SOCIO-ECONOMIC CHALLENGES AND NUTRITION OF CHILDREN IN KHAWZAWL, MIZORAM

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Declaration

I, Lalrinngheti, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to do the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.

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Certificate

This is to certify that the thesis of '*Socio-Economic Challenges and Nutrition of Children in Khawzawl, Mizoram'* submitted by Ms *Lalrinngheti* for the award of Master of Philosophy in Social Work is carried out under my guidance and incorporates the student's bonafide research and this has not been submitted for award of any degree in this or any other university or institute of learning.

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AIDS:	Acquired immunodeficiency syndrome
AWCs:	Anganwadi Centres
BMI:	Body Mass Index
BMKP:	Bharatiya Manav Kalyan Parishad
CARE:	Cooperative for American Relief Everywhere
CI:	Concentration Index
CMR:	Child Mortality Rates
CSNSI:	Coalition for Sustainable Nutrition Security in India
DALYs:	Disability Adjusted Life Years
DLHS:	District Level Household Survey
FAO:	Food and Agriculture Organization
FCI:	Food Corporation of India
FIAUI:	Food Insecurity Atlas of Urban India
FYSP:	Five Year Support Plan
GDP:	Gross Domestic Product
GOI:	Government of India
HDC:	High Development Community
HDI:	Human Development Index
HIV:	Human immunodeficiency virus
ICDS:	Integrated Child Development Services
IDA:	Iron Deficiency Anaemia
IFA:	Iron Folic Acid
IFF:	India Fact File

IFRF:	Food Relief Foundation
IMNCI:	Integrated Management of Neonatal and Childhood Illness
IMR:	Infant Mortality Rate
ISKCON:	The International Society of Krishna Consciousness
LDC:	Low Development Community
MDG:	Millennium Development Goals
MDM:	Mid Day Meal
MHFW:	Ministry of Health and Family Welfare
MHIP:	Mizo Hmeichhe Insuihkhawm Pawl
MP:	Madhya Pradesh
MUAC:	Mid Upper Arm Circumference
MUP:	Mizoram Upa Pawl
MWCD:	Ministry of Women and Child Development
NFHS:	National Family Health Survey
NGO:	Non Governmental Organization
NMR:	Neonatal Mortality Rate
NNC:	National Nutrition Council
NNMB:	National Nutrition Monitoring Bureau
NNP:	National Nutrition Policy
NPA:	National Plan of Action
NPAC:	National Plan of Action for Children
NPC:	The National Policy for Children
NP-NSPE:	National Programme for Nutrition Support to Primary Education

NREGS:	National Rural Employment Guarantee Scheme
NRHM:	National Rural Health Mission
NSDP:	Net State Domestic Product
NUHM:	National Urban Health Mission
PDS:	Public Distribution System
PRIs:	Panchayati Raj Institutions
PWD:	Public Work Department
RCH:	Reproductive & Child Health
RDB:	Rural Development Blocks
SES:	SocioEconomic status
SPSS:	Statistical Package for the Social Sciences
SSA:	Sarva Siksha Abhiyan
UNCRC:	United Nations Convention on the Rights of the Child
UNICEF:	United Nations International Children's Emergency Fund
UNU:	United Nations University
UP:	Uttar Pradesh
VC:	Village Council
WHO:	World Health Organisation
YMA:	Young Mizo Association

CHAPTER 1

INTRODUCTION

The present study attempts to understand the nutritional status of children in Mizoram, the determinants, and the factors contributing to stunting, wasting and underweight in children and also tries to find out the impact of socio-economic condition and mother educational status on nutritional status of children, and suggest measures for social policy and social work practices in the area of child development.

According to the United Nations (International) Children's (Emergency) Fund (UNICEF), all people have the right to be free from hunger and malnutrition. Improved child health and survival are considered universal humanitarian goals. In this respect, understanding the nutritional status of children has far-reaching implications for the better development of future generations. However, reports have stated that child malnutrition has risen in recent years in India, and it is one of the foremost underlying causes of the child morbidity and mortality. It is a major determinant of the standard of living, quality of life and overall social and economic development. The nutritional status of infants and children is of particular concern since the early years of life are crucial for optimal growth and development. Their nutritional well-being reflects household, community and national investments in family health thereby contributing both directly and indirectly to overall country development and in particular, development of human resource.

Ensuring adequate nutrition is not only important for the growth, development and survival of children, it is central to development. Malnutrition stands in the way of the Millennium Development Goals (MDGs)—specifically those relating to extreme poverty and hunger, HIV and AIDS, malaria, education, and maternal and child mortality. None of these can be effectively addressed without tackling malnutrition. Child malnutrition is the most

widely spread disorder in tropical and subtropical areas. It is not a simple matter of whether one has satisfied one's appetite or not since a child who eats enough to satisfy immediate hunger can still be malnourished. Malnutrition has been recognized as a consequence of poverty and is known to cause a great deal of both physical and emotional human suffering while it is viewed in the context of violation of child's human rights.

Socioeconomic status (SES) is the social standing of an individual or group in terms of their income, education and occupation. An individual's income, education and occupational status are often closely interrelated. A family's socioeconomic status is based on family income, parental education level, parental occupation, and social status in the community (such as contacts within the community, group associations, and the community's perception of the family); note Demarest, Reisner, Anderson, Humphrey, Farquhar, and Stein (1993). Families with high socioeconomic status often have more success in preparing their young children for school because they typically have access to a wide range of resources to promote and support young children's development. They are able to provide their young children with high-quality child care, books, and toys to encourage children in various learning activities at home. Also, they have easy access to information regarding their children's health, as well as social, emotional, and cognitive development. In addition, families with high socioeconomic status often seek out information to help them better prepare their young children for school. Families with low socioeconomic status often lack the financial, social, and educational supports that characterize families with high socioeconomic status. Poor families also may have inadequate or limited access to community resources that promote and support children's development and school readiness. Parents may have inadequate skills for such activities as reading to and with their children, and they may lack information about childhood immunizations and nutrition. Zill, Collins, West, and Hausken (1995) state that "low maternal education and minority-language status

are most consistently associated with fewer signs of emerging literacy and a greater number of difficulties in preschoolers." Having inadequate resources and limited access to available resources can negatively affect families' decisions regarding their young children's development and learning. As a result, children from families with low socioeconomic status are at greater risk of entering kindergarten unprepared than their peers from families with median or high socioeconomic status.

Socioeconomic status (SES) is one of the most widely studied constructs in the social sciences. Several ways of measuring SES have been proposed, but most include some quantification of family income, parental education, and occupational status. Research shows that SES is associated with a wide array of health, cognitive, and socio-emotional outcomes in children, with effects beginning prior to birth and continuing into adulthood. A variety of mechanisms linking SES to child well-being have been proposed, with most involving differences in access to material and social resources or reactions to stress-inducing conditions by both the children themselves and their parents. For children, SES impacts well-being at multiple levels, including both family and neighborhood. Its effects are moderated by children's own characteristics, family characteristics, and external support system

Socio-economic differences in morbidity and mortality rates across the world have received its due attention in the recent years. Such differentials in health status in-fact are found pervasive across nation’s cross-cutting stages of development. Studies have identified poverty as the chief determinant of malnutrition in developing countries that perpetuates into intergenerational transfer of poor nutritional status among children and prevents social improvement and equity .Nutritional status of under-five children in particular is often considered as one of the most important indicator of a household's living standard and also an important determinant of child survival. The deterministic studies in India while exploring

the impact of covariates on the degree of childhood malnutrition suggests an important nexus shared with household socio-economic status. The two-way causality of poverty and under nutrition seems to pose a very significant pretext for malnutrition in India like other developing nations, where poverty and economic insecurity, coupled by constrained access to economic resources permeate malnourishment among the children. Thus, economic inequality constitutes the focal point of discussion while studying malnutrition and deserves suitable analytical treatment to examine its interplay with other dimensions of malnutrition and to prioritize appropriate programme intervention.

Issues That Affect Children in Early Childhood Development

The early years of life are important in influencing lifelong health and emotional development. According to the Robert Wood Johnson Foundation, many issues in early childhood development are directly tied to emotional, physical, and intellectual health in adulthood. It is important to realize that certain issues such as nutrition, economics, social environment, and a child's community during the first years of life will have a lifelong impact for a child.

(1) Economics: Economic issues play a part in the development throughout childhood, but particularly during the first few years of life. Children born to mothers who live in poverty or are poorly educated typically have lower birth weight, and more health issues during infancy and childhood. Parental income can be a predictor of adulthood health. In addition, lower-income families may have fewer resources for emotional and physical health, of parents and children. This can affect or retard the overall development of a young child.

(2) Social Issues: Social issues also have a profound impact on early childhood development. The social conditions of the parents or caretakers can have a direct effect on the language, social, and emotional development of the child, often with permanent results. This impact can

be seen as early as 18 months, and according to the Early Childhood Longitudinal Study -- Kindergarten Cohort (ECLS-K), children in low-income homes most often lack the social skills needed to enter kindergarten. In addition, a secure and loving attachment to a parent or caretaker is essential for long-term emotional, physical, and intellectual growth and stimulation.

(3) Nutrition: Healthy nutrition has a direct impact on the health, physical, and emotional development of a child in the first years of life. Nutritional deficiencies can result in the retardation of physical growth and poor overall health and may have long-term effects on the intellectual and physical development of a child into adulthood. Nutrition has also been directly linked to the income level of the home.

(4) Community: The environment in which a child lives has many direct effects on their development. Children in low-income communities are exposed to higher levels of toxins, pollution, poor water quality, higher noise levels, and lower overall safety. Lower-income communities also tend to have fewer resources for families, lower levels of access to health care, and fewer safe places for children to play. Children in poverty-level homes are also more likely to be exposed to lead-based paint, which can have permanent health effects.

Malnutrition and Undernutrition: Definitions

Malnutrition refers to all deviations from adequate nutrition, including undernutrition (and over-nutrition) resulting from inadequacy of food (or excess of food) relative to need (respectively). Malnutrition also encompasses specific deficiencies (or excesses) of essential nutrients such as vitamins and minerals. Conditions such as obesity, although not the result of inadequacy of food, also constitute malnutrition. The terms "malnutrition" and "undernutrition" are often used loosely and interchangeably, although a distinction is, and needs to be, made at all times."Malnutrition" arises from deficiencies of specific nutrients or

from diets based on wrong kinds or proportions of foods. Goitre, scurvy, anaemia and xerophthalmia are forms of malnutrition caused by inadequate intake of iodine, vitamin C, iron and vitamin A respectively.

"Undernutrition" is the outcome of insufficient food of whatever kind caused primarily by an inadequate intake of dietary or food energy, whether or not any specific nutrient deficiency, such as iron deficiency anemia is present. Undernutrition is defined as a dietary energy intake below the minimum requirement level to maintain the balance between actual energy intake and acceptable levels of energy expenditure. This must take into account additional needs for growth in children and also for pregnant and lactating women to maintain appropriate weight gain associated with adequate foetal growth in pregnancy and to sustain sufficient milk production during lactation (FAO/WHO/UNU, 1985). This emphasis on dietary energy as a general measurement of food adequacy seems pragmatically justified: increased dietary energy, if derived from normal staple foods, brings with it more protein and other nutrients, while raising intakes of such nutrients without providing more dietary energy is unlikely to be of much benefit to the individual. Thus, in most situations, increased dietary energy is a necessary condition for nutritional improvement, even if it is not always sufficient in itself. However, it is important to recognize that undernutrition, when estimated as an outcome measure, is also the result of other environmental insults, such as infections and poor care, both of which contribute to this process alongside inadequate food intakes.

Undernourishment

FAO (Food and Agriculture Organization) makes a distinction between undernutrition and undernourishment. "Undernourishment" is when food intake is continuously insufficient to meet the dietary energy requirements, while undernutrition is the result or outcome of undernourishment, poor absorption and/or poor biological use of nutrients consumed (FAO,

1999). This distinction may be important when attempting to explain the differences in estimates of numbers of undernourished individuals by the FAO food balance method as compared with the nutritional anthropometric approaches that provide numbers of undernourished, as for instance reported in the WHO Global databases.

"Malnutrition" and "undernutrition" are terms generally used interchangeably to mean more or less the same entity, and they both refer to nutritional situations characteristic of populations belonging to the low-income and poor socio-economic groups of developing countries. In practice, developing-country population groups suffering from malnutrition or undernutrition as defined in this way are likely to be more or less the same. Although it is possible to arrive at the prevalence (percent) and the numbers of individuals within a population manifesting signs of specific nutrient deficiency, for instance anaemia as a result of iron deficiency, when signs of vitamin or mineral deficiencies are observed, they are almost always associated with marginal or low dietary energy intakes.

The term "undernutrition" is used in the broader sense, referring to any physical condition implying ill health or the inability to maintain adequate growth, appropriate body weight and body composition or to sustain acceptable levels of economically necessary and socially desirable physical activities brought about by an inadequacy in food, both in quantity and in quality. This definition thus includes both undernutrition and specific micronutrient deficiencies.

Determinants of Malnutrition

There are many determinants of malnutrition, which can be grouped as economic, environmental, agricultural, cultural, health and political factors. Some key factors outline by Coalition for Sustainable Nutrition Security in India, 2008 are listed below:-

***Economic**:* poor purchasing power, poverty, livelihood insecurity, major inequities in asset distribution and control, including gender inequities

***Environmental**:* lack of safe drinking water, poor sanitation, poor hygiene practices

***Agricultural**:* failure to include nutrition concerns in major cropping and farming systems, leading to limited availability of nutrient rich foods, seasonal food shortages, inequities in food distribution, conversion to cash crops, and decreases in home gardening

***Cultural**:* inadequate knowledge of nutrition, cultural beliefs and practices that lead to poor nutrition (e.g., expelling colostrums, restricting food consumption during pregnancy or sickness), cultural shifts to prefer less micronutrient rich foods, discriminatory intra-familial food distribution, high workload for women, inadequate time available for infant and young child feeding and care, early marriage, discrimination against girls and women, other forms of discrimination

***Health**:* weak health service systems, inadequate human resources, especially in public health nutrition, weak health and nutrition educational systems, poor utilisation of services, recurrent infections, low immunization rates, lack of awareness of nutrition issues (such as which foods are the most nutritious, or proper infant and young child feeding practices), and many of the poor and vulnerable left "unreached"

***Political and Administrative**:* many vertical programmes that are not coordinated, lack of a central coordinating mechanism for nutrition extending from the local to national level, lack of a nutrition surveillance system focused on nutritional outcomes, decision making that is not based on data or evidence, diffusion of effort, weak implementation and monitoring systems, lack of accountability, poor governance

Without a change in a critical number of these determinants taking place at the same time, the problem of malnutrition will persist.

Anthropometric Measurement

Nutritional status of children is an indicator of health and well-being at both the individual and the population level. Nutritional intervention requires repeated measurement of nutritional status to assess severity and to track progress over time. Methodological issues in the assessment of nutritional status are reviewed with emphasis on anthropometric measurement, body composition, and energy expenditure of children at risk for malnutrition. Changes in body dimensions reflect the overall health and welfare of individuals and populations. Anthropometry is used to assess and predict performance, health and survival of individuals and reflect the economic and social well being of populations. Anthropometry is a widely used, inexpensive and non-invasive measure of the general nutritional status of an individual or a population group. The four building blocks or measures used to undertake anthropometric assessment are: Age, Sex, Length (height) and Weight. Each of these variables provides one piece of information about a person. When they are used together they can provide important information about a person's nutritional status. When two of these variables are used together they are called an *index*. Anthropometry can be used for various purposes, depending on the anthropometric indicators selected. For example, weight for-height (wasting) is useful for screening children at risk and for measuring short-term changes in nutritional status. Three indices are commonly used in assessing the nutritional status of children:

- Weight-for-age;
- Length-for-age or Height-for-age;
- Weight-for-length or Weight-for-height.

Weight-for-age: Low weight-for-age index identifies the condition of being **underweight**, for a specific age. The advantage of this index is that it reflects both past (chronic) and/or present (acute) undernutrition (although it is unable to distinguish between the two).

Height-for-age: Low height-for-age index identifies past undernutrition or chronic malnutrition. It cannot measure short term changes in malnutrition. For children below 2 years of age, the term is length-for-age; above 2 years of age, the index is referred to as height-for-age. Deficits in length-for-age or height-for-age is referred to as **stunting**.

Weight-for-height: Low weight-for-height helps to identify children suffering from current or acute undernutrition or **wasting** and is useful when exact ages are difficult to determine. Weight-for-length (in children under 2 years of age) or weight-for-height (in children over 2 years of age) is appropriate for examining short-term effects such as seasonal changes in food supply or short-term nutritional stress brought about by illness.

The three indices are used to identify three nutritional conditions: underweight, stunting and wasting, respectively.

Underweight: Underweight, based on weight-for-age, is a composite measure of stunting and wasting and is recommended as the indicator to assess changes in the magnitude of malnutrition over time.

Stunting: Low length-for-age, stemming from a slowing in the growth of the fetus and the child and resulting in a failure to achieve expected length as compared to a healthy, well nourished child of the same age, is a sign of stunting. Stunting is an indicator of **past growth failure**. It is associated with a number of long-term factors including chronic insufficient protein and energy intake, frequent infection, sustained inappropriate feeding practices and poverty. In children over 2 years of age, the effects of these long-term factors may not be reversible. For evaluation purposes, it is preferable to use children under 2 years of age because the prevalence of stunting in children of this age is likely to be more responsive to the impact of interventions than in older children. Data on prevalence of stunting in a community may be used in problem analysis in designing interventions. Information on stunting for individual children is useful clinically as an aid to diagnosis.

Stunting, based on height for- age, can be used for evaluation purposes but is not recommended for monitoring as it does not change in the short term such as 6 - 12 months.

Wasting: Wasting is the result of a weight falling significantly below the weight expected of a child of the same length or height. Wasting indicates **current or acute malnutrition** resulting from failure to gain weight or actual weight loss. Causes include inadequate food intake, incorrect feeding practices, disease, and infection or, more frequently, a combination of these factors. Wasting in individual children and population groups can change rapidly and shows marked seasonal patterns associated with changes in food availability or disease prevalence to which it is very sensitive. Because of its response to short-term influences, wasting is not used to evaluate Title II programs but may be used for screening or targeting purposes in emergency settings and is sometimes used for annual reporting. Weight-for-height is not advised for evaluation of change in non-emergency situations since it is highly susceptible to seasonality.

Mid - Upper Arm Circumference (MUAC) is relatively easy to measure and a good predictor of immediate risk of death. It is used for rapid screening of acute malnutrition from the 6-59 month age range (MUAC overestimates rates of malnutrition in the 6-12 month age group). MUAC can be used for screening in emergency situations but is not typically used for evaluation purposes (MSF, 1995). MUAC is recommended for assessing acute adult under-nutrition and for estimating prevalence

There are many other anthropometric measures including - sitting height to standing height ratio (Cormic Index), and many skin fold measures.

1.1. Nutritional status of children: Global Scenario:-

Globally, an estimated 200 million children under the age of five are chronically under normal height for their age (stunting) and another 26 million suffer from being severely underweight (wasting). Ninety per cent of all stunted children live in only 36 countries; most

of these are located in South-central Asia and sub-Saharan Africa (World Vision 2010). Stunting, or low height for age, is caused by long-term insufficient nutrient intake and frequent infections. Stunting generally occurs before age two, and effects are largely irreversible. These include delayed motor development, impaired cognitive function and poor school performance. Nearly one third of children under five in the developing world are stunted. Wasting, or low weight for height, is a strong predictor of mortality among children under five. It is usually the result of acute significant food shortage and/or disease. There are 24 developing countries with wasting rates of 10 per cent or more, indicating a serious problem urgently requiring a response (UNICEF 2007).

According to the *Global Strategy for Infant and Young Child Feeding*, "Malnutrition" has been responsible, directly or indirectly, for 60 per cent of the 10.9 million deaths annually among children under five. Well over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life." The *National Guidelines on Infant and Young Child Feeding* point out that malnutrition among children occurs almost entirely during the first two years of life and is virtually irreversible after that. In short, child mortality is closely linked with malnutrition and inappropriate feeding (Gupta, 2006). Malnutrition continues to be a problem of considerable magnitude in most of the developing countries of the world. Children ages 0 to 3 years are nutritionally the most vulnerable. More than half of the children in India are unable to grow to their full physical and mental potential owing to malnutrition. Nutritionists are increasingly aware that the condition is multifaceted and is not just a problem of food shortage. Realization is growing that malnutrition is a result of more complex big-social and behavioral determinants that affect child feeding and rearing.

1.2. Nutritional status of children: Indian Scenario:-

Our children often start out at a disadvantage. As a national average, 22 per cent of children are born with low birth weight (<2.5kg). The situation does not improve very much for adolescents or adults. Thirty-six per cent of adult women and 34 per cent of adult men suffer from chronic energy deficiency (BMI <18.5) with higher rates in rural and urban slum areas. In states like Bihar, Chhattisgarh and Jharkhand the rates are over 40 per cent (Coalition for Sustainable Nutrition Security in India, 2008).

Child malnutrition, indeed malnutrition at any age, is no doubt the central health problem in India, and the largest human development gap that the nation faces. The most puzzling aspect of this endemic child malnutrition is that its prevalence is much higher than what would be expected on the basis of India's GDP or various measures of poverty. This phenomenon has been called the "south Asian enigma" (Ramalingaswami; Progress of Nations; 1993 UNICEF publication). Ranked on an index that adjusts child malnutrition level to GDP, India had the second highest level of malnutrition – worse than all of Africa, second only to Bangladesh, and closely followed by Nepal and Pakistan (Sundararaman, 2006). Malnutrition also has a high economic cost. Over 73 million working days are lost due to waterborne disease each year, with a resulting economic burden estimated at $600 million a year60. Poor sanitation results in an annual loss of 180 million work-days, with an economic loss of $275,000. Productivity losses related to poor nutrition are estimated to be more than 10 per cent of lifetime earnings for individuals and 2-3 per cent of GDP to the nation. Malnutrition and micronutrient malnutrition were estimated to have reduced the country's GDP between 3-9 per cent in 1996. A 1997 report of the National Strategies to Reduce Childhood Malnutrition revealed that the cost of treating malnutrition is 27 times more than the investment required for its prevention.

The requirement for children to flourish and grow up in good health brings significant challenge to any health care system. Especially in India where over 6,000 children under the

age of six die every day from hunger and malnutrition even though India claims to have the world's largest initiative for children under six but still ranks 94th out of 118 countries on the Global Hunger Index and according to the 2009 Global Hunger Index, India ranked 65 out of 88 countries, and slipped two positions down in 2010. The second National Family Health Survey conducted in 1998-1999 showed that 47 per cent children were undernourished. And in 2005-06, the third National Family Health Survey shows pretty much the same results at 46 per cent. These are appalling figures, which place India among the most "undernourished" countries in the world (Saxena, 2011).

1.3. Nutritional status of children: North East Indian Scenario

According to NFHS –III (2005-2006) in northeast region, contrary to the findings in other parts of India mentioned above, female children have a nutritional edge over male children, which cause daughters not to be considered liabilities in the socio-cultural orientation of the region. In fact, India's only matriarchal state, Meghalaya, where the dowry system does not exist is in the north-eastern region. The level of under-nutrition among children in the north-eastern region of India was much higher than the national average, however more than one third were stunted and more than a quarter were underweight. Yet, less than one tenth experienced wasted growth. With the exception of a couple of states, children at birth had normal a nutritional status which deteriorated with age and stabilized once they reached 18 months of age in the region as a whole. Babies, who were small at birth, tended to have a lower nutritional status. Female children had an edge over the male children.

1.4. Nutritional status of children: Mizoram Scenario

In Mizoram less than one percent of the children in are severely underweight and more than 15percent of the children are underweight. The proportion of undernourished children increases rapidly with the child's age up to 24-47 in case of severe underweight and

12-23months in case of underweight and shows a decrease thereafter. Around one percent of the children in the age group 24-47 months are severely underweight whereas (25%) of the children in the age group 12-23 are under weight. The extent of underweight children, both severe underweight and underweight, is higher in rural areas compared to that in urban areas (District Level Household Survey under –Reproductive Child Health, India, Mizoram 2002-05).

1.5. Nutritional status of children: An Overview of Literature

Overview of literature forms the foundation of social research of quantitative variety. Social work research is no exception to this. Overview of literature helps to understand the theoretical background of the research problems and helps in formulating the research problem. This section overviews and identifies the literature which is relevant to the present study and observed a few research gaps.

There is copious literature on nutritional status of children globally including India. They are either nationwide studies or that report the experience of regions, communities, households and specific age groups. There are a number of nationwide studies on the problem of nutrition of children in the context of developing countries. This literature focuses on the impact of socioeconomic condition of the family on nutritional status of children (see for instance Joshi et.al, 2011; Kanjilal et.al, 2010; Sapkota and Gurung, 2009; Kabubo-Mariara et al, 2008; Khandare. et.al. 2008; Nnyepi, 2007; Pongou et.al, 2006; Arnold et.al, 2004; Girma and Genebo, 2002; Frongillo and Hanson, 1995; Osmani ,1992, Beaton et al, 1990; Martorell et.al, 1984) and it seems that factors other than income, poverty also influence malnutrition (Swain, 2008; Nair, 2007; Sundararaman, 2006; Radhakrishna and Ravi, 2004; Radhakrishnak et.al, 2004). Thus, poverty, under-nutrition, and ill-health are passed on from generation to generation. Under-nutrition impedes economic progress in all developing countries (Gupta et.al, 2007; Caulfield et.al, 2004). A study related to malnutrition on rural

children has also been conducted (see Pongou et.al.2006; Radhakrishna and Ravi, 2004; Radhakrishna et.al. 2004; Hautvast et.al, 1999).There are also some studies which focus on the affects of malnutrition on children's health (Ashwini, 2010; Bisai, Bose & Dikshit, 2009; Black et al., 2008; Caulfield et.al, 2004; Girma and Genebo, 2002). These studies focus on the association between malnutrition, school performance and the occurrence of repetition of class and childrens cognitive development (Bisai, Bose & Dikshit, 2009; Caulfield et.al, 2004; Gupta and Rohde, 2004; Abidoye, George, Akitoye, 1991).

Gender differences in feeding or nutritional status among children is yet another aspect of malnutrition on which there are some studies (see Hien and Hoa, 2009; Kabubo-Mariara et.al, 2008; Sethuraman and Duvvury, 2007; Arnold et.al, 2004; Bhasin et. al, 2001). And also number of children in family, weight at birth, time of initiation of breast-feeding and duration of exclusive breast-feeding were found to be significantly related to nutritional status of children (see for instance Hien and Hoa, 2009; Kabubo-Mariara et.al, 2008; Nair, 2007; Gupta, 2006; Ghosh, 2006; Harishankar et.al, 2004; Arnold et.al, 2004; Girma and Genebo, 2002; Hautvast et.al, 1999; Martorell et.al, 1984). There are some studies which focus on the impact of mother's educational level, age, status, health, working status, and nutritional knowledge on children's nutritional status (Joshi et.al, 2011; Ojiako et.al, 2009; Khandare. et.al. 2008; Sethuraman and Duvvury, 2007; Gupta et.al, 2007; Mehrotra, 2006; Radhakrishna and Ravi, 2004; Arnold et.al, 2004).

There is some research gaps found from the review of literature. Firstly, there have been very few studies on malnutrition of children in NE India and very few topics were taken up in research to study the factors contributing to stunting, wasting and underweight in children especially in Mizoram. Secondly, as stated earlier there is no studies (other than NFHS, RCH, and ICDS) or research on childhood under nutrition in Mizoram which would reveal the stunting point for child development. Thirdly, although several recent studies have

studied the problem of under-nutrition among rural children in different parts of India there is scanty information regarding under-nutrition among children of Mizoram. Fourthly, factors affecting malnutrition in children are not clearly identified. Fifthly, according to the research, girl child are more undernourished in comparison with boys. Therefore, impact of gender difference with regard to childhood under nutrition has not yet been explored. Sixthly, one study conducted in North Eastern region has found that socioeconomic status of the family plays an important role in the nutritional status of children. However, there are no studies that have been conducted in Mizoram on this. Seventhly, child malnutrition results from multiple factors, and even though each context has its own unique features, the etiology has many more commonalities. Thus, for program planners and policy makers intent on alleviating malnutrition to begin designing and implementing programs in their particular settings from scratch is strikingly inefficient in Mizoram. And also some studies on malnutrition of children had taken small samples which limit the accuracy of the results for generalization. The present study tries to fill these research gaps so that the research will contributed in this unexplored field.

1.6. Statement of the Problem

The present study tries to assess the nutritional condition of children in Mizoram, the determinants, the factors contributing to stunting, wasting and underweight in children.

Despite an impressive economic performance, with the gross domestic product (GDP) rising 8.4 per cent in 2005-0629 and 9.2 per cent in 2006-07, nutrition indicators still reveal an unacceptable situation – contributing to India's poor rank of 128 among 177 countries on the Human Development Index in 2007. The lack of progress over the past decade and the current high levels of malnutrition have led to India being recognized as having, perhaps, the worst malnutrition problem in the world (Coalition for Sustainable Nutrition Security in India, 2008).

Mizoram, which is located in the North eastern part of India where major of the population living in poor rural areas, is also encountering diverse problem in the field of child development, child care and protection. According to 2001 census, out of 891085 people, the number of children age 0-6 years is 141537 consisting of 15.89 percent of the total population. In 1991 census, out of 689756 people, 340163 are children below 18 years of age which constitute 48.3 percent of the total population. Taking account of the needs and views of children is problematic, particularly in Mizoram where children have been owned by their parents and social policy has been directed at the family rather than the individual child. Under-nutrition continues to be a problem of considerable magnitude in most developing countries of the world. In Mizoram under-nutrition is also more prevalent like many other states in India, again mainly due to low socio-economic status and, moreover in Mizoram forty percent of children under age five years are stunted, or too short for their age, which indicates that they have been undernourished for some time. Nine percent are wasted, or too thin for their height, which may result from inadequate recent food intake or a recent illness. One-fifth of children are underweight, which takes into account both chronic and acute under-nutrition (National Family Health Survey, India, Mizoram 2005-06). So the study will try to assess the nutritional intake of the children across gender and to determine the factors associated with it. And also the study will try to explore the factors associated with underweight, stunting and wasting in children, and the socio-economic condition of the family will be assessed based on the family's access to Government services, non government services, income, assets, education and health care.

1.7. Chapter Scheme

The study will be organized into the following chapters:

1. Introduction
2. Review of Literature

3. Methodology
4. Results and Discussion
5. Conclusion and Suggestions
6. Analysis and interpretation.

CHAPTER II

REVIEW OF LITERATURE

There is copious literature on nutritional status of children globally including India. They are either nationwide studies or that report the experience of regions, communities, households and specific age groups. There are also a number of nationwide studies on the problem of nutrition of children in the context of developing countries. The present chapter presents a critical review of literature on various aspects of nutritional status of children into 6 sections viz, impact of socio-economic condition of the family on nutritional status of children, affects of malnutrition on child growth and development, factors contributing to stunting, wasting and malnutrition among children, Gender differences in feeding or nutritional status among children, impact of mother educational status on children nutritional status, national response to nutrition problems- ICDS, Mid day meal proggrame, National Nutrition policy, National Policy for Children, National charter for children, National plan of action for children and National Guidelines on Infants and Young Child Feeding also will be outlines and included.

The causes of under-nutrition are multi-sectoral and interrelated. They often operate at many levels, from the individual child to the household and community. It is even possible that policies operating at a global level could be creating disparities in the welfare of the world's children. At an individual level, under-nutrition arises from such causes as inadequate dietary intake and illness, and is often interrelated to form a repeated cycle that can have fatal consequences. At a household level, the intermediate causes of under-nutrition include inadequate access to food, poor sanitation, insufficient health care, and inadequate child care. At a community level, the presence of health services or community health workers can help to improve the nutritional status of children through good health care and

education. Nationally, prices of food, expenditure on health services, and education can also affect the nutritional status of children. Clearly, it is important to acknowledge the various levels at which determinants of under-nutrition may operate.

2.1 Impact of Socio-Economic Condition of the Family on Children Nutritional Status

Nutritional status is an integral component of the overall health of an individual. In the case of children, nutritional status can affect growth, development and immunity to disease. Nutritional deprivation is regarded as the most basic and acute of all deprivations. Over the last 30 years, the proportion of malnourished children has reduced by 20% in developing countries (WHO, 1999; Smith & Haddad, 2000). UNICEF reported that about 55% of the deaths of children below 5 years of age are due to malnutrition (UNICEF, 1994). According to Dev (1997), half of the world's malnourished children are found mainly in three countries: Bangladesh, India and Pakistan. Dreze & Sen (1989) stated that child malnutrition and infant mortality kill more people slowly in the long run than famines do. Inequalities in health care in the early years of life draw special attention as the nutritional status of under-five children is one of the most important indicators of a household's living standard and determinant of child survival (Thomas *et al*., 1990). Rajaram *et al*. (2003) assessed the nutritional status of children below five years using the three anthropometric measures weight-for-age, height-forage and weight-for-height in two states of India – Kerala and Goa. They found prevalence of underweight, wasting and stunting among children was very high in the two states and the socioeconomic and family planning variables had significant influence on the degree of malnutrition.

Suparna Som, et, al (2006) studies in '*Socioeconomic Differentials In Nutritional Status Of Children In The States Of West Bengal And Assam, India'*, results revealed that there is some significant effect of the variables present in both states in determination of the

nutritional level of children. So far as the studies of nutritional measurements are concerned, namely weight-for-height (wasting), weight-for-age (underweight) and height-for-age (stunting), it is found that the states show some common significant features for many of the variables. The magnitude of regional differences is not same for all the nutritional status indicators for the two states. The effect of various socioeconomic, demographic and cultural factors on malnutrition has been observed with some minor variation depending on the situations of the states. Children from households with better economic conditions have better nutritional status in West Bengal.

Roland Pongou, Majid Ezzati and Joshua A, in their studies *'Household and community socioeconomic and environmental determinants of child nutritional status in Cameroon'* reveals that Economic status had a positive effect in general, but it had little effect in children aged 0–5 months, and had significantly positive effect in older ages. It is possible that the little effect of economic status in 0–5 months is due to the role of breastfeeding, which is less frequent in high-economic status mothers than lower economic status mothers due to time budget and the ability to pay for supplementation foods. The positive nutritional effect of improved water and sanitation found in this study is consistent with other studies conducted in developing countries. Unclean water may affect nutritional status through diarrhea diseases. Further, we found that cleaner fuels were associated with better anthropometric indicators, consistent with the only other available study, in South India. The role of clean fuels may be mediated by effects on birth weight, or on the risk of respiratory infections, which may in turn influence growth. Consistently with Fotso et al, they also found that better community environmental status positively affected nutritional status after other factors were adjusted, suggesting that community hygiene affects health irrespectively of individual or household characteristics.

Nyovani J. Madise, Zoë Matthews And Barrie Margetts in their studies '*Heterogeneity Of Child Nutritional Status Between Households: A Comparison Of Six Sub-Saharan African Countries'* marked diversity between the child nutritional status of families from the same socioeconomic background might mean that children in families with un-favourable characteristics are more susceptible to mortality than they would be in a country with less heterogeneity between families. Alternatively, there may be differences between the actual resources available to families not captured by the crude measures of familial economic status measured by the survey. This study also confirms the results of other studies which have found that the age and sex of a child, morbidity, breastfeeding, and socioeconomic characteristics are determinants of under-nutrition (Melville et al. 1988; Vella et al. 1992; Madise and Mpoma 1997). This study also provides further evidence of the significance of the age and sex of a child, morbidity, and socioeconomic status as determinants of under-nutrition. The strong positive association between maternal and child anthropometric measurements also highlights the continuing inter generational chain of poor nutrition.

David R. Hotchkiss, Nancy B. Mock And Eric E. Seiber on their studies *'The Effect Of The Health Care Supply Environment On Children's Nutritional Status In Rural Nepal'* the results are consistent with the findings of a study in Ghana (Lavy *et al.*, 1996), which found the effect of income to be statistically insignificant on weight-for-height, but statistically significant on height-for-age. With respect to ethnic status, Mongoloid children were found to have higher weight and height measurements than non- Mongoloid children, but only the effect in the weight-for-age equation emerged as statistically significant. These findings are consistent with those of Strickland & Tuffrey (1997), which found that non-Mongoloids in the western hills of Nepal were at greater risk of micronutrient deficiencies, to have lower capacity for work, and to have smaller values of anthropometric indices than their

Mongoloid counterparts. Of the indicators of household wealth and environmental conditions, having access to a flush toilet and piped water was not found to be statistically significant. Surprisingly, having access to a piped water supply had a negative, but statistically insignificant, association with weight-for-age and height-for-age. One possible explanation for this result is that there are many types of water delivery systems in rural Nepal, ranging from streams, to public standpipes and pipes entering the home. The measure included in the model does not distinguish between these sources of piped water. The effects of the other household-level indicators of assets and environmental conditions – good floor, good roof, good stove and persons per room were also found to be statistically insignificant. Their study also reveals that the effects of the individual- and household-level characteristics are also of interest. The coefficients of the set of age dummy indicators suggest that the onset of malnutrition occurs relatively early in rural Nepal, as children 6 months of age and older are significantly more likely to be wasted and stunted than children 5 months and younger. In addition, boys in the sample had significantly larger nutritional deficits from the international standards than girls, a finding that is consistent with the findings of other studies in both developed and developing countries. Models were also estimated that contained interactions between sex and physical access to health care. The results indicate that physical access has a larger effect in reducing nutritional deficits among boys than among girls, but the difference was not found to be statistically significant.

The recent *National Family Health Survey,* India, revealed that the children belonging to tribal groups, schedule castes and other backward classes were found to have relatively higher rate of child under nutrition (IIPS, 2007). There is ample evidence that socio-economic status was significantly associated with nutritional status of children under five years of age. The prevalence of undernutrition significantly decreased with increased socio-economic status or wealth index (IIPS, 2007). Earlier worldwide studies showed that the

household with lower socioeconomic status has a higher rate of undernourished children (UNICEF, 1990).

Barun Kanjilal et.al in their studies '*Nutritional status of children in India: household socio-economic condition as the contextual determinant'*- Using National Family Health Survey-3 data, an attempt is made to estimate socio-economic inequality in childhood stunting at the state level through Concentration Index (CI). Multi-level models; random-coefficient and random-slope are employed to study the impact of SES on long-term nutritional status among children, found out that the state having lower prevalence of chronic childhood malnutrition shows much higher burden among the poor. Though a negative correlation ($r = -0.603$, $p < .001$) is established between Net State Domestic Product (NSDP) and CI values for stunting; the development indicator is not always linearly correlated with intra-state inequality in malnutrition prevalence. Results from multi-level models however show children from highest SES quintile posses 50 percent better nutritional status than those from the poorest quintile. The prevalence of child malnutrition in India is widely varied across the states and also across rural and urban areas. It needs special mention that chronic malnutrition among children is more concentrated among urban poor compared to their counterpart living in rural areas where inequalities are not as great but overall levels of malnutrition are higher. In other words, children from a cluster or community do not seem to share stronger correlation in terms of their nutritional status. But, at the household level the observations are not independent. It implies the fact that children belonging to a particular household do share certain common characteristics while growing up. The children who belong to households from the poorest SES quintile have higher prevalence of worse nutritional status. While, on the contrary the children hailing from richest asset quintile households are associated with better nutritional status. The finding is supportive of many earlier observations made based on NFHS data. Such association is consistent across the

different models applied to the research; reconfirming better nutritional status among children with favourable household socio-economic background, even after controlling for a range of individual, maternal and community characteristics. This further emphasizes the impact of differential available resources to the families that act as a major determinant of malnutrition. The finding is supportive of studies conducted even in other countries. Hence the gradient of household socio-economic status remains as a crucial determinant of level of nutritional achievement among children. Betterment of such condition thus is expected to improve growth of children likely through better nutritional intake and reduced morbidity.

2.2. Affects of Malnutrition on Child Growth, Development and Health

Lahariya C, Khandekar J. in their studies '*How the findings of national family health survey-3 can act as a trigger for improving the status of anemic mothers and undernourished children in India'* stated that the overall proportion of undernourished children has increased in the country since NFHS-2; and in the states of MP, UP and Bihar, almost 85% of children were found to be anemic. As many as 74% of this population group are anemic in India, with prevalence of anemia in UP as high as 85.1%. What is more worrisome is the increasing prevalence of anemia since NFHS-2. This proportion is higher than both the previous rounds of NFHS. The total prevalence of wasting among children has also increased from 15% in NFHS-2 to 17% in this round. More than half to two-thirds of women, whether pregnant or not, are anemic. This prevalence has risen since NFHS-2; and in some cases, since NFHS-1 also. Anemia is not restricted to women and children only. Adult men are also commonly affected with the problem of anemia, and up to two-thirds of men are anemic, with uniform distribution.

Nancy E. Adler and Joan M. Ostrove in their studies "*Socioeconomic Status and Health: What We Know and What We Don't*" stated that there are two alternative

explanations for the association of SES and health. One is that SES influences health status (social causation). The other is that health status contributes to socioeconomic status (social drift or selection). Social drift is more likely for diseases with early onset that have more profound effects on life trajectories (e.g., schizophrenia). Although there is some reciprocal influence of SES and health, the data are more compelling for social causation than for social drift. And also find effects of childhood SES on adult health, apart from adult socioeconomic level. Although some childhood diseases are sufficiently debilitating that childhood health may determine educational attainment and later socioeconomic status, these are sufficiently rare that they are unlikely to account for the substantial SES association later in life in general populations. One aspect of the research agenda on SES and health should be to understand how SES plays a role in health across the life cycle and how the cumulative effect of socioeconomic disadvantage operates to influence health.

Hunt, Joseph and Quibria, M.G, ed. in their studies '*Investing in Child Nutrition in Asia. Manila, Philippines'* deals with nutrition interventions for poor women and children, with benefits accruing to families, communities and nations throughout the life cycle, and assessed the scientific evidence available about nutrition policies, programs and developmental assistance that would have an impact on and raise the quality of human resources; and the creation of opportunities for public, private and civil sector partnerships, that could raise the dietary quality of the poor, and enhance the learning and earning capability of poor children. On their studies it was revealed that in low-income Asia, 2.6 million child deaths per year were associated with protein-energy malnutrition (PEM), 0.36 million child deaths per year with Vitamin A deficiency, and 65,000 maternal death per year with iron deficiency anaemia. To improve the nutrition situation rapidly in the Asian region, the study suggested that (i) educated and socio-economically empowered Asian women were the key to improving the nutrition situation and developing mental acuity among young

children; (ii) communities can play a major role in supporting families to improve the nutrition of their children; and (iii) conventional food subsidies should be properly targeted for women

Severe protein–energy malnutrition in early childhood leads to linear growth retardation (stunting), a state that is associated with increased morbidity and mortality as well as a reduced physical work capacity in adulthood (Waterlow, 1994). It has been suggested that the poor linear growth is a result of inadequate intake of protein, vitamins and minerals (Golden & Golden, 1991; Prentice & Bates, 1994). However, many dietary intervention studies conducted in developing countries resulted only in weight gain but had little or no effect on height (Allen, 1994). Martorell et al. (1994) reported that children who continue to live in the same environment in which they became stunted experience little or no catch-up in growth later in life. On the other hand, there are children in whom catch-up occurred in some environments. As reported by Golden (1994), successful reversal is observed but requires removal of the retarding factors of the environment. Nevertheless, early malnutrition has subsequent consequences on mortality (Hennart et al. 1987), motor performance and coordination (Be´ne´fice et al. 1999), cognitive function, and time of menarche (Grantham-McGregor, 1984; Galler et al. 1987a, b).

Childhood undernutrition may lead to concurrent and delayed intellectual and motor development, deficiency in growth and other adverse health effects (Lloyd-Still *et al*., 1974)

Malnutrition is associated with poverty and disease. So, the three factors, viz. malnutrition, poverty and disease, are interlinked in such a way that each contributes to the presence and sustained effect of the other. Due to poverty, a significant portion of the population is unable to procure enough food. And ultimately, they become malnourished and vulnerable to diseases like diarrhoea and parasitic infection. These often result from poor sanitation and drinking water facilities. Frequent attacks of diarrhoea and parasitic infection

due to the poor health status of children and poor sanitary conditions ultimately lead to further aggravation of disease (Dasgupta *et al*.,2005).

The high rates of child under nutrition might be the result of dietary insufficiency and or influences of early childhood illness (Bharati *et al.,* 2009).One of the most important public health problems in India is that of malnutrition in children. This not only obstructs the growth of children, but also has long-term implications. It has a negative impact on future human performance, health and life expectations of children. A recent study estimated that about 53% of all deaths in young children are attributable to being underweight (Caulflied *et al*., 2004). Although the majority of underweight children live in developing countries, mainly in Asia and Africa, it has been seen to be increasing in Africa and decreasing in Asia (Ramalingaswami *et al*., 1997).

Research suggests that both physical and mental healths are associated with SES. In particular, studies suggest that lower SES is linked to poorer health outcomes. Poor health may in turn decrease an individual's capacity to work, thus reducing their ability to improve their SES. Low SES is associated with increased morbidity and mortality (Adler et al., 1994; Adler & Coriell, 1997). Low income individuals are 2-5 times more likely to suffer from a diagnosable mental disorder than those in the top SES bracket (Bourdon, Rae, Narrow, Manderschild, & Regier, 1994; Regier et al., 1993). Educational and employment opportunities may be hindered by mental health problems (Murray & Lopez, 1997).Access to health insurance and preventive services are part of the reason for socioeconomic health disparities (McGinnis, Williams-Russo, & Knickman, 2002). Those with low SES often experience barriers to obtaining mental health services, including lack of or limited access to mental health care, child care and transportation (McGrath, Keita, Strickland, & Russo, 1990).

2.3. Factors contributing to stunting, wasting and malnutrition among children

Macharia C W, Kogi-Makau W, and NM Muroki in their studies, *"A Comparative Study On The Nutritional Status Of Children (6-59 Months) In A World Vision Project Area And A Non-Project Area In Kathonzweni Division, Makueni District, Kenya"* finds out that Stunting is generally associated with low socio-economic status, which is the case in both study groups the stunting levels of children in both groups imply similar past nutritional experience. High prevalence of malnutrition in children who breastfed for less than 12 months could be attributed to the fact that though breastfeeding stopped, the portions served as complementary foods may have been too little for the child. The children may also have been previously exposed to infections that could have resulted in reduced dietary intake, eventually leading to malnutrition. Severe cases of underweight and stunting were reported on children who were introduced to complementary foods after the age of six months in both areas. This could be attributed to inadequate dietary intake as well as reduced attention to the children with the arrival of a new baby.

On the basis of 241 national surveys, it has been found that the stunting rates are declining in the majority of countries. Today malnutrition is responsible for nearly 5·2 million annual child deaths in the developing world (WHO, 2002). In India, half of all under-five children suffer from malnutrition and 53% of children are underweight (India Fact File, 2002). According to the Food Insecurity Atlas of Urban India (2002), 38% of Indian children are underweight and 36% are stunted due to poor nutritional intake. In many states of India, including Jharkhand, Orissa, Chattisgarh and Bihar, one-third of children are underweight and half are anaemic (Anon, 2002). The relation between mother's nutrition and their children in less-developed countries has been studied by Scrimshaw *et al*. (1968) and Tomkins & Watson (1989), who found direct relations between the two. An inverse relationship between mother's education and malnutrition of under-five children has been

observed (Norhayati *et al*., 1997). Zamaliah *et al*. (1998) found a higher prevalence of stunting, underweight and wasting among under-five children below the poverty line compared with those children above the poverty line. Malnutrition is positively associated with a low duration of breast-feeding (Julia, 2000). It has been reported by many scientists that in India, sex differentials of children's nutritional status and health care are not so marked as intra-household food allocation (Schoenbaum *et al*., 1995; Haddad *et al*., 1996; Mishra *et al*., 1999; Marcoux, 2001). But intra- and inter-state variation is very marked in India due to some social and cultural factors.

Samiran Bisai, Tarapada Ghosh and Kaushik Bose in their studies '*Prevalence Of Underweight, Stunting And Wasting Among Urban Poor Children Aged 1- 5 Years Of West Bengal, India'* observed that the rate of underweight was significantly lower among Hindu children as compared to Muslim and tribal children. In contrast, the prevalence of stunting was significantly lower in Muslim children than the Hindu and tribal children. It was noteworthy to mention that the rate of severe stunting was more than 3 times and 4 times higher among Hindu and Tribal children than Muslim children. However, the rate of wasting was significantly lower among Hindu children than their Muslim counterparts. In general, it was observed that the chances of global acute malnutrition were higher among Muslim children than the other two groups, respectively. However, the rate of stunting was higher among Hindu children than Tribal and Muslim children and rate of wasting was higher among Muslim children than tribal and Hindu children. It implied that the Tribal and Muslim children were under both long and short term nutritional stress while the Hindu children suffer from long term nutritional stress. An earlier study reported that children from lower socio-economic status present short statures, probably as a result of poor nutritional conditions during growth. It is sometimes suggested that short stature is an adaptive response

to years of under nutrition that allows children to preserve an adequate body weight under poor nutritional situation (Balam and Gurri, 1994).

David R. Hotchkiss, Nancy B. Mock and Eric E. Seiber in their studies *'The Effect Of The Health Care Supply Environment On Children's Nutritional Status In Rural Nepal'* stated that the effects of the individual- and household-level characteristics are also of interest. The coefficients of the set of age dummy indicators suggest that the onset of malnutrition occurs relatively early in rural Nepal, as children 6 months of age and older are significantly more likely to be wasted and stunted than children 5 months and younger. Of the indicators of household wealth and environmental conditions, having access to a flush toilet and piped water was not found to be statistically significant. Surprisingly, having access to a piped water supply had a negative, but statistically insignificant, association with weight-for-age and height-for-age. One possible explanation for this result is that there are many types of water delivery systems in rural Nepal, ranging from streams, to public standpipes and pipes entering the home. The measure included in the model does not distinguish between these sources of piped water. The effects of the other household-level indicators of assets and environmental conditions – good floor, good roof, good stove and persons per room – were also found to be statistically insignificant and were not included in the model.

2.4. Gender differences in feeding or nutritional status among children

Susmita Bharati *et al*. (2008) mentioned that in South Asian countries, including India, the preference for male children is particularly due to social customs such as the dowry, poor social, economic and educational status and lack of decision-making power of women in society. The desire for a male child often results in a large family size. This ultimately leads to a high rate of underweight, stunted and wasted children. Ramalingaswami *et al*. (1997) stated that women in India have a lower status and less decision-making power than those in other developing and developed countries. This limits women's ability to access

the resources needed for their child health and nutrition, which are strongly associated with low birth weight as well as poor feeding behavior in the first year of life.

Samiran Bisai, Tarapada Ghosh and Kaushik Bose in their studies '*Prevalence Of Underweight, Stunting And Wasting Among Urban Poor Children Aged 1- 5 Years Of West Bengal, India'* Stated that the rate of severe underweight was significantly higher in boys than the girls. However, the prevalence of under nutrition in the form of underweight, stunting and wasting was slightly more in boys compared with girls, but these differences showed no statistical significance. Similar results were also reported in earlier studies worldwide (Marcoux, 2002,Bisai *et al.,* 2008; Bisai and Mallick, 2010).

David R. Hotchkiss, Nancy B. Mock and Eric E. Seiber in their studies *'The Effect Of The Health Care Supply Environment On Children's Nutritional Status In Rural Nepal'* reveals that boys in the sample had significantly larger nutritional deficits from the international standards than girls, a finding that is consistent with the findings of other studies in both developed and developing countries. Models were also estimated that contained interactions between sex and physical access to health care. The results indicate that physical access has a larger effect in reducing nutritional deficits among boys than among girls, but the difference was not found to be statistically significant.

2.5. Impact of mother educational status on children nutritional status

Susmita Bharati, Manoranjan Pal and Premananda Bharatiin their studies *'Determinants of Nutritional Status of Pre-School Children in India'* suggest that in India there is better nutritional status in urban children than in rural children. This is due to higher maternal education, higher income, better water and sanitation services and better health status of mothers in urban areas. It is expected that educated mothers have a greater knowledge of childcare and feeding practices, which ultimately prevent child malnutrition. Illiterate mothers are not only less aware of the necessities and ways and means of providing

nutritionally balanced food to children, but are also economically incapable of providing such nutrition-rich food (Bharati *et al*., 2007). Women with low BMI status give birth to the maximum number of low birth weight children, which ultimately leads to under-nutrition among their children (Pojda & Kelley, 2000). The proposed approaches for increasing the general level of nutrition and amelioration of rural–urban differences in malnutrition of children are to increase the standard of living of households and the general level of health and literacy of mothers. Sanitation and access to safe drinking water, food and nutrition supplementation are not enough as preventive measures for malnutrition in Indian society (Bamji, 2003).

David R. Hotchkiss, Nancy B. Mock and Eric E. Seiber in their studies *'The Effect Of The Health Care Supply Environment On Children's Nutritional Status In Rural Nepal'* points out that the estimated main effect of maternal education on nutritional status, although not statistically significant, was estimated to be large in magnitude. For example, on average, children of mothers with at least 1 year of schooling had weight-for-height z-scores that were 0·22 higher than children of mothers with no schooling, after controlling for other factors. As mentioned earlier, the overwhelming majority of rural women do not have any formal schooling. It is likely that the sample size is too small to estimate the effect of maternal education with a sufficient degree of precision.

Nguyen Ngoc Hien and Nguyen Ngoc Hoa in their research paper "*Nutritional Status and Determinants of Malnutrition in Children under Three Years of Age in Nghean, Vietnam*" shows that mother's occupation and ethnic as determinants of malnutrition, living in rural areas were risk factors for malnutrition (underweight and wasting). The reason for these may be due to differences in economic levels and cultural and social security, lack of social security causes poor accessibility to education and health services. A research made in Malaysia also reported that the prevalence of stunting was high among children in poor rural

areas (Khor and Sharif, 2003). This finding also indicated that children of mothers were farmer found to be risk factor for stunting. This may be due to the high levels of poverty as well as a lack of knowledge and understanding of farmers mothers on child health care practices. This result also reported by some studies (Filiz *et al*., 2007; Sakisaka *et al*., 2006).

2.6. National response to nutrition problems

India, acknowledging that the problem of malnutrition is Multi-dimensional, multi-sectoral and inter-generational in nature; and that a single sector scheme cannot address the multifaceted problem, introduced a number of schemes to improve nutrition needs of children and pregnant mothers from time to time under different Ministries such as- (a) Ministry of Women and Child Development- Integrated Child Development Schemes, Kishori Shakti Yojana, Nutrition Programme for Adolescent Girls, Rajiv Gandhi Scheme for Empowerment of Adolescent Girls; (b) Ministry of Human Resource Development- Mid-Day Meals Program; (c) Ministry of Health and Family Welfare- National Rural Health Mission, National Urban Health Mission; (d) Ministry of Agriculture- National Food Security Mission, National Horticulture Mission; (e) Ministry of Rural Development- Rajiv Gandhi Drinking Water Mission, Total Sanitation Campaign, Swaranjayanti Gram Swarojgar Yajana, Mahatma Gandhi Rural Employment guarantee Programme; (f) Ministry of Food- Targeted Public Distribution System, Antyodaya Anna Yojana, Annapoorna. These schemes have had limited success to improve nutritional status, due to fragmented leadership and coordination and reflecting Nutrition is nobody's responsibility. They need to be re-looked and a more focused and comprehensive effort is called for.

In 1950 India faced two major nutritional problems. One was the threat of famine and the resultant acute starvation due to low agricultural production and the lack of an appropriate food distribution system. The other was chronic energy deficiency due to:

- Low dietary intake because of poverty and low purchasing power;

- High prevalence of infection because of poor access to safe-drinking water, sanitation and health care;
- Poor utilization of available facilities due to low literacy and lack of awareness.

The country adopted multi-sectoral, multi-pronged strategy to combat these problems and to improve the nutritional status of the population. Article 47 of the Constitution of India states that, "the State shall regard raising the level of nutrition and standard of living of its people and improvement in public health among its primary duties". Successive Five-Year Plans laid down the policies and strategies for achieving these goals. Progress achieved in seven five-year plan periods was reviewed in 1991-92. It was obvious that threat of famine has disappeared. There was a significant decline in severe forms of under nutrition. However mild and moderate under nutrition and micronutrient deficiencies were widely prevalent.

India prepared and adopted the National Nutrition Policy in 1993. The Policy advocated a comprehensive inter-sectoral strategy between 14 sectors (which directly or indirectly affect dietary intake and nutritional status of the population) for combating multi-faceted problem of under nutrition and improving nutritional status for all sections of the society. The Policy sought to strike a balance between the short-term direct nutrition interventions and long-term institutional/structural changes to create an enabling environment and necessary conditions for improving nutritional and health status. The Policy also set goals to be achieved by each sector by 2000. A National Plan of Action was drawn up and approved in 1995. In order to achieve inter-sectoral coordination at the highest level, National Nutrition Council was formed under the chairmanship of the Prime Minister with Planning Commission as the secretariat for the Council. The Council was to act as the national forum for policy and strategy formulation, review of performance and mid course corrections. A similar set up was envisaged at the state level. Inter-departmental coordination committee under the Department

of Women and Child Development was to coordinate and review the implementation of the nutrition programmes.

Review of the situation in 2000-01 prior to the formulation of the Tenth Five Year Plan showed that while under-nutrition and micronutrient deficiencies continued to be major public health problems, over nutrition and obesity are also emerging as a major problem in many states. Taking cognizance of this Tenth Plan envisaged a paradigm shift from:

- Household food security and freedom from hunger to nutrition security for the family and the individual;
- Untargeted food supplementation to screening of all the persons from vulnerable groups, identification of those with various grades of under-nutrition and appropriate management;
- Lack of focused interventions on the prevention of over-nutrition to the promotion of appropriate lifestyles and dietary intakes for the prevention and management of over-nutrition and obesity.

INTEGRATED CHILD DEVELOPMENT SERVICES (ICDS)

India, home to the largest child population in the world, formulated the National Policy on Children in August 1974 and in 1975 launched the Integrated Child Development Services (ICDS) with the following objectives:

- to improve the health and nutrition status of children in the 0-6 age group by providing supplementary food and coordinating with state health departments to ensure the delivery of the required health inputs;
- to provide conditions necessary for pre-school children's psychological and social development through early stimulation and education;
- to provide pregnant and lactating women with food supplements;

- to enhance the mother's ability to provide proper child care through health and nutrition education;
- to achieve effective coordination of policy and implementation among the various departments to promote child development.

ICDS is one of the most comprehensive programmes for providing integrated health, nutrition and education services; supplementary nutrition, non-formal pre-school education, immunization, health check-up, referral services, nutrition and health education. The initial Geographic focus of was on drought-prone areas and blocks with a significant proportion of scheduled caste and scheduled tribe population. In 1975, 33 blocks were covered under ICDS and over the last two decades the ICDS coverage has progressively increased. 5659 projects have become operational as on 31.3.2006. Services are provided through community-based workers at the 'Anganwadi' (AW). One anganwadi centre has been catering to 1000 population in a rural / urban project and 700 populations in tribal areas.

Nutrition component of ICDS

Nutrition component of ICDS aims to provide the following services

- nutrition education to mothers for improving dietary intake and dietary diversity
- nutrition education regarding appropriate infant and young child feeding
- growth monitoring and detection of growth faltering
- Act as depot holder / assist in providing massive doses of vitamin A, ORS and IFA tablets.
- food supplementation to pre-school children between the age of six months to six years, pregnant and lactating mothers and selected adolescent girls

The emphasis was initially on providing on-the-spot feeding in the anganwadi because it was believed that

- this would ensure that the targeted mothers and child would get food supplements, which would not be shared between other members of the family; and
- Their coming to anganwadi centers for receiving food supplements would provide an opportunity for providing nutrition education to women on cooking and feeding young children.

However, the on-the-spot cooked food feeding programme has several disadvantages as well. They are:

- children especially those in the age group of 6-36 months cannot consume the entire amount of food provided because of a smaller stomach capacity;
- even if older children do eat the food provided in the anganwadis, this acts mainly as a substitute, and not an addition, to home food;
- the most needy segments viz., children in the critical 6-36 month age group and women, may not be able to come to the anganwadi's and receive the food daily;
- cooking food, feeding the children and cleaning the vessels and the anganwadi take up most of the time of the anganwadi workers and helpers, leaving them little time for other important activities such as growth monitoring, nutrition education, or pre-school education;
- in any mass cooking and feeding programme, the monotony of the food provided and relatively poor quality of the preparations is a problem;
- cooking in poor hygienic conditions and keeping left-over food may result in bacterial contamination of food;
- undernourished children, even those in the 3-6 year age group, if given double rations, cannot consume all the food at one sitting in the anganwadi, and if cooked food is kept at home for feeding later, it may get contaminated and spoilt

MID DAY MEAL PROGRAMME

The Midday Meal Scheme is the popular name for school meal programme in India which started in the 1960s. It involves provision of lunch free of cost to school-children on all working days. The key objectives of the programme are: protecting children from classroom hunger, increasing school enrolment and attendance, improved socialization among children belonging to all castes, addressing malnutrition, and social empowerment through provision of employment to women. The scheme has a long history, especially in the state of Tamil Nadu introduced statewide by the then Chief Minister K. Kamaraj in 1960s and later expanded by M. G. Ramachandran government in 1982 has been adopted by most of the states in India after a landmark direction by the Supreme Court of India on November 28, 2001.[1] The success of this scheme is illustrated by the tremendous increase in the school participation and completion rates in Tamil Nadu.

History

One of the pioneers of the scheme is the Madras that started providing cooked meals to children in corporation schools in the Madras city in 1923. The programme was introduced in a large scale, in 1960s under the Chief Minister ship of K. Kamaraj after visiting Sourashtra Higher Secondary School – Madurai, were this program implemented by linguistic minority people since 1922. The first major thrust came in 1982 when Chief Minister of Tamil Nadu, Dr. M. G. Ramachandran, decided to universalize the scheme for all children up to class 10. Tamil Nadu's midday meal programme is among the best known in the country. Less known, but equally interesting is the history of Pondicherry, which started universal school feeding as early as 1930.

There is an interesting story about how K. Kamaraj got the idea of a noon meal scheme. He saw a few boys busy with their cows and goats. He asked one small boy, "What are you doing with these cows? Why didn't you go to school?" The boy immediately

answered, "If I go to school, will you give me food to eat? I can learn only if I eat." The boy's retort sparked the entire process into establishing the midday meal programme.

Several other states of India also have programmes. The most notable among them is Gujarat that has had it since the late 1980s. Kerala started providing cooked meals in schools since 1995 and so did Madhya Pradesh and Orissa in small pockets. On November 28, 2001 the Supreme Court of India gave a landmark direction to government to provide cooked meals to all children in all government and government assisted primary schools. The direction was resisted vigorously by State governments initially, but the programme has become almost universal by 2005. Recently Govt. of India has launch new mid day Meal Scheme.

National Programme for Nutrition Support to Primary Education, 2004

Although the programme in Tamil Nadu was initially termed as an act of "Populism", the success of the scheme made the project hugely popular. The success was so spectacular that in 1995, the then Indian prime minister P.V.Narsimha Rao hailed the success of the project and suggested that the scheme be implemented all over the country, and thus began the "National Programme for Nutrition Support to Primary Education".

According to the programme the Government of India will provide grains free of cost and the States will provide the costs of other ingredients, salaries and infrastructure. Since most State governments were unwilling to commit budgetary resources they just passed on the grains from Government of India to the parents. This system was called provision of ‘dry rations’. On November 28, 2001 the Supreme Court of India gave a famous direction that made it mandatory for the state governments to provide cooked meals instead of ‘dry rations’. The direction was to be implemented from June 2002, but was violated by most States. But

with sustained pressure from the court, media and in particular from the Right to Food Campaign more and more states started providing cooked meals.

In May 2004 a new coalition government was formed in the centre, which promised universal provision of cooked meals fully funded by the centre. This promise in its Common Minimum Programme was followed by enhanced financial support to the states for cooking and building sufficient infrastructure. Given this additional support the scheme has expanded its reach to cover most children in primary schools in India. In 2005 it is expected to cover 130 million children.

National Programme for Nutrition Support to Primary Education- Objectives, 2006

NP-NSPE, 2006 seeks to address two of the most pressing problems for the majority of children in India, namely, hunger and education by:

(i) Improving the nutritional status of children in classes I – V in Government, Local Body and Government aided schools, and EGS and AIE centers.

(ii) Encouraging poor children, belonging to disadvantaged sections, to attend school more regularly and help them concentrate on classroom activities.

(iii) Providing nutritional support for children of primary stage in drought-affected areas during summer vacation.

The Supreme Court Direction

In April 2001 People's Union for Civil Liberties (Rajasthan) initiated the now famous right to food litigation. This public interest litigation has covered a large range of issues relating to right to food, but the best known intervention by the court is on midday meals. In one of its many direction in the litigation the Supreme Court directed the government to fully implement its scheme of providing cooked meals to all children in

primary schools. This landmark direction converted the Midday Meal Scheme into a legal entitlement, the violation of which can be taken up in the court of law. The direction and further follow-up by the Supreme Court has been a major instrument in universalizing the scheme.

ISKCON Food Relief Foundation: The ISKCON Food Relief Foundation (IFRF) was established in year 2004 in Mumbai and objectives of IFRF is to eradicate hunger and promoting education amongst the under-privileged sections of the society and thereby ensuring their socio-economic development. **Akshaya Patra and private sector participation in midday meals:** The State of Karnataka introduced the provision of cooked meals in June 2002. Since then it has successfully involved private sector participation in the programme. One of the successful ventures is Akshaya Patra, which started with freshly cooked meals from ISKCON temple in Bangalore. The Foundation gets a corpus from the State government but meets a major share of its costs with donations from private corporations and individuals in the city.

Other aspects of the programme: The programme in Gujarat also includes regular provision of iron tablets (to counter anaemia) and deworming tablets once in six months. In Tamil Nadu also the children are dewormed at regular intervals. Mid Day Meal scheme is implemented by Annamrit.

School meal programmes in other parts of the world: A school meal programme is now a standard welfare measure for school children in developing as well as developed nations. Even countries such as USA have it in many states. World Food Programme, among other organisations, are involved in the programme in many countries across the world. **Scams:** Various scams involving Midday Meal Scheme have been unearthed since it was started. In January 2006, the Delhi Police unearthed a scam in the Midday Meal Scheme. In December

2005, the police had seized eight truckloads (2,760 sacks) of rice meant for primary schoolchildren being carried from Food Corporation of India (FCI) godowns in Bulandshahr District of UP to North Delhi. When the police detained the trucks, the drivers claimed that the rice was being brought all the way to Delhi to be cleaned at a factory. However, according to the guidelines, the rice has to be taken directly from FCI godown to the school or village concerned. Later it was found that the rice was being siphoned off by a UP-based NGO, Bharatiya Manav Kalyan Parishad (BMKP), in connivance with the government officials. In November 2006, the residents of Pembong village under the Mim tea estate (around 30 km from Darjeeling), accused a group of teachers of embezzling midday meals. In a written complaint, the residents claimed that students at the primary school had not got midday meal for the past 18 months. In December 2006, The Times of India reported a scam involving government schools that siphon off foodgrains under the midday meal scheme by faking attendance. The modus operandi of the schools was simple—the attendance register would exaggerate the number of students enrolled in the class. The additional students would not exist—they were "enrolled" to get additional foodgrains which were pocketed by the school staff. The scam was exposed, when P Asha Kumari, an assistant teacher at the government model primary school, Jakkur, in Yelahanka acted as a whistleblower. She informed the Lok Ayukta, who conducted a probe and indicted four persons for misappropriation. The whistleblower was harassed by the school staff and requested a transfer. She was transferred to a government primary school at Cholanayakahalli, where she again found the same modus operandi being used to siphon off the foodgrains. She again complained to the Lok Ayukta, who issued notice to the school.

Criticism: Despite the success of the program, child hunger as a problem persists in India. According to current statistics, 42.5% of the children under 5 are underweight. This is due to simple reasons such as not using iodized salt. “India is home to the world’s largest food

insecure population, with more than 200 million people who are hungry," India State Hunger Index (ISHI) said, adding that the country's poor performance is driven by its high levels of child under-nutrition and poor calorie count. "Its rates of child malnutrition are higher than most countries in Sub-Saharan Africa," it noted. A report released as part of the 2009 Global Hunger Index ranks India at 65 out of 84 countries. The 2008 report says that India has more people suffering hunger – a figure above 200 million – than any other country in the world, it says. The report also says "improving child nutrition is of utmost urgency in most Indian states".

NATIONAL NUTRITION POLICY, 1993

The nutrition policy of 1993 outlines the nutritional status of India and the importance of such a document. At the time in 1993 there were already a number of mechanisms in place to address the issue of mal-nutrition and under-nutrition such as the Integrated Child Development Services (ICDS), Special Nutrition Programme, and Wheat Based Nutrition Programme etc. The policy outlines a few additional provisions to ensure proper nutrition of all populations.

Under the direct, short term services section the policy calls for the need to expand the ICDS and similar programmes to cover the actual population of children in India. It is also required that mothers be given the proper information and support to provide for their children by growth monitoring for effective nutrition. Adolescent girls and expecting mothers also need to be taken into the purview of programmes. Foods provided to society need to fortify against nutrient loss, low cost nutritious food needs to be produced for poorer families, and programmes should attempt to address and prevent nutrient deficiencies especially among women, expecting and nursing mothers and children.

Under indirect long term and structural changes the policy calls for the establishment of food security reserves. The dietary patterns of people need to be adjusted for better health by producing healthier food, increasing agriculture input to yield high nutrient foods, and aligning the food and agricultural policies to the nutritional needs of the nation. There is a need for poverty alleviation programmes and a functional public distribution system to ensure that poor families are capable of buying food. There is need for basic land reforms to address the needs of the landless poor. Health services under the Health and Family welfare Ministry also ties into the nutritional needs of the populations and hence should be strengthened. Awareness about basic health and nutrition is vital to a healthier population. There is also a need to strengthen surveillance of nutrition especially of children, adolescent girls and pregnant mothers. Other areas that require government implementation, intervention and assistance is monitoring of programmes, administrating minimum wage, insuring effective community participation, and education.

To ensure the implementation of this policy it outlines the need for inter-ministerial coordination through the establishment of a committee, the constitution of a National Nutrition Council, various tasks for the State governments, and proper monitoring of children's nutritional status. It aims to address this problem by utilizing direct (short term) and indirect (long term) interventions

Direct interventions – short term:

- Ensuring proper nutrition of target groups
    - Expanding the safety net for children – proper implementation of universal immunization, oral rehydration and ICDS services
    - Growth monitoring in 0-3 year age group
    - Nutrition of adolescent girls to enable them to attain safe motherhood

    - Nutrition of pregnant women to decrease incidence of low birth weight
- Food fortification
- Provision of low cost nutritious food
- Combating micro nutrient deficiency in vulnerable group

Indirect policy interventions – long term:

- Food security – ensuring production of 215kg of food grains per person per year
- Improving dietary pattern
- Improving purchasing power of rural and urban poor by public food distribution system
- Nutrition education
- Land reforms
- Prevention of food adulteration
- Nutritional surveillance
- Health and Family welfare
- Research
- Minimum wage administration
- Communication
- Community participation
- Equal remuneration for women
- Improvement of literacy, especially for women
- Improving the status of women

NATIONAL POLICY FOR CHILDREN

Lays down that the State shall provide adequate services towards children, both before and after birth and during the growing stages for their full physical, mental and social development.

The National Policy for Children (NPC) was adopted by the Government of India in 1974. The guiding principle of this policy is to ensure that "all children enjoy optimum conditions for their balanced growth." Founded on a needs based approach, the focus of this policy is on nutrition, health, education, welfare and protection against neglect, cruelty and exploitation.

Review of National Policy for Children:

Although the National Policy for Children (1974) was a forward looking document for its time, the policy needs revision to align it with current and projected needs of all children (a child being all individuals below the age of 18 years) in India and with International Conventions such as the United Nations Convention on the Rights of the Child (UNCRC). Its review also aims to take into account existing and emerging challenges faced by children in a rapidly changing environment, both within the country and globally. It reflects a paradigm shift from a „needs-based" to a „rights-based" approach. The review process reflects the Government of India"s commitment to safeguard, inform, include, support and empower children, both in their individual situations and in the development of the country as a whole, through the framework of „every child matters, " irrespective of religion, caste, sex or place of birth.

The NPC is being revised keeping in mind the following priority areas: (i) Survival and Health; (ii) Childcare and Nutrition; (iii) Development and Education; (iv) Protection; (v) Participation; (vi) Advocacy and Partnerships; (vii) Research, Documentation and Capacity Building; (viii) Resources, Coordination and Monitoring; (ix) Review of Policy. The review process for NPC is ongoing and involves consultations with all stakeholders at the regional

and national level. Some of these will take place during the period of the FYSP. The new policy will be guided by the following principles:

- Child rights are universal, interrelated, interdependent and indivisible.
- The best interest of the child shall be the primary consideration in all actions concerning the child.
- The safety of all children shall be of prime importance and they will be protected from harm, abuse, neglect and exploitation.
- All children have equal rights; no custom, tradition, cultural or religious practice shall prevent children from enjoying these rights.
- The social, psychological, emotional and physical development of the child is to be addressed in totality, within the family, community and larger society.
- A family setting is most conducive to the all round development of children and institutionalization shall be resorted to only in exceptional circumstances.
- The principles of equity, justice and non-discrimination shall guide all actions concerning the child, whether undertaken by a person, an authority or institution.
- Individuality, dignity, age appropriateness and recognition of the special needs and vulnerability of some, would set direction for any/all programmes and interventions related to children.
- Consultation and participation of all children in an age appropriate manner, in all matters affecting them is essential for their holistic development.
- Taking positive measures for promotion and protection of the rights of all children shall be the primary responsibility of the State; the State shall seek the cooperation of all non - state actors towards this end.

In the next five years, the Ministry aims to oversee the smooth implementation of the new policy. Problems and difficulties being faced by children today may change over time. It will

be a priority for the Ministry to track new challenges and devise new approaches to tackle them. The Ministry will create mechanisms for a comprehensive periodic review of the policy.

The revised NPC will be an overarching document for every Ministry/Department that impacts the lives of children and thus, provisions of this policy shall take precedence over all existing policy, legislation, plans of action and programmes. All existing components that are not in consonance with the intent, principles, objectives and priorities outlined in the review process shall be revised and amended.

NATIONAL CHARTER FOR CHILDREN

National charter for children emphasizes Government of India's commitment to children's rights to survival, health and nutrition, standard of living, play and leisure, early childhood care, education, protection of the girl child, empowering adolescents, equality, life and liberty, name and nationality, freedom of expression, freedom of association and peaceful assembly, the right to a family and the right to be protected from economic exploitation and all forms of abuse.

The different Rights of children outline by national charter of children which are important for the current studies are as follows

Right to Survival

1. a. Every child has a right to survival. The State and community will undertake all possible measures to ensure that the child’s right to survival is protected and realised.

b. In particular, the State and community will undertake all appropriate measures to address the problems of infanticide and foeticide, especially of female child and all other emerging manifestations which deprive the girl child of her right to survival.

Right to Health

2.a. The State shall take measures to ensure that all children enjoy the highest attainable standard of health, and provide for preventive and curative facilities at all levels especially immunisation and prevention of micronutrient deficiencies for all children.

b. The State shall take measures to cover, under primary health facilities and specialised care and treatment, all children of families below the poverty line.

c. The State shall take measures to provide adequate pre-natal and post-natal care for mothers along with immunization against preventable diseases.

d. The State shall undertake measures to provide for a national plan that will ensure that the mental health of all children is protected.

e. The State shall take steps to ensure protection of children from all practices that are likely to harm the child's physical and mental health.

Right to Nutrition

3. The State shall take steps to provide all children from families below the poverty line with adequate supplementary nutrition and undertake adequate measures for ensuring environmental sanitation and hygiene.

Right to a standard of living

4.a. The State recognises every child's right to a standard of living that fosters full development of the child's faculties.

b. In order to ensure this, the State shall in partnership with community prepare a social security policy for children, especially for abandoned children and street children.

c. State and community shall try and remove the fundamental causes which result in abandoned children and children living on streets, and provide infrastructural and material support by way of shelter, education, nutrition and recreation.

Right to play and leisure

5. The State and community should recognise the right of all children to play and leisure and ensure means to provide for recreational facilities and services for children of all ages and social groups.

Right to early childhood care

6. a. The State shall in partnership with community provide early childhood care for all children and encourage programmes which will stimulate and develop their physical and cognative capacities.

b. The State shall in partnership with community aim at providing a child care centre in every village where infants and children of working mothers can be adequately cared for.

c. The State will make special efforts to provide these facilities to children from SCs/STs and marginalised sections of society.

Right to be protected from economic exploitation

7.a. The State shall provide protection to children from economic exploitation and from performing tasks that are hazardous to their well-being.

b. The State shall ensure that there is appropriate regulation of conditions of work in occupations and processes where children perform work of a non-hazardous nature and that the rights of the child are protected.

c. The State shall move towards a total ban of all forms of child labour.

Right to Protection

8. a. All children have a right to be protected against neglect, maltreatment, injury, trafficking, sexual and physical abuse of all kinds, corporal punishment, torture, exploitation, violence and degrading treatment.

b. The State shall take legal action against those committing such violations against children even if they be legal guardians of such children.

c. The State shall in partnership with community set up mechanisms for identification, reporting, referral, investigation and follow-up of such acts, while respecting the dignity and privacy of the child.

9.a The State shall take strict measures to ensure that children are not used in the conduct of any illegal activity, namely, trafficking of narcotic drugs and psychotropic substances, begging, prostitution, pornography or armed conflicts. The State in partnership with community shall ensure that such children are rescued and immediately placed under appropriate care and protection.

b. The State and community shall ensure protection of children in distress for their welfare and all-round development.

c. The State and community shall ensure protection of children during the occurrence of natural calamities in their best interest.

Right to Equality

10. The State and community shall ensure that all children are treated equally without discrimination on grounds of the child's or the child's parents' or legal guardian's race, colour, caste, sex, language, religion, political or other opinion, national, ethnic or social origin, disability, birth, political status, or any other consideration.

Right to Life and Liberty, Name and Nationality

11. Every child has a right to life, liberty, a name and to acquire a nationality.

Rights of children from marginalized and disadvantaged communities.

12. The State and community shall respect the rights of children from all marginalized and disadvantaged communities, to preserve their identity, and will encourage them to adopt practises that promote the best interest of children in their communities.

13. The State recognises that children from disadvantaged communities, especially from the Scheduled Castes and Tribes, and are in need of special intervention and support in all matters pertaining to education, health, recreation and supportive services. It shall make adequate provisions for providing such groups with special attention in all its policies and programmes.

Right to Child Friendly Procedures

14. All matters and procedures relating to children, viz. judicial, administrative, educational or social, should be child friendly. All procedures laid down under the juvenile justice system for children in conflict with law and for children in need of special care and protection should also be child-friendly.

NATIONAL PLAN OF ACTION FOR CHILDREN

National plan of action for children includes goals, objectives, strategies and activities for improving the nutritional status of children, reducing Infant Mortality Rate, increasing enrolment ratio, reducing drop out rates, universalisation of primary education and increasing coverage for immunization.

The National Plan of Action for Children, 2005 is by far the most comprehensive planning document concerning children. Its value is that it clearly outlines goals, objectives, and strategies to achieve the objectives outlined and recognizes the needs of all children up to the age of eighteen. It is divided into four basic child right categories as per the United Nations Convention on the Rights of a Child: Child survival, Child development, Child protection and Child participation. The National Plan of Action for Children (NPAC) (2005) committed itself to ensure all rights to all children up to the age of 18 years. The Government shall ensure all measures and an enabling environment for the survival, growth, development and protection of all children, so that each child can realize his or her inherent potential and grow up to be a healthy and productive citizen. This calls for collective commitment and action by all sectors and levels of government and partnerships with families, communities, voluntary sector, civil society and children themselves.

Child Survival firstly refers to child health. The plan outlines goals to reduce children's risk of contracting malaria, TB, and cholera, exposure to HIV/AIDS, and provide

them with full immunization, access to quality health care, water, food and sanitation. The goal is also to reduce the poor health indicators in IMR, CMR and NMR. In order to do this services need to provide mothers with adequate pre-natal medical attention and nutrition, encourage safe birth practices, encourage breast feeding as essential to having healthy babies, cover all children and women within the reproductive age with necessary immunizations, ensure proper coverage of all families under the ICDS scheme, educate communities about proper infant care, universalize use of oral rehydration solution to prevent dehydration in children, make efforts to detect and treat all diseases such as malaria and Dengue, take steps to prevent mother-child transmission of HIV/AIDS and provide children with the necessary care and medication to fight the infection, etc.

The second aspect of child survival is maternal health. In order to insure the healthy growth and delivery of children it is vital to look at the health of the mothers. The plan outlines initiatives to improve anemia in mothers and girls, generate awareness about maternal health practices and child spacing, prevent and treat sexually transmitted diseases and infections, and ensure the health centers are fully equipped to handle the needs of mothers and offer appropriate referrals.

The third aspect of child survival is nutrition. The plan aims at reaching optimal infant and child nutrition by promoting breast feeding and prohibiting milk substitutes for infants, conducting constant screening of children to ensure they are not underweight, empower families with information about child nutrition, provide anganwadi workers with training to address basic child diseases such as diarrhea, make low cost complementary food products, etc. It is also important to address anemia and vitamin A deficiency, address macro and micro malnutrition through ICDS, Mid-day Meal, Public distribution systems and such programmes. Lastly a vital aspect to child survival is access to clear water and sanitation.

Special attention is required for girl population and their access to drinking water, toilets, in rural areas and urban slums. In order to provide enough water for all there is need to begin water conversation practices such as rain water harvesting, reclining and reusing of water.

Child Development begins with early childhood care and education. This section discusses the expansion of ICDS so it's available to all, development of pre-school centers and crèches, promoting community based initiatives, and creating awareness regarding birth registration and good parenting skills. The next section aims at equality and special opportunities for the girl child, survival, development and protection, elimination of sex selection and child marriage, protection against sexual and non-sexual abuse, protection from neglect, break down gender stereotypes and increase access to education facilities. Some of the strategies outlined in the plan for the girl child are advocacy through social, political and religious leaders and well as the government, proper enforcement of laws, support of non-government organizations and initiatives, monitor clinics to ensure that diagnostic tests are not being run illegally, etc.

Children's lives like all other human being are connected to the environment. In order to safeguard natural resources for our children the plan outlines the need to create recreational spaces for children, prevent toxic and harmful effects on the natural environment, use sustainable forms of production and energy, encourage children's understanding of their own surroundings, and take states to ensure better sanitation and hygiene in communities, etc. Lastly one of the most important aspects of child development is education. The plan discusses the importance of increasing access to public education to children with disabilities, girls, and children living in remote areas, improving infrastructure of schools, improving the quality of education, providing teachers with the correct training, reducing school drop-outs,

supporting marginalized groups of society such as SC/STs/OBCs, establish counseling services in school, proving children with healthy mid-day meals.

Guiding Principles of NPAC 2005-

- To regard the child as an asset and a person with human rights;
- To address the issues of discrimination emanating from biases of gender, class, caste, race, religion and legal status in order to ensure equality;
- To accord utmost priority to the most disadvantaged, poorest of the poor and the least served child in all policy and programme interventions;
- To recognize the diverse stages and settings of childhood, and address the needs of each, providing all children the entitlements that fulfill their rights and meet their needs in each situation.

The recommendations of the NPAC were targeted for a time period of five years from 2005-2010. The NPAC is now to be framed for the next five years. The aim is to develop a plan of action with better resource allocation as well as achievable targets, measurable indicators and deadlines, which corresponds with the changes being brought about in the National Policy for Children (NPC). The National Coordination Group would be revived and activated to ensure convergent and timely action to achieve the targets of the NPAC. The Ministry would also create a monitoring mechanism for the documentation of achievements as well as to carry out the necessary mid-course corrections that may be required.

The review process for the NPAC will work on the following measures for the next five years:

- The new NPAC will be drawn up by a specially formed joint drafting team composed of different Ministries, institutions, NGOs and independent experts.

- An interactive mechanism will be set up to review the progress of the NPAC implementation. State Plans of Action for Children (SPACs) will be formulated by all State Governments in tandem with national targets and timelines.
- An annual review meeting of the Central and State governments will be held to review the progress of the NPAC.

NATIONAL GUIDELINES ON INFANTS AND YOUNG CHILD FEEDING

These guidelines emphasize the importance of breast feeding. Breast feeding must commence immediately after birth and continue exclusively for six months before other forms of milk are introduced. Appropriate and adequate complementary feeding must commence there after and breast-feeding can continue for up to two years.

A review of recent, sound evidence from India and other countries reveals a number of lessons for tackling malnutrition, which are summarized below.

Complex causes of malnutrition*:* It is clear from the literature that there are multiple, interlinked causes of malnutrition and that there will not be one simple remedy for it. The evidence indicates that holistic and integrated interventions will be required to address malnutrition.

Core determinants*:* Most evidence indicates that malnutrition is closely linked to poverty and purchasing power. In addition, improving nutrition is linked with gender equity and increasing girls' and women's education, improving infant and young child care and feeding (e.g., early initiation, exclusive breastfeeding up to six months, timely and appropriate complementary feeding) and improving access to safe drinking water.

Target groups*:* Based on the available evidence, the most important target groups appear to be children under two years of age and women (adolescent girls, pregnant women and lactating mothers). The target group must also include the most vulnerable, such as both

the rural and urban poor. In addition, it is important to determine the true "denominator" (the total number) of people who need to be reached with services and information - and to ensure that needy and vulnerable groups are not missed. Unfortunately, many Government programmes are not using a denominator based approach and, therefore, are not effectively planning for, or reaching out to the true number of persons in need.

Critical interventions: There are a number of interventions proven to contribute to improving malnutrition and overall health; timely initiation of breastfeeding within one hour of birth, exclusive breastfeeding during the first six months of life, timely introduction of complementary foods at six months, age-appropriate complementary feeding for children 6-24 months (adequate in terms of quality, quantity and frequency), safe handling of complementary foods and hygienic complementary feeding practices, full immunization and annual vitamin A supplementation with deworming, frequent, appropriate and active feeding for children during and after illness (including oral rehydration with zinc supplementation during diarrhea), timely and quality therapeutic feeding and care for all children with severe acute malnutrition and improved nutrition for women (especially adolescent girls, pregnant women and lactating mothers)48.

Empowerment and behavior changes*:* Evidence and programming experience show that significant improvements in nutrition will require sustained changes in behaviours. Particularly important are changes in the areas of breastfeeding, complementary feeding and care of women before and during pregnancy.

However, there is growing evidence that these changes may not be possible by merely providing nutrition services or information, but will require addressing social and cultural issues, such as the status and value of women and girls, son preference, the social exclusion of a number of vulnerable groups and control over assets and decision making by women and

other vulnerable groups. This means that empowerment efforts will need to be combined with nutrition education and behavior change activities.

***Clean water and hygiene**:* The evidence shows significant impact on nutrition and health status can be achieved with access to clean drinking water and improved hygiene habits, especially hand washing. Young children are the most vulnerable to the effects of polluted water and poor sanitation, which contribute to diarrheal diseases, pneumonia, neonatal disorders, and malnutrition - the leading killers of children under age five. Improved basic sanitation (such as use of toilets) alone could reduce diarrhea-related morbidity by more than a third; improved sanitation combined with hygiene awareness and behavior change could reduce it by two thirds.

***Food availability and access**:* Agriculture is fundamental to the achievement of nutrition goals, as it produces the food, energy and nutrients essential for human health and well being. The five main pathways by which agriculture affects nutrition are 1) increased consumption from increased food production (production for own consumption); 2) increased income from the sale of agriculture commodities (production for income); 3) empowerment of women agriculturalists and related gains in children's nutrition and welfare; 4) lower real food prices resulting from increased food production; and 5) macroeconomic growth arising from agricultural growth54. In food-insecure populations, nutrition education or other interventions cannot have a positive impact without adequate food availability.

***Micronutrient malnutrition**:* Evidence shows that micronutrient malnutrition can be addressed successfully through dietary diversification and through micronutrient supplements, depending on the situation. Some programmes showed success in improving nutrition through locally produced low cost, nutrient-dense, ready to eat foods (e.g., produced by self help group). Food-based options as well as micronutrient supplementation and food fortification options should be considered and promoted, based on a number of local factors,

such as availability of nutrient dense foods, cost of such foods, availability of fortified foods or supplements, cost of fortified foods or supplements and therapeutic needs (such as for sick or malnourished children). Deworming has been shown to enhance the success of micronutrient programmes.

In this chapter an attempt has been made to present critical review of literature on socio economic challenges and nutrition of children in six sections. The review points out a few research gaps. They are:

. Firstly, there have been very few studies on malnutrition of children in NE India and very few topics were taken up in research to study the factors contributing to stunting, wasting and underweight in children especially in Mizoram. (See except a study in N.E. India by Rao et.al...2004).

Secondly, Though the seriousness of this problem in these hilly states was felt by policy makers and academics alike, there is only one study in Mizoram reported so far (see Lalhminghlui), and as stated earlier there is no studies (other than NFHS, RCH, and ICDS) or research on childhood under nutrition in Mizoram which would reveal the stunting point for child development.

Thirdly, although several recent studies have studied the problem of under-nutrition among rural children in different parts of India there is scanty information regarding under-nutrition among children of Mizoram.

Fourthly, factors affecting malnutrition in children are not clearly identified.

Fifthly, according to the research, girl child are more undernourished in comparison with boys. Therefore, impact of gender difference with regard to childhood under nutrition has not yet been explored.

Sixthly, one study conducted in North Eastern region has found that socioeconomic status of the family plays an important role in the nutritional status of children. However, there are no studies that have been conducted in Mizoram on this.

Seventhly, child malnutrition results from multiple factors, and even though each context has its own unique features, the etiology has many more commonalities. Thus, for program planners and policy makers intent on alleviating malnutrition to begin designing and implementing programs in their particular settings from scratch is strikingly inefficient in Mizoram. And also some studies on malnutrition of children had taken small samples which limit the accuracy of the results for generalization.

Lastly, many of the studies have been based on technological rather than social perspective. Such knowledge can make broader theoretical contributions to our understandings of deliberate social change in response to resource scarcity. The present study attempts to fill these research gaps by probing into the socio-economic challenges and its impact on children nutritional status in Mizoram.

In the light of the review the next chapter presents the methodological aspects and the setting of the present study.

CHAPTER III

METHODOLOGY

The earlier chapter presented a critical review of literature and the major research gaps therein. In this chapter the setting of the present study and methodology are presented. This chapter has been structured into two major sections. The first section deals with profile of the study areas including the profile of the High and the Low Development Communities. The second section deals with the methodological aspects of the present study including its objectives and hypotheses, research design, sampling, tools of data collection, data processing and analysis and limitations of the present study

3.1. The Setting: Profile of the Study Area

The present study was conducted in the semi-urban localities of Khawzawl town, Champhai District, Mizoram state. The profile of the studied areas is presented in two subsections viz., the Khawzawl Town and the localities.

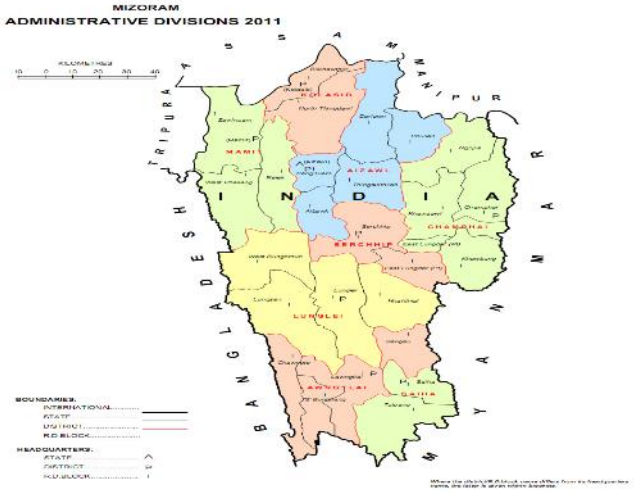

Figure 3.1 Champhai District map

3.1.1. The Khawzawl Town

Khawzawl is a census town in Champhai district in the Indian state of Mizoram. It was announced as a district capital of Mizoram since August 2008. As of 2001 India census Khawzawl had a population of 9286. Males constitute 51% of the population and females 49%. Khawzawl has an average literacy rate of 78%, higher than the national average of 59.5%: male literacy is 80%, and female literacy is 76%. In Khawzawl RD Blocks, 16% of the population is under 6 years of age. According to Statistical Handbook of Mizoram 2010 (Latest) and Khawzawl RD Block have a total population 39,803 which constitutes Male 20,137, Female 19,166 and also there are 7660 households. But for the Khawzawl town the total population is 11405 which constitutes male 5797, female 5608 and also there are 2487 households, and the total population of children 0-6 years is 2172 which constitutes male 1101 and female 1071 (Census of India 2011). Khawzawl is located north of the Tropic of Cancer in the northern part of Mizoram. It is also a storehouse of Government Offices for the neighboring villages. Its geographical coordinates are 23° 32' 4.19064" North, 93° 10' 58.75248" East. It is situated on a ridge of 1187 meters (3895 ft) above sea level, with the Tuichang river valley to its west and the Tuipui river valley to its east. Khawzawl has a mild, sub-tropical climate due to its location and elevation. Under the Koppen climate classification, Khawzawl features a humid subtropical climate albeit a more moderate version of the climate. In the summer the temperature ranges from 20-33 degrees Celsius, and in the winter 4.5-20 degrees Celsius.

3.1.2. The Localities Studied

The present research was carried out in two communities of Vengthar Veng which represents the High Development Community and the other community was Lungvar veng which represents the Low Development Community. For better understanding of the community participatory approach was adopted by conducting Social map, service and opportunity map, Time line and Daily Activity schedule of mother in the two communities,

the participants were the members of these two communities itself. The detailed descriptions of the two communities were discussed below.

3.1.2.1. Vengthar Veng

As mentioned above participatory methods of timeline, social map, Daily activity schedule and service and opportunities map for children was conducted for better understanding of the community. The present community represents the High Development Community. From the Social Map (see figure 3.2) we can see that there are four Anganwadi centers in the community. There are also health sub-centers, government primary schools, middle school and High school Government and private, market, community hall and library which were owned by Young Mizo Association (YMA) of the community. The map had also shown that there are number of church from various denominations. Organizations like Young Mizo Association (YMA), Mizo Hmeichhe Insuihkhawm Pawl (MHIP), Mizoram Upa Pawl (MUP) and CORNERc Drop in Center has their own separate office/house. Government offices like ICDS, HDO,SDEO, SSA and BRC, PWD and Banks are also located in the community.

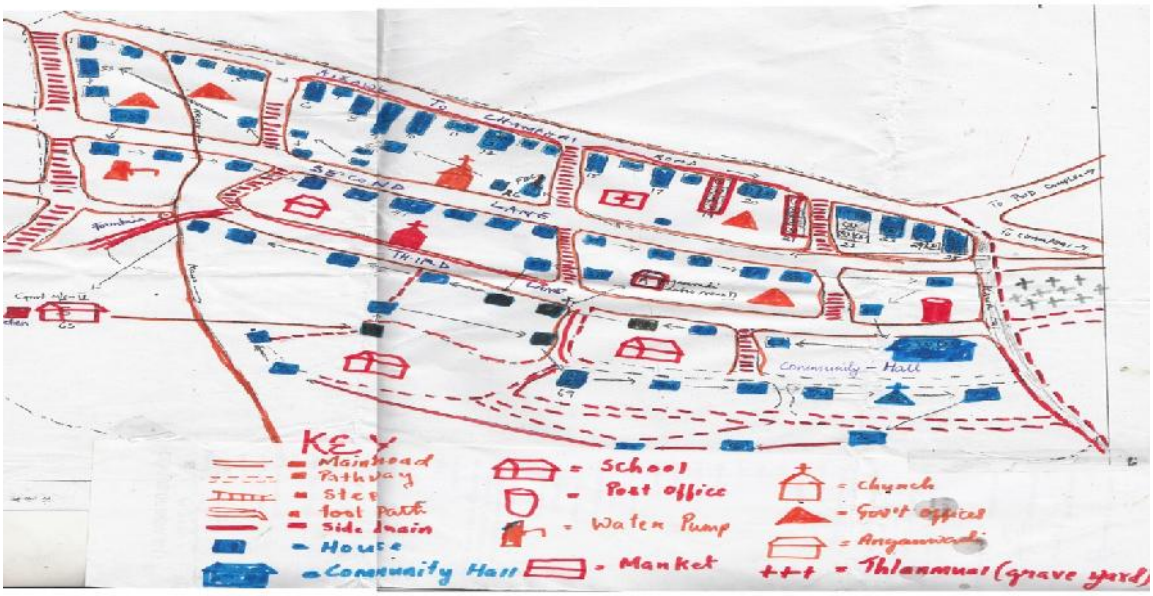

Figure 3.2 Social Map of Khawzawl Vengthar

From timeline of the community (see table 3.3) and from the secondary information collected detailed information of the community was given. The community area was given by Khawzawl Village Council for household residents in the year 1972. And from 1973 some family had came to settled and the first house was built by Mr Lalhlira and family, by the end of the year 1973 more than 80 family had settled in the community, with the consent of the first settler the community name was given as 'VENGTHAR'. In the same year 1973 PWD sub-Division was established at Vengthar. The first church which was owned by Presbyterian was built in 1974. And in 1974 YMA started to function in the community and after went through several hardships the organization continues to function till date Moreover, in the year 1975 the first Village council election was held and Mr Lal was elected as the first VCP for Vengthar Community. However, in the same year the first Government Primary School Which was called Primary school IV was established, and in 1975 Government Middle School II was established by Government,. MHIP started to function in the year 1986. So after one year passed, in the year 1988 Mizoram Rural Bank had opened an office in Vengthar, and in the same year 1988 the community area was again defined by the Khawzawl Village council. Model Private High School was open in 1989 and the next year 1990 Government High School was established in the community. In the same year ICDS (DCPO) office was inaugurated and started to function till present, and in 1996 the first Anganwadi Center was established with the help of the community leaders and the community people, and right now there are 3 Anganwadi centers functioning in the Community. And in 1998 Horticulture Division Office was opened by the state Government, and in 2004 BRC and SSA functioned as a combined office in Vengthar, in the year 2009 SDEO office was established. Recently, in the year 2010, SBI was functioning in the community till date. Presently, there Are 7 churches in the community, 3 Primary School out

of which 2 are private, 2 High School which were private and Government, 2 Middle School owned by Private and Government.

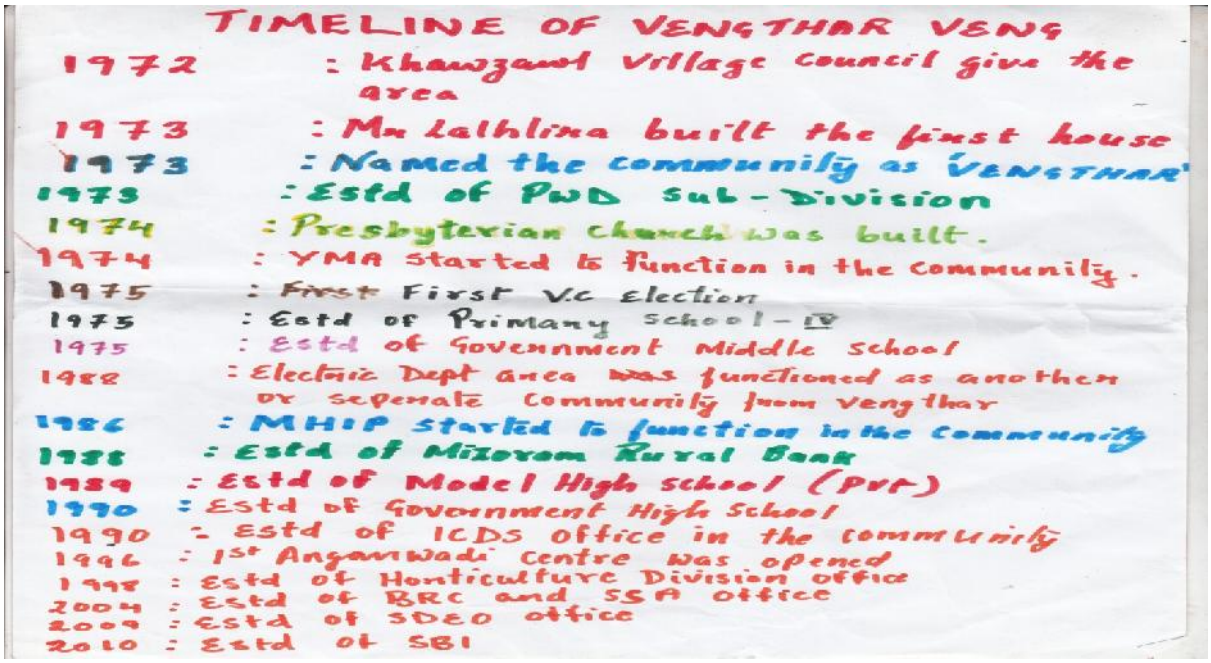

Figure 3.3 Timeline of Khawzawl Vengthar

Service and opportunities map

From the services and opportunities map for children (see figure 3.4) it was shown that various services and Opportunities that exist within the community are far better off than the Low development Community, as there are Anganwadis, Playground, Schools, sub centre, ICDS office, SSA office and education office. However, Comparing to urban Community, the existing Service and Opportunities available for children are limited, and in time of sickness and serious health problems they have to go to PHC which was 3 Km away and was not well-equipped hence in serious matter they have to travel to either Champhai or Aizawl.

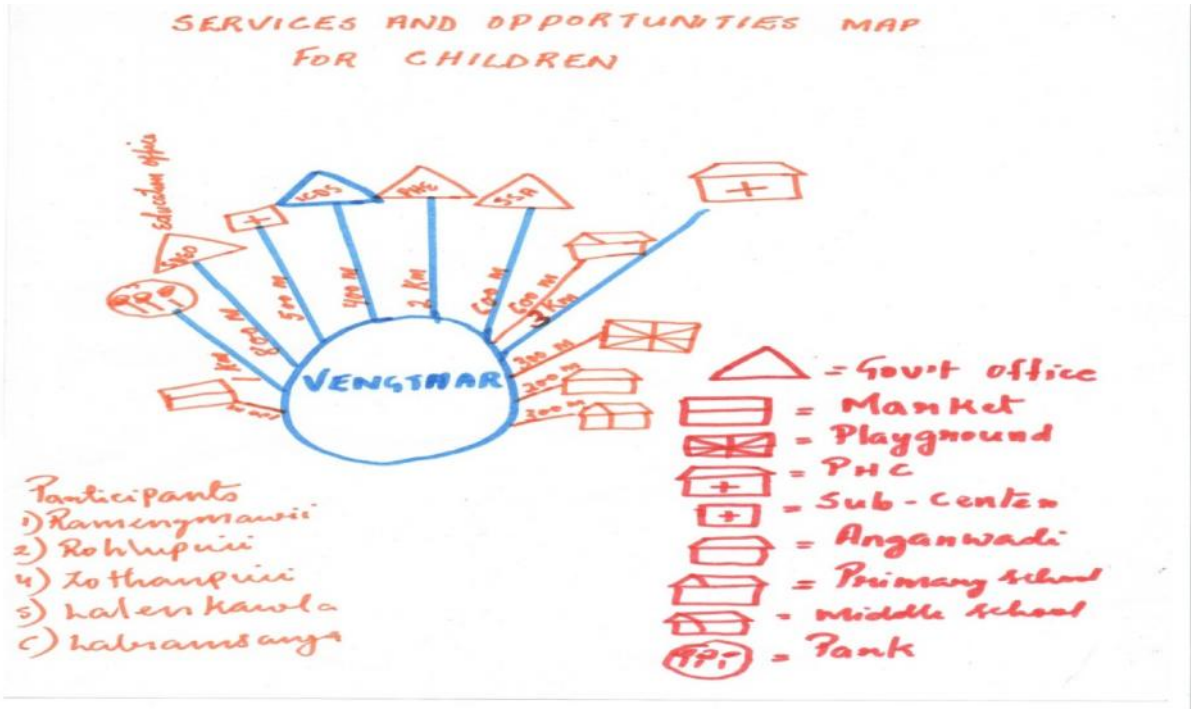

Figure 3.4 services and opportunities map for children

Daily Activity Schedule

From the Daily activity schedule of mothers (see figure 3.5) and from the secondary information collected detailed information of mother activity was given and not much difference were found in the high development and low development community. Most mother from High Development Community usually wake up at 7am but some working mothers wake up around 6am since they have to prepare food and have to send their children to school and go to work around 9am to 10am. On the other hand, mothers with Anganwadi going children take their children to attend anganwadi around the same time till 12am, and after that engaged themselves to prepare lunch and do household chores till 2pm and then again pickup the children from the school. And from 2pm to 4pm they prepare dinner for the family, and for some working mother they come back from their work and do the same, they usually have dinner around 4pm to 6pm. From 6pm to 9pm they help their children to study, and from 9pm to 10pm they usually go to sleep.

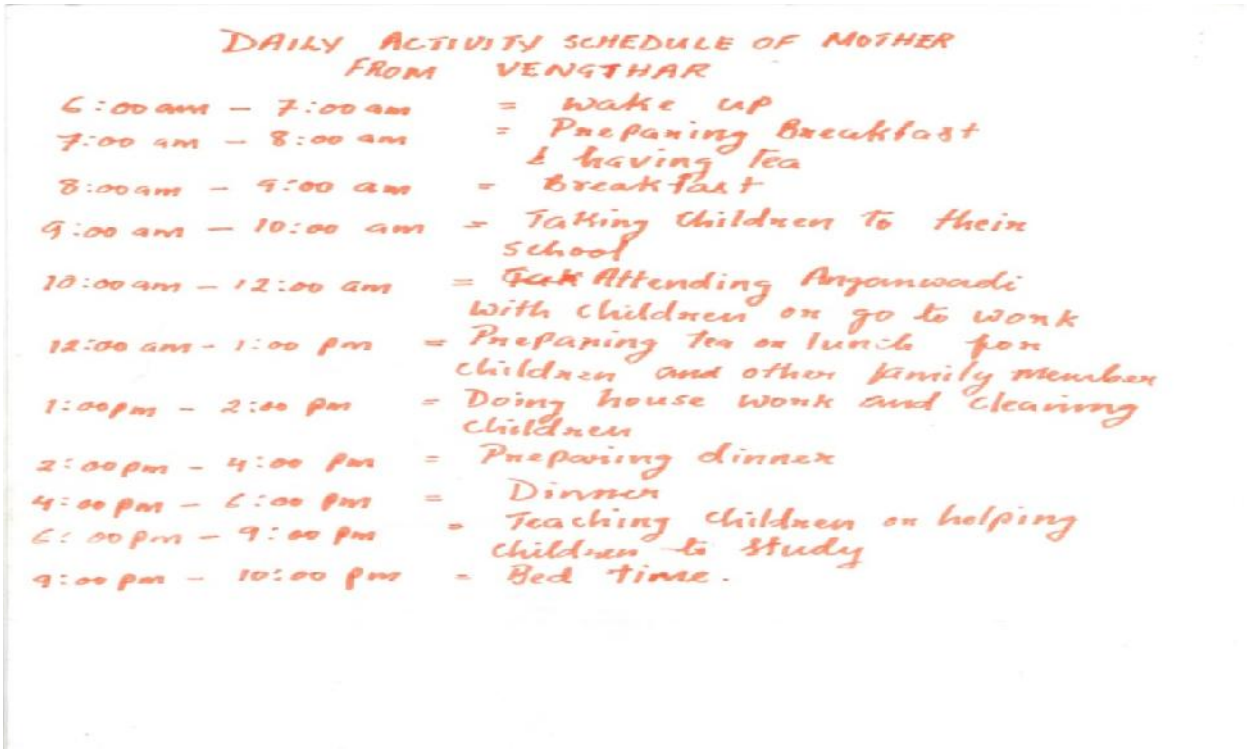

Figure 3.5 **Daily Activity Schedule of Mother from Khawzawl Vengthar**

3.1.2.3. Lungvar Veng

This community represents the Low Development Community. Social Map, Daily activity schedule and service and opportunities map were also conducted in this community and also secondary information was obtained for better understanding of the community. Currently there are 1230 people in the community with 154 households. According to the VC record 40% of the total household were BPL families, however, with the establishment of 2nd IR battalion in the community the average household income was high. From the Social Map (see figure 3.4) and Service and opportunity map it was shown that the services available in the Low Development Community were very different to the High Development Community.

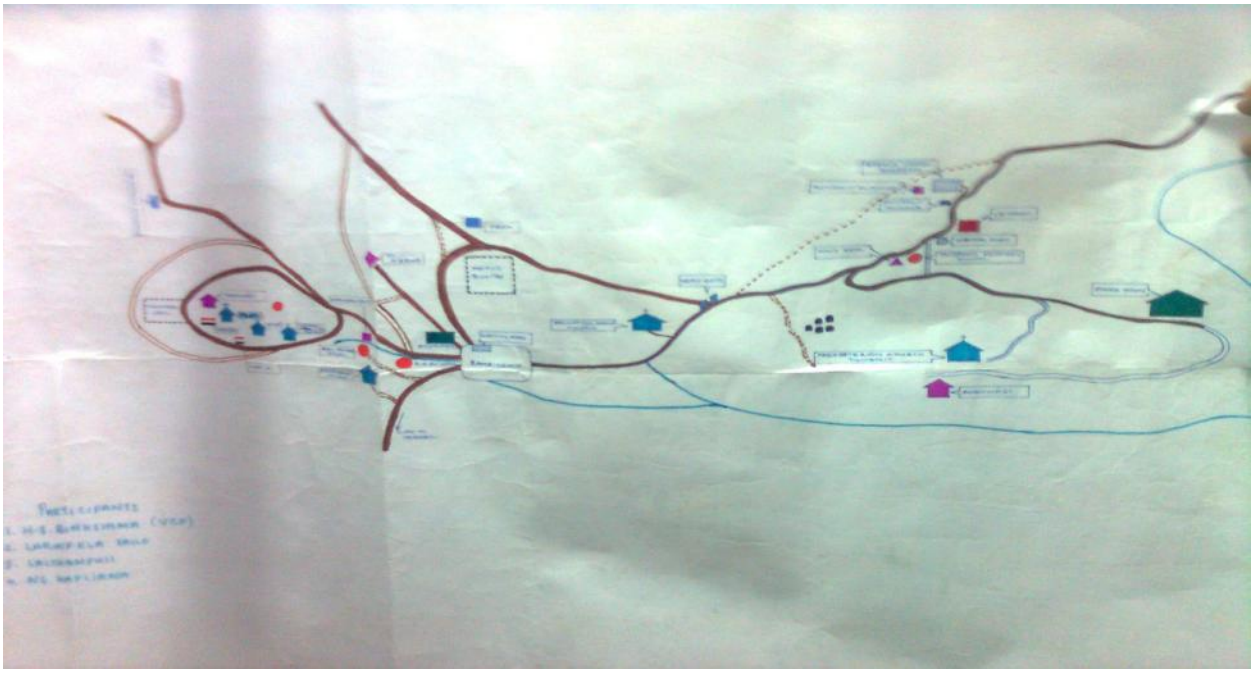

Figure 3.6 Social map of Khawzawl Lungvar

From Timeline (See Figure 3.7) and from the secondary data collected in the community. The Community area was given by the Village Council in the year 1980, however, in the year 1975 Mr lalengmawia and his family already settled there. The Community was very young and thus most community people are migrants and immigrants. In the year 1995 the first Anganwadi center was established under ICDs scheme, and again in 2010, another Anganwadi was established. Government Primary School was established in the year 1998, in the same year the first Village Council election was held and Mr lalzahminga was elected as the President. 2nd IR Battalion Sub-Headquarter was established in the community by the state Government in the year 2003. In 2005, the community celebrates silver jubilee of the community. In the year 2006, a fire tragic occured in the community which burnt the Primary school and 7 houses, however in the following year 2007 the Primary school was re-built. In 2009 Mizo Hmeichhe Insuihkhawm Pawl started to function in the community, same year Young Mizo Association was functiong, and also in

the same year 2009 SCERT-PIED was established in the community.

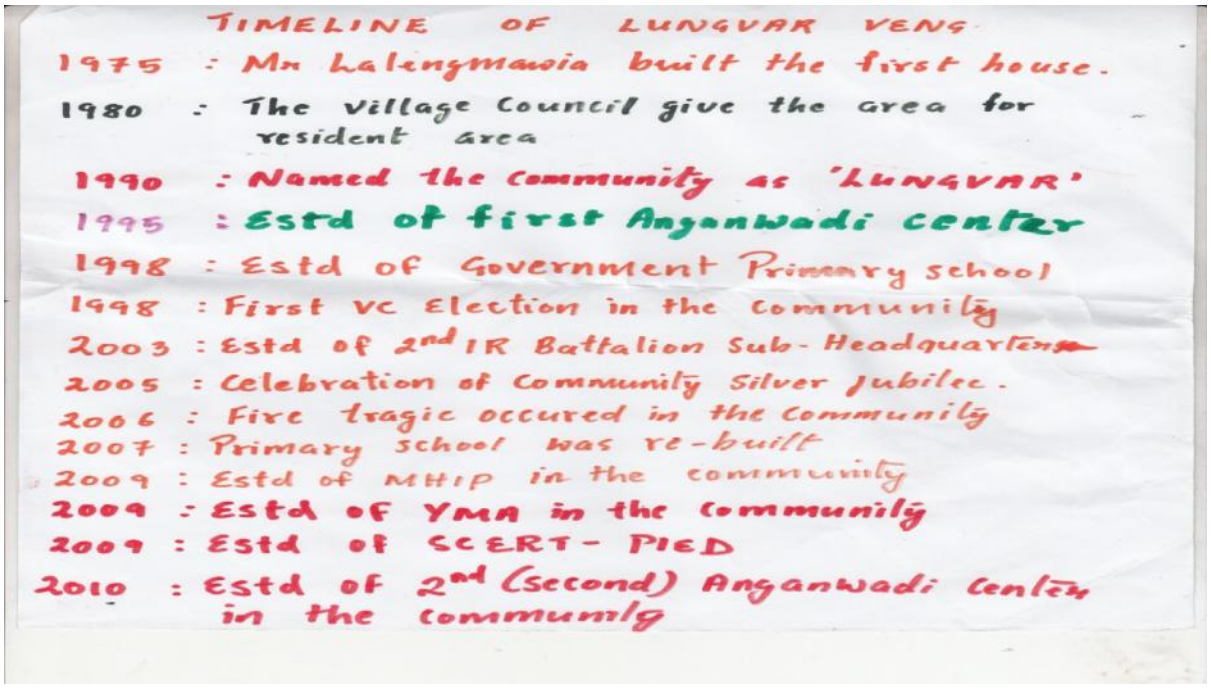

Figure 3.7 Timeline of Khawzawl Lungvar

From the services and opportunities map for children (see figure 3.8) it was shown that various services and Opportunities that exist within the community are very limited within the community. The community has two Anganwadi center, four public water points, and one primary school and there is no other services available for children and they have to go to PHC which was 7km away, there is no bus services in the Khawzawl town. As mentioned above there is no High school and middle school which will be useful and beneficial for the community people instead of sending their children outside the community which is expensive at cost. Thus the accessibility of Health care services like sub-centre is very much needed for the access of better health care facilities for each and every member of the community people. At the same time easy accessibility of water is also needed since there

is no water connection for household the community people simply depend on the spring - water and public point which is insufficient for supporting every member of the household.

Figure 3.8 Service and opportunities map of children from Lungvar

From the Daily Activity schedule of mothers (see figure 3.9) most mother from Low Development Community usually wake up at 6am, and those non working mother around 7am and there is no much difference was found comparing to High Development Community in Daily Activity Schedule of mothers, they usually were occupied with household work and taking care of their children. But on the other hand, most women in the Low Development community are working in the field and thus there is no sufficient time to look after children,

or take them to Anganwadi's, but some children are taken by Anganwadi worker or their grandparents.

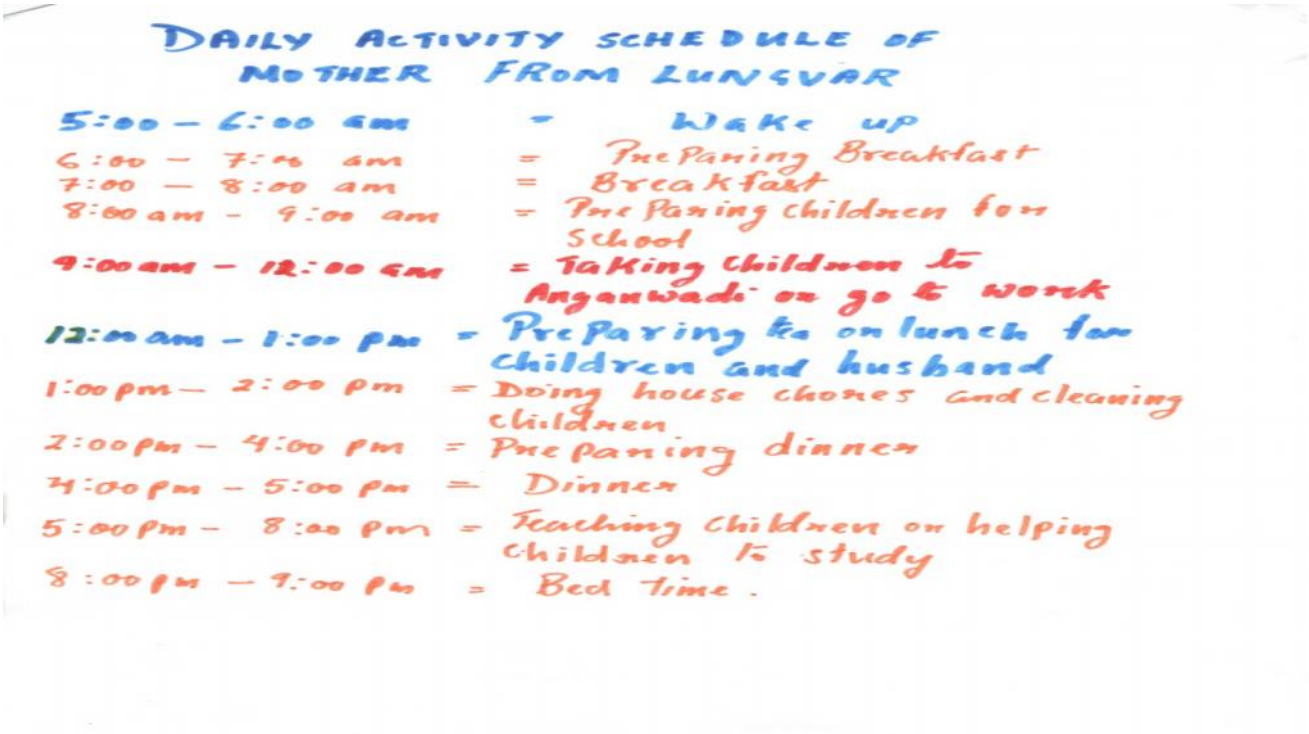

Figure 3.9 Daily Activity Schedule of mother from Lungvar

3.2. Methodology

3.2.1. Objectives

The following are the objectives of the present study

- To compile the profile of children in poor and non-poor households.
- To find out the impact of socio-economic condition on children nutritional status.
- To assess the nutritional intake of the children across gender and to determine the factors associated with it.
- To identify the factors contributing to stunting, wasting and underweight in children.
- To suggest measures for social policy and social work practices**.**

3.2.2. Hypotheses

To provide focus to the study the following hypotheses were formulated and their empirical validity will be tested with appropriate statistical tests.

- The nutritional status of children is directly related to mother's educational status and socioeconomic status of the family.

The hypothesis draws its inspiration from studies by Jane E. Miller and Yana V. Rodgers (2009) in Cambodia, Jane Kabubo-Mariara, Godfrey K. Ndenge and Domisiano K. Mwabu (2008) in Kenya, and Santosh Mehrotra (2006) in South Asia. The discussion on this hypothesis is expected to throw light on the importance of mother's educational condition on children's nutritional status and the role of socio economic factors in determining the nutritional intake of children.

3.2.3. Research Design

The present study is cross sectional in nature and descriptive in design. The study is based on primary data collected through field survey with household structured interview schedule from the sample households. Participatory methods of Social map, Daily activity schedule and service and opportunities map were employed for better understanding of the community and the services available for children. The field survey was conducted during the months of August, September and October 2011 while the reference period of the study was January-December 2011.

3.2.3. Sampling

A multi stage sampling procedure was followed to select semi-urban area, localities and households.

There are seven poor areas of 1395 households and 4 non poor areas of 1105 households, the 11 localities (Veng) in Khawzawl were classified in to high and low on the basis of indicators of socio economic development and infrastructure development. One representative locality was chosen from each category on the basis of composite index of

development i.e. to represent the High Development Community Vengthar veng was chosen and for representing Low Development Community Lungvar was selected.

Lists of poor and non-poor households were compiled in consultation with the presidents of Village Council (VC) and Young Mizo Association (YMA).

Finally, systematic random sampling procedure was adopted for selecting households proportionately from the lists of poor and non-poor households.

3.2.4. Tools of Data Collection

Structured household interview schedule was used for collection of data for the present study. The interview schedule contains five sections with a number of sub-sections. The major sections are demographic profile, socio-economic profile, nutritional assessment, demographic information and child's health and nutritional history, anthropometric measurements, mother's knowledge and practice regarding child's nutrition and food frequency (see appendix). Pilot study was firstly conducted in one community and in the light of that a structured interview schedule was framed. It was pre-tested in a community and in the light of the pre test modifications were made in the interview schedule (see appendix). Then final survey was conducted on the sample of households selected.

3.2.5. Data Processing and Analysis

The primary data collected through field survey was processed with the help of Microsoft Excel and analysed with SPSS package. Apart from simple percentages, ratios, percentages and averages, the study used Karl Pearson correlation test for testing the hypotheses.

3.2.6 Limitations

The main limitation of the study was that sample taken for the study was too small therefore we cannot generalize for the whole population of Mizoram, Moreover the nutritional history of children in earlier age was not available and it uses memory recall to

elicit response on children's health status and nutritional intake. Also measuring or assessing household socio-economic status is difficult as those families who falls under BPL category had actually high income comparing to Non BPL family. However, sincere effort was made by the researcher to find out factors contributing to stunting, wasting and underweight in children and probe into examine the impact of socio-economic condition on children nutritional status.

This chapter has presented the setting and methodological aspects of the present study. The next chapter presents results and discussion of the study.

CHAPTER IV

RESULTS AND DISCUSSIONS

In the present chapter an attempt has been made to present the results of the analysis of data collected through field survey in two localities of Khawzawl. This chapter has been presented in five major sections each with sub-sections. The pattern of section arrangements are as follows:

4.1. Profile of Respondents and Their Households

The profile of the respondents is presented in five subsections viz., demographic characteristics of the two localities, family characteristics, social characteristics, economic characteristics, Monthly and Annual Household Income, Family Access to resources/ assets, Livestock owned and details of land possession.

4.1.1. Demographic Characteristics of the community

The demographic characteristics comprises of age group, gender, marital status, age at marriage and educational status of the studied communities (see Table 4.1).

The age group was classified into 18-27 years, 28-37 years, 38 to 47, 48 to 57, 58 to 67, and 67 years and above. From the findings, the age group of 28-37 years constitutes a higher percentage in both the communities. Almost half of the populations (47.50%) in the High Development Community were in the age group of 28-37 years category which could also be said as middle age. However, in the Low Development Community half of the populations (60.00%) were in the age group of 28-37 years middle category. The age group of 18 to 27 in both the communities constitutes 28.75 %, and 38-47 years constitutes 15.00% in both the communities. Old category in both the communities however had a small percentage. The overall mean age for the Low Development Community was 30.98 years and 33.63 years for the High Development Community. Thus the mean years in both the

communities falls under the middle age category of 28 to 37. Similar finding was reported in census of India 2010 survey.

In respect to gender the female respondents constitutes a higher percentage in both the communities. However it was found that the husband as the bread winner of the family is away at work and the mothers stay at home to look after the family. A similar finding was also evident in earlier study of children of poor households (see Lallawmsangi, 2009).

As far as Marriage age is concerned 7.50% from the low development community were married before reaching the age of 18 years which was not found in high development community, 97.50% in the low development community were married at the age of 18-27 whereas in high development community the percentage is 75.00 and does not show much difference. Only 6.25% were married at the age of 28-37 in both the communities. And the mean age of marriage in low development community was 21.18 years and 22.00 in high development community. The same pattern was evident in the earlier studies of Child Rearing Practices among Mizo (See H. Elizabeth, 2004)

The educational status of the respondents was classified five levels viz.,, primary (below 5), middle (5-7), high school (8-10), higher secondary (11-12), and graduate and above. In the Low Development Community primary level constitutes a slightly higher percentage of 15.00 per cent to that of 12.50 per cent of the High Development Community. However in the primary level, middle level, high school level the High Development Community had a slightly higher percentage- in middle level the High Development Community had a percentage of 37.50 percent to that of 30.00 percent, and in high school level the High Development Community scores 47.50% whereas the Low Development Community scores 45.00%. However, the Low Development Community had a higher percentage from higher secondary level to graduate and above...i.e. in the higher secondary level the Low Development community had a percentage of 5.00 per cent to that of 2.50 per

cent in High Development community. Also in the level of graduate and above the Low Development Community constitutes 5.00% which was zero percent in the High Development Community.

4.1.2. Family Characteristics

The family characteristics includes type of family, size of family and gender of head and the details were discussed below (see table 4.2).

In reference to type of family, nuclear family constitutes a higher percentage in both the studied communities. It constitutes 80.00% in the Low Development Community and 65.00% in High Development Communities. Joint family constitutes only 27.50% from the total population of both the community. This shows that even though Low Development Community households were large in number they were nuclear in nature. A similar finding was also evident in an earlier study of Children from BPL families (see Freddy Lalramngheta, 2007).

The size of the family was classified into- Small (1-3), Moderate (4-6) and Big (7 & above) so as to examine food availability at homes. The moderate size of family constitutes a higher percentage of 80.00% in both the High and Low Development Communities. In small size of the family Low Development Community had 7.50% whereas High Development Community had 2.50%. Big size of the family in High Development Community was higher than that of Low Development Community i.e. 17.50% in High and 12.50% in Low Development Community. The mean size of family in both communities was 5.05 per cent in High Development Community and 5.40 per cent in Low Development Community. This means that there is not much variation in the mean size of the family. However, we can see that the High Development Community has slightly higher family members. Similar results can be seen in the earlier study in Mizoram (see Lallawmsangi 2009 and Lalhruaitluangi Chhangte, 2010).

4.1.3. Social Characteristics

The social structural characteristics include sub-tribe, denomination, house live in and type of house. Such were discussed below (see table 4.3).

In respect to sub-tribe the respondents' households belonged to Lusei, Paihte, Ralte, Hmar and Pawih communities. Paihte is the predominant tribe in both the studied communities i.e. half (45.00 %) in High Development Community the Low Development Community and two-fifth (42.50 %) in the High Development Community followed by Lusei 32.50% in both the community which was followed then by Ralte i.e. (12.50%) in the Low Development Community and (15.00%) in the High Development Community. Very few belong to the sub tribe of Hmar i.e.7.50% in High Development Community and 12.50% in Low Development Community.

With reference to religious denomination, Presbyterian was the dominant denomination within the studied communities i.e. 57.50% in the High Development Community and (47.50% of the population in the Low Development Community. It was followed by United Pentecostal Church i.e. 32.5 percent and 27.50 percent in both the communities. It was then followed by Salvation Army i.e. 10.00 per cent in the Low Development Community and 12.50 per cent in the High Development Community. And the Baptist Church of India constitutes 5.00 percent in High Development Community and Zero percent in Low Development Community. While Presbyterian serves as their dominant denomination the High Development Community has a diverse denominations functioned within the community. Similar results can be seen in the earlier study on Rights of the child in Mizoram (see R.Lalrinchhani, 2003).

The house live in is divided in to two- owned and rented, in Low Development Community most of the respondent lived in their own house (72.50%) and pretty much same result was shown in High Development Community (67.50%). However, 27.50% and 32.50%

in Low and High Development Community live in rented house. Thus, majority of the respondent in both the community resided in their own house. Similar finding was reported in the earlier study of Children from BPL families (see Freddy Lalramngheta, 2007).

Regarding the type of house, it is classified into- Kutcha/thatched, semi Pucca and pucca house. 60.00% of the respondent live in Kutcha/thatched in both communities constitutes by 65.00% in High Development Community and 55.00% in Low Development Community. A similar finding was also evident in an earlier study of children from BPL Families (see Freeddy Lalramngheta, 2007).

4.1.4. Economic Characteristics

The economic characteristics of households of the studied communities comprised of socio-economic category, primary occupation, secondary occupation and annual households income. Assessing the economic characteristics was very important in order to find if there was any positive or negative relationship in children nutritional status, and to find out the impact on children food intake, thus, understanding the socio economic characteristics is an important prerequisite for successful assessment of children nutritional status.

In the Low Development Community almost half (45.00%) of the households belongs to poor category of households. However, less than three-tenth (22.50%) of the High Development Community belongs to the poor category. On the other hand in the High Development Community households belonging to non-poor comprises of more than three-fifth (77.50%) to that of nearly half (55.00%) of the Low Development Community. Thus the Low Development had higher percentage of poor category of households. Similar results can be seen in the earlier study on early childhood care and Education (see Lalmuankimi, 2010).

Number of earner was divided into more than two (2), more than three (3), more than 3 and above and more than five (5). Three-tenth (30.00%) in the Low Development

Community had more than two earners in the family while four-tenth (40.00%) of the High Development Community had more than two earners in the family. However, half from both the community (57.50%) from Low Development Community and (52.50%) from High Development Community had more than three earners. On the other hand there was no much difference in both the community in the number of earners in three and above as the Low Development Community had less than one-eleventh (5.00%) to that (7.50%) in High Development Community. However the Low Development Community had less than one-tenth (7.50%) of more than five (5) earner while the High Development Community scores zero. Therefore, the Low Development Community had more earners. Similar observation was also made in the earlier studies (See lallawmsangi, 2009).

Total numbers of Dependent were classified into more than two (2), more than three (3) and three and above. The Low Development Community had less than one-eleventh (5.00%) of more than two dependent in the family whereas it was zero in the High Development Community. Two-eight (25.00%) in the Low Development Community had more than three dependent in the family whereas less than one-tenth (7.50%) in the High Development Community had more than three dependent. However, more than four-fifth (92.50%) in the High Development Community and less than four- fifth (70.00%) in the Low Development Community had more than three dependent. Similar observation on dependent was also made in earlier study (See lallawmsangi, 2009).

Primary occupations were categorized into skilled labor, Daily labor, Farmer, Private business and Government Servant. One- eight (12.50%) in the Low Development Community were engaged in skilled labor while two-tenth (20.00%) of the High Development Community were engaged in this occupation. However, government workers were more in number in the Low Development Community as it holds one-fifth (20.00%) to that of only less than two-eleventh (17.50%) of the High Development Community. However

people engaged in Farming were more in percentage in the Low Development Community i.e. two-tenth (20.00%) to that of less than one-tenth (2.50%) of the High Development Community. Overall, taking from the two localities primary occupation was mainly concentrated on Daily labor (50.00%) followed by Government services (18.75%). Similar pattern was reported in the earlier study of Children from BPL families (see Freddy Lalramngheta, 2007).

4.1.5. Annual Household Income and Monthly household Income

The level of monthly and annual households' income was also observed. Household monthly income divided into below Rs2000, Rs2000-5000, Rs 5000-8000, Rs 8000-11000, Rs 11000-14000, Rs 14000-17000, Rs 17000-20000 and Rs20000 and above. More than three-tenth (35.00%) in the Low Development Community monthly income was Rs 2000-5000, which was pretty much same with (37.50%) in the High Development Community. (See table 4.5).

The mean annual income in Low Development Community falls between Rs100000-200000, whereas in the High Development Community it goes up between Rs 200000-300000. Similar observation was also made in the earlier study (see Lallawmsangi, 2009).

4.1.6. Family Access to Resources/ family assets

Family accesses to resources were also taken into account as this variable was also important for assessing children socioeconomic status and its impact on their nutritional status. More than three-tenth (35.00%) in the Low Development Community and less than two-eight (22.50%) in the High Development Community had access to water connection. Less than one-tenth (5.00%) in the Low Development Community did not access electrical connection while it was cent percent in the High development Community. And three-tenth (30.00%) in the Low Development Community and more than three-tenth (31.50%) in the High Development Community did not access gas connection. (See table 4.6)

Two-fifth (62.50%) in Low Development Community and more than three-fifth (70.00%) in High Development Community have their own land. However, almost cent percent (90.00%) in High Development Community and less than four-fifth in Low Development Community has mobile phone. And more than three-tenth (32.50%) in the High Development Community and less than one-fifth (15.00%) in Low Development Community have their own vehicle. Also almost half (42.50%) in the High Development Community and one-fifth (20.00%) in the Low Development Community have refrigerator. Thus, there was no much difference in family access to resources/assets between the two communities, however; overall the High Development Community slightly had more resources and assets than Low Development Community. Similar finding was also evident in an earlier study of Children from BPL families (see Freddy Lalramngheta, 2007).

4.1.7. Livestock Owned

Livestock owned by household such as pig and poultry were also taken in to account to assess household socio economic status, and their values in the market were also observed. Number of pig rear were classified into- 1number, 2number and 3 number. Almost three-fifth (59.9%) in Low Development Community and more than three-sixth (53.29%) in the High Development Community do not rear pig. However, more than two-sixth (35.00%) in the low development community has one number of pig as of less than one-seventh (12.50) in the High Development community. And also one-tenth (10.00%) in High Development Community and less than one-eleventh (7.50%) in Low Development Community has two number of pig. Only in High Development community with one-tenth (10.00%) has three number of pig. And the average values of the pig were Rs 5000-10000 in both the communities. (See Table 4.7)

Number of poultry was categorized into 1-10 numbers, 10-20 numbers and 20 and above. One-fifth (20.00%) in High Development Community and less than one-fourteenth

(2.50%) in Low Development Community had 1-10 numbers of poultry. And less than one-twelfth (7.50%) in Low Development community and (5.00%) in High Development Community had 10-20 numbers of poultry. Poultry number of 20 and above was only found in High Development community with 2.50 percent.

4.1.8. Details of Land possession

Household land possessions were also taken into account as to analyze family well-being and socioeconomic condition of family. It was classified based on LSC plots- 1pot and 2 plot of land, and duration of possession of land was categorized as permanent and temporary. In both the community more than two-sixth (37.50%) Low Development Community and (32.50%) in High development Community does not have LSC plot of land. However more than half in both the community (57.50%) in Low Development Community and (55.00%) in High Development Community had 1 plot of land. Moreover, more than one-tenth (12.50%) in the High Development Community and less than one-twelfth (5.00%) in the Low Development Community possessed 2 plot of land. Also (97.50%) in Low Development Community and hundred percent in High Development Community possession of land were permanent. (See table 4.8)

4.2. Nutritional assessment

This section includes three (3) sub-sections viz, Demographic Profile of Children, Nutritional History and Anthropometric Assessment/Measurement

4.2.1. Demographic Profile of Children

The demographic profile of children from low development Community and high Development community were collected so as to define children current status and to measure impact of mother's educational level on children nutritional status. The demographic profile are categorized into Childs gender, Childs birth weight, Childs rank order among live siblings, mother and father educational status.

In the Low Development Community more than two-fourth (57.50%) and less than two-fourth (42.50%) in High Development Community were female. And the remaining was constituted by male.

Child's birth weight were classified into 2.25 to 2.50kg, 2.50 to 2.75kg, 2.75to 3.00kg, 3 to 3.25kg, 3.25 to 3.50kg and 3.50kg and above. Yet, two-eight (25.00%) in Low Development Community and two-tenth (20.00%) in High Development Community Childs birth weight were 2.25 to 2.50 kg. However, in both the communities less than one-fourteenth (5.00%) in Low Development Community and (7.50%) in High Development Community Childs birth weight falls under 2.50 to 2.75kg. On the other hand Low Development Community (65.00%) scores more in the category of Childs birth weight between 2.75 to 3.00kg than that of (42.50%) in High Development Community. Meanwhile the High Development Community scores more from 3.00 to 3.25kg up to 3.50kg and above than Low Development Community. The mean child's birth weight from Low Development Community falls between 2.75Kg to 3.00Kg where as in High Development Community it goes up to 3.25 Kg to 3.50 Kg. Therefore, in the Low Development Community child birth weight are low and thus it affects in later years of life of the child (Sapkota VP, Gurung CK. 2009).

Childs rank or birth order is important for studying the position of child in the family, which indicates parents attention to the child, it also has great implications for how the siblings is received or is able to interact with other children. Child's rank/order among live siblings was divided in to first, second, third and fourth. More than two-sixth (35.00%) in Low Development Community and two-fifth (40.00%) in High Development Community children rank first among live siblings. However, almost three-seventh (42.50%) in Low Development Community and less than three-sixth (47.50%) in High Development Community children rank second among live siblings. Moreover one-fifth (20.00%) in Low

Development Community and one-tenth (10.00%) in High Development Community children rank third among live siblings. And in both the community Low Development and High Development less than one-fourteenth (2.50%) children rank fourth among live siblings. Similar finding was reported in the earlier nutritional status study (see R.Lalbiakhlui, 2005).

Children's achievement is strongly related to parental education. Low parental education is related to unemployment and lower family income, which are additional risk factors. In particular, the education level of the mother has a significant impact on child development since she is probably the primary caregiver. The more language a child hears, the more they will use. Mothers with higher levels of education are more likely to talk with their children and use a broader range of vocabulary. Educational level also appears to have an impact on a child's social skills. So, parent's educational statuses were observed. Mother's educational status was categorized in to Primary Level, Middle Level, High School Level, Higher secondary level, Graduate and above. Less than one-sixth (15.00%) in Low Development Community and exactly one-eight (12.50%) in High Development Community had attended Primary school level of education. Yet, less than one-third (30.00%) of Mothers in Low Development Community and more than two-sixth (37.50%) of Mothers' in High Development Community had Middle school level of education, and almost four-ninth (45.00%) of mothers in Low Development Community and more than two-fifth (47.50%) of mothers in High Development Community had high school level of education. On the other hand, less than one-fourteenth (5.00%) in Low Development Community had Higher secondary level of Education which was only 2.50 percent in High Development Community, and the same result was found in educational level of graduate and above in both the community. So, almost half mothers from both the community had high school level of education. The same pattern was evident in the earlier studies of Child Rearing Practices among Mizo (see H.Elizabeth, 2004).

Father's Educational status was also taken in to account so as to determined higher levels of schooling are associated with higher levels of income, which in turn are linked to better health and social well–being of an individual and family. It was divided into Primary Level, Middle Level, High School Level, Higher secondary level, Graduate and above. In the primary level, higher secondary school level and graduate level the Low Development Community had a slightly higher percentage, and the result was similar in middle school level as 35.00 percent from both the community. However, One-tenth (10.00%) fathers in Low development Community and more than one-sixth (17.50) fathers in High Development Community had primary level of education. On the other hand, in High school level High Development Community had 40.00 per cent to that of 37.50 percent in Low Development Community. However, the Low Development Community had a higher percentage from higher secondary level to graduate and above i.e. 5.00 percent in higher secondary level to that of 2.50 percent of in High Development Community and one-eight (12.50%) for graduate and above in the Low Development Community to that of 5.00 percent of the High Development Community. (See Table 4.9)

4.2.2. Nutrition and Health History of children

Nutrition and health History of children comprises of perceived nutritional history, immunization during childhood, perceived health status, diseases suffer most and also determine whether the family income is sufficient for securing food for family and child.

In the High Development Community 57.00 percent to that of 70.00 percent in Low Development Community feels that the family income was not sufficient to secure food for family and child. However, more than two-sixth (37.21%) from Low Development Community and less than one-tenth (8.41%) from High Development Community received assistance from Government. Therefore, the result shows that income was not sufficient for securing food in the family in both communities and only a few households could secure food

sufficiently, also more people received assistance from Government in Low Development Community. Similar finding was also evident in an earlier study of Children from BPL families (see Freddy Lalramngheta, 2007).

More than two-third (56.25%) of Mothers and care taker of children from both the community perceived that their children were malnourished for sometimes. And, children of 82.50 percent in Low Development Community and 65.00 percent in High Development Community get full immunization during childhood. However, in Low Development Community 65.00 percent to that of 62.50 percent in High Development community perceived their children as healthy, and children of one-third (32.50%) in Low Development Community and two-fifth (40.00%) in High Development Community suffered non communicable diseases. Similar finding was also evident in an earlier study of Children (see Lalbiakhlui, 2005). Also 2.50 percent in High Development Community suffered communicable diseases which was zero in Low Development Community. On the other hand 90.00 percent from Low Development community and 77.50 percent from High Development Community afford medicines for their children.

Based on availability of nutrition supplementation, 67.50 percent in low Development Community and 72.50 percent in High development Community received nutrition from ICDS and Mid Day Meal Programme. And also 97.50 percent in Low Development Community and 75.00 percent in High Development Community observed that the sanitation condition was good. Thus, children from High Development Community received more nutrition supplement by attending Anganwadis and school. Similar observation was also evident in an earlier study of Children (see Freddy Lalramngheta, 2007 and Lalbiakhlui 2005).

4.2.3. Anthropometric Assessment

The anthropometric assessment includes Childs weight, Height, Age and Mid Upper Arm circumference during interview so as to determine underweight, stunting, wasting and also acute and severe malnutrition among children.

Childs weights during interview were classified into- 9 to 15 Kg, 15 to 20 Kg, 20 to 25 Kg, 25 to 30 Kg and 30 Kg and above. 37.50 per cent of children in Low Development Community and 45.00 per cent in High Development Community weights 9-15 Kg. And children of two-third (32.50%) in Low development Community and three-tenth (30.00%) in High Development Community weight were 15 to 20 Kg. Also children of more than one-sixth (17.50%) in Low Community Development and one-eight (12.50%) in High Development Community weight were 20 to 25 Kg. However, children weight of 25-30 Kg were similar as of 5.00 per cent in both the community, also the weight of 30 & Above were also similar as of 7.50 percent in Low Development Community and High Development Community. Thus the mean weight of children falls under 15 to 20 Kg in both the community.

Child age during interview were also collected and categorized in to- 2 to 5years, 5 to 10years, and 10 to 14years of age. Children of 22.50 per cent from Low Development Community and 37.50 per cent from High Development Community were under the age group of 2 to 5years of age. However, more than three-sixth (57.50%) in Low Development Community and two-fourth (52.50%) in High Development Community were in the age group of 5 to 10years, and children of one-fifth (20.00%) in Low Development Community and one-tenth (10.00%) in High Development Community were under the age group of 10 to 14 years of age. Thus, the means age of child falls under 5 to 10 years of age in both the community.

The height/ length of the child were divided into 1.00 to 2.00 ft, 2.00 to 3.00ft, 3.00 to 4.60 ft. Children of more than four-fifth (85.00%) in Low Development Community and more than four-sixth (72.50%) in High development Community height were under 3.00 to 4.60ft, and children of 15.00 per cent in Low development Community and 25.00 percent in High Development Community height were 2.00 to 3.00ft. However, 1.00 to 2.00ft category constitutes 2.50 per cent in High Development Community and was zero in Low Development Community. So, the mean height of children from both the community was 3.00 to 4.60ft.

4.3. Mother's Knowledge and Practice Regarding Child's Nutrition

This section presents five (5) sub-sections viz. Mothers Knowledge of Breastfed, Complementary Food Introduction Age, Nutritious Food Regularity, Tea Regularity and Vitamin A and Iron Regularity among children.

4.3.1. Mothers Knowledge on Breastfed

Mothers' knowledge on child breastfed were classified into- Exclusively breastfed, Duration of Breastfed and Perceived necessary years of breastfed.

Child breastfed duration and the condition of exclusively breastfed children and non exclusive breastfed children were contrastingly different; Children who are not exclusively breastfed in the first years of life were likely to become malnourished, stunted and underweight. Therefore, to assess the nutritional status of children history of breastfed is important. However, 15.00 percent of children from Low Development Community and 32.50 percent from High Development Community were not exclusively breastfed in their first years of life. On the other hand 67.50 per cent from High Development Community and 85.00 per cent from Low Development Community were exclusively breastfed. Thus, the result indicates that children from Low Development Community were exclusively breastfed,

on the other hand, Low Development Community neglect breastfed in the first years of life which was very crucial for children development.

Duration of Breastfed was divided into less than one 1 year, 1 to 2 years and 2 to 3 years. In the Low Development Community 90.00 per cent and 57.50 percent of children in High Development Community were breastfed for 1 to 2 years. And children of more than one-sixth (17. 50%) in High Development Community and less than one-fourteenth (5.00%) in Low Development Community were breastfed less than 1 year. While, one-fourth (25.00%) of children from High Development Community were breastfed for 2 to 3 years to that of 5.00 percent from Low Development Community.

Mothers of 90.00 percent from Low Development Community and 62.50 per cent from High Development Community perceived that 2 years was sufficient for breastfed. On the other hand more than one-seventh (15.00%) in High Development Community to that of zero in Low Development Community perceived that 3 years was necessary. Meanwhile, one-tenth (10.00%) in High Development Community to that of 2.50 per cent from Low development Community perceived that one (1) year and five months was sufficient for breastfed. However, 2.50 percent from High Development Community to that of zero from Low Development Community perceived less than one year was sufficient for breastfed, yet, from both the community 7.50 per cent consider that 1 year was sufficient for breastfed. (See Table 4.12)

4.3.2. Complementary Food Introduction Age

The complementary food introduction age were characterized according to complementary foods.

Ages at introducing milled rice were categorized into 0 to 6months, 7- 12 months, 1 to1.6years, and 1.6 to 3 years. More than two-third (67.50%) of the Low Development

Community that of more than two-forth (52.50%) of the High Development Community introduced milled rice between 0 to 6months. And, one-fourth (25.00%) in Low Development Community and less than one-fifth (20.00%) in High Development Community introduced milled rice at 7 to 12 months. Meanwhile, the percentage of introducing milled rice at 1 year to 1.6 years was high in High Development Community which held 22.50 per cent to that of 7.20 percent in Low Development Community. However, 5.00 percent in High Development Community introduced at 1.6 years to 3 years to that of zero in Low Development Community.

Ages at introducing readymade child food were divided into 0 to 6months, 7- 12 months, 1year to1.6years, and not giving. In the Low Development Community four-fifth (82.50%) and five-seventh (77.50%) in High Development Community introduced readymade child food at 0 to 6 months. And one-tenth (10.00%) in both the community introduced at 6 to 12 months, while 7.50 percent in the High Development Community to that of zero percent in Low Development Community introduced at 1year to 1.6 years. However, 7.50 per cent in Low Development Community and 5.00 percent in High Development Community did not give readymade child food to their children.

Fruits introducing age were classified into less than 1 year, 1 to 1.6 years, 1.6 to 2 years and 2 to 3 years. In Low Development Community 15.00 percent and 7.50 percent in High development Community introduced fruits at the age of less than 1year of age. However, four-fifth (80.00%) in High Development Community and more than two-third (72.50%) in Low Development Community introduced fruits between 1.6 to 2 years. Yet, 12.50 percent in Low Development Community introduced at 1.6 to 2 years, similarly 12.50 percent in High Development Community introduced fruits at 2 to 3 years of age. (See table 4.13)

Regarding vegetables, 7.50 per cent High Development Community and 2.50 percent in High Development Community introduced vegetables at the age of less than 1 year of age. Also, 72.50 percent in High Development Community and 42.50 per cent in Low development Community introduced at 1 to 1.6 years, whereas, three-tenth (30.00%) in Low Development Community and less than one-twelfth (7.50%) in High Development Community had introduced at 1.6 to 2 years. Moreover, one-fifth (20.00%) in Low Development community to that of less than one-fifth (17.50%) in High Development Community introduced vegetables at 2 to 3 years.

Overall, meats were introduced earlier in High Development Community than Low development Community; however, 2.50 percent in Low Development Community and 5.00 percent in High Development Community introduced meat to their children less than 1 year of age. Similarly, one-fifth (20.00%) in High Development Community and one-eighth (12.50%) in Low development Community introduced meat at 1 to 1.6 years of age. Whereas, 67.50 per cent in Low Development Community and 52.50 percent in High Development Community introduced meat at 1.6 to 2 years of age. However, 22.50 percent in High development Community and 17.50 per cent in Low Development Community introduced between 2 to 3 years of age.

Eggs were introduced very early in both the community as 57.50 percent in Low development Community and 60.00 percent in High Development Community introduced at 0 to 6 months. However 32.50 percent in Low Development Community and 20.00 per cent in High Development Community introduced at 1 to 1.6 years of age.

Considering the introduction of milk and milk derivatives to children, High Development Community had slightly high percentage than Low Development Community. From Low Development Community 85.00 percent and 87.50 per cent from High

development Community introduced at the age of less than 1 year. However, 15.00 percent from Low Development Community and 10.00 percent from High Development Community introduced at 1 to 3 years of age.

Regarding age at introducing family food, less than one-fifth (22.50%) in low development Community and half i.e. 50.00 per cent in High Development Community introduced at the age of 2 to 3 years of age. However, 77.50 percent in Low Development Community and 42.50 percent in High Development Community introduced at 3 years of age and above. (See table 4.13)

4.3.3. Nutritious Food Regularity

Supplementary and nutritious food regularity among children was also observed in order to assess the nutritional intake of children.

Only 15.00 per cent in Low Development Community and 12.50 per cent in High Development Community could take Milk and milk derivatives once per day.

However, only 27.50 per cent in Low Development Community and 40.00 per cent in High Development Community could have eggs once or twice per week.

Yet, less than four-fifth (70.00%) in Low Development Community and more than three-fifth (67.50%) in High Development Community could have meat only once every two or more weeks.

Regularity of Liver was also taken in to account and only 12.50 percent in Low Development Community and 2.50 per cent in High Development Community could take Liver once per week. Moreover, half i.e. 50.00 per cent in Low Development Community and High Development Community never take liver.

Regarding fish regularity 70.00 percent in Low Development Community and half (50.00%) in High Development Community take fish once every two or more weeks. Whereas, more than one-sixth (17.50%) in Low Development Community and more than one-fourth (27.50%) in High Development Community never take fish.

However, only 2.50 per cent in Low Development Community and 35.00 per cent in High Development Community could have Legumes once per day.

Moreover, three- tenth (30.00%) in Low Development Community and four-fifth (80.00%) in High Development Community have vegetables once per day.

And only 5.00 percent in Low Development Community and 7.50 per cent in High Development Community have fruits once per day. Yet, 15.00 per cent in Low Development Community and 5.00 per cent in High Development Community have fruit Juice once or twice per week. However, there were no much differences in starches regularity in both the community as 20.00 percent in the Low development Community and 30.00 Per cent in the high Development Community have once per day. However, one-eight (12.50%) in High Development Community to that of zero in Low development Community never take Starches.

Considering the regularity of sweets or Candy, 27.50 per cent in Low Development Community and 20.00 percent in High Development Community take once per day. Still, 2.50 per cent in the High Development Community and zero in The Low development Community never give Sweet or Candy to their children.

4.3.4. Tea Regularity among Children

Tea regularity among children was classified as whether the Childs drink tea or not, regularity of tea in a day and tea during meals.

In the Low Development Community more than half i.e. 55.00 per cent and 35.00 per cent in High Development Community the child did not drink tea at all.

Regarding regularity of tea two-sixth (32.00%) in the Low Development Community and more than two-sixth (37.50%) in High development Community drinks tea once per day. On the other, 7.50 per cent in Low Development Community and 5.00 per cent in High Development Community drinks thrice a day. However, three-fifth (60.00%) in the Low Development Community and one-third (30.00%) in High development Community never drinks tea. In both the community tea was not much introduced during meals as it constitutes more than nine-tenth in both the communities. (See table 4.15)

4.3.5. Regularity of Vitamin A and Iron

Regularity of Vitamin A and Iron supplementation was also collected so as to determine the health conditions of children and determine different nutrition supplementation.

In Low Development Community more than one-fourth (27.50%) and one-eight (12.50%) in High Development Community always give their child Vitamin A and D supplementation. However, two-fourth (52.50%) in Low Development Community and less than two-fifth (37.50%) in High Development Community give sometimes, and one-eight(12.50%) in Low Development Community and three-tenth (32.50%) in High Development Community rarely gives to their children. Whereas, less than one-twelfth (7.50%) in Low Development Community and less than one-fifth (17.50%) in High development Community Never gives vitamin A and D supplementation to their children.

Regarding iron supplementation, one-fifth (20.00%) in Low development Community always give to their children while it was zero in High Development Community. And two-fifth (37.40%) in low Development Community and one-eight (12.50%) in high Development

Community Sometimes gives to their children, moreover 17.50 per cent in low development Community and 27.50 per cent in High development Community Rarely give to their children. However, one-fourth (25.00%) in Low Development Community and three-fifth (60.00%) in High Development Community Never gives Iron Supplementation to their children.

4.4. Stunting, Wasting Based on Child's Gender and locality Development

Stunting and wasting are classified based on child's gender viz- Boy and Girls.

Out of 40 girls, 37 that mean 92.50% are stunted and only 7.50 percent are not stunted, On the other hand, out of 40 boys, 39 which were 97.50 percent are stunted. However, there were 82.50 percent of girls who were wasted, whereas there were 80.00 percent of boys who were stunted for sometimes.

Based on Community development, the Low Development Community had a higher percentage of wasting and stunting comparing to the High Development Community. In Low Development Community 97.50 percent were stunted, while it was 92.50 per cent in High development5 Community. Also there were 85.00 per cent of children in low Development Community were wasted to that of 77.50 percent in High Development Community.

4.5. Correlates of Stunting and Wasting: Pearson's R

The results (see table 4.16) shows the correlates of stunting and wasting with structural variables. It was found out that there is no association among the variables Socio economic status, Household annual income, Mother's educational status, Father's educational status, Child age, locality development with stunting and wasting. But there is a relationship between Child's gender and stunting at 0.05 level of significance in Karl Pearson correlation test. The data show that among the boys stunting is more when comparing with the girls. In

addition, there is a relationship between duration of breast fed and wasting is significant at 0.05 level. The negative correlation shows that the duration of breast fed decreases and wasting also decreases which means the nutritional intake increases among the children. At the same time, there is association between stunting and wasting at 0.01 level of significance in Karl Pearson correlation test and there is also an association between wasting and stunting at 0.01 level of significance. When we compare with the earlier study, it was found out that the hypothesis nutritional status of children is directly related to mother's educational status and socioeconomic status of the family. This hypothesis is rejected when we apply the Karl Pearson correlation test to the collected data in the present study. From the result, we conclude that there is a relationship between child's genders and stunting and duration of breast fed are significant.

As mentioned in this chapter attempts have been made to discuss on the five sections and eighteen sub-sections given above. The next chapter presents the major conclusion, policy implications and suggestions of the present study.

Table 4.1 : Demographic Characteristics

Sl.No	Characteristics	Locality Development		Total N = 80
		Low n= 40	High = 40	
I	**Gender**			
	Female	36 (90.00)	38 (95.00)	74 (92.50)
	Male	4 (10.00)	2 (5.00)	6 (7.50)
II	**Age**			
	18 to 27	10 (25.00)	13 (32.50)	23 (28.75)
	28 to 37	24 (60.00)	19 (47.50)	43 (53.75)
	38 to 47	5 (12.50)	7 (17.50)	12 (15.00)
	58 to 67	1 (2.50)	0 0.00	1 (1.25)
	67 & above	0 (0.00)	1 (2.5)	1 (1.25)
	Mean Age	30.98±5.40	33.63±9.99	32.30±8.08
IV	**Educational status**			
	Below Class V	6 (15.00)	5 (12.50)	11 (13.75)
	Class V - VII	12 (30.00)	15 (37.50)	27 (33.75)
	Class VIII - X	18 (45.00)	19 (47.50)	37 (46.25)
	Class XI - XII	2 (5.00)	1 (2.50)	3 (3.75)
	Graduate and above	2 (5.00)	0 0.00	2 (2.50)
V	**Marriage age**			
	Below 18	6 (15.00)	0 0.00	6 (7.50)
	18 to 27	39 (97.50)	30 (75.00)	69 (86.25)
	28 to 37	1 (2.50)	4 (10.00)	5 (6.25)
	Mean age at Marriage	21.18±3.27	22.00±3.92	21.59±3.92

Source: Computed Figures in Parentheses are percentages Mean±SD

Table 4.2: Family Characteristics

		Locality		Total N = 80
Sl.No.	**Characteristics**	**Low n = 40**	**High n= 40**	
I	**Type of Family**			
	Nuclear	32 (80.00)	26 (65.00)	58 (72.50)
	Joint	8 (20.00)	14 (35.00)	22 (27.50)
II	**Size of the Family**			
	Small (1-3)	3 (7.50)	1 (2.50)	4 (5.00)
	Moderate (4-6)	32 (80.00)	32 (80.00)	64 (80.00)
	Big (7 & above)	5 (12.50)	7 (17.50)	12 (15.00)
	Mean	5.05±1.75	5.40±1.59	5.23±1.67

Source: Computed Figures in Parentheses are percentages Mean ±SD

Table 4.3: Social Characteristic

Sl.No	Characteristics	Locality		Total N= 80
		Low =n=40	High n= 40	
I	**Tribe**			
	Lusei	13 (32.50)	13 (32.50)	26 (32.50)
	Paite	17 (42.50)	18 (45.00)	35 (43.75)
	Hmar	5 (12.50)	3 (7.50)	8 (10.00)
	Ralte	5 (12.50)	6 (15.00)	11 (13.75)
II	**Denomination**			
	Presbyterian	23 (57.50)	19 (47.50)	42 (52.50)
	Baptist	0 (0.00)	2 (5.00)	2 (2.50)
	Salvation Army	4 (10.00)	5 (12.50)	9 (11.25)
	UPC	11 (27.50)	13 (32.50)	24 (30.00)
	Catholic	2 (5.00)	0 0.00	2 (2.50)
	SDA	0 0.00	1 (2.50)	1 (1.25)
III	**House live in**			
	Owned	29 (72.50)	27 (67.50)	56 (70.00)
	Rented	11 (27.50)	13 (32.50)	24 (30.00)
IV	**Type of house**			
	Kutcha/thatched	22 (55.00)	26 (65.00)	48 (60.00)
	Semi pucca	13 (32.50)	9 (22.50)	22 (27.50)
	Pucca	5 (12.50)	5 (12.50)	10 (12.50)

Table 4.4: Economic Characteristics

Sl.No	Characteristics	Locality		Total N= 80
		Low =n=40	**High n= 40**	
I	**Socio economic status**			
	Non-Poor	22 (55.00)	31 (77.50)	53 (66.25)
	Poor	18 (45.00)	9 (22.50)	27 (33.75)
II	**No of earner**			
	more than 2	12 (30.00)	16 (40.00)	28 (35.00)
	more than 3	23 (57.50)	21 (52.50)	44 (55.00)
	3 & above	2 (5.00)	3 (7.50)	5 (6.25)
	More than 5	3 (7.50)	0 0.00	3 (3.75)
III	**No of dependent**			
	more than 2	2 (5.00)	0 0.00	2 (2.50)
	more than 3	10 (25.00)	3 (7.50)	13 (16.25)
	3 & above	28 (70.00)	37 (92.50)	65 (81.25)
IV	**Major occupation**			
	skilled labour	5 (12.50)	8 (20.00)	13 (16.25)
	Daily labour	17 (42.50)	23 (57.50)	40 (50.00)
	Farmer	8 (20.00)	1 (2.50)	9 (11.25)
	Private business	2 (5.00)	1 (2.50)	3 (3.75)
	Govt servants	8 (20.00)	7 (17.50)	15 (18.75)

Source: Computed Figures in Parentheses are Percentages Mean±SD

Table 4.5: Household monthly and annual income

Sl.No	Characteristics	Locality		Total N= 80
		Low =n=40	High n= 40	
V	**Household monthly income**			
	Below Rs 2000	1 (2.50)	3 (7.50)	4 (5.00)
	Rs 2000 to 5000	14 (35.00)	15 (37.50)	29 (36.25)
	Rs 5000 to 8000	9 (22.50)	10 (25.00)	19 (23.75)
	Rs 8000 to 11000	1 (2.50)	5 (12.50)	6 (7.50)
	Rs 11000 - 14000	1 (2.50)	1 (2.50)	2 (2.50)
	Rs 14000 to 17000	4 (10.00)	1 (2.50)	5 (6.25)
	Rs 17000 - 20000	2 (5.00)	0 0.00	2 (2.50)
	Rs 20000 & above	8 (20.00)	5 (12.50)	13 (16.25)
VI	**Household Annual Income**			
	Less than 50000	11 (27.50)	15 (37.50)	26 (32.50)
	50000 - 100000	15 (37.50)	16 (40.00)	31 (38.75)
	100000 - 20000	5 (12.50)	3 (7.50)	8 (10.00)
	200000 - 300000	5 (12.50)	2 (5.00)	7 (8.75)
	300000 - 400000	4 (10.00)	4 (10.00)	8 (10.00)
	Mean Annual Income	144495±154386.56	112265±153382.24	128380±153765.68

Source: Computed Figures in Parentheses are Percentages

Mean±SD

Table 4.6:Family Access to Resources/ family assets

		Locality Development		Total N = 80
Sl.No	**Characteristics**	**Low n = 40**	**High = 40**	
I	**Family access to water connection**			
	Yes	14 (35.00)	9 (22.50)	23 (28.75)
II	**Family access to electricity**			
	Yes	38 (95.00)	40 (100.00)	78 (97.50)
III	**Have septic tank**			
	Yes	22 (55.00)	23 (57.50)	45 (56.25)
IV	**Have gas connection**			
	Yes	28 (70.00)	29 (72.50)	57 (71.25)
V	**Have land**			
	Yes	25 (62.50)	28 (70.00)	53 (66.25)
VI	**Have ration card**			
	Yes	40 (100.00)	40 (100.00)	80 (100.00)
VII	**Have mobile phone**			
	Yes	34 (85.00)	36 (90.00)	70 (87.50)
VIII	**Have vehicle**			
	Yes	6 (15.00)	13 (32.50)	19 (23.75)
IX	**Have refrigerator**			
	Yes	8 (20.00)	17 (42.50)	25 (31.25)

Source: Computed Figures in Parentheses are Percentages

Table 4.7: Livestock Owned

		Locality Development		**Total N = 80**
Sl.No		**Low n = 40**	**High n = 40**	
I	**No of pig rear**			
	Not applicable	23 (57.50)	27 (67.50)	50 (62.50)
	1number	14 (35.00)	5 (12.50)	19 (23.75)
	2number	3 (7.50)	4 (10.00)	7 (8.75)
	3number	0 0.00	4 (10.00)	4 (5.00)
II	**Value of Pig**			
	Not Rearing Pig	23 (57.50)	28 (70.00)	51 (63.75)
	Rs. 2500 - 5000	6 (15.00)	2 (5.00)	8 (10.00)
	Rs.5000 - 10000	8 (20.00)	5 (12.50)	13 (16.25)
	Rs.10000 and Above	3 (7.50)	5 (12.50)	8 (10.00)
III	**No of Poultry**			
	0	36 (90.00)	29 (72.50)	65 (81.25)
	1-10	1 (2.50)	8 (20.00)	9 (11.25)
	10 -20	3 (7.50)	2 (5.00)	5 (6.25)
	20 and above	0 0.00	1 (2.50)	1 (1.25)
IV	**Value of Poultry**			
	Less than Rs.1500	37 (92.50)	29 (72.50)	66 (82.50)
	Rs.1500 - 3000	1 (2.50)	5 (12.50)	6 (7.50)
	Rs.3000 - 5000	0 0.00	4 (10.00)	4 (5.00)
	Rs. 5000 and above	2 (5.00)	2 (5.00)	4 (5.00)

Source: Computed Figures in Parentheses are Percentages

Table 4.8: Details of Land possession

		Locality Development		
Sl.No	**Characteristics**	**Low n=40**	**High n = 40**	**Total N =80**
I	LSC no of plots			
	not applicable	15 (37.50)	13 (32.50)	28 (35.00)
	1plot	23 (57.50)	22 (55.00)	45 (56.25)
	2plot	2 (5.00)	5 (12.50)	7 (8.75)
II	Duration of possession			
	permanent	39 (97.50)	40 (100.00)	79 (98.75)
	Temporary	1 (2.50)	0 0.00	1 (1.25)

Source: Computed Figures in Parentheses are Percentages

Table 9: Demographic Profile of Children

Sl.No	Characteristics	Locality Development		Total N = 80
		Low n = 40	**High n = 40**	
I	**Child's gender**			
	Female	23 (57.50)	17 (42.50)	40 (50.00)
	Male	17 (42.50)	23 (57.50)	40 (50.00)
II	**Child Birth Weight**			
	2.25 - 2.50	10 (25.00)	8 (20.00)	18 (22.50)
	2.50 - 2.75	2 (5.00)	3 (7.50)	5 (6.25)
	2.75 - 3.00	26 (65.00)	17 (42.50)	43 (53.75)
	3.00 - 3.25	1 (2.50)	3 (7.50)	4 (5.00)
	3.25 - 3.50	0 0.00	4 (10.00)	4 (5.00)
	3.50 and above	1 (2.50)	5 (12.50)	6 (7.50)
	Mean weight of child at birth	2.79±.26	3.00±.47	2.89±.39
III	**Child's rank/order among live siblings**			
	1	14 (35.00)	16 (40.00)	30 (37.50)
	2	17 (42.50)	19 (47.50)	36 (45.00)
	3	8 (20.00)	4 (10.00)	12 (15.00)
	4	1 (2.50)	1 (2.50)	2 (2.50)
IV	**Mother's educational status**			
	Below Class V	6 (15.00)	5 (12.50)	11 (13.75)
	Class V - VII	12 (30.00)	15 (37.50)	27 (33.75)
	Class VIII - X	18 (45.00)	19 (47.50)	37 (46.25)
	Class XI - XII	2 (5.00)	1 (2.50)	3 (3.75)
	Graduate and above	2 (5.00)	0 0.00	2 (2.50)
V	**Father's educational status**			
	Below Class V	4 (10.00)	7 (17.50)	11 (13.75)

	Class V - VII	14 (35.00)	14 (35.00)	28 (35.00)
	Class VIII - X	15 (37.50)	16 (40.00)	31 (38.75)
	Class XI - XII	1 (2.50)	2 (5.00)	3 (3.75)
	Graduate and above	2 (5.00)	5 (12.50)	7 (8.75)

Source: Computed Figures in Parentheses are Percentages

Table 4.10: Nutritional And Health History

		Locality Development		
Sl.No	**Characteristics**	**Low n= 40**	**High n = 40**	**Total N=80**
I	**Income sufficient for securing food for family and child**			
	No	23 (57.50)	28 (70.00)	51 (63.75)
II	**Family receive assistance**			
	No	39 (97.50)	32 (80.00)	71 (88.75)
III	**Children suffered malnutrition**			
	No	25 (62.50)	25 (62.50)	50 (62.50)
IV	**Child get immunization during childhood**			
	Yes	33 (82.50)	26 (65.00)	59 (73.75)
V	**Consider child as healthy**			
	Yes	26 (65.00)	25 (62.50)	51 (63.75)
VI	**Type of diseases suffers most**			
	Not suffering	27 (67.50)	23 (57.50)	50 (62.50)
	Communicable	0 0.00	1 (2.50)	1 (1.25)
	Non-communicable	13 (32.50)	16 (40.00)	29 (36.25)
VII	**Child does not get nutrition**			
	No	27 (67.50)	29 (72.50)	56 (70.00)
VIII	**Child does not get immunization properly**			
	No	38 (95.00)	39 (97.50)	77 (96.25)
IX	**Bad sanitation**			
	No	39 (97.50)	30 (75.00)	69 (86.25)
X	**Not afford medicines**			
	No	36 (90.00)	31 (77.50)	67 (83.75)

Source: Computed Figures in Parentheses are Percentages

Table 4.11: Anthropometric Assessment

		Locality Development		
Sl.No	**Characteristics**	**Low n = 40**	**High n = 40**	**Total N = 80**
I	**Child's Weight during Interview**			
	9 - 15 Kg	15 (37.50)	18 (45.00)	33 (41.25)
	15 - 20 kg	13 (32.50)	12 (30.00)	25 (31.25)
	20 - 25 Kg	7 (17.50)	5 (12.50)	12 (15.00)
	25 - 30 Kg	2 (5.00)	2 (5.00)	4 (5.00)
	30 Kg and Above	3(7.50)	3 (7.50)	6 (7.50)
	Mean weight of child	19.40±6.61	17.95±6.18	18.67±6.40
II	**Child's Age during Interview**			
	2 - 5 years	9 (22.50)	15 (37.50)	24 (30.00)
	5 -10 years	23 (57.50)	21 (52.50)	44 (55.00)
	10 - 14 years	8 (20.00)	4 (10.00)	12 (15.00)
	Mean age of Child	7.50±2.73	6.68±2.60	7.09±2.68
III	**Child height**			
	1.00 - 2.00	0 0.00	1 (2.50)	1 (1.25)
	2.00 - 3.00	6 (15.00)	10 (25.00)	16 (20.00)
	3.00 - 4.60	34 (85.00)	29 (72.50)	63 (78.75)
	Mean Height of Child	3.56±.55	3.43±.70	3.50±.63
IV	**Child MUAC**			
	4	1 (2.50)	0 0.00	1 (1.25)
	5	6 (15.00)	6 (15.00)	12 (15.00)
	5.5	3 (7.50)	6 (15.00)	9 (11.25)
	6	25 (62.50)	19 (47.50)	44 (55.00)
	6.3	1 (2.50)	0 0.00	1 (1.25)
	6.5	3	3	6

		(7.50)	(7.50)	(7.50)
	7	1 (2.50)	5 (12.50)	6 (7.50)
	7.5	0 0.00	1 (2.50)	1 (1.25)

Source: Computed Figures in Parentheses are Percentages

Table 4.12: Mother's Knowledge and Practice Regarding Child's Nutrition

	Characteristics	Locality Development		Total N= 80
S.No.		**Low n = 40**	**High n = 40**	
I	**Exclusively breastfed**			
	No	13 (32.50)	6 (15.00)	19 (23.75)
	Yes	27 (67.50)	34 (85.00)	61 (76.25)
II	**Duration Brest Fed**			
	Less than 1 year	2 (5.00)	7 (17.50)	9 (11.25)
	1 - 2 years	36 (90.00)	23 (57.50)	59 (73.75)
	2 - 3 years	2 (5.00)	10 (25.00)	12 (15.00)
	Mean year of Breast Fed	2.00±.32	2.07±.27	1.95±.60
III	**child need to be exclusively breastfed**			
	Less than 1 year	00.00	1(2.50)	1(1.25)
	1 Year	3 (7.50)	3 (7.50)	6 (7.50)
	1.3 Year	0 0.00	1 (2.50)	1 (1.25)
	1.5 Year	1 (2.50)	4 (10.00)	5 (6.25)
	2 Years	36 (90.00)	25 (62.50)	61 (76.25)
	3 Years	0 0.00	6 (15.00)	6 (7.50)

Source: Computed Figures in Parentheses are Percentages

Table 4.13: Complementary Food Introduction Age Among Children

	Characteristics	Locality Development		
Sl.No		Low n = 40	High n = 40	Total N = 80
I	Age at stat milled rice			
	0 - 6 months	27 (67.50)	21 (52.50)	48 (60.00)
	7 - 12 months	10 (25.00)	8 (20.00)	18 (22.50)
	1- 1.6 year	3 (7.50)	9 (22.50)	12 (15.00)
	1.6 - 3 years	0 0.00	2 (5.00)	2 (2.50)
II	Age at Introducing Read made child food			
	0 - 6 months	33 (82.50)	31 (77.50)	64 (80.00)
	7 - 12 months	4 (10.00)	4 (10.00)	8 (10.00)
	1 - 1.6 months	0 0.00	3 (7.50)	3 (3.75)
	Not giving	3 (7.50)	2 (5.00)	5 (6.25)
III	Age at introducting fruits			
	Less than 1 Year	6 (15.00)	3 (7.50)	9 (11.25)
	1- 1.6 year	29 (72.50)	32 (80.00)	61 (76.25)
	1.6 - 2 years	5 (12.50)	0 0.00	5 (6.25)
	2 - 3 Years	0 0.00	5 (12.50)	5 (6.25)
IV	Age at Introducing Vegetables			
	Less than 1 Year	3 (7.50)	1 (2.50)	4 (5.00)
	1 - 1.6 Year	17 (42.50)	29 (72.50)	46 (57.50)
	1.6 - 2 Years	12 (30.00)	3 (7.50)	15 (18.75)
	2 - 3 years	8 (20.00)	7 (17.50)	15 (18.75)
V	Age at introducing meat			
	Less than 1 Year	1 (2.50)	2 (5.00)	3 (3.75)
	1 - 1.6 Year	5 (12.50)	8 (20.00)	13 (16.25)
	1.6 - 2 Year	27	21	48

		(67.50)	(52.50)	(60.00)
	2 - 3 years	7 (17.50)	9 (22.50)	16 (20.00)
VI	Age at Introducing Egg			
	0 - 6 months	23 (57.50)	24 (60.00)	47 (58.75)
	7 - 12 Months	4 (10.00)	6 (15.00)	10 (12.50)
	1 - 1.6 months	13 (32.50)	8 (20.00)	21 (26.25)
	1.6 - 2 years	0 0.00	2 (5.00)	2 (2.50)
VII	Age at introducing Milk/milk derivatives			
	Less than 1 year	34 (85.00)	35 (87.50)	69 (86.25)
	1- 3 years	6 (15.00)	4 (10.00)	10 (12.50)
	Not giving	0 0.00	1 (2.50)	1 (1.25)
VIII	Age at Introducing family food			
	1- 2 Years	0 0.00	3 (7.50)	3 (3.75)
	2 - 3 Years	9 (22.50)	20 (50.00)	29 (36.25)
	3 Years and above	31 (77.50)	17 (42.50)	48 (60.00)

Source: Computed Figures in Parentheses are Percentages

Table 4.14: Nutritious Food Regularity Among Children

Sl.No		Locality Development		
	Characteristics	**Low n= 40**	**High n = 40**	**TotalN=80**
I	Regularity of milk and milk derivatives			
	Once per day	6 (15.00)	5 (12.50)	11 (13.75)
	Once or twice per week	8 (20.00)	10 (25.00)	18 (22.50)
	Once per week	21 (52.50)	11 (27.50)	32 (40.00)
	Once every two or more weeks	5 (12.50)	11 (27.50)	16 (20.00)
	Never	0 0.00	3 (7.50)	3 (3.75)
II	Regularity of eggs			
	Once or twice per week	11 (27.50)	16 (40.00)	27 (33.75)
	Once per week	16 (40.00)	26 (65.00)	42 (52.50)
	Once every two or more weeks	3 (7.50)	8 (20.00)	11 (13.75)
III	Regularity of meat			
	Once or twice per week	2 (5.00)	4 (10.00)	6 (7.50)
	Once per week	10 (25.00)	8 (20.00)	18 (22.50)
	Once every two or more weeks	28 (70.00)	27 (67.50)	55 (68.75)
	Never	0 0.00	1 (2.50)	1 (1.25)
IV	Regularity of liver			
	Once per week	5 (12.50)	1 (2.50)	6 (7.50)
	Once every two or more weeks	15 (37.50)	19 (47.50)	34 (42.50)
	Never	20 (50.00)	20 (50.00)	40 (50.00)
V	Regularity of fish			
	Once or twice per week	0 0.00	3 (7.50)	3 (3.75)
	Once per week	5 (12.50)	6 (15.00)	11 (13.75)

	Once every two or more weeks	28 (70.00)	20 (50.00)	48 (60.00)
	Never	7 (17.50)	11 (27.50)	18 (22.50)
VI	Regularity of legumes]			
	Once per day	1 (2.50)	14 (35.00)	15 (18.75)
	Once or twice per week	25 (62.50)	20 (50.00)	45 (56.25)
	Once per week	14	6	20
		(35.00)	(15.00)	(25.00)
VII	Regularity of vegetables			
	Once per day	12 (30.00)	32 (80.00)	44 (55.00)
	Once or twice per week	24 (60.00)	8 (20.00)	32 (40.00)
	Once per week	4 (10.00)	0 0.00	4 (5.00)
VIII	Regularity of fruits			
	Once per day	2 (5.00)	3 (7.50)	5 (6.25)
	Once or twice per week	21 (52.50)	24 (60.00)	45 (56.25)
	Once per week	17 (42.50)	13 (32.50)	30 (37.50)
IX	Regularity of fruit juice			
	Once per day	1 (2.50)	0 0.00	1 (1.25)
	Once or twice per week	6 (15.00)	2 (5.00)	8 (10.00)
	Once per week	19 (47.50)	9 (22.50)	28 (35.00)
	Once every two or more weeks	11 (27.50)	11 (27.50)	22 (27.50)
	Never	3 (7.50)	18 (45.00)	21 (26.25)
X	**Regularity of starches**			
	Once per day	8 (20.00)	12 (30.00)	20 (25.00)
	Once or twice per week	14 (35.00)	9 (22.50)	23 (28.75)
	Once per week	15 (37.50)	5 (12.50)	20 (25.00)
	Once every two or more weeks	3 (7.50)	9 (22.50)	12 (15.00)
	Never	0 0.00	5 (12.50)	5 (6.25)

XI	**Regularity of sweets or candy**			
	Once per day	11 (27.50)	8 (20.00)	19 (23.75)
	Once or twice per week	14 (35.00)	13 (32.50)	27 (33.75)
	Once per week	14 (35.00)	13 (32.50)	27 (33.75)
	Once every two or more weeks	1 (2.50)	5 (12.50)	6 (7.50)
	Never	0 0.00	1 (2.50)	1 (1.25)

Source: Computed Figures in Parentheses are Percentages

Table 4.15: Tea Regularity among Children

Sl.No		Locality Development		Total N=80
	Characteristics	**Low n =40**	**High n = 40**	
I	**Child drink tea**			
	No	22 (55.00)	14 (35.00)	36 (45.00)
II	**Times of Drink tea/day**			
	None	24 (60.00)	12 (30.00)	36 (45.00)
	Once	0 0.00	11 (27.50)	11 (13.75)
	Twice	13 (32.50)	15 (37.50)	28 (35.00)
	Thrice	3 (7.50)	2 (5.00)	5 (6.25)
III	**Child drink tea during meals**			
	No	38 (95.00)	39 (97.50)	77 (96.25)

Source: Computed Figures in Parentheses are Percentages

Table 4.16:Regularity of Vitamin A and Iron

Sl.No	Characteristics	Locality Development		Total N = 80
		Low n = 40	High n =40	
I	**Give child vitamin A and D supplementation**			
	Always	11 (27.50)	5 (12.50)	16 (20.00)
	Sometimes	21 (52.50)	15 (37.50)	36 (45.00)
	Rarely	5 (12.50)	13 (32.50)	18 (22.50)
	Never	3 (7.50)	7 (17.50)	10 (12.50)
II	**Give child iron supplementation**			
	Always	8 (20.00)	0 0.00	8 (10.00)
	Sometimes	15 (37.50)	5 (12.50)	20 (25.00)
	Rarely	7 (17.50)	11 (27.50)	18 (22.50)
	Never	10 (25.00)	24 (60.00)	34 (42.50)

Source: Computed Figures in Parentheses are Percentages

Table 4.17 Stunting and Wasting Based on Child's Gender

Sl.No.	Characteristics	Child's gender		
I	**Stunting**	**Girl n =40**	**Boy n = 40**	**Total N = 80**
	No	3 (7.50)	1 (2.50)	4 (5.00)
	Yes	37 (92.50)	39 (97.50)	76 (95.00)
II	**Wasting**			
	No	7 (17.50)	8 (20.00)	15 (18.75)
	Yes	33 (82.50)	32 (80.00)	65 (81.25)

Source: Computed *Figures in Parentheses are percentages*

Table 4.18 Stunting and Wasting Based on Locality Development

Sl.No	Characteristics	Locality Development		Total N =80
I	**Stunting**	**Low n =40**	**High n =40**	
	No	1 (2.50)	3 (7.50)	4 (5.00)
	Yes	39 (97.50)	37 (92.50)	76 (95.00)
II	**Wasting**			
	No	6 (15.00)	9 (22.50)	15 (18.75)
	Yes	34 (85.00)	31 (77.50)	65 (81.25)

Source: Computed *Figures in Parentheses are percentages*

Table 4.19 Correlates of Stunting and Wasting: Pearson's R

Sl.No	Variable	Stunting	Wasting
1	Socio economic status	0.11	0.15
2	Household Annual Income	-0.08	-0.03
3	Mother's educational status	-0.11	-0.03
4	Father's educational status	0.02	-0.03
5	Child's Gender	***0.20****	-0.03
6	Child age on the date of interview	0.01	-0.15
7	Locality Development	-0.08	-0.01
8	Duration of breast fed	-0.10	***-0.19****
9	Stunting	1	**0.51****
10	Wasting	**0.51****	1

Source: Computed ** P<0.01 * P < 0.05

CHAPTER V

CONCLUSIONS, POLICY IMPLICATIONS AND SUGGESTIONS

In this chapter an attempt has been made to present the salient conclusions, policy implications and suggestions for social work interventions of the present study in three sections with its sub-sections.

5.1. Conclusions

The present section presents the conclusions in six sub-sections which are discussed below:

5.1.1. Profile of children in poor and non-poor households.

Demographic profile of children in poor household and non poor household were collected and observed and the findings were discussed as follows:

From Both the Community same sample was taken as 40 children from Low Development Community and 40 children from High Development Community. Still, In Low Development Community female constitutes more, where as in High Development Community male constitutes more. Childs birth weight in both the communities was average i.e. 2 to 3 Kg comparing to other rural and urban areas, however in the Low Development Community overall Childs birth weight was low, and child weight during the interview implicate that most children are already malnourished for sometimes especially in Low Development Community the situation was worse. Also, second child rank/ order among live sibling are very common in both the community.

5.1.2. Impact of socio-economic condition on children nutritional status.

Regarding impact of socio-economic condition on children nutritional status, the study results has shown that Children from Low development community and High

development community has no much variation. However, there was little variation in nutritional status by households from Below poverty Line and above poverty Line in both the communities. Also the Low Development Community had slightly high percentage of wasting and stunting.

The result have also showed that in both the communities' other than socio-economic condition of the family, the type of family and fathers educational plays important role on children nutritional status, on the other hand there was no co-relation between mothers educational status and socio-economic condition of the family on children nutritional status.

On the other hand, the result shows that the Low Development Community has higher percentage of three earners in the family which likely to help in the availability of food for children in the family.

5.1.3. The nutritional intake of the children across gender and factors associated with it.

The study results have also shown that there are no gender differences in nutritional intake and feeding pattern in both the community. However in Low Development Community female children are more wasted, still in High Development Community male children are more stunted.

Regarding Complementary food and nutritious food in take, the results shows no variation across gender even though male are expected to have higher in take. However, in Low Development Community and High Development Community almost all nutritious food is not regular or available may be because of its rural background, owing to that the result shows that only some could avail and that also once every two or three-days.

5.1.4. Factors contributing to stunting, wasting and underweight in children

The results have shown that the factors contributing to wasting, stunting and underweight in children is first of all the economic condition of the family which determined the overall development of children, if there is no food available at homes at most of the time, the Childs obviously remains underweight for some time thus result in wasting and stunting.

Also the results showed that the feeding pattern and duration of breastfed is another factors contributing to wasting and stunting in children. Children who are breastfed for less than one year in Both the Community are stunted and wasted, also have very low weight for their age.

However, the study result reveals that mother knowledge and practice regarding child's nutrition is another factors contributing to stunting, wasting and underweight in children as in the very crucial years of age mothers are the primary care giver, moreover, there is a relationship between child's genders, stunting and duration of breast fed thus mother who have knowledge in Childs nutrition had resulted in positive nutritional status on children. Still, the Low Development Community mothers are more aware and experienced in child's nutrition comparing to the High Development Community.

5.2. Policy Implications

The Government of India has been implementing a number of programmes, which have the potential to improve the current nutrition security situation, through the Ministries of Women & Child Development (MWCD), Health & Family Welfare (MHFW), Rural Development, Panchayati Raj and the Urban Poverty programme. The Government also has a number of cross cutting programmes including the National Rural Health Mission, National Food Security Mission, Horticulture Mission, National Rural Employment Guarantee Act, Jawaharlal Nehru National Urban Renewal Mission and the Rajiv Gandhi National Drinking

Water Mission. The major Government programmes are listed in Attachment 1 as per a life cycle approach.

Although there are many programmes related to nutrition, there are significant gaps in these public sector efforts. It may be that taking account of the problem only at a national and state level is inadequate and there is a need for greater focus on the household and community levels. Among the challenges are the following:

- There is no comprehensive national programme or approach specifically aimed at improving nutrition other than ICDS, resulting in a lack convergence and synergy between existing programmes.
- Many Government programmes which have the potential to impact nutrition, like the well-funded agricultural development programmes, lack a focus on nutrition as a major outcome.
- Most programmes are not reaching the correct target groups, such as infants and young children, women, or the most needy and vulnerable people in rural areas.
- India has not developed a cadre of public health nutritionists (although there is a cadre of academic and clinical research nutritionists).
- Insufficient national systems to collect and analyze data on nutrition outcomes, lack of appropriate data for monitoring and decision making.
- Weak implementation systems and poor governance lead to the low effectiveness of most of these programmes For example, the Integrated Child Development Services (ICDS) scheme, although often considered as the nation's main nutrition programme, has not shown an impact on nutrition over the past three decades of its operation. There are a number of reasons for this - its central mandate is to enhance child development (not eradicate malnutrition); its programmatic focus is on supplementary feeding (which is not an optimal nutrition intervention); and its primary target group

is children 3-6 (who are not the most critical group to target). Decisions regarding the basic design or the on-going implementation of the ICDS scheme are not based on evidence of what works to reduce malnutrition, but on other considerations and desired results (e.g., early childhood development objectives). As with other programmes, it also suffers from weak implementation systems and governance.

A number of important areas have fallen in the gaps between these Governmental programmes. For example, there is no major programme focusing comprehensively on nutrition education or on nutrition monitoring. Even large cross cutting missions, like the National Rural Health Mission have very little focus on nutrition. In addition, the public sector has not found ways to engage with, learn from and promote the involvement of the private sector in addressing the nutrition challenges. In addition to the public sector, a number of academic, non-governmental organisations (NGO) and private sector agencies are contributing to nutrition security. In order to improve the situation, our leaders must find a way to bridge these gaps.

5.3. Suggestions for Social Work Intervention

The results indicate that there is an urgent need for intervention of all stake holders, policy makers and social workers to pay more attention to the nutritional status of children and socio-economic challenges faced by children. However the magnitude of malnutrition and poverty in India needs technical involvement where in-depth study of it may not be available. However social workers can intervene in this area by preventing a society from 'Hunger and Poverty' the loopholes of Development in all sectors. Therefore, steps can be taken at the micro, macro and mezzo levels. Social workers can intervene in this area by promoting appropriate complementary feeding, adequate in terms of quality, quantity and frequency for children, timely introduction of complementary foods which are locally available, full immunization and vitamin A & D and iron supplementation and ensuring

timely and quality therapeutic feeding and care for all children with severe acute malnutrition. And also can fight against poverty as children are the worse sufferer of all social evils. Social workers can also advocate for improving infrastructure and bad housing to poor households and localities.

In most cases, children are unable to compensate later in life for poor feeding and growth in early childhood and they grow up to be stunted adults with compromised ability to live and perform to their potential. Stunted girls grow up to become adult women with smaller birth canals, which increases the risk of obstructed labor during child birth. In addition, stunted women are more likely to give birth to low birth weight newborns. The damage of sub-optimal feeding and nutrition in infancy and early childhood is largely irreversible. Globally, scientific evidence indicates that the period between 6 - 24 months is also the period when children are most responsive to interventions aimed to improve the quality of complementary foods and feeding practices.

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SOCIO-ECONOMIC CHALLENGES AND NUTRITION OF CHILDREN IN KHAWZAWL, MIZORAM

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Interview Schedule
(Confidential and For Research Purpose Only)
Section A- Identification Information

Schedule No._____ Date: _____
Investigator: _____

Section B- Profile of the Respondent

1. Name :
2. Gender : 1 Male 0 Female
3. Age :
4. Locality :
5. Educational status :
6. Sub Tribe &Clan :
7. Religion : 0 Christian; 1 Hindu; 2 Muslim; 3 Buddhist; 4 others(Specify)_____
8. Denomination : 0 Presbyterian; 1 Baptist; 2 Salvation; 3 UPC; 4 Roman Catholic; 5 Seventh Day Adventist; 6 Others (Specify)_____; 7 NA
9. Age at marriage :
10. Type of Family : 0 Nuclear; 1 Joint;
11. House live in : 0 Owned 1 Rented
12. Type of house : 0 Kutcha/thatched; 1 Semi Pucca; 2 Pucca

Section C- Please Furnish Your Household Information

Sl.N	Name	Age	Sex	Edn.	Marital status	Relation to the head	Earner	Dependent

Note: Sex (male 1, female 2); Marital Status (never married 1, married 2, divorced 3, remarried 4, and widowed 5); Earner (1), dependent (2).

Section D- Socio-Economic Condition of the Family

(a) Socio-Economic Category: **1** APL/ **2** BPL/ **3** AAY

(b) Details of Family Income

S/No	Name	Occupation	Monthly Income	Annual Income
1.	Respondent			
2.				
3.				
4.				
5.				

(c) Family Access to Resources

S/No	Items	Yes	No	No of Items
1.	Water connection			
2.	Electricity			
3.	Septic tank/ Pit Latrine			
4.	Gas			
5.	Land			
6.	Ration card			
7.	Phone/ Mobile			
8.	Vehicle/ 2 Wheeler			
9.	Refrigerator			

(d) Livestock Owned

S/No	Livestock	Number	Value	Annual Income	Source of Purchase
1.	Pig				
2.	Goat				
3.	Poultry				
4.	Cow				
5.	Fish				
6.	Other (Specify)				

(e) Details of Land Possessions/ Ownership

S/No	Type of title	No of Plots	Area(Acres)	Duration of possession
1	Land Settlement Certificate			
2	Periodic Land Pass			
3	Temporary Pass			
4	Land Settlement Certificate			

Section E- Nutritional assessment

(a)Demographic Information and Child's Health and Nutritional History

1. Child name :
2. Child's sex (gender) : 1 Male 0 Female
3. Child's birth weight in grams :
4. Child's rank/ order among live siblings :
5. Mother's Educational status :
6. Father's Educational status :

7.	Is the family income's sufficient for securing food for family and child?	Yes	No
8.	Does the family receive assistance (aid)?		
9.	Did any of your children suffered from malnutrition (wasting low weight, etc) in the past?		
10.	Did your child get immunization during his/her childhood?		
11.	Do you consider your child as healthy?		

12. If no, what type of diseases he/she suffers the most?
    (a) Communicable
    (b) Non- communicable.
    (c) Life – style illness.
13. What do you think the reason for your child's illness?
    (a) The child does not get nutrition from ICDS.
    (b) The child does not get immunization properly.
    (c) The sanitation/ environment of the child are not good.
    (d) The family does not afford for medicines.

(b) Anthropometric Measurements

14. Child's weight on the interview's date in kilograms : ☐ kilogram.
15. Child's age on the date of interview :
16. Child's height/ length on the interview's date in centimeters : ☐ Centimeter
17. Child's mid upper arm circumference (MUAC) in centimeters : ☐ Centimeter

(c) Mother's Knowledge and Practice Regarding Child's Nutrition

18. Did you exclusively breastfed your child? Yes/ No
19. If yes, for how long did you exclusively breastfed your child?.....(in months)
20. For how long does a child need to be exclusively breastfed……. (In months)?
21. Is your child still being breastfed? Yes/ No
22. At what age did you start introducing the following complementary foods to your child (in months)?

S.I	Complementary Foods	Age/ months
1.	Milled Rice	
2.	Ready made child foods	
3.	Fruits	
4.	Vegetables	
5.	Meat/ chicken (poultry)/ Fish	
6.	Eggs	
7.	Milk/ Milk Derivatives	
8.	Family food	
9.	Other, specify	

23. How often do you give your child the following complementary foods?

S.I	Complementary Foods	Regularity
1.	Milk/ Milk Derivatives	
2.	Eggs	
3.	Meat (fresh, frozen, or canned)	
4.	Liver (fresh or frozen)	
5.	Fish (fres11h, frozen, or canned)	
6.	Legumes (Lentil, beans, etc)	
7.	Vegetables (fresh or cooked)	
8.	Fruits (fresh or dried)	
9.	Fruit juice (home made, readymade)	
10.	Starches (bread, rice, macaroni, pastry, etc)	
11.	Sweets or candy	

(1- Once per day, 2- Once – Twice per week, 3- Once per week, 4.-Once every two or more weeks, 5- Never)

24. Does your child receive (drink) tea? 1. Yes 2. No
25. How many times per day does your child receive (drink) tea?
26. Does your child receive (drink) tea during meals? 1. Yes 2. No
27. Do you give your child Vitamins A and D supplementation? 1. Always 2. Sometimes 3.Rarely 4. Never
28. Do you give your child Iron supplementation? 1. Always 2. Yes, sometimes 3.Rarely 4.Never

Food Frequency

SI	**Food Items**	**Weekly**		**Monthly**		**Notice**
		Less than 3 times	**More than 3 time**	**Less than 3 times**	**More than 3 times**	
1.	Rice and rice products					
2.	Sugar					
3.	Bread					
4.	Butter					
5.	Oil					
6.	Liver					
7.	Poultry and Meat					
8.	Fish					
9.	Beans or beans products					
10.	Egg					
11.	Milk & milk products					
12.	Fruits					
13.	Tea					
14.	Coffee					
15.	Carbonated water					
16.	Juices					
17.	Other cereal or grains(maize, wheat, barley or millet)					
18.	Potatoes and sweet potatoes					
19.	Fortified foods					
20.	Green leafy vegetables (spinach, mustard green, edible grass)					

21.	Red/yellow colored vegetables (pumpkin, carrot, squash)					
22.	Non-colored vegetables (onion, garlic, radish, cabbage)					

Particulars of the Candidate

NAME OF THE CANDIDATE	:	Lalrinngheti
DEGREE	:	Master of Philosophy
DEPARTMENT	:	Social Work
TITLE OF DISSERTATION	:	Socio-Economic Challenges And Nutrition Of Children In Khawzawl
DATE OF PAYMENT OF ADMISSION (Commencement of First Sem)	:	26/08/2010
COMMENCEMENT OF SECOND SEM/DISSERTATION (From conclusion of end semester exams)	:	9/03/2011
APPROVAL OF RESEARCH PROPOSAL		
1. BPGS	:	15/06/2011
2. SCHOOL BOARD	:	27/06/2011
REGISTRATION NO. & DATE	:	MZU/M.Phil/37 of 16.05.2011
DUE DATE OF SUBMISSION	:	30/06/2012

(KALPANA SARATHY)

Head

Department of Social Work

Mizoram University, Aizawl

Bio-Data

Name : Lalrinngheti

Father'S Name : P.H.Kapkima

Sex : Female

Permanent Address : 236, Hermon, Khawzawl, Champhai District, Mizoram, India.

Educational Qualification

Name of Examination	Board/University	Year of Passing	Percentage (%) of mark's	Division
HSLC	MBSE	2002	48.00	3rd
HSSLC	MBSE	2004	53.00	2nd
B.A.	NEHU	2007	49.50	2nd
M.S.W.	MZU	2010	65.06	1st

Fieldwork Experience

ICDS

ICDS (integrated child development Scheme) is a centrally sponsored scheme with the objectives of .During my fieldwork in this institution I conducted case work, group work, attended the circle officer meetings and had also gone for home visits.

CODNERC

It is a Non-governmental organization. During my fieldwork in this organization I conducted case work, attended panel discussion, home visits and also went for community training along with peer educators which was organized by the organization.

EFICOR

During my block placement in this institution which is located in Delhi, I conducted case work; attended community health camp organized by the institution and also attended seminar presentation. And I even went to Gujarat – Surat and neighboring villages during the block placement for case study and community work and present paper based on field evaluation of EFFICOR project in their office.

Community Based Fieldwork

I experienced community based fieldwork at Tuivamit community in Aizawl. During my fieldwork in this community I conducted field survey, Participatory Rural Appraisal, case work, group work and also interviewed the key leaders and key informants of the community. Self help group and the Mizo society was also organized. And from the same community I had taken up 'social mobilization and economic empowerment of women' as my project work.

I also experienced community based fieldwork at Khawzawl for pilot study of my research work of Socio-Economic challenges and nutrition of children in Khawzawl. I conducted case work, Participatory Rural Appraisal and also interviewed the keys leaders and key informants.