal houses. Preoccupation with protein became an important feature of feeding the third world. As early as 1935, the expert committee of the League of Nations<sup>1</sup> made a statement that protein intake for all adults should not fall below 1g/kg body weight. The protein should be derived from a variety of sources and it is desirable that a part of the protein should be of animal origin especially so during the periods of rapid growth. It was stated that the solution to protein malnutrition lies mainly in the provision of greater supply of suitable foods rich in proteins for mothers, infants and children.<sup>2</sup> So much so, that most of the work of

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1. League of Nations, (1935), Report of the Physiological Basis of Nutrition, Also League of Nations, (1936), The problem of Nutrition, Vol.I, Interim Report of the mixed committee.
  2. FAO Nutritional Studies, No.16, Protein Requirements, Report of the FAO Committee, Rome 1955.

the FAO Nutrition Division in the field of food technology was concerned with the preservation and processing of protein rich foods, suitable for child feeding.<sup>3</sup> This continued till the seventies when preoccupation with protein reached an all time peak.

It was declared that severe malnutrition during late pregnancy and early infancy causes permanent brain damage.<sup>4</sup> A protein advisory group was set up to investigate into the matter.<sup>5</sup> The overriding concern of the United Nations was explicit in a special statement issued by the then Secretary General of the UN - U. Thant. He expressed a deep concern over the danger of hundreds of millions of children becoming permanent mental cripples and urging immediate action to bridge what he called the global 'protein gap'.

However, hard evidence from various large scale community surveys was mobilised to negate this 'protein

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3. Joint FAO/WHO Expert Committee on nutrition : "Fourth Report", WHO, TRS 97, (1955).
  4. Glaxo Symposium of Nutrition Growth and Development: Session IV, "Nutrition and Mental Development". Indian J. Med. Res. 59, Suppl., pp.177-220, (1971), Also, National Academy of Sciences (USA), Relationship of nutrition to brain development & behaviour, (National Academy of Sciences : Washington), 1973.
  5. UN (1968), International Action to Avert the Impending Protein Crisis, (New York).

myth'. An epidemiological study on 3000 pre-school children<sup>6</sup> clearly came out with the evidence that the major bottleneck in the pre-school dietaries is calories and not proteins. Gopalan pioneered a series of studies<sup>7</sup> and finally documented<sup>8</sup> that local diets with proper combinations of food materials could support normal growth in children.

Sukhatme<sup>9</sup> generalised the idea to adult populations in Asia. Surveying both Indian evidence of national food availability and household food habits, he interpreted the Indian situation to be one of calorie, rather than protein shortage. He also noted that simply increasing the quantity

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6. Pralhad, Rao, N. Darshan Singh, Swaminathan, M.C. (1969), "Nutritional status of pre-school children of rural communities near Hyderabad City., Ind. J. Med. Res., 57 pp.2132-2246.
  7. a) Narasinga Rao, B.S., Visweswara Rao, K & Nandamuni Naidu A., (1969), "Calorie Protein adequacy of the Dietaries of pre-school children in India" J. of Nutr. and Dietet, 6, pp.238-244.  
b) Gopalan C, Narasinga Rao, B.S. (1971), "Nutritional constraints on Growth and Development in current Indian dietaries", IJMR, Vol.59, Suppl., pp.111-122.
  8. Gopalan, C, Swaminathan, M.C, Krishna, Kumari, V.K. Hanumantha, Rao D, and Vijaya, Raghavan, K., (1973), "Effect of Calorie Supplementation on Growth of Undernourished children. AJCN 26, pp.563-566.
  9. Sukhatme, P.V. (1970), "Size and nature of the protein gap", Nutr. Rev. 28(9), 223.

of protein in the absence of adequate calories, would squander the expensive resource. Thus he concluded with Gopalan that the main nutrition problem in India was insufficient food or a 'calorie gap' rather than a 'protein gap'.

It was not, as if, the 'calorie gap' was a new discovery. The earlier nutrition surveys, carried out under the auspices of Nutrition Research Laboratories, Indian Research Fund Association, Indian Council of Medical Research, Regional Research units and nutrition divisions of public health, had established both a quantitative and a qualitative lack in Indian dietaries along with documentation of certain specific deficiency signs distributed over various geographical areas.<sup>10</sup>

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10. Notable among the surveys are:

a) Nutrition Advisory Committee, ICMR, (1951), "A Review of Nutrition Studies in India", Special Report Series No.22, New Delhi.

b) Diet Survey Subcommittee (1951), "Nutrition Advisory Committee of the ICMR, Results of Diet Surveys in India", 1935-1948", Special Report Series. No.20., New Delhi.

c) Patwardhan V.N., (1961), has also extensively reviewed early nutrition work in India.

In Patwardhan, V.N., (1961), "Nutrition In India", Indian J. Med. Scien.

The Bhore Committee on Health Survey and Development<sup>11</sup> had made detailed recommendations in regard to the diet of the people as a whole. It stated that the improvements of food production and general dietary standards of the people was basically an economic problem.

The Sokhey Committee<sup>12</sup> also highlighted the poverty of the people and their consequent inability to obtain well balanced food.

The quantitative dimension of the nutrition problem, and the socio-economic roots of hunger were, however, sidetracked for the more fashionable, qualitative problems usually amenable to technological interventions, recommended by 'neutral' scientific bodies.

It is also known that for many years rational discussion of the food problems of the modern world was distracted by undue concentration on the comparative trends in population growth and expansion of food output. In claiming a correlation between mass starvation and an

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11. Government of India, Health Survey & Development Committee (1946): Report (Bhore Committee), (Delhi: Manager of Publications), Vol.II.
  12. National Planning Committee, Sub-committee on National Health (1948), Report (Sokhey Committee Report), Ed. by K.T. Shah, (Bombay : Vora).

excessive population growth that outstrips available food supply, the Malthusian theory apparently explained famine through a direct and easily understood causative relationship.

Too many mouths + too little food = famine. A simple but deadly equation.

Many prophecies of doom and decline were evident in the writings of the Neo Malthusians.<sup>13</sup> Famine was predicted to overtake India in the year 1975<sup>14</sup> and then 1985. In the early seventies, global food resources had dropped alarmingly to the point that only twenty 'food days' were thought to be left on this planet to feed the growing population. The major concern at the World Food Conference of 1974, convened in the grim shadow of the food security crisis, was to achieve an increase in global agricultural production.<sup>15</sup> India survived all this, mainly because of remarkable achievement in the agricultural front. In fact, famines have now become a thing of the past. People neither

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13. Some of these were. Paul Ehrlich, In Population Bomb, (1968), the writings of the Club of Rome, Paddock & Paddock in Famine, (1975).

14. Paddock, W. & Paddock, P, (1967), Famine, American decision - who will survive? (Little Brown & Co).

15. Gopalan C, (1989), Science and Nutrition in the future : Plenary Lecture, XIVth International Congress of



Nutrition, Seoul, South Korea. Aug.22, 1989, pp.1-2.

die nor manifest overt signs of severe undernutrition. Instead a number of substandard survivors continue to exist. Even this was not acceptable to people like Maurice King who in the 1990's propound theories of the 'demographic trap'.<sup>16</sup>

A major controversy of recent times has been 'nutritional adaptation'. Leading experts who argued the position were Srinivasan<sup>17</sup>, Seckler<sup>18</sup> and Sukhatme<sup>19</sup>. The hypothesis underlying their assertion was that populations with low height for age but normal weight for height are chronically, but not acutely malnourished and healthy in that they apparently suffer no functional impairment. Cited as evidence for this hypothesis were the experimental

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16. Maurice, King (1991), "Entrapment in India", The National Medical Journal of India, Vol.4, No.5, Sept.91.
  17. Srinivasan, T.N., (1981), "Malnutrition : Some measurement and policy issues", J. of Devel. Eco, 3,3.
  18. Seckler, D, "Small but Healthy: A basic Hypothesis in the Theory, Measurement and Policy of Malnutrition", In Newer concepts in Nutrition and their implications for policy, eds. Sukhatme P.V. (Maharashtra Association for the Cultivation of Science Research Institute : Pune), 1982, p.127.
  19. Sukhatme, P.V., (1982), Newer Concepts in Nutrition and their Implications for policy, (Maharashtra Association for the Cultivation of Science Research Institute : Pune).

results of Sukhatme & Margen,<sup>20</sup> who suggested that individuals adapt to lower levels of energy and protein intake at no functional costs. They argued on the basis of laboratory experiments, that individuals could auto-regulate or adapt to protein and energy intakes well below recommended dietary intakes. Moreover, Sukhatme asserted, many Indians were living and functioning at this lower intake level. Although neither prior nor subsequent nutritional trials substantiated this point of view, Sukhatme and colleagues pressed their claim.

Similarly, Seckler hypothesized that poor households adapted to the economic and dietary environment by eating somewhat less than the nutritionists estimates. The 'Small but healthy' hypothesis also drew on observations that many people in developing countries seemed to be surviving in their impoverished environments at intakes far below the FAO/WHO recommended minimum. Therefore, it was argued, that these populations should not be counted as malnourished even though they are so classified according to nutritional standards.

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20. a) Sukhatme, P.V., Margen, S., (1982), "Autoregulatory, Homeostatic nature of Energy balance", Am. J. Clin. Nut., 35, 355.
- b) Sukhatme, P.V., & Margen, S., (1978), "Models for protein deficiency". AJCN, 31, 1237.

There are numerous criticisms<sup>21-25</sup> to the above stated adaptability model. The chief critic, however, has been C. Gopalan. He has very strongly cautioned against the danger of the misuse of this concept in a manner likely to promote social and political indifference to (and acquiescence to) moderate malnutrition in children. He further goes on to say, that "the adaptation to a poor diet represents not a normal stage but one of strategic, metabolic and functional retreat in response to stress". "This may ward off death, but it will not help the individual to lead a productive life. The calorie levels advocated by Sukhatme are no more than 'a survival ration' and are rejected by those interested in building a strong vigorous nation of healthy productive adults, and of active children..." "Small may be

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21. Achaya, K.T., (1983), "RDA's Limitations and Applications", EPW, April, pp. 587.
  22. Mehta, Jaya, (1982), "Nutritional norms and, measurement of malnourishment and poverty", EPW, XVIIIf No.33, Aug.14, 1332-1340.
  23. Gopalan, C., (1983), "Measurement of Undernutrition," EPW XVIII No.15. Apr.9, pp.591-595.
  24. Gopalan, C. (1983), "Development & Deprivation. The Indian experience", EPW XVIII No.51, Dec.17. pp.2163-69.
  25. Gopalan, C., (1983), "Small is healthy"? For the poor, nor for the rich, NFI Bull. Oct. p.1-5.

beautiful", he adds, "but the parents of Indian children do not think so".26-29

Banerji<sup>30</sup> while talking of hunger satisfaction has asked - "does small is beautiful imply that small people will not take additional food when it is available to them?"

The above mentioned scientific theories of "Protein Gap", "Over-Population", and "Adaptation" reflect certain political ideologies. They, however, could not camouflage the real nutritional problem for long. The problem has been and still remains one of-poverty and inequality.

The recognition of the interrelationship between poverty and undernutrition, though a post-war phenomenon, remained outside the body of nutrition knowledge and practice

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26. Gopalan, C., (1983). "The nutrition policy of brinkmanship", NEI Bull. Oct. 5-6.
  27. Gopalan, C., (1984), "Child survival and child nutrition", NFI Bull. Vol.5, No.1, Jan. pp.1-3.
  28. Gopalan, C., (1988), "Stunting: Significance and implications for public health policy", In Linear growth, retardation in less developed countries. eds John, C., Waterlow. Nestle Nutrition Workshop; Series Vol.14, Nestec Ltd., (Vevey : Raven Press), No.4.
  29. Gopalan, C., (1988), "Undernutrition: measurement and implications in poverty", Undernutrition and living standards, WIDER, Helsinki.
  30. Banerji, D., (1981), "Measurement of poverty and undernutrition", EPW, Vol.XVI, No.39, Sep.26, 1579-1582.

until the seventies when yet another World Food crisis brought this issue into prominence. Now this fact is widely recognised. Even the World Bank admits, "undernutrition is largely a reflection of poverty: 'People do not have income for food.'"<sup>31</sup>

The National Nutrition Monitoring Bureau (1989) using a large scale. All India sample, has demonstrated a clear correlation between income levels and degrees of malnutrition in the rural population.<sup>32</sup> N. Krishnaji has worked out the more complicated interrelations between infant mortality rates, family size and property holdings. He has demonstrated the relevance of these in better understanding the dimensions of poverty.<sup>33</sup>

In the early seventies, Dandekar and Rath measured poverty based on nutritional norms.<sup>34</sup> They found that 40% of

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31. World Bank, (1980), World Development Report, Washington D.C., p.59.
  32. NNMB, (1989), "Distribution of pre-school children according to weight for age status (Gomez Grades), and Income differentials", Nutrition News, 10 (No.2 March).
  33. Krishnaji, N., (1984), 'Family size, levels of living and differential mortality in rural India: Some Paradoxes", EPW, Vol.19, No.6, Feb.11 pp.248-258.
  34. Dandekar, V.M., & Rath., N, (1971), "Poverty in India", EPW, Jan.2, p.29.

rural and 50% urban population in India live on a level corresponding to the 'average energy need' of the country. Sukhatme<sup>35</sup> rejected this hypothesis on grounds of inter and intra individual variability and argued that the correct estimate of poverty is only about one-half the estimate put forward by Dandekar and Rath. The debate moved on to statistics and the determination of poverty line to the number of malnourished in the country.<sup>36</sup>

The actual problem of all those who did not have enough to eat was yet again sidestepped and so was the need to find solutions for them.

While pointing out the flaws in the debate on 'poverty

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35. Sukhatme, P.V., (1978), "Assessment of adequacy, of diets at different income levels", EPW, Special No., Aug pp.1373-1384.
36. For details on the debate see:-
  - a) Sukhatme, P.V., (1981), "Measuring the incidence of undernutrition", EPW, Vol.16, No.23, June 6 pp.1034.
  - b) Dandekar, V.M., (1981), "On measurement of poverty", EPW, Vol.16, No.30, July 25. pp.1241-1250
  - c) Sukhatme, P.V. (1981), "On measurement of poverty", EPW, Aug.8, pp.13-18.
  - d) Rao., V.K.R.V., (1981), "Some Nutritional puzzles", A Note, EPW, Vol.16, No.28-29 July 11-18 pp.1205-1208.
  - e) Krishnaji, N. (1981), "On measuring the incidence of undernutrition, EPW, May 30 pp.989-992.
  - f) Dandekar V.M. (1982) "On measurement of undernutrition", EPW, Vol.17. No.6. Feb.6. pp.203.

and undernutrition', Banerji highlighted the wide spectrum of hunger and appealed not to forget the central fact, that hunger meant suffering to the people who had it.<sup>37</sup>

## 2. RELEVANCE OF HUNGER

Hunger is the biological manifestation of a social disease. Contractions of the stomach and a drop in blood sugar is associated with the sensation of hunger. The hypothalamus is the control center for the regulation of food intake. Besides complex - mechanical, neural, biochemical and hormonal influences, the mechanisms of the hypothalamus are also influenced by the socialization process and food habits.

For families who have to struggle for daily subsistence, this very process of socialization helps them to cope with severe economic constraints. The women are habituated to eat less and ignore their health.<sup>38</sup> It is only when hunger and ill health push them to the brink of endurance, do they take action.

The expression of the social malady is in the form of basic food deficiency arising out of the inability of an

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37. Banerji, D., (1981), "Measurement of poverty and undernutrition", EPW, Vol.XVI. No.39 Sept.26 pp.1579-82.

individual or family to establish command over commodity bundles with enough food.<sup>39</sup>

The basic food deficiencies are both acute and chronic and are accompanied by hunger. Persistent hunger is followed by a number of nutritional deficiency disorders. Thus hunger is the earliest manifestation of undernutrition. Physiological hunger pangs are often followed by morbid hunger which with time and intensity develops into chronic and acute hunger respectively. Acute and chronic hunger finally develop into Energy Protein Malnutrition (EPM). However, these definitions of acute, chronic or morbid hunger have not been worked out adequately and need to be made more specific. EPM is, in itself, a continuum of a range of nutritional deficiencies. The extremes of deprivation exhibit themselves as full-fledged clinical manifestations ie. Marasmus and Kwashiorkor in children. The distinguishing features of these clinical syndromes have been described extensively.<sup>40</sup>

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38. Hariss, B., (1990), "The Intrafamily Distribution of Hunger", in South Asia". In The Political Economy of Hunger, eds. Dreze, J. & Sen, A. Vol.I, Entitlement & Well Being (Clarendon Press : Oxford), pp.351-424.
  39. Sen, A.K., (1981) Poverty and Famines - An essay on entitlement and deprivation, (Oxford University Press: Oxford).
  40. a) Kamala, S. Jaya Rao, (1964), "Evolution of Kwashiorkor and marasmus", Lancet Apr. 1964, pp.709-11.  
b) Gopalan, C., (1967), "Kwashiorkor and Marasmus". Proceedings of Colloquium held at Cambridge, p.49.



The chronic process begins by loss of weight followed by wasting. If the child is still undernourished growth retardation sets in and stunting is observed.<sup>41</sup>

The assessment of the total load of nutritional morbidity in a community is a difficult exercise and requires a number of tools for its estimation. By a crude reckoning, an evaluation of the calorie inadequacy is a fair indicator of nutritional deficiency. A sociological tool employed to study this is the concept of 'hunger satisfaction' which has not been used by many people except Banerji in his study of 'Poverty, Class and Health Culture in India'. Normally the techniques of diet survey and clinical anthropometry are used by research workers to determine nutritional intakes and nutritional status of populations. But these measures have the disadvantage of missing out much of the hunger morbidity. It is here that the sociological tool comes in handy. For, it not only takes into account people's perception of hunger over varying periods of time, but also traps the earliest signs of hunger. This subjective criterion is determined by social factors and even when it might not be an exact reflection of biochemical deficiency (as different people acclimatize to different levels of

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41. The literature on growth is enormous. For a review and a sociological perspective see. Satyanarayana, K. (1986), Social Epidemiology of Nutrition in Ranga Reddy District, Doctoral thesis, CSMCH, SSS, JNU.

hunger in their cultural specificity) it continues to be the simplest indicator of chronic undernutrition which needs no measuring instruments.

### 3. EXTENT, NATURE AND DETERMINANTS OF UNDERNUTRITION

Incomes have been known to improve nutrient intakes among populations. This fact has been amply demonstrated on nationwide scale from data obtained in repeated National Nutrition Monitoring Bureau (NNMB) surveys. Examination of the recent survey<sup>42</sup> shows, that over the period 1975-79 to 1988-90, there has been little change in average income status of the population. But still, there has been some respite for the lowest denomination. Thus, the lowest category (PCI < 30 Rs./month) shows a decrease in percent households.

Table 1: Percent Distribution of Households by Per Capita Income

PC I (Rs./month)	1975-79	1988-90
No. of HH	5518	5181
< 30	32.7	20.6
30-90	48.0	49.4
90-150	10.6	20.4
> 150	8.7	9.6
Average	67.50	63.30

Source - NNMB, (1991), pp.47, table 2.

42. NNMB, (1991), Report of repeat surveys (1988-90), (NIN: Hyderabad).

Also, within the various occupational classes in rural India, the mean energy intakes of landless agricultural labourers seem to have improved over the period 1975-79 to 1988-90.

**Table 2: Mean Energy Intakes by Occupational Groups**

Period	Landless agricultural labour		Other labour		Cultivators		Others*	
	n	Mean	n	Mean	n	Mean	n	Mean
1975-79	892	2043	1978	2123	4510	2514	3126	2244
1988-90	675	2179	619	2118	2116	2356	1756	2168

\* : Includes Artisans, Traders and Salaried Group

n : Total number of households surveyed in seven states.

mean: Simple average of the consumption figures over seven states.

Source - NNMB, (1991), pp.52. table 6.

However, for a majority of the rural population, energy intakes have actually declined. Even for the landless agricultural labourers the intakes are much below the recommended levels. (Which is 3800 calories for heavy work).<sup>43</sup>

The classical nutritional deficiency disorders of the yesteryears - Beriberi, Pellagra, Marasmus, Kwashiorkor and even Keratomalacia are also on the decline.<sup>44</sup>

43. ICMR, (1990), Recommended Dietary Intakes for Indians, (NIN: ICMR).

44. Gopalan, C. (1990), "Combating vitamin A deficiency need for a revised strategy", Prefatory chapter, In Recent Trends in Nutrition. Proceedings of the First International Symposium of the Nutrition Foundation of India. Dec. 5-6, 1990.

Nowdays it is rare to see frank cases of any of these disorders. The NNMB data shows a drop in the figures of severe malnutrition from 14.4% in 1975-79 to 9.4% in 1988-90.

Table 3: Energy Intakes of Preschool Children By Nutritional Status.

Nutritional Status weight for age (%)	Energy intake		% children	
	1975-79	1988-90	1975-79	1988-90
> 90 (Normal)	1035	1013	3.6	4.6
90-75 (Mild)	995	988	29.3	33.6
75-60 (Moderate)	884	928	52.7	52.4
< 60 (Severe)	812	796	14.4	9.4

Source: NNMB, 1991, pp.54, Table 9.

Marasmic cases declined from 1.3 to 0.6 percent and Kwashiorkor decreased from 0.4 to 0.1 percent.

Table 4: Percent Prevalence of Nutritional Deficiency Signs in Preschool Children

Nutritional deficiency signs	Period of survey	State								
		Kerala	Tamil Nadu	Karnataka	Andhra Pradesh	Maharashtra	Gujarat	Madhya Pradesh	Orissa	Pooled
Dedema	1975-79	-	-	0.4	0.9	0.5	0.3	-	-	0.4
	1988-90	-	-	0.2	-	0.1	1.1	-	-	0.1
Marasmus	1975-79	0.2	0.6	0.5	2.0	0.8	3.8	0.2	0.6	1.3
	1988-90	0.1	0.2	0.4	0.1	0.3	4.9	-	0.1	0.6
Two or more signs of	1975-79	0.2	0.6	2.1	0.9	3.0	0.6	0.2	-	1.2
	1988-90	-	0.1	0.4	0.1	0.3	0.3	-	0.1	0.2
PEM Bitot's spots	1975-79	0.1	2.9	2.3	3.1	0.4	0.9	0.4	1.5	1.8
	1988-90	0.5	0.6	1.1	1.0	0.3	0.5	-	1.1	0.7
Angular stomatitis	1975-79	1.6	5.0	11.8	7.9	1.0	1.5	0.6	5.9	5.7
	1988-90	-	6.3	13.9	9.0	1.3	0.5	-	-	5.7
NAD	1975-79	91.7	84.4	71.9	79.8	86.0	79.7	94.5	76.7	80.7
	1988-90	94.5	73.6	79.2	88.5	87.5	79.4	87.5	96.3	83.5
Number	1975-79	1034	1832	2941	2361	1580	1893	474	660	11775
	1988-90	748	2792	1715	2394	1488	1090	397	911	11535

Source: NNMB, (1991), pp.59, Table 10.

Similarly severe forms of growth retardation in children-Stunting and Wasting show substantial reduction.

Table 5: Percent Distribution of Preschool Children According to Standard Deviation Classification

SD classification according to	Period	N	<-35D	-35D to 25D	-25D to -15D	-15D to Median	> Median
Weight/Age	1975-79	6428	38.0	39.5	18.3	3.3	0.9
(under weight)	1980-90	13432	26.6	42.0	24.2	6.0	1.2
Height/Age	1975-79	6428	53.3	25.3	14.6	4.8	2.0
(Stunting)	1980-90	13432	36.8	28.3	21.0	9.9	4.0
Weight/Height	1975-79	6422	2.9	15.2	44.3	29.0	8.6
(Wasting)	1980-90	13422	2.4	17.5	44.0	27.6	8.5

A National Survey Of Blindness carried out under the auspices of the Government of India and WHO<sup>45</sup> showed that no more than 0.04 percent of all cases of blindness would be attributed to Vitamin A deficiency.

These trends of decline in severe forms of undernutrition in recent years are in sharp contrast to the findings of the earlier large scale surveys of the fifties<sup>46</sup>

45. National Programme for control of Blindness in India, (1988), Report of National Workshop, DGHS, Ministry of Health and Family Welfare.

46. Patwardhan, V.N. (1961), "Nutrition in India", The Indian Journal of Medical Sciences, Bombay, pp.293-412.

and sixties<sup>47</sup>. Protein malnutrition accounted for an appreciable number of child admissions in hospitals.

The total attendance at the Coonoor clinic (NRL'S) for the period 1949-58 was 35,457; of these, 2,111 cases or 5.95% turned out to be of malnutrition.

A compilation of studies of the late sixties in the Nutrition Atlas of India<sup>48</sup> clearly depicts the widespread prevalence of nutritional deficiency disorders both in pictures and figures of frank cases. While the overt clinical forms of undernutrition are declining, there exist considerable chronic long term hunger. Gopalan<sup>49</sup> had demonstrated little change in the average heights and weights of children between the mid-fifties and late seventies.

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47. Someswara, Rao K., Swaminathan M.C., Swamy S, Patwardhan, V.N., (1959), "Protein malnutrition in South India", Bull. WHO, 20 pp.603.
  48. Gopalan, C., Vijaya Raghavan, K., (1971), Nutrition Atlas of India. (NIN : ICMR), (Hyderabad).
  49. Gopalan, C. (1987), "Nutritional status of India's children: Has it improved in recent years". NFI Special publication series 3, pp.210-220. While examining data from two large scale longitudinal studies separated by a time span of 20 years. "The ICMR study on growth and physical development of Indian infants and children". ICMR Technical Report No.18 1956-57 and NNMB report of the year 1979.

Table 6: Comparison of Mean Heights and Weights of Children in Two Studies.

Age (years)	Weights (Kg)				Heights (cm)			
	Boys		Girls		Boys		Girls	
	1	2	1	2	1	2	1	2
4	13.0	12.5	12.4	12.0	94.5	92.6	93.0	91.1
7	17.6	16.5	17.2	16.4	113.3	109.1	111.8	104.8
13	31.1	27.0	31.2	29.6	143.4	137.6	141.9	138.6

1. ICMR, (1956-57), Class VI Group.

2. NNMB, Urban Slum Study, 1984.

Source: Gopalan, C., (1986), "Nutritional Status of India's Children : Has it Improved in Recent Years?" NFI Bull, vol.7, no.1, Table 2.

The National Sample Survey data<sup>50</sup> on per capita calorie intakes in the early seventies when compared to data obtained in the early sixties<sup>51</sup> shows low intakes in the seventies.<sup>52</sup>

50. National Sample Survey Organization, Sarvekshana, Vol.II, NO.1, July, 1976, Table 4.

51. CDS, (1975), Poverty Unemployment and development policy - Case study of selected issues with reference to Kerala, (UN : N.Y.), Table 3 pp.15.

52. Panikar, P.G.K., (1980), "Inter-regional variation in calorie intake". EPW, vol.15, no.41/42/43, pp.1802.

Table 7: Levels of Calorie Intake in the Early Sixties and Seventies, Rural Areas.

States	Calorie intake per capita			Percentage increase (+) or decrease (-) over 1961-62	
	1961-62	1971-72	1973-74	1971-72	1973-74
1. Rajasthan	3147	2586	2719	-17.82	-13.60
2. Punjab	3076	2954	2815	-3.97	-8.49
3. Haryana	-	2874	2971	-	-
4. Jammu & Kashmir	3033	2793	2742	-7.91	-9.59
5. Madhya Pradesh	2910	2852	2422	-1.99	-16.77
6. Uttar Pradesh	2854	2407	2450	-15.66	-14.15
7. Karnataka	2758	2054	2211	-18.27	-19.83
8. Gujarat	2503	2295	2180	-6.31	-12.90
9. Maharashtra	2280	2033	2044	-10.83	-10.35
10. Bihar	2591	2178	2186	-14.29	-13.97
11. Orissa	2375	2017	2125	-15.07	-10.53
12. Assam	2354	2132	2105	-9.43	-10.58
13. Andhra Pradesh	2184	2118	2209	-3.02	+1.14
14. West Bengal	2175	1860	2070	-14.48	-4.83
15. Tamil Nadu	2147	1910	2012	-11.04	-6.29
16. Kerala	1631	1610	1534	-1.29	-5.95
India	2511	2168	2328	-13.65	-7.29

Source: Col.1 : Poverty, Unemployment and Development Policy, Table 3, pp.15.

Col.2 & 3 : NSSO, Sarvekshana, Vol.II, No.1, July 1978, Table 4., p.5.



The NNMB reports an increase in mild cases of undernutrition from 29.3% to 33.6% (Table 3).

Anaemia associated with chronic under-nutrition is a problem of considerable magnitude. It is prevalent especially among pregnant women (85%) and pre-school children (63-71%)<sup>53</sup>. Even among adult men, anaemia is not uncommon, between 35-40% having low levels of circulating haemoglobin.<sup>54,55</sup>

Considerable morbidity exists due to chronic interdependent nutritional problems. Nutritional deficiencies are known to co-exist and have a common cause i.e., lack of food and superimposed infections and infestations.<sup>56-58</sup>. It is generally accepted that infection, usually in the form of diarrhoeas, exacerbates malnutrition.

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53. ICMR, (1989), Evaluation of the national Nutritional Anaemia prophylaxis programme, New Delhi.
  54. "Report of working group on fortification of salt with iron", AJCN, 35, 1442-1457, June, 1982.
  55. Jaya, Rao, K.S. (1984), "Undernutrition among adult Indian males", NFI Bull, July 1984.
  56. Patwardhan, V.N., (1989), "Hypovitaminosis A and epidemiology of xerophthalima", AJCN, 22, 1106.
  57. Jyoti, K.K. et al., (1963), "A study of the socio-economic nutritional and dietetic status of a rural community", Trop. Geog. Med., 15, 403.
  58. Rao, K.S. et al., (1959), op. cit.

And that undernutrition influences duration and severity of illness rather than incidence rates of infection.<sup>59</sup> Vitamin B complex deficiencies (of the order of 5.7%) associated with low energy intakes have been reported.<sup>60</sup> Gopalan has highlighted the cumulative result of poverty, undernutrition and neglect of girls in the countryside.<sup>61</sup> These are reflected in poor adult body size. Almost 24 per cent women in reproductive age group have body weights below 38 kgs and 16 per cent have heights below 145 cms - "cut off" points below which they are at risk of obstetric difficulties.<sup>62</sup> Nutritional deficit, exacerbated by repeated closely spaced pregnancies is a phenomenon which places both mother and infant at high risk of death. Indeed the most common causes of maternal death are closely associated with malnutrition particularly anaemia.

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59. a) Chen, L.C., E. Huq, and S.L. Huffman, (1981), "A prespective study of the risk of diarrhoeal diseases according to nutritional status of children", Am. J. Epidem., . 114: 284-292.

b) Kielman, et al (1978), "The Narangwal Experiment on Interaction of Nutrition and Infection: Morbidity and mortality effects", Ind. J. Med. Rs. Vol.68, Supp. Dec. pp.21-41.

60. NNMB, (1991), op.cit.

61. Gopalan, C., (1989), "Women and Nutrition in India: Some practical considerations", NFI Bull., 10, 1-4.

62. Chatterjee, M., (1992), "Hungry is not healthy? The nutritional challenge to health and Development in India", Workshop on Health and Development in India, India International Centre, 2-4 Jan., 1992.

A major outcome of inadequate maternal nutrition is 'low birth weight'. The incidence of this problem continues to be extremely high in India. Incidence rates ranging from 25.9 to 56.9 per cent in urban slums and 35.2 to 40.8 in rural communities have been reported (ICMR 1985). This study found a strong correlation between low birth weight, and low maternal weight, height, weight gain and hemoglobin levels.<sup>63</sup>

While it is difficult to find data on the above mentioned important area of morbidity due to multi-factorial interactions, considerable information has been brought together on single nutrient deficiencies.

Starting from the fifties and till the seventies the figures quoted for goitre prevalence in India were 40 million people exposed with 9 million having goitre.<sup>64</sup> Then in the eighties, there was a quantum jump in the estimates. New endemic areas were discovered based on surveys conducted in different parts of the country<sup>65,66</sup>. Though different

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63. ICMR, (1985), "Birth, weight. A major determinant of child survival", Future perspective on children, 17.

64. Ramalingaswami, V. (1973), "Endemic goiter in South East Asia", Ann. Inter. Med., 78:277.

65. ICMR, (1989), Epidemiological survey of endemic goitre and endemic cretinism. An. ICMR task force study.

66. Kochupillai, N., (1987-88), "National policy to iodise Salt", Future, 22-23: 39.

people give a variety of figures, it is generally believed that exposed population is 120 million with goitrous population of 40 million.<sup>67</sup> In the supposedly new endemic areas being uncovered, endemic cretinism is not seen at all but still 'subcretinous brain damage' leading to varying degrees of mental retardation in 15 per cent of children has been reported.<sup>68</sup> It should be noted that a similar scientific theory of 'protein gap' leading to permanent brain damage in children was in vogue in the seventies - and was strongly criticised by those who believe in the method of epidemiology.<sup>69</sup> Aravindan demonstrates that the problem of endemic goitre has been blown out of proportions to serve commercial interests and mild or moderate endemicity is infact what is indicated in various surveys.<sup>70</sup>

There are gross lacunae in the epidemiological understanding of specific deficiency diseases. A combination of factors are responsible in the aetiology of each. It

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- 67 Pandev, C.S, Kachupillai, N. (1982), "Endemic goitre in India: Prevalance, Etiology and control measures". Ind. J. Paediatrics, 50: 259.
68. Subramanian, P., (1988), "National Goitre Control Programme : Current status", Bull. NFI, July 1988.
69. Banerji, D. (1979), "Epidemiological Issues in Nutrition", Ind. J. Nutr. Diet., Vol.16, pp.189-194.
70. Aravindan, K.P., (1989), "Science in service of monopolies : Universal Salt Iodisation Policy", EPW, July 8, pp.1543.

would be more relevant to delineate the inter-relationship of these specific food factors with calories and proteins as well as the total level of living in which socio-economic and environmental factors have a major role to play.

Energy and iron intakes on Indian diets are highly correlated.<sup>71</sup> Apart from inadequate content of iron, reduced intake of food which is widely seen among the poor in the country further reduces daily iron intake. This is particularly so among young children, women and pregnant women. It has been shown that true iron content of habitual diets can meet the iron requirement of adult men, children of one to six years and lactating women provided their dietary intakes meets their energy requirements.<sup>72</sup>

Also, severe undernutrition and anaemia are the most common associated findings. Studies on pre-school children had evidence suggestive of iron deficiency in association with PEM.<sup>73</sup> Association of anaemia and infections has also

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71. Narasinga, Rao, B.S., (1983), Proc. Nutr. Soc. 28: p.1.

72. Narasinga, Rao, B.S., (1991), "Prevention and Control of Anemia in India: Theory and Practice". NFI Bull., 1991.

73. a) Agarwal, R.K., et al., (1980), "Anaemia in PEM in pre-school children", IJMR, 72, Aug.236.

b) Pereira, S.M. & Baker, S.J. (1966), "Hematological findings in Kwashirkor", AJCN, 18: 413.

been implicated.<sup>74</sup>

Xerophthalmia occurs against the background of poverty, ignorance and defective dietary practices. Dietary deficiency of Vitamin A is one, but not the only one of the factors responsible for xerophthalmia, for, infectious diseases (particularly measles) play an important contributory role. Oomen in the early fifties had mentioned that Xerophthalmia was a major complication of malnutrition in Indonesia.<sup>75</sup> Oomen, McLaren and Escapini published the results of a global survey of hypovitaminosis A, a decade later. This clearly established the association of Xerophthalmia with PCM.<sup>76</sup> In India, Venkatchalam and Gopalan reported that 36% of Kwashiorkor cases in Coonoor in the state of Tamil Nadu and 32% of those seen in Hyderabad in the state of Andhra Pradesh had associated Xerophthalmia.<sup>77</sup> However, Patwardhan & Kamel explained this

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74. Srikantia, S.G. J.S., Bhaskaran, Krishnamachari K.A.V.R. (1976), "Anaemia and immune response", Lancet, i, 1307.
  75. Oomen, H.A.P.C., (1954), "Xerophthalmia in the presence of Kwashiorkor", Brit. J. Nut., 8: 307.
  76. Oomen, H.A.P.C., D.S., McLaren, and H. Escapini, (1964), "A global survey on xerophthalmia", Trop. Geograph Med. 16: 271.
  77. Venkatchalam, P.S., & Gopalan, C., (1960), "Kwashiorkor in Hyderabad and Coonoor. A comparison of salient features", IJMR., 48, 645, 1960.

frequent association by demonstrating that epidemiology of hypovitaminosis A was analogous to that of Protein Calorie Malnutrition.<sup>78</sup>

Xerophthalmia not only complicates EPM, but malabsorption, interference with the synthesis of retinol binding protein and possibly other derangements of vitamin A metabolism and function accompany severe malnutrition. This is further reflected in altered plasma and liver levels of vitamin A in EPM.<sup>79</sup>

Endemic goitre too, is a problem with socio-economic, developmental and ecological causes.<sup>80</sup> Sir Robert McCarrison had concluded years ago that endemic goitre was a disease of complex etiology being related to infection with the coliform group of intestinal organisms and to faulty and unbalanced diets.<sup>81</sup> Environmental factors caused by ecological disturbances and increased use of chemical

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78. Patwardhan, V.N. & W.W., Kamel, (1967), "Studies on Vitamin A deficiency in infants and young children in Jordan," Report. to WHO, As reported in Patwardhan, V.N., (1969), op. cit.
79. WHO, (1976), "Vitamin A deficiency and Xerophthalmia". WHO, TRS, 590, p.36.
80. Aravindan, K.P., (1989), op. cit.
81. Patwardhan, V.N., (1961), "Nutrition in India". The Ind. J. Med. Sci, pp.406-411.

additives in processed foods are now recognised as links in the Iodine Deficiency syndrome. Flooding, deforestation and soil degradation related to the newer agricultural technologies are causing iodine depletion of the soil. Some studies in the U.S have shown that E. coli. contamination of water has been the cause of goitre and not nutritional iodine deficiency.<sup>82</sup> Goitre has also been related to development. It has been noted in Mexico that the simple measure of building a road in an inaccessible area resulted in more food exchanges and disappearance of endemic cretinism.<sup>83</sup>

These links reiterate the fact that hunger has socio-economic and ecological roots. Nutritional problems cannot be seen in isolation as mere physiological deficiencies of single nutrients. The total food availability and purchasing capacity therefore assume considerable importance.

Food consumption data available from NNMB surveys gives some valuable information on variations in nutrient consumption by socio-economic status. Landholding appears to have a positive relationship to Calorie, Protein, Iron and

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82. As reported by - Balasub<sup>ma</sup>brānayan, V. (1991), "Say 'no' to iodised salt", Mainstream, Jan.19, p.29.

83. Aravindan, K.P. (1989), op. cit.



Vitamin A intakes with graduated improvement from households owning no land to those owning more than 10 acres. Only cultivator households and those who owned some land met the average per capita calorie requirements. The landless, unorganized labourers and scheduled castes (overlapping categories) did not<sup>84</sup>.

The 'Nineteen Village' study had earlier shown that not all of the people in the 'hungry classes' are 'harijans'. There are 70.5 per cent of non Harijans who are hungry for three months or more in a year. Poor labourers, non agricultural labourers and unemployed form a substantial part of this group.<sup>85</sup> Of interest is another study undertaken in twelve villages of Bihar which reports nutritional status by class. Agricultural labourers and poor farmer families had higher percentages of "wasting" and "stunting" than middle peasantry. However, these forms of malnutrition were also high among big peasants and non agricultural and non workers. Acute hunger was found most frequently in the poorest groups.<sup>86</sup>

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84. NNMB, 1991, op. cit.

85. Banerji, D. (1982), Poverty, Class and Health Culture in India, Vol.I, (Prachi Prakashan : New Delhi).

86. Prasad, P.H. (1981), "The pattern of poverty in Bihar", Working Paper No.152, Population and Labour Policies Programme. (ILO : Geneva).

The pattern of gainful employment and wage earning is not constant throughout the agricultural year. Seasonal changes in rural dietaries and consequent reflection on the nutrition profile has been reported.<sup>87</sup> As a consequence, the rural poor migrate to cities in the hope of better jobs and incomes but there too they do not find themselves in any better position. NNMB data show that slum dwellers are no better off than the rural landless labour, as far as their energy intakes are concerned.<sup>88</sup>

It is now recognised that calorie intake varies directly with per capita output of foodgrains and inversely with degree of inequality in land distribution.<sup>89</sup> The same study, however, argued that the level of income was not a relevant factor governing calorie intake except in respect of the non land-owning population. Panikar has shown that cereal consumption and therefore calorie intake is a function of purchasing power or income and the price of cereals. The price of cereals in turn depends both on per capita production and the composition of the cereal basket.<sup>90</sup>

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87. Jaya, Rao, K.S., (1981), "Seasonal changes in rural dietaries". NFI Bull., January 1981.

88. Jaya, Rao, K.S., (1985), "Urban Nutrition in India-I". NFI Bull., October, 1985.

89. Centre for Development Studies, (1975), Poverty Unemployment and Development Policy - A Case Study of Selected Issues with Reference to Kerala., (UN : NY).

90. Panikar, P.G.K. (1980), op. cit.

It has been said that food availability per head has been stagnant in the past thirty odd years and has also been low, both in absolute terms and in comparison with countries that have suffered serious famines in recent years.<sup>91</sup> The NNMB reports a marginal improvement in calorie availability among the poorest households between 1975 & 1989. It appears that households with per capita monthly incomes upto Rs.300 have adequate calorie intakes while in those with incomes above Rs.300 calorie intakes meet the recommended dietary allowances.<sup>92</sup>

Table 8: Protein and Energy Intakes by per capita Income During 1988-90

Per capita Income (Rs./Month)	N	Protein (g)	Energy (kcal)
< 30	143	53.3	2026
30-45	372	56.5	2172
45-60	550	55.8	2131
60-90	1137	55.6	2130
90-150	1424	59.4	2213
150-300	1056	60.8	2254
> 300	501	70.3	2595

Source: NNMB, 1991, Table 5.2, pp.51.

91. Gopalakrishna, Kumar B., (1990), "Consumption disparities, food surpluses and effective demand failures. Reflections on macro-economics of drought vulnerability", *EPW*, March 10, pp.499.

92. NNMB, (1991), op. cit.

Similarly, referring to three year moving averages, Ramachandran points out - "these... averages do not lend any support to the conclusion of increasing trends in calorie intake in any state, except possibly Gujarat in a small way... In any case, there is no evidence in these data of an increasing secular trend in the average calorie intake of the lowest income group."<sup>93</sup>

Along with evidence of low consumption levels among large sections of the rural populations, there also are signs of accentuation of inter-regional inequalities and particularly evidence of growing disparities in agricultural incomes.<sup>94</sup>

The profile of poverty in the country gives some useful insights. On nationwide data, the proportion of Indians in poverty have not changed much since independence.<sup>95-97</sup> For

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93. Ramachandran, K. (1987), "Food consumption in rural Indian households: Has it increased in recent years", NFI Bull., Jan. 1987.

94. Gopalakrishna, Kumar B., (1990), op. cit.

95. Kumar, D. (1974), "Change in income distribution and poverty in India: A Review of Literature", World Devt., 2:1, Jan.

96. Ahluwalia, M. (1978), "Rural poverty in India. 1956-57 to 1973-74", World Bank Staff Working Paper, no.279 Nov.

97. Saith, A., (1981), "Production, prices and poverty in rural India", J. Devt. Stud., 17:2, Jan.

the Indian union as a whole, the population in poverty grew from 308.3 million in 1970-71 to 346 million in 1983 and to 361.2 million in 1987-88. This was along with a fixed rate of increase in the absolute numbers of people (i.e. the population). Though the absolute number of people as well as poor have been increasing, the rate of growth of population is much more (2.2 per cent since 1971) than the rate of growth of poverty (0.9 per cent between 1970-71 to 1987-88). This indicates that the survival needs of atleast some of the newer additions have been met.

There is a tendency in official circles to play with the figures. The Planning Commission claims a massive reduction in the incidence of poverty between 1983 and 1987-88, based on National Sample Survey consumer expenditure data.<sup>98</sup> The procedure adopted by the Commission has been sharply criticised by one of the most prominent members of the National Sample Survey organization. Minhas, has argued that the understatement of poverty line is a consequence of the peculiar statistical artefacts used by the Commission.<sup>99</sup> A similar fall in the figures for "severely" undernourished

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98. Government of India, Planning Commission, (1990).

99. Minhas, B.S., Jain L.R., Tendulkar, S.D., (1991), "Declining incidence of poverty in the 1980s: Evidence versus artefacts", EPW, special article, July, 6-13, pp.1673.

children in the NNMB survey which stood at 21.8% in 1975 to 8.5% in 1976 due to downward revision of the standard had been reported.<sup>100</sup>

The size of nutrition problems have also been automatically reduced by 'scientific theories' of 'Protein Gap' 'Nutritional Adaptation' and debates on Poverty Line, as discussed earlier.

Two major trends are discernible from the above analysis. First and foremost, there has been an actual decline in severe malnutrition along with a reduction in the extreme fluctuations in poverty. Secondly, artificial reduction of the problem has also been attempted by respectable scientific and official bodies which has in-fact resulted in confounding the problem.

An epidemiological and sociological approach is therefore necessary to put the problems into proper perspective and to clarify those of chronic hunger, morbidity, poor maternal and child health, and considerable poverty which afflict our people.

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100. Gopalan, C., (1986), "Nutritional Status of India's children. Has it improved in recent years", NFI Bull, Vol.7, No.1.

**CHAPTER - III**

***NATIONAL NUTRITION  
PROGRAMMES***

By the time India attained independence, the interplay of political, economic and social forces had created an ecological setting conducive to very widespread prevalence and high incidence of a variety of diseases. India was a desperately poor country. The poor suffered intense hardships, hunger and malnutrition were almost universal. The Public Health Commissioner's Report, 1935 stated that - "investigations carried out in recent years have now proved that a considerable percentage of the population of India, presents many and diverse malnutritional conditions, in greater and lesser degree, and these are due in most parts, to the qualitative defects in the ordinary diets of the people ".<sup>1</sup>

The identified qualitative defects were attributed to ill balanced traditional diets. It is significant that ignoring widespread prevalence of hunger and degrading conditions of the environment, ignorance, prejudices superstitions were highlighted as the potential dangers.<sup>2</sup> This is a case of blaming the victims for their

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1. Annual Report of the Public Health Commissioner for 1935, pg.3.
  2. Government of India (1980), Manual of Nutrition for mobile food and nutrition extension service. Food & Nutrition Board, Department of Food, Ministry of Agriculture.



unsatisfactory nutritional conditions. Health educators are examples of another professional group who have blamed the victims for their poor state of health.<sup>3</sup> Nutrition education was launched as a remedial measure.

#### 1. A BRIEF HISTORY OF THE EVOLUTION OF NUTRITION PROGRAMMES

The earliest approach was the dissemination of knowledge on the principles of nutrition. It was carried out by nutrition sections of both Central and State Health Departments. However, prior to independence, these organised nutrition sections were very few and thus progress in nutrition was faltering. In the wake of partition, at the time of independence, these centre and state nutrition departments helped nutritional rehabilitation of displaced persons. Emergency food aid provided by UNICEF (United Nations Children's Emergency Fund) during the forties, was made use of. Thus nutrition education and nutrition relief through distribution of gift foods like skim milk, multivitamin tablets to the "deserving groups" was undertaken.

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3. Brown E.R, Margo G.E., (1978), "Health education: Can the reformers be reformed?", Int. J. Hlth. Serv. 8: 3-16.

In 1946, the Bhore Committee<sup>4</sup> recommended that steps should be taken to establish nutrition sections in the various State Health Departments with adequate personnel and specific responsibilities. It also recommended the formation of provincial nutrition committees with experts from allied disciplines and administrators to plan and coordinate the activities at the state level.<sup>5</sup> It laid special emphasis on prevention of food adulteration and recommended the continuation of the Central Committee for Food Standards on a permanent basis, creation of a provincial cadre of public analysts and establishment of food laboratories in association with proposed central and regional bacteriological laboratories.<sup>6</sup>

The committee reiterated that the improvement of food production and general dietary standards of the people was basically an economic problem, the solution to which was dependent on the scientific and simultaneous development of agriculture, animal husbandry, fisheries and also various industrial resources. It felt that closer contact between

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4. Government of India, Health Survey & Development Committee (1946),: Report, Delhi. Manager of Publications, Vol.II.

5. Ibid. Volume II, pg.72-73.

6. Ibid Vol.II, pg.84-85.

the nutrition workers and those concerned with food production in its various aspects was vitally necessary for the ultimate achievements.<sup>7</sup> The Committee felt that, although a rise in the standards of living and general improvement in the diet would gradually lead to the disappearance of deficiency diseases, it would necessarily take a long time to achieve these goals and hence programmes of immediate relief should be undertaken.<sup>8</sup> Nutrition education and community feeding programmes for vulnerable groups were recommended. A fleet of properly equipped and staffed mobile units, popularising subsidiary foods, promoting suitable dietary habits, disseminating scientific methods of cookery, food preservation and latest information on nutrition, were used in selected urban and semi-urban areas. These mobile units employed a plethora of innovative devices such as flip charts, games, puppet shows, calendars, photonovellas, wall charts, crossword puzzles etc. The real impetus to nutrition education was given with the introduction of Applied Nutrition Programme (ANP), sponsored by UNICEF with the collaboration of the FAO & WHO in several developing countries during the sixties. The ANP was defined

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7. Ibid. Vol.II pg.71,72.

8. Ibid Vol.II, pg.73

as ".... a comprehensive type of interrelated educational activities aimed at the improvement of local food production, consumption and distribution in favour of local communities, particularly mothers and children in rural areas, in which the guiding principles are coordination among different agencies and institutions and active participation of people themselves".<sup>9</sup>

It is evident that the national committee made a thorough assessment of the nutritional problems in the country but when it came to action it recommended the narrow, unrealistic approach, of nutrition education. This approach advocated as the most scientific and rational approach essentially helped to sell the latest products and devices that emerged from the factories and laboratories. It also ingrained the penchant for short term relief thoroughly in all future nutrition work in India. Thus a beginning was made to sidetrack the long term difficult socio-economic demands for the more attractive competing contradictory dictates of science and technology.

It was realised that iodised salt had helped eradicate endemic goitre almost completely from the countries of the

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9. FAO/WHO, (1966), WHO TRS, No.340

West. To explore the possibility of supplying iodised salt, a Goitre pilot project was established in 1954, jointly between the Government of India and Government of Punjab with the active participation of the Indian Council of Medical Research<sup>10</sup> The National Goitre Control Programme was launched in 1962.

An examination of the combat strategy for tackling the nutritional problems of the country through successive plans, shows the institution of numerous vertical nutrition programmes. The planners realised that nutrition is the most important single factor in the maintenance of health. The first plan emphasized more towards production of food for the people through intensive development of agriculture. The 'Grow More Food' campaign gained ground in India. The second plan reiterated the same but identified the vulnerable groups and emphasis was given on surveys, research, creation of laboratories, hospital dietetics training etc.<sup>11</sup> The Extended Nutrition Programme (1959) was launched as a pilot programme in Orissa. This was later renamed as the Applied Nutrition Programme. It may be noted

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10. ICMR, (1990), Nutrition in India, (1946-58), pg.27.

11. Government of India. Planning Commission, IInd Five Year Plan. 1956, pp.551-552.

here that nutrition education was the primary objective of this programme. The Department of Food under the Ministry of Agriculture set up mobile units to educate people about protective foods.

Activities initiated in the second plan were continued with vigour in the third. At the same time, however, it was realized that food deficiencies bear most harshly on growing children among poorer sections of the population.<sup>12</sup> A specific programme based on rigorous targeting was formulated. The Mid-day Meal (MDM) Scheme was initiated in 1962 based on the recommendations of the School Health Committee report which gave the suggestion to provide meals at school to decrease the school dropout rate and enhance the capabilities of the child. The fourth plan observed that "where so many are undernourished, more food is the first step towards better nutrition".<sup>13</sup> Besides genetic improvement, this plan gave a new thrust (and a completely wrong direction) to nutrition programmes by introducing fortification measures.

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12. Government of India. Planning Commission, IIIrd Five Year Plan, pp.672-674.

13. Government of India, Planning Commission, IVth Five Year Plan, 1969-74, pp.237-241.

Fortification of salt with calcium, iron and lysine, of Wheat products with calcium, iron, and vitamins was envisaged along with schemes dealing with production of unconventional protein foods. Pilot schemes for promoting cheap, nutritious food to replace in due course, what was received as aid from abroad were instituted. Balahar was produced by Food Corporation of India. Cottonseed flour, weaning foods, groundnut flour & soyabean products along with pilot plants for protein isolates and protein isolated toned milk were funded during the plan. The consumers of all these scientific advances were yet again identified by a separate programme, the SNP, (Special Nutrition Programme) from the Ministry of Social Welfare. New technology for Vitamin A developed by the National Institute of Nutrition<sup>14</sup> was

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14. NIN Annual Report 1970. Mentions demonstration by the Institute of the usefulness of massive oral doses of Vitamin A in preventing vitamin A deficiency. Other research studies directed towards operationalisation of techniques, trials of feasibility, efficacy of administration, utilisation and dosage are:-

a) Swaminathan, M.C., (1971), "Prevention of Vitamin A deficiency by administration of massive doses of Vitamin A." Proc. Asian Congress Nutr. Ist. pp.696-701.

b) Reddy V, & Sivakumar, B. (1972), "Studies on Vitamin A absorption", Indian Pediatr, 307-310.

c) Swaminathan, M.C.; Susheela, T.P. and Thimmayamma, B.V.S; (1970) "Field Propylactic trial with a single annual oral massive dose of Vitamin A." AJCN, 23, 119-122.

made available to the people by the prophylaxis programme of the Ministry of Health. An anaemia prophylaxis programme was also initiated. Thus three separate programmes - the SNP, Vitamin A prophylaxis programme, and anaemia prophylaxis programme, from two different ministries were introduced in the fourth plan. Co-ordination and Evaluation of programme activities are the other areas highlighted in this plan. Evaluation of the earlier programmes brought out some basic flaws in their approach. However, a number of successful pilot projects, demonstrated that an integrated programme of health and nutrition is more meaningful. Project Poshak (1971-75) linked nutrition programmes to health care structure in backward tribal and rural areas of Madhya Pradesh.<sup>15</sup> Two more community-based health projects,<sup>16,17</sup> the Palghar project (1972) and the Kasa project (1974) in the State of Maharashtra were developed to address the problem of under use of health care centres by mothers of malnourished children and to promote home-based treatment approaches.

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15. Project Poshak (1975), CARE, India, Vol.I & II.
  16. Shah P.M. & Junnarkar, A.R. (1974) Domicilliary treatment of Protein Calorie Malnutrition, Bombay Institute of Child Health.
  17. Shah, P.M., (1976), Kasa MCHN Project: Third Progress Report.



The draft of Fifth Five Year Plan<sup>18</sup> contained a special chapter on the Minimum Needs Programme. Resource allocation for social consumption was emphasized. <sup>19</sup> It aimed to establish throughout the country, a network of certain essential services in a coordinated and integrated basis. To support the process of sustained economic development, it was decided that attention be paid to programmes related to elementary education, rural health, nutrition and drinking water, provision of house sites, slum improvement, rural roads and rural electrification.

Government's concern to improve the nutritional status of children was also explicit both in the National Policy For Children (1974) and in the plan of action prepared on the eve of the International year of the child 1979. India became a signatory to the Alma Ata Declaration of Health for All by A.D. 2000.

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18. Government of India, Planning Commission. Draft Vth Five Year Plan. 1978-83.

19. The draft reports on outlay of 530.20 crores for nutrition alone. When compared with expenditure in the fourth plan (1.38 crore) this is a massive leap. Out of this CARE assisted to the order of 200 crores mainly for MDM programme and the MDM programme became a part of the Minimum Needs Programme in the Fifth Plan.

All these developments were responsible for the launching of the Integrated Child Development Services Scheme (ICDS) in 1975-76.

During the Sixth and the Seventh Plans, steps were taken to bring SNP centres, outside ICDS Scheme, into the ambit of the ICDS by upgrading them or by linking them with other inputs like health, sanitation, hygiene, water supply and education. However, the other approaches - MDM, mobile extension units and mass media communication extension schemes for nutrition education, food fortification, and production of special foods - Miltone, extruded food products etc. were continued during both the Plans. A number of trials<sup>20</sup> for fortification of salt with iron were also undertaken during the sixth Plan. These were expanded and new plants for the production of iron fortified salt were commissioned in the Seventh Plan.

The Sixth and Seventh Plan<sup>21</sup>(s) contained a Nutrition Policy statement in terms of long-term and short-term

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20. a) Narasinga. Rao. B.S., (1981), "Control of Anaemia, by fortification of common salt with iron", NFI Bull. April 1981 p.7-8.
- b) Report of the Working group on fortification of salt with iron, AJCN (1982) 35: 1442-1451.
21. Government of India, Planning Commission, The Seventh Five Year Plan, pp.314-319.

strategies. The long-term policy aimed at combating undernutrition through the expansion of employment opportunities and stabilisation of income, especially among vulnerable population groups. Simultaneous expansion of Public Distribution System while including public health facilities, especially the provision of maternal and child care has been endorsed. The short-term or immediate strategy reiterated the need for special attention to vulnerable sections under direct nutrition schemes like SNP, MDM and ICDS.

Some primarily International agencies assisted initiatives in 1990-91 were:- Multi-state ICDS with World Bank assistance, WFP assisted project 2206 in expansion phase V, CARE assisted non-food projects known as integrated nutrition and development projects and the World Bank assisted State programme - The Tamil Nadu Integrated Nutrition Programme which is now in its second phase.<sup>22</sup>

These numerous bureaucratic charity operations with built-in constraints of scarce resource allocations, immutable targets, inefficient delivery systems and lopsided priorities, devoid of any understanding of the basis as well as the implications of the exercises, were mechanically undertaken to absolve the conscience of the 'haves'

(Scientists often formed a major chunk of this category) and to avoid political unrest. The peripheral workers have been ill paid, ill supervised and ill provided for and constantly harassed by targets for Family Planning.

The selection as well as the coverage of the vulnerable groups was most inadequate. The selection criteria have been weighted in favour of the 'biologically vulnerable' while the socially and economically vulnerable groups were often overlooked. The 'coverage' of the vulnerables was different in different programmes. After the initiation of the Special Nutrition Programme, the 0-3 year age group was identified as the most vulnerable among children. But the controversy generated over 'take-home' food vis-a-vis 'on-the-spot' feeding combined with the inability of the younger children to visit the feeding site, had led to inadequate coverage of this group. Moreover, from an ethical point of view, narrowing in to feed one or two siblings in the family or a few children in a poor community while the others remain hungry just because they do not 'fit' into the criteria of selection is a highly distorted approach, or, may be, this is the rationality behind the inception of these programmes - temporary relief for a small number!

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22. Government of India, Annual Report, 1990-91. Department of Women and Child Development, Ministry of Welfare.

Some of the programme approaches have been discussed in detail in the following sections culminating in the ongoing Integrated Child Development Services (ICDS) programme.

## **2. THE APPLIED NUTRITION PROGRAMME (ANP)**

The ANP was first introduced in 1960 in Orissa and Andhra Pradesh by the Department of Community Development. This centrally sponsored project was thereafter extended to Tamil Nadu in 1961 and Uttar Pradesh in 1962. By the year 1973, the programme was extended to all the States. A number of International agencies were involved - the UNICEF, FAO and WHO in its operation.

The main components of this programme at the village level were:-

- a) production of protective foods,
- b) training of selected rural families in the production of these foods,
- c) organisation of educational feeding centres, and
- d) nutrition education.

ANP did not envisage establishment of regular feeding centres. The feeding was carried out at balwadis, primary health centres, and Mahila mandal buildings or similar

centres. Various categories of personnel such as rural health workers, teachers, youth and women leaders were trained. At least 10% of the production of vegetables, poultry, and fisheries was distributed to children and other vulnerable groups in the village free of charge. In the initial stages, the various inputs necessary were also provided free of cost.

### **Evaluation**

Evaluation results of ANP show that the programme had no significant impact on the nutritional status of the rural poor.<sup>23</sup> Mean intakes of nutrients by the vulnerable groups in the ANP areas were essentially similar to those in non-ANP areas.<sup>24</sup> The nutrition education component had failed to make any significant impact. At the village level, the greatest constraint appeared to be lack of cooperation from the community, while at the block level the major constraint were resources.<sup>25</sup> However, the report of the evaluation

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23. Government of India, Deptt. of Health, DGHS. Nutrition Cell 1970-71, "Evaluation of the Health parameters of the Applied Nutrition Programme".

24. Srikantia, S.G., (1980), "Evaluation of the Applied Nutrition Programme and the National Vitamin A prophylaxis programme", Proc. Nutr. Soc. India (25) pp.43.

25. Ibid.

committee of the Government of Maharashtra felt that the expenditure incurred was commensurate with the results achieved to the extent of awareness created in the minds of the rural masses about the programme and recommended that the programme was a 'must' for the country.<sup>26</sup>

The conceptual basis of the programme was very weak. Promotion of consumption of protective foods through nutrition education is a futile exercise when the foremost need of the poor families is to satisfy hunger. The quantum of food is more important here rather than quality. If the quantum is taken care of, quality is automatically met.<sup>27</sup>

### 3. THE MID-DAY MEAL SCHEME (MDM)

The Government of India, under the Ministry of Education, initiated the MDM programme at a national level in 1962-63, after its success in Tamil Nadu in 1957. CARE & WFP assisted the MDM programme. The programme was centrally sponsored from 1962-68. After the Third Five Year Plan, the

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26. Government of Maharashtra, Rural Development Department, 1971, Report of the Evaluation Committee on ANP.

27. Sukhatme, P.V., (1970). "Size and nature of the protein gap, Nutr. Rev. 28(9), 223..

scheme was placed in the State sector and the Central assistance was raised to 40% of the actual expenditure. CARE assisted the State Governments by providing the required food commodities free of cost under Title II of U.S Public Law 480.

The specific objectives of the programme were :

- i) To raise the nutritional status of primary school children, particularly those belonging to low socio-economic groups,
- ii) to improve attendance and enrollment in schools, and
- iii) to prevent dropout from primary schools.

The beneficiaries were 6-11 year old primary school children. The children belonging to backward classes, scheduled caste and scheduled tribe families were given top priority. The food supplied to children was usually corn soya meal (CSM) cooked with butter oil or soya bean oil, but other types like milk, toned milk, Balahar etc. were also used. The meal is expected to cover one-third of the daily needs of the child and provide about 400 calories and 15 gram of protein. The feeding is undertaken for a period of 180-200 days in a year.



## Evaluation

Systematic evaluation of this programme has not been undertaken so far, except for a few small evaluations by various State governments<sup>28</sup> where the programme was in operation. The evaluation conducted by the Government of Gujarat during 1966-67 reported inadequate coverage due to non-acceptability of the meal served. Ready to eat foods, skim milk, Bulgar wheat are often found unacceptable in various MDM programmes.

A study of the feeding schemes in Tamil Nadu pointed that considerable substitution of food takes place and also indicated the likelihood of the food being shared by other children in the household.

The Karnataka study on the role of MDM in increasing the enrollment and retention revealed that the feeding programmes have been able to attract only 3 per cent of children.

A study conducted in the city of Hyderabad comparing a random sample of fed and non-fed schools essentially found

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28. The results are being quoted from - Krishnamurthy K.G. (1986), "Formation & Implementation of Nutrition Policies and Programmes". In. Towards the Implementation of a National Nutrition Policy: India, pp.85-93.

no difference in either the physical parameters or the academic performance.

A study in Orissa<sup>29</sup>, however, demonstrated that attendance went upto 10% and that food in school was a supplement rather than a substitute for food at home.

CARE undertook an evaluation in ten States, and found that non-availability of food stocks, lack of funds, utensils, condiments and community support were the major constraints for the implementation of this programme.

The evaluation made by CARE in 1979 in Madhya Pradesh<sup>30</sup> concluded that the programme was a success in spite of the dropout rate remaining alarmingly high. It, therefore, recommended increasing both the calorie ration and the number of feeding days.

It has been observed<sup>31</sup> that failure of the feeding programmes may lie, not in the concept but in their

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29. Prodipto, Roy & Radha Nath, Rath (1971), "The School lunch programme in Orissa", (New Delhi: Council for Social Development).
  30. CARE (1979), MDM programme in Madhya Pradesh. A study of Impact on Tribal school children.
  31. Prodipto Roy, (1971), "School Lunch Evaluation". Paper presented at International Symposium on Social Welfare Research, Brookings Institutions, May 23, 1971.

implementation, insufficient or poor quality food, or inadequate administration of the programme. It can be argued that the opposite is true. Most nutrition programmes have a distorted understanding of nutrition problems. They naturally fail to make a significant dent into the problem, and then the whole blame is shifted to problems of implementation and administration.

The MDM programme was undertaken merely because free foreign food doles were available. The mechanics of the feeding operation took considerable time and effort of the school authorities. A school lunch programme in a school which has no access to safe water supply and where a large number of children suffer from worm infestations and chronic infections like tonsils, etc. cannot be expected to work wonders. Above all, there is a problem of reaching the target group. Needy children belonging to low socio-economic classes do not attend school.

#### **4. SPECIAL NUTRITION PROGRAMME (SNP)**

The SNP was launched as a crash programme in 1970-71 with 100 per cent central assistance. It was transferred to the State sector during the Fifth Five Year Plan. At present, SNP is operated as a part of the Minimum Needs

Programme. The nutrition component of the ICDS programme is funded by States and Union Territories from the SNP budget.

The objective of the programme is to improve the nutritional status of poor socio-economic groups of pre-school children, pregnant and lactating mothers in urban slums, tribal areas and drought prone rural areas. Initially, provision was made to feed children in the age group 0-3 years. After a year of operation, it was extended to children in the age group 0-6 years, pregnant women and lactating mothers. Beneficiary children were given supplementary food, providing 300 calories with 10-12 grams of protein and the mothers were given 500 calories with 25 grams of protein. CARE & WFP food commodities were also used in the feeding programme.

At the central level, Ministry of Social and Women's Welfare is responsible for the programme. There is a Central Coordination Committee for Nutrition Programmes, of which, the Secretary, Ministry of Social and Women's Welfare is the Chairman.

At the State level, Secretary, State Department of Social Welfare in some States is responsible for implementation of the programme. There is a Special Officer under him, who with the help of a district Social Welfare

Officer, at the district level and an inspector for every 100 feeding centres implements the programme. There is a Supervisor at Block level, and an Organiser is assisted by a helper at each center. Under ICDS projects, there is an Anganwadi worker at every center who looks after SNP also and there is a Child Development Project Officer who is in-charge of the project.

### **Evaluation**

Several evaluation studies were undertaken to find the cost effectiveness of SNP and its impact. These have drawn attention to many shortcomings in its conception and implementation. Apart from the lack of minimum physical infrastructure and supervisory staff at nutrition centers,<sup>32</sup> poor cooperation from the community, high overhead administrative expenses and pilferage hampered the programme implementation. Due to lack of any beneficiary selection criteria, some studies<sup>33</sup> reported that the number of

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32. Swaminathan M.C., N. Pralhad, Rao; J. Gowinath , Sastry; Y.N. Mathur, K.V. Rameswara, Sharma; D. Hanumantha Rao; T. Ram Nath, (1983), SNP in India. An Evaluation Study, (NIN:ICMR).
  33. J. Gowrinath Sastry, D. Hanumantha Rao, KV Rameswara Sarma, Y.N. Mathur, N. Pralhad Rao, MC Swaminathan (1980), Special Nutrition Programme. An evaluation study in Karnataka, (NIN:ICMR).

beneficiaries enrolled per center were more than the manageable limit for the organiser. Delivery of health services in both the studies was found to be inadequate. In the majority of the cases, the food was shared by non-beneficiary members of the family. The scheme, originally designed for 'on-the-spot' feeding in most areas, became a 'take-home' system.<sup>34</sup>

The second WFP Evaluation Mission visited India in October, 1978 and studied various aspects in regard to the implementation of the programme. The Mission suggested that the Organiser at SNP centres be given training for supply of nutrients and provide minimum health care to the beneficiaries.<sup>35</sup>

The National Institute of Public Cooperation and Child Development (NIPCCD) conducted a study on the SNP in Delhi in 1973-74<sup>36</sup> and another<sup>37</sup> in 1977-78. Findings of these

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34. Ramalingaswami V; Tandon B.N. (1979), "Approaches to nutrition rehabilitation and supplementary feeding", In Food and Nutrition policy in a changing world, eds. Mayer, J, Dwyer J.
  35. Report and Recommendations of the National Seminar on Special Nutrition Programme, NIPCCD Publication, 1978.
  36. Report of the Committee on Pre-school children feeding programme, Government of India, Planning Commission (1974).
  37. NIPCCD, (1978), SNP-A de novo Evaluation study, Delhi.

indicated problems in the selection of the Center, beneficiary selection and satisfaction.

The major conclusion that emerged from evaluation of the performance of SNP was that nutrition programmes cannot be fully successful unless fully integrated with primary health care.<sup>38</sup>

## 5. NUTRITION INTERVENTIONS OF THE HEALTH SECTOR

### 5.1 Goitre Control Programme

The National Goitre Control Programme, financed by the Ministry of Health and Family Planning, was launched by the Government of India towards the end of the Second Five Year Plan and had three main components:-

- i) Survey of goitre in suspected areas to identify and assess its prevalence,
- ii) Production and supply of iodised salt to endemic areas to prevent and control goitre,

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38. Ashok Mitra stressed on the need to prevent wastage & leakage of nutrition through infection & infestations rather than on positive delivery programmes to target groups. Mitra, A. (1974), "Costs and benefits of Special Nutrition Programmes", In Seminar on social and economic aspects of Nutrition and proceedings of I.U. NS Committee on Economic Social and Cultural aspects of nutrition, p.8-44.

iii) Resurvey after five years of continuous supply of iodised salt, to assess the impact of the programme.

In the initial stages, in order to meet the requirements of iodised salt in the endemic regions, twelve iodisation plants were set up under the management of Hindustan Salts Ltd. and the Salt Commissioner, Government of India. The plants were supplied by the UNICEF and the cost of iodisation of salt as well as operational costs were borne by the Centre. These plants with an annual production capacity of 3.7 lakhs M.T. produced on an average less than 2.00 lakhs M.T. iodised salt per annum.

The programme was found to languish after a promising start. Gopalan<sup>39</sup> identified administrative incompetence, lack of coordination between various agencies involved and commercial & vested interests as the causes of its 'chequered history'. Moreover, new endemic areas were identified almost all over the country.

An evaluation of the National Goitre Control Programme by the Nutrition Foundation of India was undertaken.<sup>40</sup> The

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39. Gopalan, C. (1981), "The National Goitre Control Programme - A sad story", Bull NFI, 2(3) 1981.

40. NFI, (1983), "The National Goitre Control Programme. A blueprint for its intensification", NFI Scientific Report, 1.



report highlighted production and transportation bottlenecks and stated that separate and specific institutional arrangements must be made, with job responsibilities at different levels clearly delineated and specific time bound targets laid down. It also recommended formation of goitre cells, coordination between health and civil supply departments, enforcement of Prevention of Foods Adulteration Act, and ban on non-iodised salt. In pursuance of the above recommendations, the Government of India had introduced a scheme envisaging "Universal Iodisation of Edible Salt' in a phased manner from 1986-87 to cover the whole country by 1992.<sup>41</sup> The Government liberalised production of iodised salt under the private sector by issuing license to salt manufacturers. Licenses have been issued to 500 salt manufacturers, out of which 307 commenced production in 1990. Production targets have been increased from seven lakhs M.T. in 1986-87 to 50 lakhs M.T. for 1991-92. An outlay of Rs.200 million was approved for iodisation of salt during the Seventh Plan. The sale of non-iodised salt has been banned by a notification issued under the Prevention of Food Adulteration Act as a preventive measure. Goitre cells have been established in seventeen States/Union Territories

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41. Government of India. Department of Women & Child Development. Ministry of Welfare, (1990), A Review of situation of children in India.

and a high level committee constituted to identify information, education and communication activities for the promotion of the programme.<sup>42</sup>

The increased thrust given to the Goitre Control Programme should act as a warning, given the past experiences with nutrition programmes. The analysis of the problem itself rests on shaky grounds as already discussed in the former chapter. Increased production and availability of iodised salt would essentially satisfy commercial interests.<sup>43</sup> Critics of universal Iodisation insist that the lacunae of the programme be plugged first along with a mature and realistic assessment of the whole problem.

## 5.2 THE NATIONAL NUTRITIONAL ANAEMIA PROPHYLAXIS PROGRAMME (NNAPP)

A study group of nutritional anaemia of the Nutrition Society of India recommended in 1968 an anaemia prophylaxis programme for the eradication of anaemia of pregnancy and childhood.<sup>44</sup> In pursuance of this recommendation, the Ministry of Health and Family Welfare, Government of India,

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42. Ibid.

43. Aravindan, K.P. (1989), "Science in service of monopolies. Universal Salt Iodisation Policy", EPW July 8, pp.1543-1549.

44. Nutrition Society of India, (1968), Report of an Expert group on Nutritional Anaemia.

initiated the NNAPP in 1970 to cover all the states in the country.

The target population under the programme comprises of pregnant women, lactating women, family planning acceptor women of terminal methods and IUD, and children of both sexes between one and eleven years.

The supplements provided under the programme consist of medicinal tablets of iron and folic acid containing 60 mg. of elemental iron (ferrous sulphate) and 500 mg. of folic acid for all adult women beneficiaries, and small tablets containing 20 mg. of elemental iron and 100 mg. of folic acid for children. For children who cannot swallow tablets, iron and foilic acid in the same dose as in a small tablet is given in two milli Litre of syrupy liquid. Each beneficiary is given on tablet daily for a period of 100 days once every year of his/her beneficiary status.

The Director General of Health Services implements the programme through the State Government Health Services infrastructure. At the state level the programme is under the overall supervision of the Director of Health Services. The programme is operated by the Primary Health Centre (PHC) staff under the guidance of the District Medical Officers. The Auxiliary Nurse Midwife (ANM) is the actual field worker

and is the link between the community and the implementing authorities of NNAPP.

The original programme envisaged that hemoglobin estimation of target population of the programme should be done to decide as to whether the beneficiary should be put on active anti-anaemia treatment or on the prophylaxis programme. It was stipulated that women showing hemoglobin levels less than 10 gm/dL and pre-school age children showing hemoglobin level less than 8 mg/dL\* should be put on active anti-anaemia treatment straight away. Those women having hemoglobin levels 10mg/dL and above and children showing hemoglobin level 8 mg/dL and above can be put on prophylaxis programme. Estimation of hemoglobin, however, was not practiced.

An evaluation of the programme after fifteen years of its operation, was conducted by the ICMR during 1985-86.<sup>45</sup> It indicated that the programme has not made any significant impact on the prevalence of anaemia. The drawbacks identified were poor supply, distribution and quality of tablets. The task force, recommended that all pregnant women be covered, education of health functionaries, pilot study to find out the best strategy for delivery ensuring adequate

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45. ICMR, (1989), Report of a Task force, Studies on the evaluation of National Anemia Prophylaxis programme.

and regular supply and quality of the tablets, fixing of targets and considering alternate strategies.

The alternative strategy, which is being strongly recommended<sup>46</sup> is the fortification of salt with iron as an adjunct to the prophylaxis programme. The technology for both single and double fortification of common salt has been developed in recent years.<sup>47</sup> The Department of Food has set up a plant for producing 125,000 of iron fortified salt per annum at Vilinokkam Salt Complex in Ramanthapuram District in collaboration with the Government of Tamil Nadu, through its salt corporation and with UNICEF assistance. One more salt fortification plant is being set up at Sambhar Lake at Jaipur, Rajasthan in collaboration with Hindustan Salts Ltd.<sup>48</sup>

In recent years, anaemia programme is being pushed with vigour. It is not because anaemia is perceived as a major problem alongside hunger contributing significantly to the morbidity load in poor segments of the population, but because the technology for double fortification of salt is

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46. Working Group on Fortification of Salt, (1982), A Report, AJCN 34, 1442.

47. Narasinga, Rao D.S., Vijayasarithi, C. (1975), AJCN, 28: 1395 and Narasinga, Rao B.S. (1990), "Double fortification of Salt", Proc. Nutr. Soc.

48. Government of India, Department of Women and Child Development Ministry of Welfare (1990), A review of situation of children in India.

now available. Initially technologies were developed to combat nutritional problems. But nowadays problems (as in the case of Iodine Deficiency Disorders) as well as programmes are developed to make use of the technology deciphered.

### **5.3 PROPHYLAXIS PROGRAMME AGAINST BLINDNESS DUE TO VITAMIN A DEFICIENCY**

The Prophylaxis Programme Against Blindness due to Vitamin A deficiency was initiated by the Government in 1970. Under this programme, children in the age group of one to five years are given an oral, oil miscible preparation of retinol palmitate. The dosage is 2,00,000 I.U. in two millilitre of an orange flavored syrup, once in six months.

Supplies of vitamin A are made by the Department of Family Welfare of the Union Ministry of Health to the State Family Welfare Departments which are responsible for the programme implementation through their network of primary health centres and sub-centres. In the urban areas, the programme is implemented through the Child Welfare Clinics, Family Planning Centres, Hospitals and Maternity Homes.

The above mentioned strategy was developed and introduced by the National Institute of Nutrition, Hyderabad

in the late 1960s<sup>49,50</sup> when Keratomalacia was perceived as an acute medical emergency. Even around the time when the massive dose prophylaxis approach was being introduced, Pereira and Begum<sup>51</sup> had questioned its validity highlighting the importance of dietary improvement and increased intake of pre-vitamin A, Carotene rich foods. Now Gopalan is championing the cause of all-round improvement of poor deitaries through increased intake of  $\beta$  Carotene rich foods, in preference to the massive synthetic vitamin A dosage approach. He has expressed his doubts on the proposal of including periodic massive vitamin A dosage as an integral part of the expanded programme of immunization.<sup>52</sup> The basis of his criticism is lack of need of this dosage in early infancy as well the efficacy of multiple administration. He still advocates the massive dose prophylaxis as a therapeutic tool rather than as a preventive measure.

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49. Srikantia, S.G. and Reddy, V. (1970), "Effect of single massive dose of Vitamin A on serum and liver levels of the vitamin", AJCN, 23(1), 3114-118.
  50. Swaminathan, M.C., Susheela T.P., and B.V.S. Thimmayamma, (1970), "Field prophylactic trial with a single annual oral massive dose of vitamin A", AJCN Vol.23, No.1, pp.119-122.
  51. Pereira, S.M. and Begum, A. (1971), Archives of Diseases in Childhood, 46: 525-527.
  52. Gopalan, C. (1990), "Combating Vitamin A deficiency - Need for a revised strategy", Prefatory chapter. In Recent Trends in Nutrition, The Proceedings of the First International Symposium of the Nutrition Foundation of India.

## Evaluation

An impact evaluation of this massive dose programme, undertaken in 58 sub-centres distributed in 29 Primary Health Centres in eight states using prevalence of Bitots spot as a baseline was done.<sup>53</sup> It indicated that wherever the programme was implemented efficiently, the results were satisfactory. Programme ineffectiveness was due, mainly, to poor coverage of children. Apart from inadequate supplies, adoption of clinic approach instead of house to house extension approach and spreading the period of distribution through-out the year, as against carrying out the administration during fixed months of the year on a crash basis, were responsible for poor coverage. The record maintenance and community's preparedness for the programme was found to be poor.

The report<sup>54</sup> recommended orientation and motivation of medical officers and the peripheral functionaries along with supply of Do's and Don't about the programme. Record maintenance through provision of readymade registers and education of the community to increase awareness.

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53. Vijayaraghavan, K. and N. Pralhad, Rao, (1982), "An evaluation of the national prophylaxis programme against blindness due to vitamin. A deficiency", Nutrition Reports International, Vol.25, No.3, pp.431.

54. Ibid.



Besides the stepmotherly treatment given to nutrition programmes in the health sector, resulting in inefficient coverage of both vitamin A prophylaxis and anaemia prophylaxis programme, it is interesting to see how technology (in the form of double fortified salt and massive dose of vitamin A) has cast a spell over our policy makers and planners.

Even scientists are not free of this spell. Gopalan has mooted the idea of the setting up of a "Technology Mission" to augment production of  $\beta$  carotene rich foods.<sup>55</sup> Retinol palmitate of the seventies is to be replaced by Red Palm Oil and Spirulina. We have come full circle to protective foods. Production of carotene rich foods is to be promoted indigenously. While this may mean no reliance on the 'extraneous crutch' but still we need to ask-Is it the right solution to tackle a complex phenomenon arising out of socio-economic and cultural factors?

## **6. STATE NUTRITION PROGRAMMES**

In the state of Tamil Nadu, two feeding programmes are in operation. One is the Tamil Nadu Integrated Nutrition Project (TNP) which was started in 1980 by the State

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55. Gopalan, C. (1990), op. cit.

Department of Social Welfare in collaboration with the Department of Health and with financial assistance from the World Bank. It basically caters to children aged 6-36 months. The other is a colossal political venture, the brainchild of Tamil Nadu's Chief Minister, M.G. Ramachandran, for 2-10 year old children. It is called the Tamil Nadu Noon Meal Programme and was initiated in July 1982.

Another basic difference among the two programmes is while the former (TINP) relies extensively on growth monitoring for early identification of growth failure and its treatment by fixed term (90 days), on site food supplementation, primary medical care and remedial nutrition instructions of the mother, the latter i.e. the Noon Meal Programme has no elaborate "beneficiary selection process" involving growth measurements. Children belonging to poor communities get one good meal in the day on all the 365 days of the year, while those between 10 and 14 (students of high school) get meals on 200 days of the year when the schools are open.

The Noon Meal programme will be discussed in some detail because of its offbeat nature (political will is not so easy to come by!).

The feeding centers are located in central places in the villages or slums, which are easily accessible to the poorest sections of the community including tribals and Harijans. There are, in all 70,909 such feeding centers spread throughout the state of Tamil Nadu. Wherever possible, rent free buildings made available by the community have been used. Each under-five clinic is in the charge of a Balasevika (child welfare organizer) with two assistants- all women selected from the community in which the center is located. Centers for the higher age groups are each incharge of a Nutrition Meal Organizer.

There is an elaborate multiplier training system organised under the supervision of the Home Science College in Coimbatore for the training of all functionaries engaged in the programme.

The food served is based on rice and pulses and vegetables with some oil. One meal roughly provides 400 calories and 10gram protein to the under-fives, 500 calories and 12gram protein for the school child and 600 calories and 16gram protein for the high school child. The cost of the meal per child per day has been estimated to work out to 50 paise.<sup>56</sup>

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56. Government of Tamil Nadu, (1982), Chief Ministers Nutritious Meal Programme for Children, Department of Public Relations: Madras).

It has been claimed that this is not just a feeding programme but one designed for 'all-round-development' of the child. Children are engaged in raising kitchen gardens and receive health and nutrition education as part of the programme. Two major gains of the programme which stand out are firstly, has resulted in a striking increase in school enrollment and secondly, it has created employment opportunities for poor women in the rural and urban areas. For this reason, it is claimed that it is also a major 'women's employment' programme and 'anti-poverty' programme. Gains with respect to improvement in height and weight, food habits, personal hygiene, not only the case of children but also in their families, have been reported.

The criticisms against the programme are that it does not always capture all the poor malnourished children in the community needing nutrition care, and that it includes quite a few children who are not in dire need of nutritional supplements. There is no active community participation in the sense that community is not contributing materially to the implementation of the programme. Yet another criticism is that the diversion of large quantities of rice for the scheme has led to the reduction of the quota of low priced rice and reduced the turnover in the fair prices shops. As a result, poor families with no children between two and ten years of age would be hard hit.

It is also argued that the programme need not have been based on rice but on less expensive but equally nutritious millets and coarse grains. It is likely that in such a case, the programme may not have had the same public response and political appeal. The objective as stated by the sponsors, is that the programme allows the children to have at least one rice meal a day.

In the poor communities where the programme is now operating, the intake of alcoholic drinks by the men-folk is high. Quite a proportion of the family income is thus frittered away. It is argued that if this diversion of family income for alcohol consumption can be checked, food intake in the poor families could increase by almost the same level as is now being achieved by the programme. The criticism voiced is that the State, which is prepared to invest so heavily on the noon-meal programme, also earns heavy revenue through the withdrawal of prohibition, earlier in force and freely permitting unrestricted sale of alcoholic drinks to the poor. Thus, it is said that the State could be taking away by one hand what it is giving by the other.<sup>57</sup>

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57. Gopalan, C. (1987), Nutrition Problems and Programmes in South East Asia, (WHO Regional Officer for South East Asia: New Delhi), pp.56-59.

## 7. INTEGRATED CHILD DEVELOPMENT SERVICES SCHEME (ICDS)

In 1977, the Director General, ICMR, opined that the improvement of the nutritional status of the rural communities could not be brought about through adhoc and isolated supplementary feeding programmes which, at best, could bring about only a temporary amelioration of malnutrition. The ICDS programme had been conceived<sup>58</sup> as an "Integrated package of services" for pre-school children, pregnant women and nursing mothers. The components of 'the package' are supplementary nutrition, immunisation, health checkup and referral services, treatment of minor ailments, nutrition and health education of women, non-formal pre-school education, convergence of other supportive services like water supply, sanitation, etc.

The ICDS Scheme aims at fulfilling the following broad objectives:-

- i) To improve the nutritional and health status of children in the age group of 0-6 years,
- ii) To lay the foundations for proper psychological, physical and social development of the child,

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58. Government of India, (1978) ICDS, (New Delhi: Ministry of Education and Social Welfare), pp.1-31.

- iii) To reduce the incidence of mortality, morbidity, malnutrition and school dropout of children in the age group of 0-6 years,
- iv) To achieve effective coordination of policy and implementation amongst various departments providing developmental services to children and
- v) To enhance the capabilities of the mother to look after the normal health and nutritional needs through proper nutrition and health education.

The scheme provides supplementary nutrition to needy children, expectant and nursing mothers from low income families for 300 days in a year. The aim is to supplement the nutritional intake by 300 calories and 8-10gram of protein for children, 600 calories and 20gram protein for severely malnourished children and 500 calories and 20-25gram protein for expectant and nursing mothers. The beneficiaries are thus children below six years, pregnant and lactating mothers and women in the age group of 15 and 44 years.

ICDS is a multi-sectoral programme and involves several government departments and their services are coordinated at the Village, Block, District, State and Central levels. The primary responsibility for the implementation of the

programme lies with the Department of Women and Child Development, Ministry of Human Resource Development at the Centre and the nodal departments of the States, which may be Social welfare, Rural Development, Tribal Welfare or Health.

The Anganwadi with an anganwadi worker in each village is the centre for delivery of services. Each project is headed by a Child Development Project Officer (CDPO). ICDS funds are also used to strengthen the functioning of Primary Health Centres in project areas through addition of posts of a Medical Officer, two Lady Health Visitors/Public Health Nurse and ten Auxiliary Nurse Midwives. This staff, though funded by the ICDS, forms an integral part of the primary health centre's team.

Health and nutrition aspects are monitored by various medical colleges attached to each project and the overall guidance of the programme is rendered by a Central Committee at the All India Institute of Medical Sciences (AIIMS), New Delhi. The training and orientation of personnel is carried out by the Department of Social Welfare.

### **Evaluation**

ICDS has been claimed as an "over researched" programme. Some 800 surveys and several post-graduate and doctoral dissertations are reported to have studied the



various aspects of the programme. Conflicting results from these innumerable micro-studies, spread over various geographical areas, however, contribute little towards a holistic understanding.

The salient features emerging from major large scale evaluations are presented below -

The first evaluation undertaken by the Programme Evaluation Organisation in 1976 in 29 out of a total of 33 ICDS projects reported "serious teething problems".<sup>59</sup> It stressed the need for urgent efforts to improve the delivery of some basic tasks, e.g. strengthening of the health component, reaching the most vulnerable, i.e. children below three years of age and pregnant women and efforts towards improving the nutrition and health education components.

A recheck survey by the same organisation in 1977-78 outlined the 'deficiencies yet to be overcome' and the need for improving the 'cost effectiveness' of delivery of health and nutrition components. Logistic, coordination and communication problems were identified. It was noted that

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59. Government of India, (1976), Report on the State of preparedness of the ICDS projects", (New Delhi: Planning Commission, PEO).

there was a lack of full involvement on the part of the health agencies at every level.<sup>60</sup>

In contrast, annual surveys<sup>61</sup> conducted by the Biostatistics Division and Human Nutrition Unit of the AIIMS report a very positive impact of the ICDS on the beneficiary population.<sup>62</sup> While summarising the impact of ICDS on the status of child health over the years 1976-83, Tandon reports, a considerable progressive decline in severe malnutrition, infant mortality rates and birth rates. Along with a significant increase in immunisation coverage, distribution of vitamin A, iron and folic acid and supplementary nutrition to pre-school children.<sup>63</sup> Flexible, continuous, functional monitoring system, and training and

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60. Government of India, (1978), Project profiles - ICDS projects, (New Delhi), pp.3-82.

61. Reports for the years 1978,79, 82-84 and 84-85 are consolidated in three papers by Tandon.

a) Tandon, B.N. (1980), ICDS in India, AIIMS.

b) Tandon, B.N. (1983), "A coordinated approach to children's Health in India, Progress Report after five years", Lancet

c) Tandon, B.N., (1984), "Management of severely malnourished children by village workers in ICDS in India," Journal of Tropical Paediatrics, October.

62. Ibid.

63. Tandon, B.N. (1986), "The Impact of ICDS on the status of child health in India". In Towards the implementation of a national nutrition policy in India, (ICMR), 1986, pp.49-54.

education system of ICDS are the other perceived "strengths".<sup>64</sup> Subbarao<sup>65</sup> has pointed out the lack of longitudinal and qualitative data, as important limitations of the data collected by the monitoring cell.

A study undertaken by the National Institute of Public Cooperation and Child Development (NIPCCD) in 26 projects spread over 10 states reports "poor nutritional impact" in a significant number of projects".<sup>66</sup> A significant inter-project variation in the number of feeding days ranging from 30 to 300 across projects was found.

NIPCCD had also conducted a series of workshops for evaluation of the scheme aimed at bringing about better coordination among different functionaries. The workshops drew attention to the unsatisfactory staff position of many of the projects, irregularity of the supplementary nutrition programme, lack of a coordinated approach between health and non-health staff, poor performance of the functional literacy component, etc. However, the immunization

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64. Ibid.

65. Subbarao, K. (1989), "Improving Nutrition in India. Policies and Programmes and their impact", World Bank Discussion Paper No.49.

66. NIPCCD, (1988), The status of Nutrition Component of ICDS, Mimeo, (New Delhi).

component of the programme was found to be satisfactory.<sup>67</sup>

A study of one of the best functioning ICDS projects in Sundergarh district, Orissa, reveals inadequacies in all the three major categories of services envisaged under the scheme-Nutrition, Health and Non-formal Education.<sup>68</sup>

Let us now turn to some specific deficiencies of the programme. The most important deficiency noted by many observers<sup>69-71</sup> is the low coverage of children under-three years of age and even lower coverage of pregnant and lactating women. The available studies suggest that the impact on nutritional status varies a great deal across projects, rural and tribal projects faring much worse than others. Sharma's (1987) study, which is based on a sample covering many states, also concluded that while more than 60

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67. Government of India (1978), A report on ICDS. Workshops for BDOs, CDPOs, MO organised at Gauhati, Tirupati and Udaipur, Jan-Feb., (New Delhi: NIPCCD).
  68. Raye, Santa (1982), A study of interaction between ICDS Scheme and the community in three anganwadis of Orissa, M. Phil Dissertation, Centre for Social Medicine and Community Health, JNU, (New Delhi).
  69. Anderson, Mary Ann, (1987), "Reaching the Unreached: Why is it impertive? USAID Mimeo.
  70. Sharma, A. (1987), Social components of ICDS, (NIPCCD : New Delhi).
  71. NFI, (1988), "ICDS - A study of some aspects of the sytem, Scientific Report No.7.

per cent of the beneficiaries of supplementary feeding were from households below the poverty line, the coverage of the 0-3 year age group was low and even showed some decline, especially in rural and tribal blocks.

The NFI study on ICDS argues that even though the present feeding programme leaves much to be desired, and at best may only have a marginal impact on the child's nutrition, is serving as a "bait" for inducing mothers and children to visit anganwadis where they can be offered other important services of the package as well.

Evaluation of the "other important services" offered by ICDS show weak links with health infrastructure.<sup>72</sup> The much needed health interventions-treatment of minor ailments, referral and health check-ups are poorly integrated with the other activities of ICDS. This is in part because of inadequate health staff in ICDS areas, but more importantly is due to the general failure of the health system to view the ICDS anganwadi as a focal point for women and child health services, or the ICDS beneficiaries as the main targets of primary health care. Family planning is still the kingpin among the services provided. Special emphasis on family planning with little attention to regular antenatal and postnatal checkups do little to enforce integration.

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72. Ibid.

ICDS evaluations are unanimous on one point: the programme failed to elicit community participation. This is partly because the programme is perceived as a government service to be used in emergency. But the main reason as noted by NFI study<sup>73</sup> is that the task of eliciting community participation becomes difficult in villages stratified by social barriers and economic status.

Poor nutrition and health education, neglect of home visits, problems in recruitment of anganwadi workers<sup>74</sup> as well as unsatisfactory training (NFI, 1988) and supervision are the other weak areas. Many departments are involved in the scheme. These are Department of Health, Family Welfare, Social Welfare, Education, Food and Agriculture, Community Development and a department dealing with general administration and so forth. These not only reflect a disintegrated approach but there is also lack of coordination among them. Meetings of Coordination Committees are irregular and ritualistic.

But, in spite of all this, ICDS is an important watershed in the evolution of public policy towards child and maternal malnutrition in India. The very existence of the ICDS Scheme at the anganwadi level has a positive

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73. NFI 1988 op. cit.

74. As reported in Indian Express (1988) "Anganwadi centres: Cesspools of corruption", July 8 Delhi.

influence in terms of promotion of community consciousness and community mobilization.<sup>75</sup>

At a macro level, ICDS can be considered to be targetted at the poor because of its area targeting strategy. ICDS projects are preferentially located in economically backward areas, blocks with high scheduled caste and tribe populations and urban slums. It provides valuable services under one roof. The pre-school education component is the best in terms of delivery of services. It also attracts long-term participation of mothers in the anganwadi.

Considerable expenditure is incurred by the State Governments. Additional staff, equipment, drugs and food-supplies are constantly injected into the programme, which has been working at a low level of efficiency. Expansion of inefficient institutions amounts to what Banerji has described as "virtual subsidization of inefficiency, corruption and waste".<sup>76</sup>

To be more meaningful, it is essential that the programme is a part the of overall efforts of social and economic development and hence it should form a component of

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75. Raye, S. (1982). op. cit.

76. Banerji, D. (1973), "Health Behaviour of Rural Population Impact of Rural Health Services", EPW 8(51) 22 Dec. pp.2261 to 2268.

the wider community development programmes, e.g. the Integrated Rural Development Programme.

From the foregoing account, it is clear that nutrition programmes were not always simple welfare measures. They served many other critical purposes and welfare became marginal. The analysis and implications of these are discussed in the subsequent chapters.

However, some common trends can be discerned in the various programmes. None of the programmes took cognizance of either the epidemiological or socioeconomic basis of the problems they were supposed to tackle. Hence their strategies as well as the capacity to reach the needy populations were extremely limited. These programmes were also highly technocentric and often linked to commercial interests.

If these programmes have any validity they should cover the most vulnerable within the resources allocated to them. However, we found that the coverage of the vulnerable target was most inadequate. The programmes did not cover 0-3 year olds, they were least visible in the lesser endowed regions especially tribal regions and wherever they existed they were not interested in covering the poorest families.

The community participation in most of the programmes was found to be poor. In a highly stratified society, where priorities in health care are decided by the needs of the



elite, community involvement is neither sought nor accomplished. The benefits of the programmes tend to percolate to the priveleged sections but nevertheless, their very presence keeps the masses hoping. The vote getting appeal of the programme is demonstrated by the nutrition programmes in the state of Tamil Nadu initiated by the Chief Minister of that State.

Resources employed to feed the vulnerable are limited. In the fifth plan period, only 50 per cent of the resources were allocated to concerted programmes for the vulnerable group while the rest went to programmes of an equivocal nature. This can be seen from the distribution of resources given below.

**Table 9 : Distribution of Resources Among the Various Programme Heads in the Fifth Plan**

Resource Allocation	Rupees (in crores)
Department of Food (food processing, pilot projects etc.)	50
Department of Community Development	20
Department of Health and Family Planning	5
Department of Education (MDM)	112
Department of Social Welfare (pre-school feeding programme)	218
Total	405

Source: Qadeer, I, (1978), "India's feeding programmes and their relevance", Soc. Sci. and Med., vol. 12, pp.2327.

Besides the above trends, one aspect that needs to be commented on is of ineffective programme monitoring. Though NNMB regularly monitors the nutritioinal status of the Indian population, the development of an independent and efficient surveillancce system for evaluating programme performance has lagged behind. Besides the monitoring cell at AIIMS which regularly monitors the ICDS, there is still the need for an unbiased agency to not only evaluate but also improve upon the existing programme. Data collected and recorded in the periphery should reach the more central levels and should be aggregated and used for planning purposes. This should then be fed back to the field workers.

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**CHAPTER IV**

***POLICIES TO DEAL WITH HUNGER***

Policies are a reflection of political concern. They also require inputs from management, technology and its choice, and other social sciences particularly Sociology, Economics, Cultural Anthropology and Social Psychology.<sup>1</sup>

Governments in developing countries lay greater emphasis on programmes whose dominant input is from managerial and technological fields. It is not surprising therefore that nutrition is an integral component of integrated Community Development Programme of India launched in 1952, Minimum Needs Programme (1975), Health, Population and Agricultural programmes, Prime Minister's Twenty Point programme, Employment Generation Programmes and so on.

Several piecemeal sectoral measures have been undertaken by the Ministries of Health, Food and Agriculture and Social Welfare. These reflect a tendency to tackle malnutrition indirectly.

We do not have an explicit National Nutrition Policy. The various programme approaches indicate implicit policies. In a political process, the policies are continually changing. The nature of a policy at any given time is

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1. Banerji, D. (1990), A Socio-cultural, Political and Administrative analysis of health policies and programmes in India in the Eighties: A critical Appraisal, pg.3.

determined by the interplay of different socio-economic epidemiological cultural and political factors.

The National Planning Committee (1948) and the Bhoré Committee(1946) originated during the national movement against colonial struggle. They were greatly influenced by the aspirations of the National Movement and saw Health and Nutrition Planning in Independent India as an integral part of the overall planning for socio-economic development.<sup>2&3</sup>

When India became independent, a native ruling elite took over power from the British. Conforming to what Gunnar Myrdal has called a 'soft state'<sup>4</sup> these new rulers made lofty egalitarian pronouncements but essentially furthered their own class interests. Socio-economic basis of nutrition was not given the focus it deserved.

#### 1. IMPLICIT NUTRITION POLICIES

These stemmed from the reluctance of the political leaders to address urgent social problems. This was

2. National Planning Committee, Sub-committee on National Health (Sokey Committee), (1948): Report, (Bombay, Vora).
3. Government of India, Health Survey and Development Committee (Bhoré Committee) 1946, Report, (Delhi: Manager of Publications).
4. Myrdal. G. (1968). Asian Drama: Inquiry into the poverty of Nations, (New York : Twentieth Century Fund), pg.20.

associated with an increased tendency to embrace western ideas, technology and monetary assistance. Results obtained from advances in Western Science which largely focused on animal experimentation, bio-chemical studies and clinical research were used for the formulation of community action programmes. Programmes dealing with protective foods (ANP) were initiated. Market forces used nutrition science to promote their products. The protein food (Nestle's baby food)<sup>5</sup>, and later vitamin and mineral 'tonics' established a huge market.<sup>6</sup>

Class structure and interests therefore rejected sound policies advocated by the Bhole and Sokhey Committees. This led to emergence of pretentious programmes like the ANP and food fortification measures.

Increasing demands during the past forty five years and a sustained electoral democracy has impelled the ruling classes to alter the nature of the nutrition programmes. But to a large extent the interests of industry which uses science have not been compromised. Focus still remains on single nutrient deficiencies. Massive vertical programmes are instituted to cater to advances in these specific kinds

5. A. Von Muralt, (1969), Protein Calorie Malnutrition A Nestle Foundation Symposium, (Springer-Verlag Berlin).
6. Banerji, D. (1979), "Epidemiological issues in nutrition", Indian Journal of Nutrition and Dietetics vol.16, pp.189-194.

of science and technology. It is also in the interest of upper classes that efforts are made to check excessive population growth. From the fifth plan onwards, the major thrust in health and nutrition policy was the family planning programme. The Ministry of Health and Family Welfare launched specific nutrition programmes-the SNP, vitamin A prophylaxis and NNAPP to promote it.

In the mid seventies, family planning was becoming a politically sensitive issue. A different approach to health and nutrition planning was needed. It was also demonstrated that survival of children acts as a natural deterrent to proliferation. A 'package of services' was designed to be delivered to the community through the ICDS programme. This integrated package of services, to ensure child survival held a lot of appeal among the scientists and planners. The programme soon became a 'prima donna' among all the nutrition intervention approaches. It was expanded at a phenomenal rate from 33 experimental project blocks in October 1975 to 1740 projects by the end of March 1988. plan outlay The increased from Rs.45 crores in the sixth plan to Rs.500 crores during the seventh. However, in spite of its expansion, integration of services at the peripheral level which was the hallmark of its conceptualization has not been accomplished.

Besides providing the scientists and planners the necessary catchment areas to test out their technologies and schemes, these programmes, at the political level, served as convenient alibis to having done 'something'. Nutrition programme planning is however not the best approach to alleviating malnutrition in poor communities.<sup>7-10</sup>

It has been observed that it is a fall back position, available to and most likely to be embraced by governments lacking the necessary political commitment to address structural barriers to popular well being or to attempt a significant redistribution of income. In such a situation nutrition planning becomes a low cost alternative politically as well as economically.<sup>11</sup>

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7. Berg, A. (1973), The Nutrition Factor: Its role in national development, (Brookings : Washington D.C.).
  8. Berg, A. Srimshaw, N.S. & Call D.L. (1973), Nutrition national Development and Planning, (MIT : Cambridge).
  9. Joy, L. & P. Payne, (1975), "Food & Nutrition Planning". Nutrition Report Series No.35, FAO, Rome.
  10. Jhonston, B.F. (1982), "Integrated multisectoral nutrition interventions at the village level, In Nutrition Policy Implementation, eds. Scrimshaw, N.S.; M.B. Wallerstein. (Plenum), pp.174.
  11. Field, J.O., (1983), "The importance of context: Nutrition planning and development reconsidered, In Nutrition in the Community, eds. McLaren, D.S. (John Wiley), pp.61-78.



The ICDS has not served even its limited purpose as pointed out in the earlier evaluation reports because of severe problems in its functioning at the operational level.

## 2. NATIONAL NUTRITION POLICY DRAFTS

Recent attempts to arrive at a coherent nutrition policy<sup>12-14</sup> while paying lip service to the long term difficult structural issues, essentially advocate the same old approach. A number of programmes are grouped and re-grouped under different headings in the various policy approaches.

The statements on nutrition policy in the sixth plan<sup>15</sup> reviews the progress made and observes that the impact so far made on the nutrition status of the people is little. It exhorts the need to implement the following in a coordinated manner with an objective to reduce mortality and morbidity

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12. ICMR, (1986), Towards the Implementation of a national nutrition policy in India. A national seminar held in Srinagar, 28-30 Oct. 1985.
  13. NIPCCD, (1981), National Workshop - Towards a national nutrition policy A report, 27-29 March, 1989.
  14. Tandon, B.N., (1991), Draft National Nutrition Policy Unpublished, (Central Technical Committee : AIIMS).
  15. Government of India, Planning Commission, Sixth Five Year Plan, pp.379-381.

and to improve functional efficiency and productivity at all levels.

- 1) employment and income generation, creation of capital assets for the nation through conversion of human labour,
- 2) family limitation,
- 3) community organisation and its participation,
- 4) education with special stress on nutrition and health,
- 5) equitable food distribution through expansion of public distribution system and production of nutritious foods and ensuring balanced production between the cereals, pulses, vegetables and animal products,
- 6) provision of safe drinking water supply,
- 7) awareness of public health and personal hygiene,
- 8) control of communicable diseases and intestinal disorders, and
- 9) provision of housing and clothing for poorer sections,

Alongwith these measures, direct nutrition intervention programmes - the ICDS, SNP, MDM, 'processed' and 'fortified' foods, and 'nutrition education' are to be continued.

These are an echo of the same measures that have been offered during the past three decades. The seventh plan also followed the approach of the sixth<sup>16</sup>. The eighth plan draft

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16. Government of India, (1985), The Seventh Five Year Plan, Planning Commission, New Delhi.

identifies employment generation as the thrust area. It talked of intersectoral action supported by political commitment and popular mass movement<sup>17</sup>. However, before anything could be done, the government fell off. The new government introduced liberalisation and globalisation and is not bothered by such concerns as that of generating more jobs. The manner in which structural adjustment is being attempted bodes ill for employment.<sup>18</sup> Such is the nature of political commitment in India as regards social well-being.

A short-term and long-term approach to nutrition policy has been advocated by Gopalan<sup>19</sup>. However, among his short-term proposals, he advocates the vigorous and efficient application of specific technological measures, such as iodation of common salt, distribution of iron folate tablets and control of nutritional blindness through promotion of increased use of green leafy vegetables in the dietaries of children and using not merely the conventional health system but all other appropriate available channels for reaching

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17. Government of India, (1991), Objective thrusts and macro dimensions of the eight plan, (Planning Commission : New Delhi), Dec.91.
  18. J.M., (1992), "Economic Liberalisation and Employment: Will Enterprise Work", EPW June 13-20, pp.1234-5.
  19. Gopalan, C. (1983), "National nutrition policy-objectives and strategies". NFI special publication series 1. Nutrition and Health care. Problems & Policies A compilation of recent addresses.

the community for effective implementation of these programmes.

The short-term measures usually aim at providing the immediate nutrition and health needs of the vulnerable groups. The long-term measures are directed at removing poverty and hunger by raising standards of living through guaranteed employment, income generation, and augmentation of food supplies and their distribution. The short-term measures are often rigorously pursued but considerable flexibility is observed in the implementation of the long-term ones. Some of them can be interminably postponed (e.g., those relating to distribution) while others are superficially addressed (e.g. employment programmes).

The policy draft from the Central Technical Committee of All India Institute of Medical Sciences (AIIMS) emphasizes the need to link up and coordinate strategies for nutrition and health.<sup>20</sup> The ICMR policy report, on the other hand, views a national nutrition policy as a beginning of a series of well orchestrated exercises in its implementation.<sup>21</sup> It recommends operationalization of inter-sectorial efforts with specific objectives, plans of

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20. Tandon B.N. (1991), op. cit.

21. ICMR, (1986), op. cit.

actions, strategies, targets and time frames. While 'integration' permeates the areas of infrastructure, training, education, and monitoring and evaluation in the AIIMS draft 'execution' or 'implementation' in the very same areas pervades the ICMR policy report. This report focuses on multisectoral approach and a multi-institutional link up. The former draft identifies some special problems to be addressed by nutrition policy. These are those of tribal nutrition, nutrition in urban slums, nutrition during drought, social marketing, nutrition security and sustainable agriculture through bio-technology and food production and processing measures.

Besides the usual strategies, the NIPCCD approach to nutrition policy<sup>22</sup> talks of strengthening the role of non-governmental organisations (NGOs), legislation for appropriate food fortification and social control of food industry, social forestry and inter-sectoral linkage between Health and Family Welfare, Human Resource Development (Education, Women, & Child development and social welfare), Food and Civil Supply, Rural development and Tribal development, Agriculture, Industry and Labour and Technology Mission.<sup>23</sup>

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22. NIPCCD, (1989), op. cit.

23. Ibid.

It is evident that the areas delineated in the above nutrition policy statements are all encompassing. It has been observed that herding of heterogeneous programmes under an All India Nutrition Policy deprives the national policy of a uniform conceptual basis and therefore undermines its rationality. The rationality of the nutrition programmes and policies in India is rooted in the interests of the class of bureaucrats, politicians, businessmen, and some technocrats. These programmes remain highly irrational specially when they are carried out in the name of peoples interests.<sup>24</sup> Qadeer insists that a lasting improvement in the nutritional status of the vast majority is a function of their productive capacity and hence of their socio-economic development which must simultaneously occur and form the backbone of any nutrition policy.<sup>25</sup>

### 3. APPROACHES TO NUTRITION POLICY

Banerji had talked of a stronger political will and social commitment along with a sophisticated approach to social planning and totally revitalised administrative machinery for developing a meaningful nutrition policy, a

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24. Qadeer, I. (1978), "India's feeding programmes and their relevance", Social Science and Medicine, vol.12. pp.23-27.

25. Ibid.

decade before the emergence of any of the policy drafts. 26

It is important to stress that given the epidemiological nature of nutrition problems, our approach to sectoral planning has to focus on the more basic socio-economic factors. These factors relate to poverty and inequality. The contradictions and interactions within the economic structure and between the economic and political-social superstructure.

It has increasingly been realized that Interventions and policies in existing unequal social structures within the Indian reality have always benefitted the powerful. A techno-managerial or programmatic approach to policy has left untouched the structural underpinnings. Policy statements thus become a major source of legitimation of the status-quo interests and social order. Nutrition policies cannot be divorced from the broader socio-economic, political and developmental context.

As pointed out in the above description, Nutrition planning until now has done little more than improving nutrition interventions. The pursuit of programme oriented policy distracts attention from the essential features of a

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26. Banerji, D. (1971), "An approach to a national nutrition policy for India, Draft, Unpublished, CSMCH, SSS, JNU.

policy, that is, an ideological commitment and an identification of the broad inter-sectoral plan within it. Policy making thus becomes a highly professionalised technical activity, and by default commits itself to a position where diffused ideological commitments are in fact against the poor.

Thus it can be seen that, besides programmes evolving out of implicit policies, scattered interventions also formed a part of official policy. The policy makers did not make explicit their ideological commitments. These were indirectly detected in the priorities allocated to the Family Planning Programme and the technocratic approach which essentially furthered industrial interests. The technocrats made policies without giving due consideration to the socio-economic and epidemiological basis of nutritional problems. It is, therefore, not surprising that policies degenerated into programmes without tackling the nutritional problems of a large majority. The above factors not only distorted the policy but also influenced the conceptualisation and implementation of programmes. This is the political economy of nutritional health intervention in India.

In as much as the main tradition of 'policy science' has originated in the United States, it may not be



inappropriate to quote two perceptive (British) commentators on the American situation in this connection.

Professor Keith Hope incisively points out:

"The typical American word for an unsatisfactory social state is 'problem', something, that is, which can be solved and thereby disposed off and the typical word for ameliorative social action is 'program', something, that is, which has a pre-ordained beginning, middle and end." 27

Elaborating on this, Professor L.J. Sharpe adds:

"This characteristic of American policies means that the Federal Government has to conduct periodic bursts of activity, 'carried out on a stretcher'..... Instead of being a product of a continuous doctrinal battle within the political system, about the speed and direction of the secular trend, to greater equality within society, social amelioration has often to come from on high, from the executive branch in large doses; dressed up as emergency measures to combat a temporary national crisis. Such was the lot of the New Deal Legislation, the social legislation

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27. Keith Hope (1978), "Indicators of the state of society' In Social Policy Research, eds Martin Blumer, Macmillan: London),

of the Second World War period, and the 'war on poverty' initiated by Presidents Kennedy and Johnson." 28

President Johnson had initiated an anti-poverty programme following racial riots in Watts neighbourhood of Los Angeles in the sixties. The political motive was to secure Black votes for the Democratic party. The programme got distorted because of the interplay of a number of forces. The current recurrence of violence in Los Angeles<sup>29</sup> is a glaring evidence of the failure of those anti-poverty programmes.

These outcomes occur because of the nature of policies. Such policies aim at maintenance of status-quo. A strong political commitment to bring about change would have had a very different outcome. Political dictates of a democratic set up demands accommodation of contradictions in Indian policies. However, innumerable ways also exist to dilute or defeat such policy objectives.

Guhan has characterized the bulk of social and economic policy in India as having the following features:-

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28. L.J. Sharpe, (1978), 'The social scientist and policy making in Britain & America - A comparison', In Martin Blumer, (eds), *ibid.*
29. "Separated by class and race, the shocked U.S. looks at its two faces". *Time* Vol.139 No.20 May 18, (1992), pp..18-28.

- a) Quite a few statements of policy remain aspirational. They are not intended to be implemented at all.
- b) Some major policies are ritualistic. They are kept alive by a periodic reiteration of the intent to implement and the difficulties that continually face implementation.
- c) The third category consists of policies that are sabotaged through executive action or inaction.<sup>30</sup>

Implicit and explicit inconsistencies exist in other areas of social policy as well. It would be relevant to discern these inconsistencies in the long-term approaches to nutrition intervention, such as Food Production, Distribution and Poverty Alleviation.

#### 4. SOCIO-ECONOMIC DETERMINANTS OF NUTRITION POLICY

The rewards of public policy on agriculture have tended to flow to the propertied classes. While over large tracts of the country, the bulk of the agricultural population has got impoverished in absolute terms.

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30. Guhan, S. (1985), 'Towards a policy for analysis', In Public policy and policy analysis in India, eds. Ganpathy R.S.; S.R. Ganesh; R.M. Maru; S. Paul; R.M. Rao, (Sage Publications), pp.225.

#### 4.1 DETERMINANTS OF FOOD PRODUCTION

In the immediate post-independence period, land reform formed the most important component of attack on outmoded production relations. It helped eliminate zamindari and other similar type of tenurial relations, but did not lead to the realisation in full measure of the principle 'land to the tiller'.<sup>31-33</sup> The structure that emerged left intact an extreme concentration of land ownership with capitalist landlords. Only 2.5% of the total cultivated area was acquired by the State for distribution to those who could afford to purchase it.<sup>34</sup>

Along with the formation of a homogeneous class of landlords, there was a degradation in the status of a large number of petty tenants and in between a section of rich

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31. Government of India, (1976), Report of the National Commission on food and agriculture, Ministry of Agriculture and Irrigation, New Delhi, Part XV entitled. 'Agrarian Reform' Chapter 66.
  32. Patnaik P. (1988), "A perspective on the recent phase of India's economic development", Social Scientist, vol.16, No.2, Feb. pp.3-16.
  33. Krishnaji N. (1990), "Land and labour in India. The demographic factor", Economic & Political Weekly May 5-12.
  34. Patnaik U. (1988), "Some aspects of development in the agrarian sector during forty years of Independent India", Social Scientist, vol.16, No.2, Feb. pp.17-40.

peasants-tenants moved up the social scale by acquiring ownership rights. Meanwhile, the proportion of agricultural labourers in the total of cultivators and labourers rose significantly. Cultivation through wage labour became a predominant form in large land-holdings.<sup>35</sup> The struggle for daily wage employment and the powerlessness of the landless labourers has been beautifully portrayed in 'Rakku's Story'. The economic reality of the lives of these toiling families makes 'basic needs satisfaction' impossible. Work for them is a constant struggle to obtain and the balance between subsistence, indebtedness and hunger is extremely precarious. Health care is inaccessible and of minimal priority in the far more immediate struggle for daily food.<sup>36</sup>

The land reform measures were extremely conservative and failed miserably in radical land redistribution. In fact they led to the proletarianisation of the rural population. These measures can be characterised as 'aspirational policies' which were not intended to be implemented at all. The power to implement the land reform legislation is vested with the elite who dominate the

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35. Patnaik, P. (1988) op. cit.

36. Zurbrigg, S. (1984), Rakku's story: Structure of ill health and the source of change.

political legal structures, and administrative and who often represent the land-owning elite. It is well known that a significant proportion of the members of Parliament themselves have land-holdings in excess of the ceiling laws. The outcome then is predictable, for while land reforms have been legislated, any real power to enforce such legislation is not.<sup>37</sup>

The failure of land reforms was the first instance of the failure to institutionalise elements of lower class interests within the State. The Green Revolution represented a continuity in the unfolding of the basic agrarian inequalities.

While rich peasants owning substantial lands acquired new instruments of exploitation, the poorer sections of peasantry gradually lost their traditional options of survival.<sup>38</sup> A number of studies<sup>39-46</sup> point to the highly

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37. Ibid.

38. Bhardwaj, K. (1980), "On some issues of methods in the analysis of social change", Shri Krishna Rajendra Silver Jubilee Lectures, Special Lecture Series, 78.

39. Frankel, F.R. and K. Griffin, (1974), India's Green Revolution: The political economy of agraria change", (MacMillan).

40. Hanumantha, Rao, C.H. (1975) Technolgical change and distribution of gains in Indian agriculture, (Institute of economic growth).

discriminating and inequitous distributional consequences of Green Revolution. An excerpt from a 1975 article by Silvio Almeida et al presents this position.-

"As the Indian Minister of Agriculture and Food, Jagjivan Ram pointed out at the end of 1969, the beneficiaries of the Green Revolution are not the peasants who live miserably on a few rupees a month, but the privileged strata of large and medium-sized land-holders. While 22% of the families own no land and 47% own less than 0.4 hectare (1 acre), 3-4% of the large landholders with political power and influence are in a position to appropriate for themselves all the resources and technical

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41. Bhalla, G.S. (1976) "Changing agrarian relations in Haryana 1962-72", EPW March.
  42. Biplab, Dasgupta, (1977), "India's green revolution", EPW, Feb.
  43. Gaiha, R, (1987), "Impoverishment technology and growth in rural India", Cambridge Journal of Economics, 11(1) 23-46.
  44. Bagchi, A.K, (1982), "The political economy of under-development" Modern Cambridge economics series, (Cambridge University Press).
  45. Dhanagare, D.N, (1984). "Agrarian reforms and rural development in India - some observations", Research in social movements, conflict and change, vol.7, pp.177-201.
  46. Oomen, T.K., (1971)-, "Green revolution and agrarian conflict", EPW vol.26, June 26, pp.A99-A103.

assistance put at the disposal of farmers by the governmental agencies.

As a consequence of the application of Green Revolution, class conflicts have sharpened considerably in the region in India 'benefitted' by it. Only the farmers from upper strata of rural families are in a position to carry out improvements indispensably for increasing crop yields. The medium-sized and small farmers do not have the resources at their disposal for investing in irrigation and other improvements the Green Revolution demands. The large land-holders and business men, wherever possible, practice usury with interest rate reaching as high as 36%. Attracted by the profit opportunities derived from the Green revolution, a new social group inserts itself in the rural areas - capitalists, businessmen and retired bureaucrats who appropriate the lands of the medium-sized farmers and poor peasants and finally expel them. Large mechanised agricultural estates belonging to industrialists alternate with poor peasants living in semi-feudal conditions."<sup>47</sup>

Besides exacerbating social classwise inequalities, the Green Revolution also aggravated inter-regional and cropwise

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47. Silvio, Almeida, et al., (1975) " Analysis of the traditional strategies to combat world hunger and their results", Int. J. Hith Serv. Vol.5, No.1,pp.128.



inequalities in the production of foodgrains. Productivity increases having been largely confined to wheat in the North-West. There was development of developed regions. The expansion of infrastructure like irrigation, drainage, roads, markets, rural electrification was made mostly in developed regions. There was a concentration of crops, of inputs, input and mechanisation subsidies, positive price policies of crops grown in developed regions and large farms.

A large chunk of small and marginal farmers, resource deficit and dryland areas, agricultural labourers, coarse cereals, pulses and oilseeds were bypassed. While the emerging rural capitalists were increasingly benefiting from the Green Revolution technology, there was a stagnation of agricultural workforce in terms of real income from work. The rural labour inquiries of 1963-65 and 1974-75, showed a drastic fall in the real earnings of rural labour and rise in indebtedness. Annual real earnings of male workers declined by 50% and of females by 33%.<sup>48</sup>

A food surplus in the form of mounting buffer stocks was squeezed out of the agricultural sector, out of people

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48. Patnaik., U. and M. Dingwaney, eds (1985), Chains of Servitude: Bondage and slavery in India, (Sangam : N. Delhi).

who were unable to consume the produce because of stagnating per-capita incomes. Thus food self-sufficiency was reached without satisfying the food needs of a majority of the rural population.

The emergence of large surplus stocks with the government is related to the nature of agricultural growth in the country. It is well known that these surpluses are a result of large increases in output in certain well endowed regions of the country. Which have been producing increasing levels of marketed surpluses and that they are not a consequences of overall increase in foodgrains output.<sup>49</sup> Despite the improvement in national food supply, poor households, especially in the less developed states are unable to improve their per-capita consumption levels. In general, per-capita food consumption of the lowest three deciles is found to be low in the agriculturally lagging states.<sup>50</sup>

An increase in the addition to buffer stocks, lack of purchasing power of the rural majority and an increased skewness in the distribution of sales - a large proportion

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49. Rao, Hanumantha, C.H. (1988), "Current agrarian scene - policy alternatives", EPW Rev. of Agric. March 26.

50. Gupta, S. (1987), "Inter-state variations in Food consumption, Nutritional adequacy and levels of poverty", USAID Occasional Paper No.4, Delhi.

coming from well-to-do surplus producers from well endowed regions have all contributed to the decreased per-capita availability of food. The policy instrument that emerged to tackle the problem of food availability was the Public Distribution System(PDS).

#### 4.2 NATURE OF FOOD DISTRIBUTION

The bulk of foodgrains produced by the Government for public distribution goes to feed the urban and semi-urban population as over 60% of the Fair Price Shops are located in cities and towns or in their rural periphery, serving a quarter of the total population. The PDS has played a politically crucial role of providing a buffer against inflation to the volatile vocal urban population. In effect, the surplus production from the dynamic growing region of North India has been used by the government, not in making good declining availability for rural consumers in the areas of maximum decline, but in purchasing urban peace.<sup>51</sup> It is believed that the basic reasons for the failure to meet the requirements of the poor despite rising subsidy on foodgrains is the practice of providing foodgrains at subsidised rates to almost everyone regardless of the income

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51. Hasan, Z. and U Patnaik, (1992), "Aspects of the farmers movement in Uttar Pradesh in the context of uneven growth of capitalist agriculture", Seminar on Understanding Independent India, School of Social Sciences, J.N.U. 6-8 March, 1992.

levels.<sup>52</sup> These subsidies also cut into the resources meant for development expenditure apart from increasing rural-urban inequity.<sup>53</sup>

But with all its drawbacks, the operation of the PDS has been largely responsible for preventing the immiserisation of the urban poor under a regime of inflation.<sup>54 & 55</sup>

In the eighties, the governments of three southern states - Tamil Nadu, Andhra Pradesh and Kerala as well as more recently Gujarat have partly extended the scope of the Fair Price Shops to outside urban areas. But food security for the rural poor in these areas of declining availability per head is far from assured since physical supply is only one part of the picture. For effective offtake, purchasing power is required.

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52. Hanumantha, Rao. C.H., (1988), op. cit.

53. Krishnaji, N., (1990), "Agricultural Price Policy. A survey with reference to Indian foodgrain economy, EPW June 30, pp.A54-63.

54. Hasan, Z., U. Patnaik (1992), op. cit.

55. Gulati, A. (1989), "Food subsidies in search of cost effectiveness", EPW July 15, Review Article.

#### 4.3 DETERMINANTS OF EMPLOYMENT GENERATION

The need to provide employment opportunities for ameliorating economic disparities has been ritualistically reiterated in almost all the plan documents. These poverty alleviation or employment generation programmes with or without kind payment scheme are an important policy innovation because they not only aim to provide productive assets to the poorest of the poor but also improve their bargaining power by disturbing the captive market of the surplus producing farmers.<sup>56</sup>

These programmes along with other distributive measures have, no doubt, been responsible for decline in the extreme fluctuations in poverty despite increase in population. But they are no substitute for fundamental structural changes in the relations of production which alone can improve the economic and social position of the labouring rural masses to a significant extent.

The above statement stems from the major drawback of poverty alleviation measures i.e. their unproductive and erratic nature. The income generating activities which are mostly roadworks are often unsustainable and the programme

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56. The kind payment schemes provide food grains obtained at subsidized cost as wages to landless labourers and rural poor who are 'net buyers' of food.

is degenerated into merely moving money and chasing number of beneficiaries. It is not surprising therefore, that a number of studies 57-62 report - the failure of these schemes in all their stated objectives. Moreover, like other social programmes the benefits of these programmes also accrue to the better off-segments of the population. It is regularly observed that the better-off are able to obtain benefits of schemes labeled 'for the poor', subsidized credit and fertilizers, 'low cost' urban housing, food rations, even about one third of the small scale assets distributed in the Integrated Rural Development Programme (IRDP).<sup>63</sup> While addressing the performance of IRDP, Dreze

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57. Government of India (1980), A Quick evaluation of the food for work programme : An Interim report, PEO, (Planning Commission : New Delhi).
  58. Dandekar, V.M. & M. Sathe, (1980), "Employment guarantee scheme and food for work programme", EPWM Vol.15, 12 April.
  59. Basu K. (1981), "Food for work programmes. Beyond Roads that get washed away", EWP Vol.16 No.1-2, 3-10 Jan.
  60. Harriss B, (1983), "Implementation of food distribution policies. A case study in South India, Food Policy May pp.121-130.
  61. Gaiha, R., (1991), "Poverty alleviation programmes in rural India, An assessment, Devt. & change Vol.22, 117-154.
  62. Subbarao, K., N. Kakwani (1990), "Rural poverty and its alleviation in India", EPW March 31 REV. of Agric.
  63. Rath, N. (1985), "Garibi hatao. Can IRDP do it? EPW 20: 6,9 Feb.

shows that in large parts of India (with some important exceptions as West Bengal), the selection of IRDP beneficiaries is at best indiscriminate and at worst biased against the poor.<sup>64</sup>

Thus an examination of programmes dealing with nutrition, food production and distribution and poverty alleviation reveals that besides political factors which in the first place determine policy options, a number of socio-economic factors interact to distort even sound policies. Policies do not operate in vacuum. From the choice of the policy through its implementation down to beneficiaries selection, there are loopholes and trade off's between what is politically feasible and actually desirable in an attempt to maintain the status-quo.

The State, through the regulation of various forces, processes and agencies ensures the consolidation of the dominant class which utilizes the various forms of 'State-Aid'. At the same time palliative relief and repair operations are the 'crumbs' which keep the large majority quiet and subservient to the needs of the few. It is also desirable in the interest of the State to keep them poor

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64. Dreze, J. (1990), "Poverty in India and the IRDP delusion", EPW Sep. 29 Rev. of Agric.

since that would ensure that their major fight is against hunger for survival.

#### 4.4 PLIGHT OF SOUND HEALTH POLICIES

A final example of distortions in a vital policy area is that of the implementation of Health Policies. The Government of India had taken specific initiatives to develop a more equitable Health Service System by entrusting "people's health in people's hands".

A few community health volunteer's could not, however, bring a change in a highly segregated village society. The poor who were the supposed beneficiaries had no say in either the decision making or the running of the scheme.<sup>65</sup>

Thus the ideological shift in policy itself was distorted by ignoring the structural reality.

Another important policy commitment was that of Primary Health Care embodied in the Alma Ata declaration of 1978.

This concept essentially gave a call for democratization and decentralization of the health sector's

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65. Qadeer, I., (1985), "Social dynamics of health care. The community health workers scheme in Shahdol district", Socialist health review, vol.2, No.2, pp.74-83.



infrastructure and superstructure that is to lead to increased coverage of services delivered equitably and at low cost through a network of Community Health Workers (CHW's). The totality of these elements was meant to establish a whole new philosophy of participation leading to a greater control by the people over their own health. But what followed was a selective approach to primary health care. The child survival revolution was no more than a watered down version of a few of Alma Ata's essential elements of applying a technological solution to outstanding health problems.<sup>66</sup> The GOBI-FFF (Growth monitoring, oral rehydration, Breast feeding, Immunization, Fertility Control, Female Literacy and food) programme was a blatant negation of the very philosophy of Primary Health Care. The wider International interests which prompt adoption of such approaches are discussed in the subsequent chapter.

Among others, Banerji has also strongly criticised this approach. He perceives it as a techno-centric approach, imposed on the people from above, using the manipulative mechanism of Social Marketing, formulated without taking into account the most elementary epidemiological data concerning the prevalence of the six diseases, the efficacy

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66. Schuftan, C., (1990), "The child survival revolution: A critique", Family practice vol.7 No.4, pp.329 OUP.

of the vaccine, the feasibility of maintaining the cold chain, the capacity of the health services infrastructure to sustain such an extensive programme, and above all, to isolate the six diseases from all the numerous health conditions which afflict the children who are forced to live under the most degrading ecological conditions.<sup>67</sup>

This reeducationist approach to health policy clearly bypasses the poor as do other social and economic programmatic policy approaches in different sectors. It is evident that we have stopped short of adhoc measures, superficially addressing complex social problems, often excessively relying on technological solutions to what is essentially a socio-economic and political problem.

What is needed for removal of malnutrition and poverty is not more planning but a different kind of planning. A sound nutrition policy would not only make a frontal attack on poverty but will also be committed to structural change. Political will and requisite economic policy must underlie such an attempt.

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67. Banerji, D. (1988) "Hidden menace in the universal child immunization programme, Ind. J. Hlth. Serv. 18 pp.293-299.

**CHAPTER V**

***SOCIAL DYNAMICS OF  
PROGRAMMES AND POLICIES***

In the past, theories of under-nutrition have played down and concealed nutritional problems stemming out of poverty and inequality. Nutrition programmes designed as welfare services failed to affect the problem in any significant manner instead they became tools for vested interests to advance their interests. The system managed to keep large sections alive but chronically hungry and considerably ill, without actually giving the majority enough to eat. The political dictates of a democratic set up forced the government to concede a nutrition policy. This only provided a new wrapping to old strategies and was not really committed to any change in the status quo.

In the previous chapters, while elaborating on the above, extensive reference was made to a variety of sociological issues. Without enumerating all those issues, this chapter attempts to broadly integrate them to bring out the multidimensional linkages of the social structure with nutrition programmes and policy.

The social structure is very broadly composed of stratifications on the basis of 'Class, Caste and Power'<sup>1</sup>. The class hierarchy is such that the upper classes are the ones who control resources, the middle classes control

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1. Beteille, A., (1965), Caste, Class and Power, (Berkley: University of California press).

skills (both managerial and technical) and help the upper classes in managing resources, the workers and lower classes who are the backbone of the economy are not only poor but also powerless. They confront inadequacies and injustices within the social system. Which is largely dominated by the other two classes. Government intervention through Welfare which should ideally promote some degree of equality and social justice, infact has never done so because conflicting and convergent interest shape Government intervention<sup>2</sup>.

The mechanisms through which these interests intervene and are sustained are discussed in the following sections.

#### 1. THE STRUCTURE AND NATURE OF SCIENCE

The growth of the science of nutrition, converted the social problem of hunger into a biomedical problem. The knowledge of human nutrition evolved in scientific laboratories and borrowed concepts and ideas from 'pure sciences'. Reductionism was built early in its approach. This is evident in the growth of the discipline which saw problems divorced from their socio-cultural moorings. In striving to emulate 'Science' disciplines it concentrated on nutritional elements, requirements (RDA's), physiological and biochemical processes, dietetics, and food management

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2. Kothari, Rajni (1968), "Masses Classes and the State", E.P.W., vol xx, no.5, Feb 1, pp. 210-216.

without relating themselves to the problems of food production, distribution and the epidemiological pattern of health and nutritional problems.

A few researchers concentrated on epidemiology highlighting the primacy of calories in Indian dietaries. But for a long time nutrition was perceived in isolation and epidemiology was ignored because of the weight of the dominant clinical stream. Instead of exploring the extent and complexity of the nutritional problem, this simplistic clinical approach forced nutrition science into giving primacy to proteins, vitamins and trace elements. The concept of nutritional adaptation gave physiological validity to low food intake. The so called 'neutral' 'disinterested' scientists took pride in these directions (which were sterile and dissociated from reality) and their own objectivity.

Attention has been drawn towards a number of other dimensions of the conventional knowledge of human nutrition. Banerji makes a strong case for inclusion of ecological, epidemiological, sociocultural, historical, economical and political considerations within the body of knowledge of human nutrition<sup>3</sup>. This however has remained a peripheral

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3. Banerji, D. (1988), "The Knowledge of Human Nutrition and the Peoples of the World", Wld. Rev. Nutri.Dietet., vol. 55, p.1-23, Karger Basel.

stream of thought. Thus the growth of the knowledge of human nutrition shows a very specific structuring of the discipline itself. Though slowly changing, it has been dominated by those who funded and patronized research. Majority of the scientists pursued the directions desired by their mentors and rationalised it in the name of objectivity and purity of science. Examples of ideas which have claimed 'scientific objectivity' but are heavily biased are RDA, 'Protein Gap' and 'Adaptation'.

The Recommended Dietary Allowances (RDA) are the ideal statistics arrived at by a body of distinguished scientists to define the normative needs of a population based on 'objective criteria'. The history of the evolution of RDA's shows that subjective biases have been introduced into their formulation. They were fabricated at the time of the Great Economic Depression to plan food supplies for the poor and to avoid social unrest. Later, rations were formulated for troops based on nutritional norms. The reasons was to determine 'Scientifically', minimum quantities that would keep these populations functional. Subsequently norms were revised upwards to provide for optimum health. This led to the evolution of the theory of Protein Gap, a theory which was soon rejected on the basis of researches conducted in India. The over enthusiastic scientists who wanted to prove

that poverty is not a problem, propounded the theory of Nutritional Adaptation. Some even stressed on the need to accumulate knowledge on levels of intake less than the RDA for third world countries<sup>4</sup>. It was also felt that because of increasing population, and because of limits to food production, the huge bulk of the World's population will ultimately be compelled to consume a largely vegetarian diet. Therefore, the FAO/WHO/UNU Expert Committee in 1985 stressed that more attention should be given to the digestibility of protein in a mixed diet and especially in the diets of the people in developing countries<sup>5</sup>. While vegetarian diet was recommended for the poor it is well known that the predilection for meat in the West has in the past diverted high quality cereals from human consumption to feed livestock. Thus, the 'ideal' norms were used for the populations in the West and reduced intakes were recommended for third world populations.

Energy requirements were also revised downwards. Prior to the 1974 World Food Conference, the FAO/WHO adopted a different standard for use in the underdeveloped countries : setting minimal requirements at 1.5 times the BMR (Basal

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4. Walker and Walker (1981), "RDA and Third World populations", AJCN, 14 Oct., pp.2319-21.
  5. FAO/WHO/UNU, (1985), Energy and Protein Requirements, Report of a joint FAO/WHO/UNU Expert Consultation, WHO Tech. Rep. Ser., 724.



Metabolic Rate) allowing for a variation of  $\pm$  20 per cent standard deviation<sup>6</sup>. Their argument was that the total effect of a predominantly young population in a hot country with people of small stature is a markedly lower average nutrient need; per-capita average needs in India are therefore, much lower than averages of advanced countries!

The above demonstrates that nutritional estimates have been much more influenced by the climates of opinion which may have more to do with political pressure or changing social valuation of the acceptability of particular intake levels rather than improvisations based on better scientific knowledge or techniques.

## 2 USE OF SCIENCE

The commercial interests push up RDA to sell more and the political interests push them down especially in the Third World (as has been seen in the case of nutritional adaptation, where undernutrition is infact considered healthy!)

In a democracy, it is 'essential to demonstrate achievements. Standards can be conveniently changed to do so. The Indian Expert Committee first formulated RDA in

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6. FAO/WHO (1973), Report of a joint FAO/WHO Ad Hoc Expert Committee on Energy and Protein requirements, WHO T.R.S., No. 522.

1944, thereafter from 1958 onwards they have been revised every ten years -- i.e. 1968, 1978, 1988. However, recently the frequency seems to have increased. New figures were again given in 1990 after 1988!

Apart from professional biases and political interests, commercial interests also use science. The commercial interests are manifest in the fact that the main donor agencies of Nutrition Foundation of the Food and Nutrition Board of USA are Pepsi Cola, Coca Cola, Quaker Oats Co., Lipton, Penick and Ford India Limited.

The most recent legislation dealing with the Universal Iodisation of common salt has been brought under sharp criticism. Aravindan claims that the cost of this policy would be borne by the consumers while the benefits accrue to the monopolies<sup>7</sup>.

Gopalan<sup>8</sup> and Bang<sup>9</sup> have both expressed reprobation to intensive efforts now being mounted to use synthetic

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7. Aravindan, K.P., (1989), "Science in the Service of Monopolies Universal Salt Iodisation Policy", Eco. Pol. Wkly., July 8, pp. 1543-49.
  8. Gopalan, C., (1990), "Combating vitamin A deficiency : Need for a revised strategy", Prefatory Chapter In Recent Trends in Nutrition, Proceedings of the First International Symposium of the Nutrition Foundation of India, Dec. 5 & 6, 1990.
  9. Bang, A (1991), "Vitamin A and Childhood Mortality. The New Magic Pill", E.P.W., Sept. 21, pp. 2187-89.

vitamin A administration as a solution to reducing childhood mortality.

The food market has brought increasing returns to both national and international commercial interests. Food industry has sold the products of science - protein foods, vitamin and mineral tonics and fortified foods to unsuspecting poor populations least in need of these products by employing 'nutrition education' as a technique of social marketing.

Interest of the national industry is manifest in the fact that a group of business leaders met in mid 1967 to evaluate the industry's responsibility and commercial opportunities in meeting the country's nutrition needs<sup>10</sup> and formed an organisation known as the Protein Food Association of India an organisation composed of 32 business firms and 3 government institutes. This group launched an institutional advertising campaign. It involved all mass media - including a film released to 3,500 cinema houses throughout the

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10. a. "The Protein Emergency", (Ahemedabad : Indian Institute of management), 1967.
- b. "New foods for national development", (Ahemedabad: IIM) 1967.
- c. "The protein crises", (Bombay : Protein Foods Association of India).

country<sup>11</sup>. The aim of these activities was to accelerate the introduction of a series of nutritious foods into the market. By 1972, 27 new products were under development being market tested or being sold.

Further momentum was provided by experimenting beyond conventional boundaries. The new nutrition technology for 'fortification' helped bypass 'stubborn traditional food habits'. Fortification of bread with lysine and atta with vitamins, minerals and protein from groundnut flour<sup>12</sup>, salt with iron and calcium<sup>13</sup>, tea with vitamin A<sup>14</sup>, fortified

11. a. Research and marketing services A prefect outline for the effectiveness of the protein pilot communication programme in Maharashtra, Bombay. Lintas Ltd., for Protein Association of India May 11, 1970.
  - b. Protein Food Association of India, " A Mass Media Nutrition Education Programme: Results of a Pilot Operation and Proposal for Extension and Highlights of Communication Research.
  - c. A movement gains momentum : New Hope for nutrition, (Bombay Protein Foods Association), 1970.
12. P.K. Kymal, "Fortification of Atta" and S.K. Gupta, "Protein Enrichment of Bread" In Protein Fortification of Foods. Proceedings of Seminar at Jadavpur University, Calcutta, Feb. 15-16, 1969, pp. 84-89.
  13. F. James, Levinson and Alan, D. Berg, (1969) "...with a grain of fortified salt", Food Technololgy, September, 1969, pp. 70-72.
  14. a. Research and Marketing Services, "A study of tea as a fortification carrier". Report prepared for US Agency of International Development, USAID, Bombay, May 14, 1970, vol. 1, p.11.
  - b. Clinton, L., Brooke and W.M. Cort, (1972) "Vitamin A fortification of tea", Food Technology, vol. 26, June, 1972, p. 50.

rice<sup>15</sup> and Sago<sup>16</sup> were attempted. Thus items of mass consumption became vehicles for advancing business interests.

The U.S. Grain Corporations had established an international commercial market by selling P.L. 480 to low income countries in their own local currencies. While only one-fifth of the total food shipments were donations, the remaining four-fifths were sold to Third World Governments<sup>17</sup>. Under the Cooley loan provisions, part of P.L. 480, 419 subsidiaries of American commercial firms in thirty one countries established or expanded their operations at very low cost<sup>18</sup>.

The Government has often helped the commercial interests. It smoothens the passage of the 'selling' of the

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15. Mansinghal Associates, "Report on Identifying regions of India Suitable for Introduction of Fortified Rice", Report prepared for USAID, New Delhi, March, 1969, vol.3 and Clinton L. Brooke, "Rice Fortification", In Protein Fortification of foods, pp 70-71.
  16. F. James, Levinson, (1972) Food fortification in low income countries' : A new approach to an old standby Am. J. Pub. Hlth., May 1972, pp. 715-18.
  17. Zurbrigg, S., (1984), Rakku's Story : Structures of Ill health and the source of change, (Sidma Press : Madras), p.221.
  18. Lappe, F.M. and Collins, J. (1975), Food First : Beyond the myth of scarcity, (Houghton Mifflin : Boston), p.331.

'scientific' products to the consumers. The government's response to the interests and initiatives of the national protein industry was positive. Throughout 1969, (just two years after the formation of the Protein Food Association of India) a joint government-industry committee conducted hearing into the problems of the food processing companies with an eye towards meeting industry's needs for food standards, more flexible licensing procedures and possible incentives<sup>19</sup>.

### 3. NUTRITION PROGRAMMES

The epidemiological base of the nutrition programmes was very weak. They only managed to do a repair job at the time of excigencies. They were determined by political pressures and the needs of the scientific and business community and not the 'felt needs' of the people depending on their 'objective reality. A common packet of services designed at the board meeting of an International Organisation or a Scientific institute is uniformly offered to areas as different as Kerala and Uttar Pradesh. Similarly nutrition education programmes were also offered by the UNICEF to many developing countries in the sixties.

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19. R. Balasubramaniam, (1971), Report of the Committee on rational development of food industries. Directorate General of Technical develoment, Government of India.

The programmes were vertical and segmented and dealt with each nutritional problem separately. These short term measures were planned as adjuncts to socio-economic development (long term objective), but the former enlarged to occupy a central space with commercial overtones. They could not generate community awareness and demand for long term change. Infact their centralized, technical and bureaucratic top down approach reduced the whole exercise into a mechanical fulfilling of targets. Community participation could not be elicited even for those which did offer beneficial services to the people like the ICDS or the Anaemia Prophylaxis Programme because of the lack of the sensitivity of the administrators to the social factors.

They were frittered away by the better-off sections. Subbarao has provided evidence to show that existing programmes for nutrition support are poorly matched with the distribution of need. Inability to reach the vulnerable age groups as well as people in the lesser endowed and poor regions has been reported<sup>20</sup>.

Moreover, the nutrition programmes are not Sterile Welfare operations. As has been demonstrated in the previous

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20. Subbarao, K. (1989), "Improving Nutrition in India : Policies and Pprogrammes and their Impact", World Bank Discussion Paper, no.49.

chapter, they catered to certain implicit purposes. There are various actors at the local, regional, national and international levels who gain from these programmes. The use of populist rhetoric perpetuates the status quo. The basic allure of these services is to take the political edge off some of the outstanding social problems that the system as a whole produces without necessitating deep changes in the system itself. They could not even generate self reliance and demand for long-term programmes.

Omawale contends that nutrition programme activity is substantially business in the capitalist world. He has put forth the concept of 'nutribusiness'. This term conceptually links the activities of profit motivated capitalist enterprise to the continuous generation of poverty and hunger. The actors are all part of a hierarchy dominated by multinational corporate interests and including bilateral and multilateral aid agencies, nutrition institutes and nutritional professionals at various levels. Many high level professionals are conscious of their roles which they selfishly perform for personal advancement<sup>21</sup>.

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21. Omawale, (1984), "Nutribusiness : An Aspect of the Political Economy of Persistent Hunger", Int. J. Hlth. Serv., vol.14, no.2, p.173.



The scientific community of the third world is by and large a 'periphery' to the 'centre' which exists in the wealthy countries. Science is the door through which oppressive and unwanted technologies and militarist research penetrate in the Third World with the help of its local elite<sup>22</sup>.

The sociopolitical behaviour of scientists and the science worship of powerful bureaucrats and politicians, therefore deserve harsher scrutiny. The jobs created by the programmes in the various Nutrition cells at State and Central Ministries and DGHS have further entrenched the interests of the bureaucracy.

#### 4. PROBLEMS OF PRODUCTION AND DISTRIBUTION OF FOOD

It has been explicitly argued in Chapter IV as to how the policies relating to food production and distribution (strategies that benefit the poor classes) have been ignored, sabotaged or otherwise suppressed by the powerful i.e. the landlords, rich farmers, industrial lobby and urban interests.

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22. Ibid.

It is because of these forces that measures like land reform remained 'aspirational policies' only and the distributive measures diverted the surplus squeezed out of the toiling agricultural labourers to ensure food security for urban populations. Green revolution led to development of developed regions, and food prices and wages were so adjusted that while on the one hand we see mounting buffer stocks, on the other the calorie availability for vast sections of rural population shows a decline.

All this shows how serious the government was towards the proclaimed long term policies of nutrition and explains why long term nutritional policies got distorted.

The government not only consistently took the side of the rural and urban elite, but also converted the important issue of improving the standard of living of poor population into the secondary issue of population. Population control in fact did a positive harm to the poor. Strategies such as these are practiced to avoid changes in the balance of social and political forces.

The State machinery was employed to unleash different kinds of sophisticated technology on the supposedly irrational proliferating Third World populations. This was done because the phenomenon of increasing population was perceived as the main obstacle to socio-economic development

and as the root cause of poverty, undernutrition and lately also environmental degradation. The historical roots of mass poverty, however, have a colonial heritage. Raychaudhuri has demonstrated that in the case of India, the pre-colonial economy in its normal functioning did not generate large groups of half starving people. The author traces the roots of mass poverty in India, to the new institutional framework of agriculture introduced after 1813 which deprived small holders, both tenants and proprietors, of nearly all their surplus, if it did not actually reduce them to landlessness. Not only the new institutional arrangements, but even the positive developments in agriculture augmented the traditional disparities of India's agrarian society. Thus development of a market for cash crops implied a change in the ratio of non food crops to food crops until, with increases in population the output of foodgrains per head of population declined quite sharply. The all too familiar phenomenon of today's mass poverty was thus already an established fact of life by the time population began to increase at a steady pace. Thereafter, given the pyramidal structure of rural society, there was a concentration of the increasing numbers in the lower rungs, until the very poor accounted for half or more of the rural population<sup>23</sup>.

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23. Raychaudhuri, T., (1985), "Historical Roots of Mass Poverty in South Asia", E.P.W., vol.xx, no.18, May 4, p. 801.

## 5. INTERNATIONAL AID

It is no longer any secret that much of the development aid from the industrialized Western countries has been motivated and shaped by economic and political self interest. Food aid has been used as a means for developing markets, for helping agribusiness, for gaining a strangle hold on the policy decisions of needy governments and for promoting US foreign policy and military goals. But the well being and benefit of the Third World poor has been made to appear as the prime, even sole, motive behind aid activities.

It has been demonstrated that International Aid agencies have only false humane intentions with real business interests<sup>24</sup>. This study showed that CARE which was supposed to be feeding some 10 million Indian school children with free food, has repatriated to USA about US \$ 6 million between 1964-65 and 1979-80. Thus from the role of a voluntary organisation pledged to providing free food aid, CARE imperceptibly changed itself into a business firm with all the privileges enjoyed by a voluntary organisation such as exemption from income tax duties and other financial obligations<sup>25</sup>.

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24. Banerjee, S. (1981), "Food Aid : Charity or Profitable Business", E.P.W., Feb. 7, pp.176-178.

25. Ibid.

Susan George demonstrates how from the first act of food aid, the U.S. has consistently tied its contributions to the needy to the enhancement of its political leverage over other governments and to the expansion of its own commercial markets<sup>26</sup>.

For America, food has been central to its foreign policy since World War-I, when the slogan was 'Food Will Win the War'. In the second World War food was again viewed as a weapon; and America's post war food relief was also simultaneously business and politics. The lion's share of PL 480 food aid went to foreign countries in which the US had a political, economic or military interest<sup>27</sup>.

It is worthwhile to quote Lappe & Collins to demonstrate how the American food aid came into being as an alternative warfare measure along obviously being intended to dispose off American farm surpluses.

"In 1951, India made an emergency request to the United States for grain to stave off famine precipitated by monsoon failure. Since the end of World War-II, India had embargoed

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26. George, Susan (1976), How the Other Half Dies : The Real Reasons of World Hunger, (penguin), pp. 192-213.

27. Shiva, V. (1986), "Geopolitics of Food : America's Use of Food as a Weapon", E.P.W., April 30, p. 881.

exports of monazite sands that contain thorium, used in the production of atomic energy. Now the American government saw that food could give it the leverage to lift the embargo. Congressman Charles J Kersten, Republican of Wisconsin put it bluntly. "In return for the wheat we are asked to give to india, the very least we should ask of India is that it permit the United States to buy some of these strategic materials". The result was the India Emergency Food Act of 1951, which is a direct predecessor of +Public Law (P.L.) 480, passed in 1954 - later called "Food for Peace"<sup>28</sup>.

Food aid served as a political and military weapon in the sixties and seventies. By 1973, the amount of agricultural products shipped under PL 480 dropped to one-fifth the level of the mid sixties. The resale funds were used for military purposes. In 1972 and 1973, 70 per cent of all PL 480 dollars purchased food for the war economies of South Vietnam and Cambodia. In the mid seventies, food was seen as a weapon of counter attack against those under developed countries, the U.S. government feared would model themselves on OPEC, seeking a better deal for their exports of raw materials.

Aid agreements and particular economic programmes offer real benefits to the dominating classes of many Third World

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28. Lappe, F.M., and Collins, J., (1975), op.cit.

countries. Susan George, in her analysis of Global hunger and transnational agribusiness activities, describes in detail the calculated schemes, particularly of the U.S. government, which has systematically worked to build up national elites who are "friendly" towards U.S. interests and political ideology<sup>29</sup>.

Foreign aid actually only patches up the holes of a process of internal exploitation Schuftan has demonstrated that it is the peasants, in the last instance, who continue to foot the bills of development despite the development aid that pours into many countries supposedly to develop these same peasants<sup>30</sup>.

Food aid has thus been used as yet another means of exercising political and economic control over the powerless. Food give aways can never end hunger because they do not even touch the structures which breed hunger and poverty, they only strengthen them and infact undercut the power of the hungry, if any.

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29. George, S. (1976), op. cit.

30. Schuftan, C., (1983), "Foreign Aid and its Role in Maintaining the Exploitation of the Agricultural Sector Evidence from a Case Study - Africa" Int. J. Hlth. Serv., vol.13, no.1, p.33.

## 6. TECHNOLOGY

Technology as a system, has been propelled on the one hand by the communications and information order conditioning the minds of men and on the other by the corporate form of organisation conditioning the behaviour of States. The Green revolution was prescribed by Rockefeller and Ford foundations, as a techno-politic strategy that would create abundance in agricultural societies and reduce the threat of communist insurgency and agrarian conflict<sup>31</sup>. Numerous health and nutrition technologies - GOBI, FFF, food fortification measures have been pushed by International agencies like the WHO, UNICEF, and International drug industries.

This dominion of technology and its pervasive impact on political, economic and security dimensions - each of which has come to become vulnerable to its design - has in turn produced a massive erosion of the ecological basis of human civilisation, destroying the resource base of the people and especially of the millions of rural and tribal and 'ethnic' poor who have not just been made into surplus and therefore dispensable populations by the aggressive march of high tech capitalism but whose traditional access to natural resources and non commercial produce has also been taken away from

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31. Shiva, Vandana, (1988), op. cit.



them. The recent mass starvations, the selling of human beings and migrations of people of Kalahandi are an outcome of the dispossession of the local population of the district from access to natural resources - land, water and forest<sup>32</sup>.

Poverty and marginalisation and destitution - and slow death have infact become integral parts of the advance of the system of technology and of modern civilisation.

As a result of the above stated processes and the thoughtless destruction of resources for the commercial interests of a small section, the basis of the economy has been gradually destroyed and the result is that the country has to go in for structural transformation wherein it losses its self reliance and becomes more and more an appendage of a global system which is even more callous in looking after the interest of the poor.

Lately the market has been given full play to competition, to modernisation, to technology and to the great catalyts of all namely transnational corporate giants<sup>33</sup>.

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32. Mishra, D., Rao, R.S., (1992), "Hunger in Kalahandi : Blinkered Understanding", E.P.W., June 13-20, pp. 1245.

33. Kothari, Rajni, (1986), op. cit.

This is a doctrine promulgated by the state itself or the new bearers of power in it. The idea is to drastically reduce the states responsibility towards distribution of resources and welfare activities on the one hand and on the other hand to use State power for promoting new technologies and the dual economy that goes with them. Clearly it would lead to more specialised and sophisticated products and technologies to be thrust upon the poor populations along with a complete monopolization of the market by large corporate businesses.

It appears that the debt ridden developing world has little control over the prices of raw materials, imports and exports. The latest UNICEF report states that the world prices for raw materials, on which so many developing countries are dependent, remain at their lowest levels since the depression of the 1930s. Also, the industrialized world, which so enthusiastically urges free market policies on the developing world, protects its own producers by surrounding itself with tariffs, quotas, and subsidies which effectively close the rich world's markets to a whole range of possible exports from the developing world<sup>34</sup>. So that in effect, it becomes a one way traffic. Estimates of the cost of such

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34. UNICEF, (1992), The State of the World's Children, (OUP: New Delhi), pp.40-41.

protectionism to the developing world vary widely, but the total is not less than \$55 billion a year<sup>35</sup> - more than all the aid received<sup>36</sup>.

Along with a full control of market, the industrialised world also receives financial resources of the order of \$ 40 to \$50 billion a year on account of the debt crisis<sup>37</sup>.

When the elite of the third world makes a direct jump to high technology without having gone through the dynamics of capitalist growth, and when it allows the military, the tourist, the television and the computer full play, obviously welfare goes out. As a consequence of these factors - the greed of the classes, particularly under the impact of modern consumerism, the catching up with modern technology, the drive towards a hard and efficient and militarised state, and above all, the growing faith in market economies, there is a collapse of Welfare State and of those components of development that were directed to the amelioration and welfare of the under-privileged.<sup>38</sup>

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35. World Bank, (1991), Annual Report, (World Bank : Washington DC).

36. UNICEF, (1992), op. cit.

37. Ibid.

38. Kothari, Rajni, (1986).

Our analysis, therefore, focuses upon the present contradiction existing between a situation where the ruling classes on the one hand, are pushing for a free market economy at the cost of the subsistence needs of a majority of the poor and on the other also need the support of the same people. This brings out the essential political nature of all welfare programmes including nutrition programmes and policies.

# *SUMMARY*

## SUMMARY

This work is based on review of secondary material such as, government documents, research papers, NSS and NNMB data and review articles. An analysis of these sources reveals certain interesting trends and a few critical gaps. A summary of these is presented below.

A historical understanding of hunger highlights the fact that both famines and endemic deprivation - the two forms of hunger stem from poverty and inequality. An attempt is made to demonstrate that the roots of hunger are social economic and political. These socio-economic and political factors also create ecological imbalances which add to hunger and under nutrition.

The growth of the science of nutrition in India occurred along two broad lines. The clinical approach of the industrialised West had by the middle of the twentieth century, developed high scientific sophistication. This approach was seen in conjunction with the public health nutrition approach of the post World War II period.

Both the above approaches focused on different nutritional problems and also different aspects of the same problem. The clinical approach brought out the scientific theories of 'Protein Gap' and 'Adaptation'. These along with

the theory of over-population and the debate on poverty line tried to camouflage the real nutritional problem. However, the epidemiological approach was used to refute these and the real problem of basic deficiency of food available to the poor populations was highlighted.

Epidemiological insights into hunger reveal that over the past few decades, acute hunger and its severe manifestations have declined. Whereas considerable chronic hunger and morbidity due to interrelated infections and infestations and poor maternal and child health remains.

It is observed that nutritional problems cannot be seen as isolated problems, but these single nutrient deficiencies of Iron, Vitamin A and Iodine are related to energy and protein intakes and the total level of living.

This study shows that nutrient consumption and consequent nutritional status is related to landholding, socio-economic class, seasonal changes in rural employment, per capita production of foodgrains, cereal consumption, purchasing power and price of cereals.

The NNMB data draws attention to declining food availability for vast sections of rural population. The availability of calories for the non agricultural labourers, cultivators, and other working classes has actually

deteriorated. But for the marginal landless labourers it has improved inspite of the fact that it is much below the recommended norm. Thus the system manages to keep large sections alive but hungry without actually giving them enough to eat.

Though socio-political structures still create ecological imbalances and droughts as well as famines, both famines and severe malnutrition have considerably diminished in recent times. The political need of the Indian ruling classes does not permit a major famine and when a serious famine threatens intervention is swift.

The structure of the society and polity, however, permits endemic hunger, ill health and mass poverty as long as they happen quietly. It permits the injustice of keeping a large majority of the people illiterate, and half fed while the elite enjoy all possible benefits that the system can offer. This fact is reinforced by the nature of the interventionist welfare approaches.

The conceptualisation as well as the implementation of nutrition programmes was meant to bring temporary relief to a small number. These reductionist, technology dependent, vertical approaches were beset with problems of conceptualisation and operation, coverage of the vulnerable groups, resource allocation, inadequate community



mobilization, improper integration with relevant and mutually reinforcing health and economic sectors. The benefits often accrued to the better off sections in well endowed regions.

The nutrition programmes served an important political function. The 'welfare dole' helped in buying both peace and votes.

The last chapter highlights a complex dynamics of national and international, commercial, bureaucratic, professional, economic and political interests which permeate nutrition programmes and policies.

What is needed for making an impact on the problem of malnutrition is a different kind of planning - one that would employ a multisectoral approach within the confines of an ideological commitment to structural change and a frontal attack on poverty.

It is obvious that this is highly unlikely in the present set up. Unless either the political commitment alters or the societal balances.

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