



GOVERNMENT OF KERALA

Abstract

Social Justice Department - State Nutrition Policy - Approved - orders issued



SOCIAL JUSTICE (B) DEPARTMENT

G.O.(Ms) No. 08/2014/SJD

Dated. Thiruvananthapuram, 04.02.2014

Read: Letter No.ICDS/B3/33397/11 dated 3.1.2014 from the Director, Social Justice Department, Thiruvananthapuram.

001464

ORDER

As per the letter read above, the Director of Social Justice has submitted a Draft Nutrition Policy of the State, with the technical support of UNICEF and incorporating the comments/views of the experts in the field, with a view to eradicate malnutrition and achieve nutrition for all.

Government have examined the matter in detail and are pleased to approve the nutrition policy of the State as appended to this order.

By order of the Governor,
Dr.K.M.Abraham,
Additional Chief Secretary

To

- The Director of Social Justice, Thiruvananthapuram.
- The Principal Accountant General (Audit), Kerala, Thiruvananthapuram.
- The Accountant General (A&E), Kerala, Thiruvananthapuram.
- The Accountant General (DB Cell), Kerala, Thiruvananthapuram.
- Health and Family Welfare Department.
- Food and Civil Supplies Department
- Local Self Government Department
- General Education Department
- General Administration (SC) Department.
- Web and New Media(for publishing in the web site)
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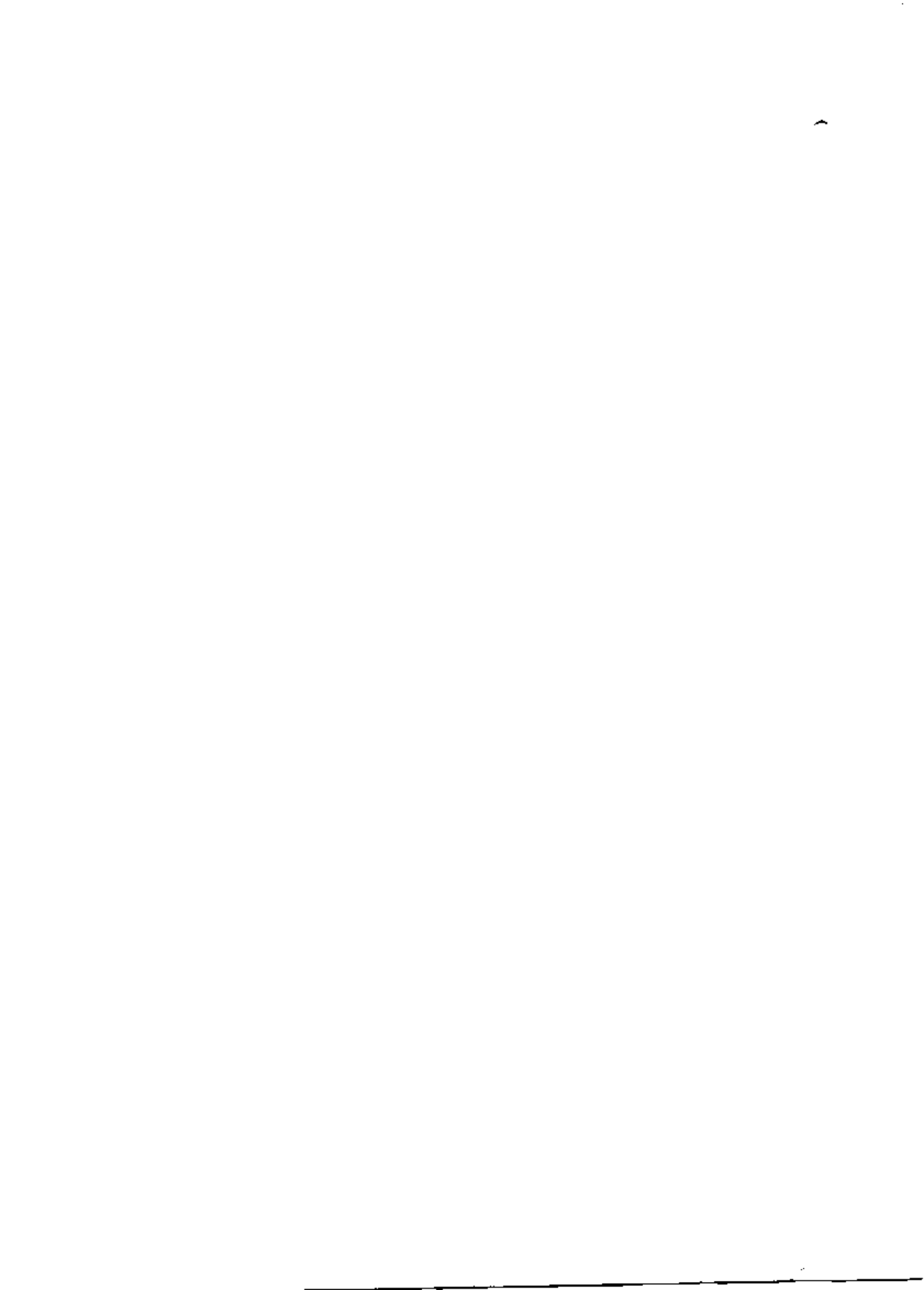
Section Officer

പുറത്തേഴുത്ത് കത്ത് നം: ICDS/B3-33397/11 തീയതി:2/3/14

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[Signature]
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STATE NUTRITION POLICY

SOCIAL JUSTICE DEPARTMENT

GOVERNMENT OF KERALA



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(2)

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ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ASHA	Accredited Social Health Activist
BCC	Behaviour Change Communication
BFHI	Baby Friendly Hospital Initiative
BMI	Body Mass Index
CADI	Coronary Artery Disease among Asian Indians
CSO	Central Statistical Organization
ECCD	Early Childhood Care and Development
FOGCI	Federation of Obstetrics and Gynaecology Societies of India
HT	Hypertension
HIV	Human Immunodeficiency Virus
IAP	Indian Academy of Pediatrics
ICDS	Integrated Child Development Services
IEC	Information, Education and Communication
IFA	Iron and Folic Acid
IMA	Indian Medical Association
IYCF	Infant and Young Child Feeding
LBW	Low Birth Weight
LSGI	Local Self Government Institution
MDMS	Mid Day Meal Scheme
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
NFHS	National Family Health Survey
NGO	Non-Governmental Organizations
NNMB	National Nutrition Monitoring Bureau
NNP	National Nutrition Policy
NRHM	National Rural Health Mission
NSSO	National Sample Survey Organization
OBC	Other Backward Class
ORS	Oral Rehydration Salt
ORT	Oral Rehydration Therapy
PEM	Protein Energy Malnutrition
RDA	Recommended Dietary Allowance
RSEK	Rashtriya Bal Swasthya Karyakram

RUTF	Ready-to-use therapeutic food
SAM	Sever Acute Malnutrition
SC	Scheduled Caste
SHP	School Health Programs
ST	Scheduled Tribes
TB	Tuberculosis
VHND	Village Health & Nutrition Days
WHO	World Health Organization

EXECUTIVE SUMMARY

Vision

To build a healthy state by intervention in nutrition for holistic development of nutritional status of the people in a life cycle approach

Kerala is a role model in development with impressive health and developmental indicators. However, two critical areas deserve immediate attention: one, higher burden of malnutrition (both under- and over-nutrition) and two, increasing burden of overweight and obesity in the state. For instance, despite considerable economic development in the last two decades the prevalence of underweight among children (below 3 years) has increased from 27% in 1992-93 to 29% in 2005-06. Similarly, the proportion of women who are overweight or obese has increased from 21% in 1998-99 to 34% in 2005-06.

Nutritional status not only reveals the current health conditions among the population but is also a good indicator of health status of the future generation. The Government of Kerala recognizes such relevance of nutritional health in overall individual and social well-being and given the state of affairs, the Government is committed to promote nutritional health through strategies based on inter-sectoral convergence and community participation. The nutritional policy entails life-cycle approach as a fundamental framework to improve health across all phases of human life.

The major nutrition problems of Kerala can be classified into a) undernutrition and anaemia b) overweight and obesity and c) dietary- and nutritional- disorders among adult and elderly. A disproportionate burden of these problems is however borne by vulnerable groups including elderly, women and children, tribal population, HIV positive individuals and those from poor and low income households especially casual and migrant labour.

To control these problems and with the year 2010 as the base year, the nutrition policy aims to achieve the following targets by 2025:

- Reduce by one-half the prevalence of underweight among children and adults
- Reduce by one-half the prevalence of anaemia among women and children

- Reduce by one-half the low birth weight cases
- Eliminate iodine deficiency and vitamin-A deficiency and disorders
- Universal access to treatment for malnourished women and sick children
- Reduce by one-half the prevalence of post-partum obesity and adult obesity
- Increase the per capita consumption of fruits and vegetables by 25 percent
- Reduce by two-third the prevalence of underweight and anaemia in SC and ST population
- Halt the increase in prevalence of diabetes and cardiovascular diseases

The nutritional programme would emphasize on first 1000 days of child's life with support from innovative and evidence-based nutritional strategies such as baby-friendly hospital initiative (BFHI), ready-to-use therapeutic food (RUTF), early childhood care and development (ECCD) programmes. Implementation of school health programmes (SHP) including mid day meal scheme and promoting healthy nutrition practices along with strengthening of the activities of nutritional supplementation, education and counseling is aimed to improve maternal and reproductive health.

Greater inter-sectoral collaboration would improve the economic and social welfare of the elderly population in Kerala. This can further ensure higher enrolment of elderly in social welfare schemes to support those who are either not working or are working in low paid informal sector with no pension or retirement benefits. Also, progress towards universal health care coverage by providing preventive, curative and rehabilitative services to elderly persons can foster healthy and active ageing.

This approach would be supplemented by efforts to establish a network of local governmental and non-governmental organizations to promote nutritional health among vulnerable subgroups including scheduled castes, scheduled tribes and migrant population. Provision of food and nutritional security to HIV +ve individuals and households is a priority concern of the state nutrition policy as nutrition is one of the core components to improve resistance against the disease.

In a federal set-up, State Governments have a fundamental role in the implementation of nutritional policies and programmes. In this regard, the formal structure for State level implementation of nutrition policy and programmes shall consist of an apex State level nutrition council to be chaired by the Chief Minister and an Executive Committee to be headed by the Minister for Social Justice.

The members of the Executive Committee should consist of secretaries of other relevant departments, nutrition experts and representatives of related professional bodies including representatives of leading NGOs and research organizations. The Apex body can be aided by inter-departmental coordinating committee, special working groups and local level nutrition councils. Research institutions and industry should be encouraged for applied research directed towards the improving the scientific and technological knowledge base against which food, nutrition and health problems can be resolved, giving priority to research concerning disadvantaged and vulnerable groups.

Regular monitoring and evaluation of nutritional health programmes and policies is necessary to guide and revise nutritional strategies. Therefore, it is critical that the Government of Kerala establishes its own monitoring and evaluation system and conducts regular household and community based surveys to assess nutritional status of the population. District coordination committees, in cooperation with local self government institutions, NGOs and the private sector, should prepare periodic reports on the implementation of plans of actions, with clear indications of how vulnerable groups are faring. Monitoring of nutritional status of mainstream population will also be strengthened. In this regard, regional and international collaboration is encouraged to establish food and nutrition health surveillance and early warning activities.

This nutrition policy based on a life cycle approach comprises of effective nutrition interventions and implementation design including communication and social mobilization for bringing a change in nutritional health. The implementation of nutrition policy would have a positive impact on the various key indicators of nutrition which will be reflected in terms of reduced prevalence of undernutrition and overnutrition and also promote healthy ageing. Overall, these policies and programmes can effectively enhance the universal respect for human rights, including rights to adequate food, health, care and quality of life.

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GOVERNMENT OF KERALA

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1. INTRODUCTION

1.1 SCOPE OF NUTRITION POLICY

Nutritional status of the population is one of the major concerns among policy makers, academicians and nations at large. Nutritional deprivation restricts the capability of the individual to flourish and function and renders unfavourable impact on the overall socio-economic and human development of the society. Nutritional status not only reveals the current health conditions among the population but is also a good indicator of health status of the future generation. These indicators are linked with various social determinants of health and help to describe the health status of different population subgroups.

The quality of nutritional intake is a critical determinant of an individual's ability to cope with environmental stress and infections. In fact, the undernutrition-infection complex has been well documented in the clinical literature suggesting that poor nutritional health accounts for more illness and loss of life than any other health risk. Also, it is clinically and empirically established that undernourished children are at high risks of morbidity and mortality and can also suffer from poor cognitive skills and intellectual achievement thus reducing their overall capability.

The Government of Kerala recognizes the relevance of nutritional health in overall individual and social well-being, and has been formulating nutritional policy to improve nutritional health of all the population subgroups. Specifically, the nutrition policy advocates regular monitoring of nutritional status of the population and sensitizing government on the need for good nutrition and prevention of malnutrition defined as both undernutrition as well as overnutrition. The nutritional policy entails life-cycle approach as a strategy to interrupt intergenerational transfer of malnutrition.

The life-cycle approach calls for clear recognition of all the socio-biological phases in human life i.e. from infancy to old age, followed by identification of nutritional requirements and policy mechanisms to improve nutritional health across all phases of human life. As such nutrition requirements and challenges vary throughout the lifecycle of an individual. Nevertheless, adequate nutrition for children, adolescents and pregnant women assumes significance for its implications on physical and mental growth and its role in averting health problems and costs in

future. Moreover, malnutrition prevention strategies among mothers and children have far-reaching welfare consequences and benefit several generations.

The National Nutrition Policy

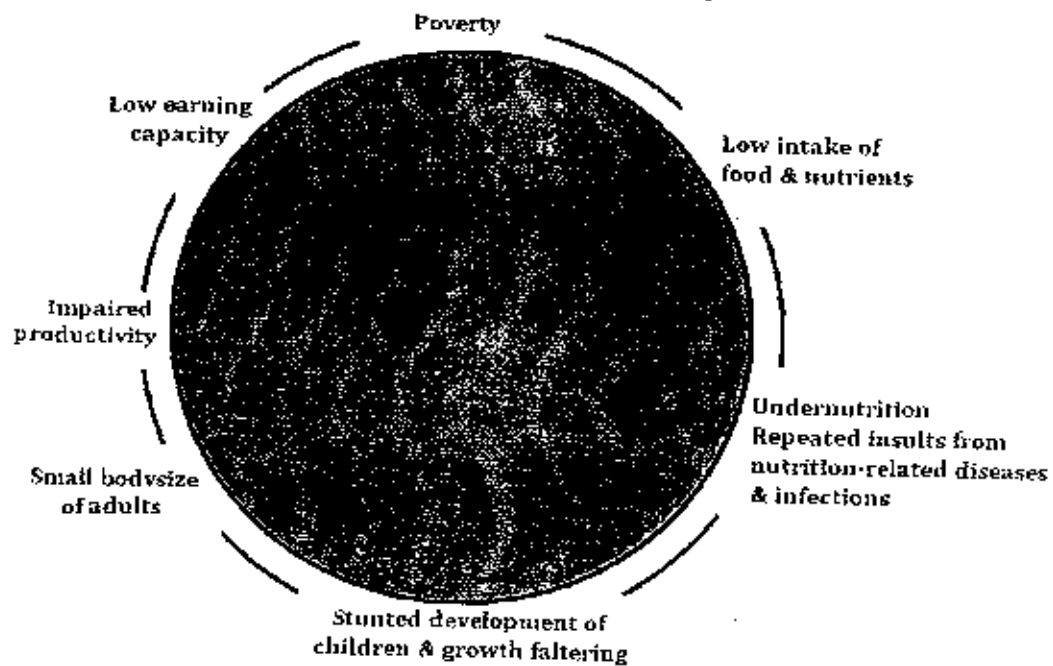
The Government of India formulated the National Nutrition Policy (NNP) in 1993. The NNP was adopted under the aegis of the Department of Women and Child Development. The NNP recognizes undernutrition as the 'single biggest scourge' and highlights its detrimental impact in terms of reduced work capacity and productivity amongst adults and higher mortality and morbidity amongst children.

The NNP further emphasizes that such reduced productivity translates into reduced earning capacity, leading to further poverty, and the vicious cycle goes on. Figure 1 presented here replicates the operation of the vicious cycle as described in the NNP 1993. Here the emphasis is laid on poverty that enforces nutritional deprivation via low dietary intake and increased vulnerability to infections and other nutrition-related diseases.

This figure also highlights the detrimental impact of stunted development and cumulative growth failures on income and well-being. In particular, the figure underscores the fact that undernutrition can lead to impaired productivity which can lead to low earning capacity and consequently lead to persisting poverty and undernutrition.

Figure 1: The vicious cycle of poverty, National Nutrition Policy 1993

The Vicious Cycle of Poverty



Source: National Nutrition Policy (India), 1993

The NNP 1993 classifies the major nutrition problems of India as follows:

1. Under-nutrition resulting in:
 - a. Protein Energy Malnutrition (PEM)
 - b. Iron deficiency
 - c. Iodine deficiency
 - d. Vitamin-A deficiency
 - e. Low birth weight children
2. Seasonal dimensions of nutrition
3. Natural calamities and the landless
4. Market distortion and disinformation
5. Urbanization
6. Special nutritional problems of hill people, industrial workers, migrant workers, and other special categories
7. Problems of overnutrition, overweight and obesity for a small section of urban population

Further, the NNP observes that despite massive improvements in food-grain production, persistent endemic malnutrition and ill health resulting from malnutrition continue to stalk the country. It emphasizes that increased food production does not by itself necessarily ensure nutrition for all and, in fact, it is this stark reality that motivates the need for a nutrition policy.

The NNP 1993 recognizes that nutrition is a multi-sectoral issue and shares a bidirectional causal relationship with development. Hence, both direct (short-term interventions) and indirect (long-term development policy) measures were identified to create conditions for improved nutrition. The major highlights of these interventions are reported in Table 1.

Table 1: Direct and Indirect Interventions, National Nutrition Policy 1993

Direct (short-term) interventions	Indirect (long-term policy) interventions
1. Nutrition intervention for specially vulnerable groups	1. Food security
2. Expanding the safety net for children – proper implementation of universal immunization, oral rehydration, ICDS and Mid Day Meal scheme	2. Improving dietary pattern
3. Growth monitoring in 0-5 year age group	3. Improving purchasing power of rural and urban poor by public food distribution system
4. Ensuring proper nutrition of target groups	4. Nutrition education
5. Nutrition of adolescent girls to enable them attain safe motherhood	5. Land reforms
6. Nutrition of pregnant women to decrease incidence of low birth weight	6. Prevention of food adulteration
7. Food fortification	7. Nutritional surveillance
8. Popularization of low cost nutritious food	8. Health and Family welfare Research
9. Control of micro-nutrient deficiency in vulnerable group	9. Minimum wage administration
	10. Communication

11. Community participation
12. Equal remuneration for women
13. Improvement of literacy, especially for women
14. Improving the status of women

Source: National Nutrition Policy (India), 1993

The NNP explicitly highlights the role of state governments in 'successful actualization' of the nutrition policy. It suggests the states to follow the formal administrative structure as developed by the Government of India. Identifying the plurality of the challenges, the NNP calls for greater inter-sectoral convergence with involvement of all stakeholders including state government, local government institutions, non-governmental organizations (NGOs), cooperatives and other professional organizations. The NNP lays emphasis that each Indian state has its characteristic problems, priorities, approaches and resources, and therefore formulation of state level nutrition policies is suggested and encouraged. These issues are discussed in the next section on the role of state government in promoting health and nutrition.

1.3. NUTRITIONAL PROBLEM, CAUSES AND CONSEQUENCES: A SUMMARY

Nutritional Problem	Causes	Consequences
Protein Energy Malnutrition PEM (Children)	<ul style="list-style-type: none"> • Inappropriate breastfeeding • Inadequate complementary feeding practices • Insufficient health services (Growth monitoring and counseling) • Low birth weight • Infectious diseases • Inadequate energy intake 	<ul style="list-style-type: none"> • Failing to grow (underweight, stunted, and wasted) • Reduced learning ability • Reduced resistance and immunity against infection • Reduced productivity in the future
Protein Energy Malnutrition PEM (Women)	<ul style="list-style-type: none"> • Inadequate energy intake • Inadequate knowledge and practice of maternal feeding • Heavy physical workload • Lack of extra food intake during 	<ul style="list-style-type: none"> • Low birth weight • Increased risk of maternal mortality and morbidity • Reduced productivity

	pregnancy and lactation	
Iron deficiency/Anaemia	<ul style="list-style-type: none"> • Inadequate intake of iron from daily diets • Inadequate absorption of dietary iron • Infestations such as hookworms and malaria • High requirements of iron particularly during growth and pregnancy • Blood loss (menstruation, injury) • Vitamin A deficiency 	<ul style="list-style-type: none"> • Impaired human function at all stages of life • Impaired work performances, endurance and productivity • Increased risk of maternal morbidity and mortality • Increased risk of sickness and death for the baby
Iodine deficiency disorders	<ul style="list-style-type: none"> • Lack of iodine in food 	<ul style="list-style-type: none"> • Cretinism, Goitre • Impaired cognitive function • Increased prenatal morbidity and mortality • Reduced productivity
Vitamin A deficiency	<ul style="list-style-type: none"> • Low intake of Vitamin A from daily diets • Restricted Vitamin A absorption • Worm infestation 	<ul style="list-style-type: none"> • Xerophthalmia (Night blindness, Bitot's spot, corneal ulcer, Keratomalacia, xerosis) • Increased risk of morbidity and mortality • Increased risk of anaemia
Low birth weight (LBW)	<ul style="list-style-type: none"> • Small maternal size at conception (low weight and short stature) • Low gestational weight gain • Maternal anaemia • Maternal malnutrition • Premature delivery • Early pregnancy 	<ul style="list-style-type: none"> • Increased mortality and morbidity • Increased risk of stunting • Poor neurodevelopment • Reduced strength and work capacity • Increased risk of chronic diseases
Lifestyle related diseases	<ul style="list-style-type: none"> • Unbalanced food intake • Insufficient practice of healthy lifestyle (tobacco use, alcohol, lack of exercise, etc) • Childhood malnutrition and obesity • Mental stress 	<ul style="list-style-type: none"> • Increased mortality • Reduced quality of life • Reduced productivity

Source: National Nutrition Policy and Strategy (2004), Nutrition Section, CHD, MoH&P, Govt. of Nepal

2. ROLE OF STATE GOVERNMENT IN NUTRITION POLICY

In a federal set-up, State Governments have a fundamental role in implementation of nutritional policies and programmes. Active involvement of state government is a prerequisite which should be supported by substantive and systematic information on the magnitude and dimensions of nutritional health. In this regard, state government should sensitize the various stakeholders about multidimensional nature of malnutrition and should adopt a strategy of inter-sectoral convergence with community participation to implement nutrition policy. Such an approach both enriches our understanding of the problem and presumes practical relevance while implementing nutrition policy.

In this regard, major recommendations of the NNP 1993 are described as follows:

- **Apex State Level Nutrition Council:** The formal structure for State level implementation of nutrition policy and programmes should be similar to that of the Government of India. In particular, there should be an apex State level nutrition council to be chaired by the Chief Minister and an Executive Committee to be headed by Minister for Social Justice with Secretary Social Justice as the convener, and comprising Secretaries of other departments like Health, Food, Local Self Government and Agriculture. The members should be nutrition experts and representatives of related professional bodies like Indian Academy of Pediatrics (IAP), Indian Medical Association (IMA), Federation of Obstetrics and Gynaecology Societies of India (FOGCI), Nutrition Society of India and representatives of leading NGOs and welfare organizations Kudumbashree, working in the state.
- **Inter-departmental Coordination Committee:** There should be an Inter-Departmental Coordination Committee (IDCC) to function under the Chief Secretary which will coordinate, oversee and monitor the implementation of the National Nutrition Policy. The Committee would also focus on the State level targets for the various nutrition-related, indicators based targets set under the National and State Nutrition Policies. The Secretary of the Department of Social Justice should be the Convener of this Committee.
- **Special Working Groups:** Special working groups should be set up in the Departments of Agriculture, Local Self government, Health, Education, Food and Civil Supplies, Social Justice,

Agriculture, Animal Husbandry and Dairy Department, Water Authority, Education Department, Scheduled Tribe Development Department, Scheduled Caste Development Department, Food Safety Commissionerate will be responsible for getting the various sectoral schemes from the point of view of nutrition before they are finalized.

- **Co-ordination Committees & Nutrition Councils:** The State Governments may constitute Co-ordination Committees and Nutrition Councils at both state and district levels. The state co-ordination committee can be composed of the Chairman, Vice-Chairman, Member Secretary, Convener, Joint Convener and members from departments like Social Justice, Health and Family Welfare, Food and Civil Supplies, Kudumbashree, Local Self Government and NGOs. This committee can also control the delivery cost of various nutrition interventions and aim to mobilize resources to ensure sustainability of nutritional interventions. Similar approach can be adopted at district level for implementing the state nutrition policy. Representation from Anganwadi and Local Self Government Institutions may be ensured in these committees to improve coordination of various components of the interventions and support Local Self Governments to effectively implement the state nutrition policy at grass root level.

3. NUTRITIONAL STATUS OF KERALA: A REVIEW

3.1. DATA ON NUTRITIONAL STATUS OF KERALA

Despite identification of the need for regular monitoring and evaluation of nutritional health programmes and policies it is worrisome to note critical shortage data for timely and systematic performance assessment of the state and to understand the inequalities in the distribution of nutritional health. It may be emphasized that much of the evidence on nutritional status of Kerala is available through nationwide large scale sample surveys such as National Family Health Survey, NFHS (conducted in 1992-93, 1998-99 & 2005-06) and National Sample Survey on Consumer Expenditure conducted quinquennially by the Central Statistical Organisation (CSO). These sources can provide only a state-level picture for Kerala and may not be very useful to understand intra-state inequalities in nutritional deprivation. However, some indirect information on nutritional status across various districts of Kerala can also be obtained from District Level Health Survey (2007-08) conducted by International Institute for Population Sciences with support from Ministry of Health and Family Welfare. Given the current state of affairs it is therefore critical that

- Kerala should establish its own monitoring and evaluation system and conduct regular surveys to assess nutritional status of the population.

3.2. NUTRITIONAL STATUS INDICATORS FOR KERALA: SOME EVIDENCE

3.2.1. Calorie consumption and dietary intake

- Table 2 shows that over 80% of households in rural Kerala have calorie intake lower than the prescribed daily consumption value of 2400 Kcal. This proportion has marginally increased during the last two decades. It is observed that the proportion of households consuming less than 1800 Kcal has also increased during this period from 44% to 46%.
- Percentage of households consuming between 2400-3000 Kcal has declined during the last two decades in rural Kerala whereas proportion of households consuming over 3000 Kcal had increased during 1990s and early 2000s to around eight percent. However, this proportion has shown a two percent decline by 2010.
- When compared with rural India it is noted that a greater proportion of households in rural Kerala face acute calorie deprivation (below 1800 Kcal). Similarly, a higher percentage of households in rural Kerala have a tendency for over-consumption (above 3000 Kcal) whereas the similar proportion has declined significantly at the national level.

Table 2: Calorie distribution of households (in %) in rural Kerala & rural India

Rural Kerala	Below 1800 Kcal	Below 2200 Kcal	Below 2400 Kcal	2400 - 3000 Kcal	Above 3000 Kcal
1993-94	44.4	71.4	80.1	13.3	6.6
2004-05	45.1	72.3	79.6	12.4	8.0
2009-10	46.1	74.7	83.1	10.9	6.0
Rural India	Below 1800 Kcal	Below 2200 Kcal	Below 2400 Kcal	2400 - 3000 Kcal	Above 3000 Kcal
1993-94	31.5	60	71.5	19.2	9.3
2004-05	36.8	68.6	79.8	15.1	5.1
2009-10	35.3	69.4	81.2	14.9	3.9

Source: Consumer Expenditure Survey, National Sample Survey Organization (various years)

- Table 3 unravels huge disparities in per capita calorie consumption across poorest 20% and richest 20% households in rural Kerala. As indicated by the ratio of per capita calorie

consumption between highest 20% to lowest 20%, the individuals in the lower income categories are able to consume only around 1100 Kcal daily which is very low than the stipulated guidelines and suggests chronic hunger and undernutrition among the poorest households in rural Kerala.

- The situation of rural Kerala is rather worrisome as calorie consumption by this subgroup is significantly lower than the national average which also falls short of the specified guidelines. Moreover, inequalities in Kerala are much higher than the national level. It is also disconcerting to note that the situation has not improved in the last two decades despite witnessing significant economic growth and programme interventions.

Table 3: Per capita calorie consumption by richest and poorest 20% households

	Rural Kerala			Rural India		
	Poorest 20%	Richest 20%	Ratio (R/P)	Poorest 20%	Richest 20%	Ratio (R/P)
1993-94	1107	2400	2.2	1596	2799	1.8
2004-05	1093	2340	2.1	1580	2583	1.6
2009-10	1126	2259	2.0	1628	2472	1.5

Source: Consumer Expenditure Survey, National Sample Survey Organization (various years)

- As per the National Nutrition Monitoring Bureau (NNMB) Survey conducted in the year 2002, cereals and millets formed the bulk of dietaries in all states. The intake of cereals was adequate to meet the recommended dietary allowance (RDA) in most of the states. Importantly, cereal intake was found to be the lowest in Kerala. The intake of pulses in Kerala was being less than 50% of the RDA. The intake of green leafy vegetables is considerably lower than the RDA. The intake of other vegetables is not below the RDA in Kerala. Intake of roots and tubers was highest in Kerala. However, the intake of milk was less than the recommended level of 150 ml.

3.2.2. Nutritional status of mothers and children

- Table 4 reports some key indicators on nutritional status of mothers and children in Kerala. This information is obtained from National Family Health Surveys for various years and the major inferences are as follows:

Breastfeeding is nearly universal in Kerala, but less than half of the children begin breastfeeding immediately after birth and only 43 percent in the first hour. However, 92 percent children begin breastfeeding within the first day. More than two-thirds of children under four months of age are exclusively breastfed. The median duration of breastfeeding is 24.5 months and the median duration of exclusive breastfeeding is 2 to 8 months. At age 6 to 9 months, all children should be receiving solid or mushy food in addition to breast milk. However, only 74 percent of children at age 6 to 9 months receive the recommended combination of breast milk and solid/mushy foods.

- Anaemia is a major health problem in Kerala, especially among women and children. Anaemia can result in maternal mortality, weakness, diminished physical and mental capacity, increased morbidity from infectious diseases, perinatal mortality, premature delivery, low birth weight, and (in children) impaired cognitive performance, motor development, and scholastic achievement. Among children between 6 and 59 months of age, 45 percent are anaemic. This includes 24 percent who are mildly anaemic, 21 percent who are moderately anaemic, and 1 percent who suffer from severe anaemia. Boys and girls are equally likely to have anaemia.
- Prevalence of anaemia is widespread and has increased among both women and children. Among children of 6-35 months age, the prevalence of anaemia has risen by 12 percentage points from 44 percent in NFHS-2. Similarly, among ever married women, the prevalence of anaemia is 10 percentage points higher in NFHS-3 (33%) than it was in NFHS-2 (23%).
- About one in twelve men aged 15-49 years (8%) in Kerala are anaemic, with men under age 20 years being more likely to suffer from anaemia than older men. Men belonging to the scheduled castes and to the other backward classes and men with less than five years of schooling are more likely to be anaemic than other men.

Table 4: Maternal and child nutritional status in Kerala, 1992-93 to 2005-06

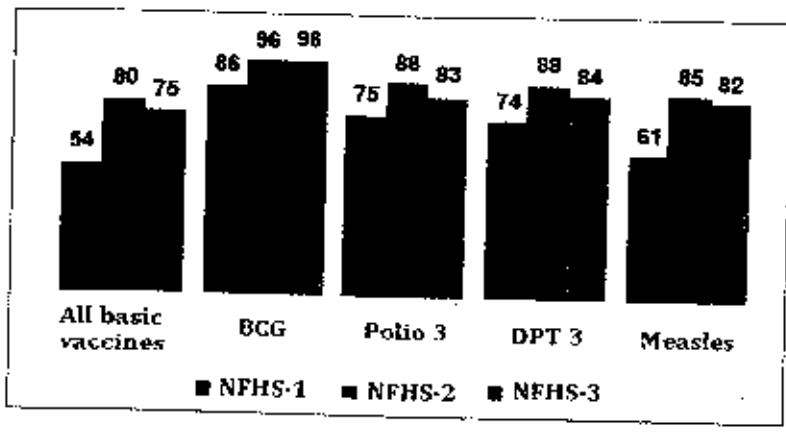
Key Nutritional Status Indicators	NFHS-1	NFHS-2	NFHS-3
	1992-1993	1998-1999	2005-2006
a) Children breastfed within 1 hour of birth (%)	14.2	42.9	55.4
b) Children age 0-5 months exclusively breastfed (%)	NA	NA	56.2
c) Children age 6-9 months receiving solid or semi-	NA	NA	93.6

-	solid food and breast milk (%)			
d)	Children under 3 years who are stunted (%)	25.2	21.9	21.1
e)	Children under 3 years who are wasted (%)	12.8	11.1	16.1
f)	Children under 3 years who are underweight (%)	27.0	26.9	28.8
g)	Women whose Body Mass Index is below normal (%)	NA	18.7	12.5
h)	Men whose Body Mass Index is below normal (%)	NA	NA	11.9
i)	Women who are overweight or obese (%)	NA	20.6	34.0
j)	Men who are overweight or obese (%)	NA	NA	24.3
k)	Children age 6-35 months who are anaemic (%)	NA	43.9	55.7
l)	Ever-married women age 15-49 who are anaemic (%)	NA	22.7	32.3
m)	Pregnant women age 15-49 who are anaemic (%)	NA	20.3	33.1
n)	Ever-married men age 15-49 who are anaemic (%)	NA	NA	7.1

Source: National Family Health Surveys, NFHS (various years)

- Special focus should be for Vitamin A status of preschool children & pregnant women. Vitamin A deficiency is common among children and the poor in the country which is a public health problem leading to blindness. According to NNMB report only 20 % of 1 - 5 year children have normal serum vitamin A concentration (20 mg/dl). Activities for the prevention and control of vitamin A deficiency may be strengthened.
- The NFHS 2005-06 report informs that for 96 percent of their last births, women received iron and folic acid supplements (IFA) during pregnancy, but only 75 percent consumed IFA for the recommended 90 days or more. Almost 9 in 10 women received two or more doses of tetanus toxoid vaccine. Only 10 percent of women took a de-worming drug during pregnancy.
- As per NFHS 2005-06 75% children age 12-23 months in Kerala are fully vaccinated against six major childhood illnesses: tuberculosis, diphtheria, pertussis, tetanus, polio, and measles (Figure 2). Only 2 percent of children have not received any vaccination. Ninety-six percent of children have received a BCG vaccination; however, only 82-84 percent has received each of the recommended three doses of the DPT and polio vaccines and the measles vaccine.

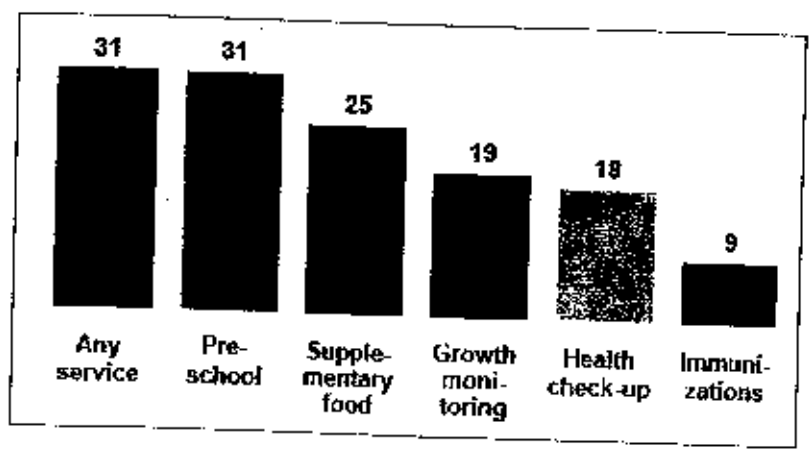
Figure 2: Trends in vaccination coverage (%children 12-23 months) in Kerala



Source: National Family Health Surveys, NFHS (various years)

- Integrated Child Development Services (ICDS) has a critical role in improving child health through provision of child care services through *anganwadi* centres. In this regard, the NFHS 2005-06 report informs that only 31 percent of children age 36-71 months received early childhood care/preschool services through *anganwadi* centres (Figure 3). Children belonging to the scheduled castes and children from the lower wealth quintiles are more likely than most other children to take advantage of the services offered at *anganwadi* centres. Among children under age six years in areas covered by an *anganwadi* centre, only 18 percent (11 percent) had mothers who received any service during pregnancy (breastfeeding).

Figure 3: Percent children receiving services from *anganwadi* centres in Kerala



Source: National Family Health Survey, NFHS (2005-06)

- The World Health Organization (WHO) recommendations for infant and young child feeding (IYCF) practices for children 6-23 months old emphasize on continued breastfeeding, feeding

with appropriate calcium-rich foods if not breastfed; feeding solid or semi-solid food a minimum number of times per day according to age and breastfeeding status; and, including foods from a minimum number of food groups per day according to breastfeeding status. In this regard, the NFHS 2005-06 reveals that in Kerala, about 4 out of 5 children (79%) age 6-23 months are fed minimum times per day and about 74% are fed from the minimum number of food groups. However, only 61 percent are fed according to all three recommended practices.

- The mid day meal scheme was first introduced in Kerala in 1984. The scheme was universalized in 2007-08. The scheme consists of serving hot cooked meals of a minimum of 300 k. cal and 8-12 gm protein to school children. This apart, the outcome of the scheme is also to make all children eat a common dish at a common place thereby establishing greater rapport and emotional unity among children.
- The NFHS 2005-06 finds that adults age 15-49 years in Kerala suffer from a dual burden of malnutrition; about one-fifth of adults are underweight (18% of women and 22% of men), and more than one-quarter of women (28%) and 18 percent of men are overweight or obese. Only 54% women and 61% men are at a healthy weight for their height. Undernutrition among ever-married women has declined in the past seven years from 19 percent in NFHS-2 to 13 percent in NFHS-3. Undernutrition is more common in rural areas, among teenagers, among never married, among the scheduled castes and the less wealthy. Overweight and obesity are most common in older adults, those in urban areas, and those in the highest wealth quintile.
- Diarrhoeal illness has a significant role in determining nutritional health of the children. In this regard, the NFHS 2005-06 report further reveals that 7 percent of children had diarrhoea in the two weeks preceding the survey. Among these children, less than two-thirds (63%) were taken to a health care provider. More than 8 out of 10 children (81%) were treated with some kind of oral rehydration therapy (ORT), including 32 percent who were treated with a solution prepared from oral rehydration salt (ORS) packets and 78 percent who were given gruel. Ten percent of children with diarrhea did not receive any type of treatment at all. The use of ORS remains low in Kerala even though the vast majority of women (92%) who had a child in the five years preceding the survey know about ORS packets.
- According to NFHS 2005-06, 69% households in Kerala use an improved source of drinking water (77% urban and 65% rural), but only 13% have water piped into their dwelling yard, or plot and 12% get drinking water from a public tap or standpipe. It is important to note that

most households in Kerala get their drinking water from a well: 40% get it from a protected well and 29% from an unprotected well. Given the importance of water and sanitation on nutritional health universal coverage of water and sanitation is important for Kerala.

- Using iodized salt prevents iodine deficiency, which can lead to miscarriage, goitre, and mental retardation. About three-quarters of households in Kerala (74%) were using sufficiently iodized salt at the time of the survey. This is much higher than the percentage observed during NFHS-2 (39%). A nationwide ban on non-iodized salt took effect just as the NFHS-3 fieldwork was being completed, so the effects of the new law could not be determined by the survey.

3.2.3. Nutritional status of tribal and marginalized population groups

- Based on NFHS 2005-06, table 5 reports some key indicators on nutritional status of marginalized population groups disadvantaged in terms of place of residence, caste/tribe and income status.
- It can be noted that rural population share a greater burden of nutritional deprivation among both women and men whereas urban areas display a higher prevalence of overweight among both women and men. In relative terms, greater proportion of men are underweight than women but in case of overweight a greater proportion of women are found to be overweight. This suggests that females in Kerala face a dual disadvantage and are more likely to be underweight/overweight than males. Anaemia among women is very high (around 33%) whereas the prevalence among males is below 10%. Unlike BMI indicator, the prevalence of anaemia across rural and urban areas does not show any significant spatial differential.
- Equal opportunity and development of all the caste and tribal subgroups has been a fundamental development concern. In this regard, it is disturbing to note that the vulnerable population subgroups of scheduled caste and tribes share disproportionately higher burden of nutritional deprivation as informed by low BMI and anaemia. It is obvious that sample limitation disallows estimation of prevalence among scheduled tribe population and reiterates the need for special state level surveys to obtain comprehensive data to facilitate nutritional planning. Nevertheless, it can be inferred that scheduled tribe population (52%) has a very high prevalence of anaemia than compared to the general population (31%). Also over 43% ST women are found to be underweight compared to only 17% in the general population. While the incidence of the problem of underweight and anaemia is by no means lower in the

general population but at the same time such huge inequalities in the prevalence of the nutritional deprivations deserves immediate policy attention.

Table 5: Nutritional status of marginalized groups in Kerala, 2005-06

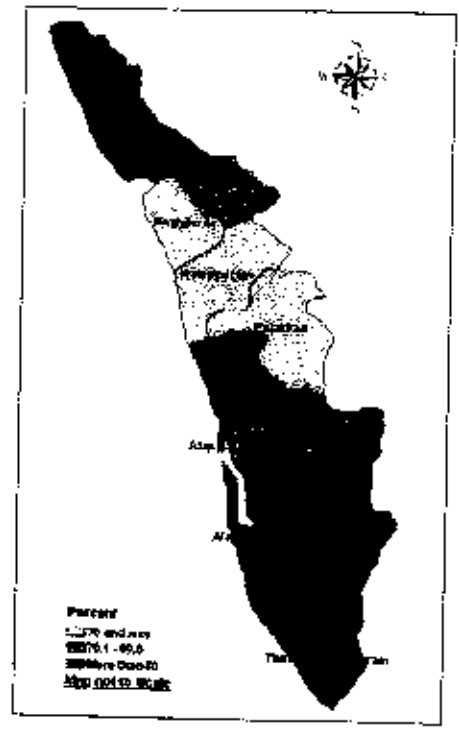
Characteristics	Underweight (BMI < 18.5)		Overweight (BMI ≥ 25.0)		Anaemia (< 12.0 g/dl)	
	Women	Men	Women	Men	Women	Men
Residence						
Urban	15.2	18.2	32.9	21.7	34.1	7.2
Rural	19.4	23.4	25.5	15.7	32.2	8.4
Caste/Tribe						
Scheduled caste	22.4	26.6	19.3	11.5	37.7	8.8
Scheduled tribe	42.6	*	17	*	51.9	*
Other backward class	17.5	20.8	29	19.9	33.4	9.3
Other	16.6	20.1	29.9	18.5	30.8	7.0
Wealth index						
Lowest	55.6	*	3.7	*	38	*
Second	27.1	40.6	14.3	5.4	39.7	16.7
Middle	27.2	28.7	16.5	8.4	38.4	12.7
Fourth	21.2	26.3	23.9	12.1	33.2	6.3
Highest	11.6	13.9	36.1	26.8	30.5	7.2
Kerala	18	21.5	28.1	17.8	32.8	8

Source: National Family Health Survey, NFHS (2005-06)

- Income-related inequalities in health have received most of the policy attention. However, the status of the households and individuals in the lower wealth quintiles continue to display poor nutritional status. For instance, the prevalence of underweight among men in the lowest wealth quintile is almost 3.5 times of that noted among the richest wealth quintile. The prevalence of anaemia across various wealth quintiles also displays an income gradient with greater concentration among the poorer individuals. Contrastingly, the prevalence of overweight is significantly higher among richer households. In fact, over 36% women from highest wealth quintile are overweight when compared to only 3.7% from lowest wealth quintile. Males also display a common gradient in overweight prevalence.

Children in urban areas, children of educated mothers, children in wealthier households, and children belonging to other backward classes are more likely than other children to receive all vaccinations. Girls are slightly more likely to be fully vaccinated than boys. Apart from inequalities associated with gender, caste, income and place of residence there are significant intra-state district level variations in health outcomes. While paucity of data restricts a detailed analysis of nutritional health indicators but nevertheless a glance at the distribution of full immunization coverage by districts reveals poor performance of Palakkad, Malapurram and Kozhikode district (Figure 4).

Figure 4: Intra-state variations in immunization coverage, Kerala 2007-08



Source: District Level Health Survey, DLHS (2007-08)

- Kerala is one of the states with lowest tribal population in India constituting of 1.1 % of the total population in Kerala. Wayanad has the highest tribal concentration (37%) in the state. Idukki and Palakkad come next with 14 % and 11%, respectively. More than 70% of tribal population is not consuming adequate quantity of protein, carbohydrate, macronutrients and micronutrients. Modified strategies are to be formed for the supplementation of locally available foods rich in carbohydrate, protein, fat and other nutrients for tribal population. A study published by Das & Bose (2012 *Anthropological Notebooks*) finds that 38% of the

- Mannan tribal group in Kerala have low BMI or chronic energy deficiency.
- Post-partum obesity is rapidly emerging as a key concern in nutritional health. Kerala is no exception to the phenomenon where over 35% of women in the age group of 30-39 are found to be overweight. The prevalence further increases to 41% in the age group of 40s. Obesity is also around 9% in this age group of 40-49 years. This calls for intervention to improve the nutritional health of women particularly in the post-partum period.

Table 6: Post partum obesity among women in Kerala, 2005-06

Correlates	Overweight (BMI ≥ 25.0)	Obese (BMI ≥ 30.0)
Age group		
15-19	6.2	1.4
20-29	20.3	2.4
30-39	34.9	5.9
40-49	40.6	8.7
Marital status		
Never married	8.6	1.8
Currently married	34.4	6.1
Widowed/divorced/separated	27.6	3.3

Source: National Family Health Survey, NFHS (2005-06)

3.2.4 Nutritional status of the elderly

- The proportion of elderly in our state is increasing and currently more than 11 % of Kerala population is aged 60 years or above. The morbidities related to aging (Diabetes, Hypertension, Heart diseases, Cancers, Joint disorders etc) are also increasing. But their nutritional needs are seldom addressed. Elderly are a special group in terms of nutritional needs as they are often affected by diseases which need nutritional support. Activities for the prevention and control of the life-style diseases hence require strengthening.
- According to the Coronary Artery Disease among Asian Indians (CADI) Research Foundation Kerala is the diabetes capital of India with a prevalence of diabetes as high as 20% – double the national average of 8%. They have listed several studies from different parts of Kerala supporting the evidence on high prevalence of diabetes. For instance, one study from central

- ▲ Kerala reported a prevalence of diabetes at 20% and prediabetes at 11%. Similar studies show a prevalence of 11-19% in men and 15-22% in women with rural Kerala having paradoxically higher rates of diabetes than urban dwellers. This is in sharp contrast to national data that shows the prevalence of diabetes to be double in urban areas than rural areas. Increasing age, obesity, positive family history of diabetes, abnormal subscapular triceps skin fold ratio were all found to be associated with increased risk of diabetes.
- According to a study report published in the *The Hindu* (Dec 26, 2011) on special provisions needed for healthcare for elderly, it is observed that in Kerala, 71.6 per cent of the elderly have at least one of the chronic morbidities with hypertension topping the list (57.3 per cent), chronic joint pains (37.5 per cent), diabetes and ear/eye (32 per cent each), heart disease (17.1 per cent and asthma (11.4 per cent).
 - There is limited data and information regarding health and nutritional status of the elderly population, particularly among marginalized sections and vulnerable groups. Nevertheless, based on the survey conducted among Kurichia's tribe in Wayanad district, Reddy et al (2012, *Journal of Society and Communication*) find that as per the nutritional anthropometry, 50% of the elderly Kurichias (50% men and 49% women) can be categorized under malnourished category. However, elderly from this tribal group had lower prevalence of risk factors such as obesity and hypertension.

4. NUTRITION POLICY FOR KERALA

Objective

To build a healthy state by intervention in nutrition for holistic development of all segments of the people in a holistic approach.

4.1. NEED FOR A STATE NUTRITIONAL POLICY

Kerala has been a role model in many respects and there is a huge difference when its figures on developmental indicators such as infant mortality, maternal mortality, population growth, birth registration, literacy and malnourished children are compared with the all-India average. But there are still areas that require attention. In particular, two critical areas deserve immediate attention: one, a sluggish rate of improvement (from 18.7% in 1998-99 to 12.5% in 2005-06) in prevalence of undernutrition among ever-married women in Kerala and second, upward trend in the prevalence of child undernutrition in the state. Despite considerable economic development in the last two decades the prevalence of underweight among children (below 3 years) increased from 27% in 1992-93 to 29% in 2005-06.

Drawing up a strategy to cover all these issues involves all agencies, line departments and stakeholders working for the cause of children in the State. The main sectors covered under the State Plan of Action are child health, mental health, health care services, nutrition, pre-school education and school education, physical environment, disabilities, adolescents, children in need of care and protection and prevention of HIV infection. Counting all these factors nutrition has to be tackled independently, alongside developmental issues and needs a comprehensive policy approach with specific guidelines. The Nutrition Policy of Kerala therefore aims to integrate the various components of nutrition and programme activities to provide a streamlined approach to improve the nutritional status of the population with specific reference to children, adolescents, women and elderly. This would contribute towards achievement of the Millennium Development Goal on halving the proportion of children who are underweight for their age.

4.2. MAJOR NUTRITION PROBLEMS IN KERALA

The major nutrition problem of Kerala can be classified as follows:

- Undernutrition
 - o Protein energy malnutrition, anaemia, iodine deficiency, vitamin-A deficiency, low-birth weight children, underweight mothers, underweight children and adolescents
- Obesity, Dietary- and nutrient- intake disorders
 - o Overnutrition, overweight, post-partum obesity, pediatric and child obesity
 - o High carbohydrate & fat intake, low fruit & vegetable intake
- Poor nutritional health status of adult and elderly
 - o Underweight, obesity, low physical activity, diabetes and hypertension
- Vulnerable groups at risk
 - o Elderly, women and children, tribal population, backward castes and communities, rural areas and low income households

4.3. STATE NUTRITIONAL POLICY GOALS

4.3.1. Goals of State Nutrition Policy

- 1) Ensure food security and adequate nutrition for all the people in Kerala, for their health as well as their social and economic well-being
- 2) Reduce health inequalities by ensuring faster pace of improvement in nutritional health of the vulnerable population subgroups particularly scheduled castes, tribal population, and low income households
- 3) Eliminate undernutrition among adolescents and women of reproductive age by improving quality of diet for mothers and significantly reducing micro-nutrient malnutrition (vitamin-A, iodine and iron deficiencies), especially among women and children
- 4) Provide effective therapeutic feeding for sick and malnourished children and improve children's lifelong eating and physical activity habits by integrating nutrition education into curriculum areas
- 5) Develop good nutrition status of adults to prevent and control chronic nutrition-related non-communicable diseases in later life

- 6) Curb the incidence of overweight, particularly post-partum and pediatric obesity, by communication strategies to facilitate behavioural change for better nutrition practices
- 7) Adopt multi-sectoral, gender-sensitive and community-based systems to promote the nutritional status of the people of Kerala
- 8) Implement the revised nutritional and feeding norms for supplementary nutrition in ICDS scheme and ensure accreditation of all the anganwadi centres
- 9) Incorporate nutrition health in state, three-tier local self government development plans and conduct regular coordination meetings at state, district and block levels
- 10) Establish growth monitoring and promote research on local solutions to nutrition issues and disseminate research findings with assessments of cardiovascular health and risk factors

4.3.2 Targets of State Nutrition Policy

With 2010 as the base year, the policy aims to achieve the following goals by the year 2025:

1. Reduce by one-half the prevalence of underweight among children and adults
2. Reduce by one-half the prevalence of anaemia among women and children
3. Reduce by one-half the low birth weight cases
4. Eliminate iodine deficiency and vitamin-A deficiency and disorders
5. Universal access to treatment for malnourished women and sick children
6. Reduce by one-half the prevalence of post-partum obesity and adult obesity
7. Increase the per capita consumption of fruits and vegetables by 25percent
8. Reduce by two-third the prevalence of underweight and anaemia in scheduled caste and tribes
9. Halt the increase in prevalence of diabetes and cardiovascular diseases

4.4. STRATEGIES AND INTERVENTIONS

4.4.1 Reducing Undernutrition

Infant and Children

- The nutritional programme should emphasize on first 1000 days of child's life - starting from the period of conception to 24 months. This is crucial to achieve improvements in child nutritional status.
- In 1991, the UNICEF and WHO had launched the Baby-Friendly Hospital Initiative (BFHI), to ensure that all maternities whether free standing or in a hospital, become centres of breastfeeding support. This initiative should be revived in the state to support successful breastfeeding.
- Timely initiation of breastfeeding within one hour of birth and exclusive breastfeeding during the first six months of life. Thereafter, timely introduction of complementary foods at six months with age-appropriate and quality complementary feeding for children 6-24 months.
- Safe handling of complementary foods and hygienic complementary feeding practices. Moreover, full immunization and bi-annual vitamin-A supplementation with de-worming, frequent, appropriate, and active feeding for children during and after illness, including oral rehydration with zinc supplementation during diarrhea is necessary.
- Timely and quality therapeutic care for all children with severe acute malnutrition along with nutrition counseling with dietician or nutritionist in public health facilities to improve food and nutrient intake for lactating mothers is essential.
- Implement the revised nutritional and feeding norms for supplementary nutrition in ICDS and promotion of optimal infant and young child nutrition practices (IYCN) is critical.
- **Implementation of improved mid day meal scheme**
- Improve availability of safe drinking water and safe sanitation
- Micronutrient fortified food should meet the recommended dietary allowance (RDA) norms and all children and women in the target group should be brought under ICDS coverage
- Strengthen capacity of health professionals for nutrition and breastfeeding management
- Increase awareness of risks of smoking and alcohol to low birth weight and increase awareness of risks of teenage pregnancy to infant and maternal health
- Food fortification is necessary for meeting gap in micronutrients (iron, folic acid) and zinc supplementation for addressing the enormous burden of stunting.