

Health Sector Strategy for Addressing Maternal Undernutrition (2013-17)



**Government of Nepal
Ministry of Health and Population
Department of Health Services**

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Executive Summary

Introduction

Maternal undernutrition remains an important challenge for Nepal, as many women continue to suffer from chronic energy as well as micronutrient deficiencies. The consequences of chronic energy deficiency are low BMI, short stature and poor birth outcomes including low birth weight, leading to an intergenerational cycle of malnutrition. Anaemia and micronutrient deficiencies among women have also been associated with poor maternal and perinatal outcomes. According to the Nepal Demographic and Health Survey 2011, 18.2 percent of non-pregnant women have a BMI of less than 18.5kg/m²; while 12 percent are short (less than 145cm), a sign of chronic under-nutrition. Additionally, one in three women of reproductive age (35%) suffer from anaemia, which has declined only by 1 percent since 2006. Despite continued efforts on iron supplementation during pregnancy, the anaemia rates among pregnant women increased from 42.4 percent in 2006 to 47.6 percent in 2011.

A recent review on nutrition for health sector in 2011, suggested a range of interventions to address the main causes of maternal and child under-nutrition to be implemented under Nepal Health Sector Programme-II and the Multi-Sectoral Nutrition Plan.

Causal Analysis of Maternal Under-nutrition

The Lancet 2008 analysis framework that identified inadequate dietary intake, inadequate care, unhealthy household environment and poor health care as the underlying causes for undernutrition. These were adapted to reflect the realities during different life stages of Nepali women. Other contributing factors include lack of awareness about dietary requirements, especially during adolescence and pregnancy, poor dietary diversity and inequitable household food distribution. Behaviours such as smoking, alcohol and drug use, heavy workload, and poor birth spacing were also considered.

Existing Interventions to address maternal under-nutrition in Nepal

Ministry of Health and Population (MoHP) has been providing iron and folic acid (IFA) supplementation to the pregnant and lactating women through the government health system as part of antenatal and postnatal care. Likewise, deworming during second trimester of pregnancy and high dose of Vitamin A (200, 000 IU) to the post-partum women are also included. Promotion of adequately iodised salt through social marketing campaign and raising awareness about nutrition and diet through counselling at different contact points of service delivery for women are also being implemented. In addition, there are some targeted and pilot interventions ongoing in certain areas of the country.

Gaps in Existing Interventions

To date, there is no comprehensive strategy to address the problem of maternal under-nutrition. The current interventions by MoHP focus mainly on micronutrient supplementation with less emphasis on food-based approaches including dietary diversity. Furthermore, there has been less emphasis on continuum of care, a life cycle approach and addressing the root causes for inequity. Inadequate institutional capacity due to lack of trained human resources has hampered the design, planning, implementation and monitoring of nutrition activities for adolescent girls and women and there is lack of nutrition monitoring and surveillance for early detection of undernutrition and its management.

The Health Sector Strategy

Based on these gaps, a working group under the aegis of the Nutrition Technical Committee (NuTEC)/MoHP developed this *Health Sector Strategy for Addressing Maternal Under-nutrition* in line with the Nepal Health Sector Program II, the National Nutrition Policy and Strategy and the Multi-Sectoral Nutrition Plan; having the goal to improve the nutrition and health of adolescent girls, pregnant and lactating women. Its objective is to accelerate and sustain reductions in chronic maternal undernutrition and micronutrient deficiencies, with a focus on the health and nutrition of disadvantaged and vulnerable groups. The strategy is in line with the framework for action proposed by Lancet 2013 to achieve optimal maternal nutrition.

The strategic approaches identified by this strategy are:

- **Institutional strengthening and capacity building**, by *enhancing the capacity of the government to design, implement and evaluate programmes at central, regional and district levels with a particular focus on enhancing management and technical skills.*
- **Maternal nutrition integrated in health programmes** by *integrating maternal nutrition into key health programmes, including community based approaches.*

- **Communication for improved maternal nutrition** by *improving knowledge regarding maternal nutrition, including diet and care practices, through advocacy, community mobilization and behaviour change communications.*
- **Maternal nutrition beyond the health sector** by *involving appropriate non-health sectors in maternal nutrition efforts.*
- **Nutrition surveillance, monitoring, evaluation and research** by *strengthening knowledge and contributing to information on best practices for evidence-based planning, implementation and monitoring for effective maternal nutrition programming.*

An implementation guideline and plan of action with monitoring framework for this strategy will guide the implementation through government programmes.

1. Background

The impressive improvements in child and maternal health in Nepal over the past decade are reflected in the significant decline in infant, child and maternal mortality. There has also been a remarkable improvement in nutritional status, particularly for the Millennium Development Goal (MDG) indicator for hunger, as the proportion of underweight children under five years of age declined from 43 percent in 2001 to 29 percent in 2011. Women's nutritional status has also improved with the proportion of underweight women of reproductive age (having a body mass index [BMI] of less than 18.5 kg/m²) decreasing from 26.7 percent in 2001 to 18.2 percent in 2011.

Despite these achievements, malnutrition rates, especially chronic undernutrition in Nepal remains among the highest in the world. Stunting currently stands at 41 percent among children under five years of age. Another concern is that 35 percent of all women and 39 percent of adolescent girls are anaemic. Though this represents a decline over the past ten years, it still remains high. The rate is even higher among pregnant women (48%) as compared to lactating (39%) and non-pregnant and non-lactating women (33%). This is most probably due to the high demand for iron and folic acid, especially during adolescence and pregnancy (NDHS 2011).

Efforts to address malnutrition need to be intensified in order to achieve MDG 1 of eradicating poverty. Central to the achievement of MDG 1 is securing adequate nutrition for adolescent girls and women, especially prior to and during pregnancy and while they are lactating, as these periods have important implications on women's health, pregnancy outcomes and child survival and growth. The risk of complications during birth, including foetal mortality, is higher among women with short stature. Similarly anaemia poses a five-fold increase in the overall risk of maternal death related to pregnancy and delivery (Cessay et al., 1997; Bhutta et al., 2008). Furthermore, studies have shown that poor nutrition is associated with increased rates of pre-term deliveries and low birth weight. A low birth weight baby is more likely to be stunted by the age of 2 years, which may prove difficult to reverse, and there is substantial epidemiological evidence that children who suffer such damage are shorter as adults, have lower educational achievement, reduced adult income, and have babies of lower birth weight. The inter-generational cycle of undernutrition thus continues. They are also at increased risk of nutrition related chronic illnesses such as diabetes, obesity and cardiovascular disease later in life (Victor 2008). Furthermore, the impact of undernutrition, including micronutrient deficiencies especially anaemia, on a pregnant woman affects her health and well-being as well as her capacity as a mother and a worker. Yet, like many other developing countries, maternal nutrition has received inadequate attention in Nepal. The burden of malnutrition among women has not been well documented and the strategies, approaches and programme options for improving the nutritional status of women have not been clearly defined (Shrimpton, 2012).

2. Women's Right to Adequate Nutrition

The Government of Nepal (GoN) prioritises good nutrition as a fundamental right of its citizens, as evidenced by its endorsement of international declarations and conventions that recognise the need to respect and uphold every individual's right to adequate food, nutrition and health. These include the Universal Declaration of Human Rights (UDHR), the Declaration of the World Summit for Children, the World Declaration on Nutrition and Plan of Action for Nutrition and the Declaration of the World Summit of Food Security. Nepal is also a signatory to the Convention on the Rights of the Child (CRC), the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the Convention on the Elimination of All forms of Racial Discrimination (CERD) and the International Covenant on Economic, Cultural and Social Rights (ICESCR). In addition, the Government of Nepal is highly committed to achieving the MDGs and has taken significant measures to achieve these goals since their adoption in 2000.

Several national documents affirm the government's commitment to improving nutrition, including the National Nutrition Policy and Strategy (2004), the current Three Year Plan (2010/11-2012/13), the Second Long Term Health Plan (1997-2017), and the Nepal Health Sector Programme-Implementation Plan 2 (NHSP-IP 2, 2010-15). In line with these documents, the government has implemented several nutrition

and health programmes, although most of these have focused on the needs of young children. The National Nutrition Programme, under the Department of Health Services (DoHS), is working to improve maternal and child nutrition through nutrition interventions focussing mainly on reducing micronutrient deficiencies. This year, the GoN has approved the Multi-sectoral Nutrition Plan (MSNP 2011-2015) which also defines the roles and the importance of the non-health sectors in improving the nutritional status of women and children. This plan has a particular focus on the first 1000 days between conception and the child reaching 24 months of age (MSNP 2012).

3. Recent Nutrition Initiatives in Nepal

Recent years have seen an increasing level of commitment from the government and its partners for improving nutrition among the Nepalese people. This began with the Nutrition Assessment and Gap Analysis (NAGA, 2009), which recommended the adoption of multi-sectoral approach for addressing undernutrition in the country. NHSP-2 highlighted the lack of sufficient improvements in maternal and child nutrition, which led to the Ministry of Health and Population (MoHP) declaring nutrition as a high priority investment area and identifying nutrition-related services for the health sector.

A review conducted in 2011, commissioned by the World Bank on behalf of MoHP and external development partners in Nepal, provided suggestions to the government on health sector interventions to address the main causes of maternal and child undernutrition to be implemented under NHSP-2 and the MSNP. This document states that, in contrast to micronutrient interventions (iron, folic acid and salt iodisation) and deworming, there is a lack of global and national evidence on what works for maternal nutrition. The review recommended further evaluation of interventions for improving maternal nutrition, along with iron and folic acid supplementation and deworming for adolescent girls and calcium supplementation during pregnancy. A technical review of vitamin A supplementation for post-partum mothers was also recommended in view of a World Health Organisation (WHO) recommendation.

The MSNP for reducing maternal and child undernutrition under the aegis of the National Planning Commission (NPC) aims for feasible, evidence-based nutrition specific as well as sensitive interventions through the health, agriculture, education, water, sanitation, and hygiene (WASH) and welfare sectors. It was approved in 2012 and is currently being rolled out. The plan has goals to improve maternal body mass index and to reduce child stunting by one third over the next five years, while strengthening the capacity of the NPC and key ministries to promote its objectives. The implementation of proven nutrition-specific interventions implemented by MoHP and nutrition-sensitive interventions implemented by non-health sectors are expected to improve maternal nutrition and reduce undernutrition in young children by addressing their nutritional needs from conception to 24 months of age — the 1,000 days that signify the optimal nutritional window of opportunity to prevent stunting in babies and young children. The nutrition-specific interventions will address the immediate causes of undernutrition within families and communities, in order to improve maternal, infant and young child nutrition through enhanced dietary intake, prevention and management of infectious illnesses. Nutrition-sensitive interventions include improving access to food by ensuring availability, affordability, quality, and the proper utilisation of food, access to sanitation and safe drinking water, and awareness creation for behaviour change. Another part of the plan calls for strengthening the capacity of government at central, district and community levels on providing nutritional support in an inclusive and equitable manner.

A Nutrition Technical Committee (NuTEC) was established in 2011 under the Ministry of Health and Population (MoHP) to provide advisory support on nutrition to key sectors; facilitate dialogue between ministries, international donors, partners and technical experts and monitor achievements against nutrition goals, strategies and policies. Under this committee, the maternal nutrition-working group coordinated the development of this strategy to address maternal undernutrition.

4. Maternal Nutrition Situation in Nepal: Challenges and Consequences

Situation and Challenges

Maternal malnutrition remains an important challenge in Nepal. At the national level, 18.2 percent of non-pregnant women are undernourished or chronically energy deficient (BMI < 18.5 kg/m²) and 14 percent are overweight or obese (NDHS, 2011), an increase of 5 percent since 2006. At particular risk for chronic energy deficiency are girls 15-19 years of age, women living in the Terai, Western Mountains, Far Western Development Region and women with no formal schooling and from the lowest wealth quintiles. Women who are most likely to be overweight/obese are older, come from the highest wealth quintiles and live in urban areas. The prevalence of both underweight and overweight among women is indicative of a potential double burden of malnutrition in the country and the need for the health system to incorporate the prevention and treatment of diet-related, non-communicable diseases, in addition to reducing undernutrition and infections.

Women in Nepal are generally of short stature. According to the 2011 NDHS, 12 percent of women in Nepal are less than 145 cm, a sign of chronic undernutrition. Risk factors for short stature include living in a rural area, having limited schooling and coming from the lowest wealth quintiles. In terms of aetiology, short stature is a likely consequence of the high prevalence of stunting in childhood. Babies who grow poorly and become stunted are likely to continue being stunted thus perpetuating the intergenerational cycle of malnutrition in the population.

Adolescent girls in Nepal fair worse. 25.8 percent of adolescent girls have a low BMI (< 18.5 kg/m²) compared to only 18.2 percent of women of reproductive age. There was no clear trend in low BMI for adolescent girls (15-19 years) between 2001 and 2006 and data showed an overall increase of 3 percent during this period. However, between 2006 and 2011, the rate remained more or less stagnant at 26.3 percent in 2006 and 25.8 percent in 2011. This slight decrease is low compared to the 6 percent reduction in older women during the same time period. Similarly, the prevalence of anaemia among adolescent girls has remained stagnant at around 39 percent over the last five years and the NDHS findings from 2006 and 2011 both reported a higher rate of anaemia in adolescent girls than in non-pregnant women.

In fact, the majority of women in Nepal suffer from anaemia and other micronutrient deficiencies. The NDHS, 2011, found anaemia among one in three women of reproductive age (35%), with the prevalence having declined by only 1 percent since 2006. Anaemia rates were also higher among pregnant (48%) and lactating women (39%) compared to women who were neither pregnant nor lactating (33%). In addition, the anaemia rates among pregnant women increased by 6 percent between 2006 and 2011 (Table 1). The current rates of anaemia in all groups of women are above the WHO thresholds for moderate (≥ 20 - 39%) and severe (≥ 40%) public health problems.

Table 1: Prevalence of anaemia among women in Nepal in 2006 and 2011 (NDHS 2006 and 2011)

	Prevalence of Anaemia (%)	
	2006	2011
Pregnant women	42.4	47.6
Lactating women	40.3	38.9
Non-pregnant women	28.5	33.0
Adolescent girls	39.0	38.5

The figures above mask important differences. For example, women living in rural areas and those living in the Terai are more likely to be anaemic than women residing in urban areas, hills and mountains. Neither wealth quintiles nor the level of schooling appears to exert a large influence on risk of anaemia.

Apart from on anaemia, no nationally representative recent studies have been conducted to assess other micronutrient deficiencies among Nepali women. With only a few localised micronutrient studies available, the prevalence of deficiencies is difficult to estimate. Like most developing countries, the bulk of anaemia among women in Nepal is perceived as the result of iron deficiency. A study by Dreyfuss et al., (2000) found

anaemia in 73 percent of pregnant women in the Terai region (the southern plains of Nepal), with 88 percent of these cases resulting from iron deficiency. In Bhaktapur district, an urban area within the Kathmandu valley, iron deficiency (plasma ferritin <15 µg/l) was found among 20 percent of relatively healthy non-pregnant women aged 13–35 years (Chandyo et al. 2007).

According to WHO, vitamin A deficiency may still be a public health problem among women in Nepal, despite intensive efforts to address it over the past two decades. The NDHS 2006 reported that 5.2 percent of women suffered from night blindness during their last pregnancy; a substantial decline from the 16.7 percent reported in the 1998 Nepal Micronutrient Status Survey (NMSS) (the 2011 DHS does not report on night blindness among women). The 1998 NMSS also found that 16.6 percent of Nepali women were vitamin A deficient (serum retinol concentration <0.70 µmol/l) and a study among women in the Terai region of Nepal by Dreyfuss et al., (2000) found that vitamin A deficiency affected 54 percent of pregnant women in the survey area.

Evidence from surveys that assessed the urinary excretion of iodine suggests that iodine deficiency may not be a major concern among Nepali women. The Nepal Iodine Deficiency Disorders Status Survey 2005 (MoHP et al., 2005) and 2007 (GoN, 2007) found median urinary iodine excretion (UIE) levels of 188µg/L and 202.9µg/L respectively among Nepal's population. According to the International Council for Control of Iodine Deficiency Disorders (ICCIDD), a median value of UIE ≥ 100 µg/L among lactating women and UIE ≥150 µg/L among pregnant women indicate the potential for the “elimination” of iodine deficiency in these population groups. The high median UIE values among women in Nepal are most likely due to the mass iodization of salt undertaken in the country. The NDHS, 2011 found 80 percent of Nepali households to be using salt that was adequately iodized, a figure slightly lower than the 90 percent coverage required by WHO for national salt iodisation programmes to be on track to eliminate iodine deficiency. However, these numbers mask large differences in coverage. For example, while 92 percent of women living in urban areas had (tested) iodized salt compared to only 73 percent of women living in rural households. Other risk factors for low coverage include residence in the Far Western region, no schooling and lowest wealth quintiles. In fact, 55 percent of women from the lowest wealth quintile had household access to iodised salt compared to 97 percent of women from the highest quintile. More recent biochemical data would be useful for estimating the elimination of iodine deficiency disorders in Nepal. In the meantime, intensified and sustained efforts are needed to increase the coverage of iodised salt, particularly in areas with poor access.

No national data is available regarding the status of zinc among women in Nepal, however, regional studies suggest that zinc deficiency may be significant. Zinc deficiency was reported among more than three quarters (78-90%) of urban non-pregnant women in Bhaktapur district (Chandyo et al. 2009). A previous study also found 61 percent of pregnant women in areas of the Terai to be zinc deficient (Jiang et al. 2005). Vitamin deficiencies were also found in this same population of pregnant women (vitamin A-7%, vitamin E-25%, vitamin D-14%, vitamin B2-33%, vitamin B6-40%, B12-28% and folate-12%), a further indication of the potential for multiple micronutrient deficiencies among women in Nepal.

There is paucity of information on the extent of the problem of calcium deficiency among women in Nepal.

Consequences

Chronic Energy Deficiency

The consequences of chronic energy deficiency are low BMI, short stature and poor birth outcomes including low birth weight, leading to an intergenerational cycle of malnutrition. While both maternal height and low BMI can predict adverse pregnancy outcomes, maternal height is a strong predictor of birth size, independent of pre-pregnancy BMI and weight gain during pregnancy (Christian, 2010). There is preliminary evidence from a WHO meta-analysis that short maternal stature is highly associated with uterine volume, risks of foetal growth restriction, and caesarean delivery (WHO, 1995). A more recent meta-analysis of 109 Demographic Health Surveys in 54 countries indicated that children born to women of short stature (<145cm) had a 40 percent higher risk of mortality and a 70 percent higher risk of being stunted compared to children born to taller women (Ozaltin et al. 2010).

Key Micronutrient Deficiencies

Anaemia and micronutrient deficiencies among women have also been associated with poor maternal and perinatal outcomes. Maternal anaemia, particularly during pregnancy, is associated with low birth weight, pre-term birth, infant, child and maternal mortality, and an increased risk of iron deficiency in infants, predisposing children to cognitive and psychomotor impairment, which can affect their academic performance. Overall, about 20 percent of maternal and perinatal mortality in developing countries is attributable to iron deficiency anaemia (Bhutta et al., 2008). Evidence from several studies also suggests that iron deficiency is associated with fatigue and decreased work productivity in adults. Estimations for 10 developing countries suggest that the median value of annual physical productivity losses due to iron deficiency is about \$2.32 per capita, or 0.57 percent of GDP, while median total losses (physical and cognitive combined) are \$16.78 per capita, 4.05 percent of GDP (Horton and Ross, 2003).

Vitamin A deficiency in women is known to result in an increased risk of xerophthalmia, blindness, morbidity and mortality in their children. Insufficient maternal vitamin A status during pregnancy is also associated with night blindness during pregnancy and poor pregnancy outcomes, including poor organ formation of the foetus and foetal death. A study in Nepal found an increased risk of urinary tract infections and diarrhoea or dysentery among pregnant women who suffered from night blindness — an indicator of vitamin A deficiency (Christian et al. 1998). Deficiencies of vitamins A, B6, B12, and folic acid have also been associated with maternal anaemia.

Iodine deficiency before and during pregnancy also has negative effects on mothers and can lead to adverse pregnancy outcomes and poor survival or development in infants and young children. Severe deficiency of iodine among women has been associated with incidence of goitre among women and can cause irreversible damage to the brain and nervous system of their offspring. Severe maternal iodine deficiency has also been associated with increased risk of abortion, perinatal mortality and stillbirth. In addition, it is suggested that mild to moderate iodine deficiency during pregnancy affects the cognitive and motor functions of infants and young children. Iodine deficiency is a leading cause of intellectual impairment among children and is associated with an average 13.5-point reduction in intelligence quotient (IQ) (Bleichrodt and Born, 1994).

Folate deficiency among women, especially during the first few weeks of pregnancy is the leading cause of neural tube defects (NTD), another congenital malformation that results in damage to the foetal brain and spinal cord and that is associated with a higher risk of perinatal and infant mortality.

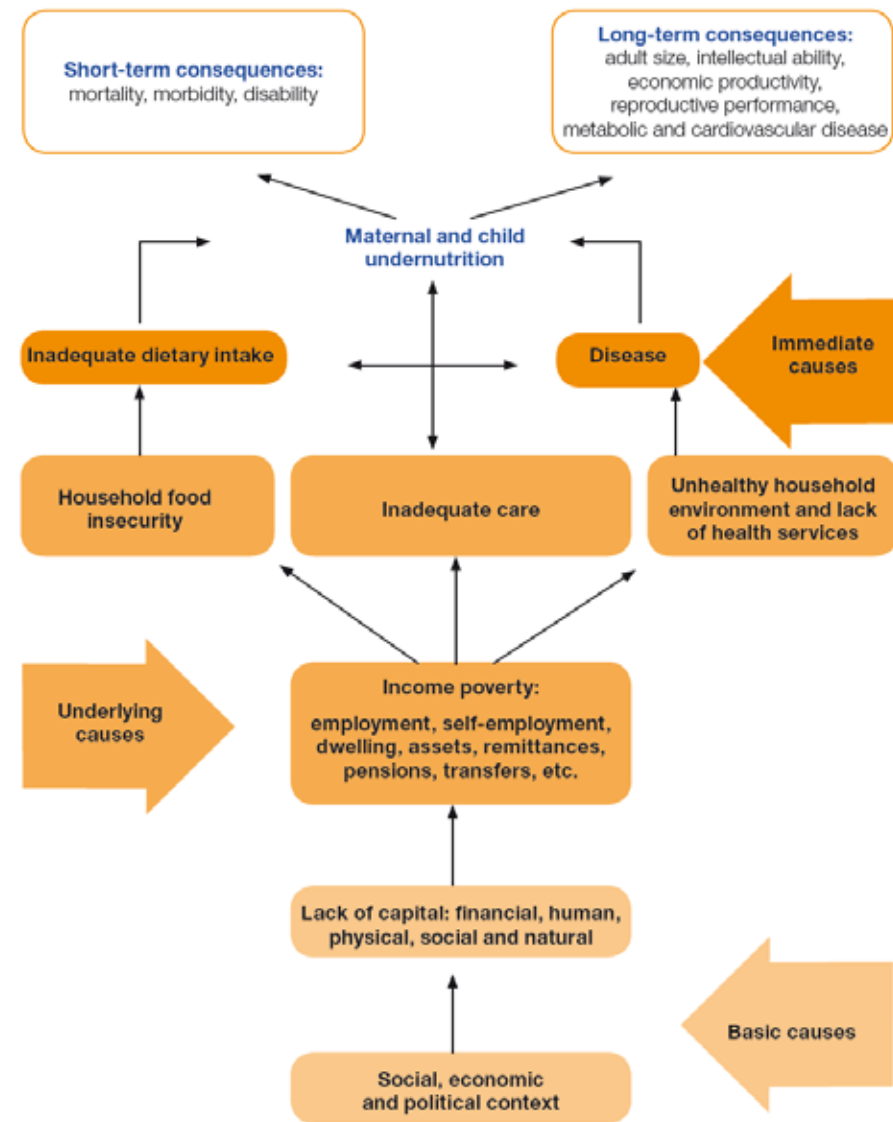
Zinc deficiency impairs the immune system and reduces the ability of women to fight infection and thus can negatively affect the progression and severity of infections in these women. Low concentrations of circulating zinc in the plasma of mothers have been associated with preterm delivery, low birth weight and pregnancy complications including prolonged labour, hypertension, post-partum haemorrhage, spontaneous abortion and congenital malformations.

Similarly, calcium deficiency has been associated with the risk of preeclampsia in pregnant women; and in areas where dietary calcium intake is low, calcium supplementation during pregnancy is recommended (WHO, 2011; Lancet, 2013) for the prevention of pre-eclampsia and preterm births.

5. Causal Analysis of Maternal Undernutrition

A conceptual framework of the causes of maternal and child undernutrition developed by UNICEF (UNICEF 1990), later adapted by Lancet (Black et al. 2008) is widely accepted as the best way to understand the various causes of undernutrition (Figure 1).

Figure 1: Conceptual framework for analysing the causes of malnutrition



This strategy adapts the global conceptual framework based on a literature review to reflect Nepali realities regarding factors that influence the nutritional status of adolescent girls, pregnant and lactating women.

6. Factors Associated with Adolescent and Maternal Undernutrition in Nepal

	Adolescent Girls	Pregnant Women	Lactating Women
1. Dietary Intake	<ul style="list-style-type: none"> Greater need of nutrients including micronutrients (iron/folic acid, zinc and calcium) due to growth spurts Poor dietary diversity (cereals, legumes, fruits and vegetables, animal sources etc.) Poor knowledge of the right kind of food, food value and healthy eating habits Unfulfilled increased dietary requirements due to growth spurts 	<ul style="list-style-type: none"> Greater need for nutrients including micronutrients (iron/folic acid, zinc, iodine, vitamin A and calcium) during pregnancy Poor dietary diversity Inadequate dietary intake (quality, quantity) and frequency of feeding Lower pre-pregnancy weight and height Erroneous dietary habits from adolescence Severe morning sickness 	<ul style="list-style-type: none"> Failure to meet nutrient requirements during lactation (= nutritionally even more demanding than pregnancy) Greater micronutrient (iron/folic, zinc, calcium, iodine, vitamin A) need Inadequate dietary intake (quantity, frequency and diversity) due to lack of food, lack of awareness and food taboos
2. Care	<ul style="list-style-type: none"> Inadequate awareness among adolescents and their parents about nutrition, reproductive health and healthy behaviours and preventing infections (parasites, HIV/STIs) Lack of parental time Environment at home, school and community not adolescent friendly Susceptibility to risky behaviours (smoking, alcohol, drug use) Heavy workload Food fads and poor body image 	<ul style="list-style-type: none"> Low awareness among pregnant women of their nutritional needs, nutritional value of locally available foods, healthful behaviours (including food processing and cooking at household level) and infection prevention (parasites, HIV, STI) Pregnancy not considered as a special event in the family limiting support for care, rest and nutritious diet Heavy workload Risky behaviours (smoking and alcohol) Poor family support for seeking health services 	<ul style="list-style-type: none"> Lack of awareness on importance of nutrition, local foods, food processing and cooking and infection prevention including parasites, HIV/STIs among women and family Inadequate rest and heavy workloads (competing productive, reproductive and community roles of women) Lack of supportive environment at home (from husbands and other caregivers) and community (nutritious food, amount and frequency, rest) Risky behaviours (smoking and alcohol) Poor family support for seeking health services
3. Health and Environment	<ul style="list-style-type: none"> Inadequate adolescent-specific health and nutrition interventions/programmes (reproductive health, infection control, nutrition counselling) Recurrent infections (parasitic, STI, diarrhoea) and HIV Psycho-social health problems Lack of access to safe water and adolescent-friendly sanitation facilities especially at schools 	<ul style="list-style-type: none"> Lack of adequate nutrition counselling and follow up during ANC and other health service contact points Limited attention to maternal nutrition in health sector Frequent child bearing/short inter-pregnancy intervals and unmet need Poor sanitation (toilet, hand washing) practices 	<ul style="list-style-type: none"> Limited attention in the health sector on maternal nutrition beyond micronutrient supplementation Poor utilisation of postnatal care (PNC) services (inadequate nutrition counselling, poor family planning counselling and services) Recurrent infections Poor sanitation (toilet, hand washing) practices Inadequate maternity leave provisions for women workers
4. Socio-cultural Norms	<ul style="list-style-type: none"> Early marriage —early pregnancy and child bearing Large family size (less attention to adolescent girls) Low priority and status of girls Low school enrolment, attendance and drop-out of girls Inequitable intra-household food distribution 	<ul style="list-style-type: none"> Pregnancy is not considered a special condition for more attention and care Low priority given to women compared to other family members with regard to their dietary and health needs Inequitable intra-household food distribution Frequent child bearing Food taboos, beliefs and practices 	<ul style="list-style-type: none"> Low priority given to women compared to other family members with regard to their dietary/health needs Food taboos, beliefs and practices
5. Cross cutting Issues	<ul style="list-style-type: none"> Poverty; Widening disparity, Illiteracy/low education; Food insecurity; Gender inequity; Limited water, sanitation, education and health services; Few resources for good nutrition and health 		

7. Existing Interventions to Address Maternal Undernutrition in Nepal

The Government of Nepal, in collaboration with international and local development partners, implements several programmes to address malnutrition. The emphasis of these programmes is mainly on improving the nutritional status of infants and young children. Almost all of these programmes have implications for addressing maternal undernutrition, either directly or indirectly (MoHP, 2004 and MoHP, 2010). The Ministry of Health and Population's programmes for improving maternal nutrition have focused on micronutrient supplementation with much less emphasis given to nutrition counselling, food-based approaches, sufficient rest and other measures to reduce the workload of women.

Current MoHP programmes that directly affect women's nutritional status are outlined below. In general, the MoHP has taken the lead in focusing on the interventions that are within its remit such as micronutrient interventions. However, in order to see additional progress, other line ministries will need to assume greater involvement in women's nutrition.

Control of Iron Deficiency Anaemia

Since 1998, MoHP has been providing iron folic acid (IFA) free of cost to pregnant and lactating women through the government health system as part of antenatal care (ANC) and postnatal care (PNC) services. Pregnant women are provided with 180 tablets during antenatal visits and are advised to take a tablet a day. An additional 45 tablets are provided after childbirth to cover the postnatal period. In addition to providing IFA tablets, the policy recommends education on nutrition, health and hygiene with a focus on consuming adequate iron-rich foods throughout pregnancy and the postpartum period. However, the implementation of the latter component has been comparatively weak.

The maternal IFA supplementation programme faces several constraints including limited coverage, stock-outs of IFA tablets at the community level and low intake. The government, in collaboration with Micronutrient Initiative and other programme stakeholders, piloted the Integrated Maternal and Neonatal Micronutrient Programme (IMNMP) in 2003 — an initiative that focused on intensifying programme activities in a few selected districts to identify potential strategies to improve coverage and compliance. The programme focused on intensive advocacy activities and building awareness through public media and training health workers and volunteers. This programme is currently implemented in 74 of Nepal's 75 districts. It has improved coverage and compliance as a result of community-based delivery involving female community health volunteers.

Deworming

Since 2004, the government has provided pregnant women with a single dose of Albendazole (400 mg) during the second trimester of pregnancy as part of antenatal care under the national deworming programme. This programme also educates women on adequate hygiene practices. In addition, the School Health and Nutrition (SHN) Programme provides biannual deworming for all school-going children at government schools to reduce helminthic infestation.

Control of Vitamin A Deficiency

Nepal is recognised worldwide for its vitamin A supplementation interventions. The national programme for high dose vitamin A supplementation of post-partum women (200,000 international units within 45 days of delivery) started in 1995. Included in the supplementation programmes are advocacy and educational campaigns to raise awareness and compliance and to increase knowledge of the importance of vitamin A and the consumption of vitamin A rich foods.

Control of Iodine Deficiency Disorders

In 1973 the government adopted a policy to fortify all edible salt with iodine. A social marketing campaign is held every year in the months of Margh and Falgun (February) as 'Iodine Month' continues to raise awareness about the Government endorsed two-child-logo packaged salt for the consumption of adequately iodised salt at household level.

Control of Chronic Energy Deficiency

The National Nutrition Policy and Strategy 2004, recognises the importance of addressing chronic energy deficiency in adolescent girls and pregnant and lactating women. It calls for creating awareness about the importance of additional dietary intake during pregnancy and lactation, strengthening nutrition education and counselling to improve the iron status of pregnant and lactating women, reducing their workloads, preventing early pregnancy, ensuring adequate birth spacing and promoting social (community and family) support for maintaining good health and dietary habits.

These interventions have been implemented through the components of the maternal health programmes including antenatal care, the Birth Preparedness Package Programme (BPP), the Family Planning Programme (FPP), the Female Community Health Volunteer (FCHV) Programme, and the Primary Health Care (PHC) Outreach Programme.

These interventions are implemented throughout the country with household outreach and health facility components, but have not been evaluated. Concerns have been raised about the quality of services and their impact on behaviour. Additionally, the nutritional counselling component is absent from many programmes, and when it is present, it is often poor.

8. Targeted Interventions, Pilot Programmes, and On-going Research

The following approaches have been piloted to improve maternal and child nutrition in targeted populations:

- A food supplementation programme to improve maternal and child nutrition has been ongoing in nine food insecure districts of Nepal since 2001. A monthly take home ration of fortified supplementary food is provided along with health services, growth monitoring and counseling from government and community health staff in these districts (Mother and Child Health Care Programme, WFP).
- Research activities to demonstrate better maternal and child nutrition by mobilising women's groups (Maternal Nutrition Programme, UCL and MIRA).
- Targeting pregnant and lactating women and young children through homestead food production to address the critical facets of food security and nutrition education for improved care and dietary practices (Action against Malnutrition through Agriculture, HKI).
- Improving the nutritional status of students, including adolescent girls, in public schools by improving school environments and health and nutrition behaviours and by strengthening community support systems (School Health and Nutrition Programme, JICA).
- A small acceptability study on mode of calcium supplementation during pregnancy identified that tablet was preferred over the sachets. Currently, another pilot in one district is assessing the coverage and compliance to determine if calcium supplementation interferes with IFA supplementation (JPHEIGO)

9. Gaps in Existing Interventions

Although efforts to address maternal undernutrition have been taking place in Nepal for some time, the following gaps remain (MoHP & WHO 2012).

Policy and Strategy

Continuum of care and life cycle approach: A stronger link is needed between technical interventions and the lifecycle and continuum of care framework. Support and discussions are ongoing for developing a lifecycle and continuum of care-based strategy (from home to health facility and beyond).

Urban nutrition: NHSP-2 and current government programming have little or no focus on nutrition issues pertaining to adolescent girls, pregnant and lactating women residing in urban areas.

Gender equality and social inclusion: A system-wide focus that integrates gender equality and social inclusion (GESI) into existing interventions is needed to improve access and programme quality for socially excluded women.

Institutional Arrangements and Capacity

Management of nutrition programming: The Nutrition Section under Child Health Division (CHD)/DoHS manages most of the country's nutrition programmes — infant and young child feeding (IYCF), growth monitoring promotion, micronutrients supplementation and school health and nutrition. Many of the interventions for addressing maternal undernutrition come under Family Health Division (FHD). Coordination between these two divisions is therefore crucial for ensuring programme effectiveness and continuum of care. With the development of the Multi-sectoral Nutrition Plan (MSNP), there is an increased need for effective coordination both within and beyond the health sector.

Human resources

The lack of human resources for nutrition programming is a critical barrier to implementing existing nutrition interventions. The main human resource challenges are:

- the number of staff allocated to serve the nutrition functions within DoHS at the national, regional and district levels;
- the knowledge and capacity of staff to design, plan, implement and monitor nutrition activities; and
- the capacity of front-line health workers and volunteers to provide dietary counselling plus promotion of key practices related to infant and young child feeding as well as the nutrition of adolescents and women

Nutrition monitoring and evaluation

The Health Management Information System (HMIS) provides routinely collected nutrition-related information. Periodic surveys such as the Demographic and Health Surveys (DHS), Nepal Living Standards Surveys (NLSS) and Multiple Indicators Cluster Surveys (MICS), which also collect nutrition data, complement this information. HMIS provides information on coverage of post-partum vitamin A, iron/folate distributed to pregnant and lactating women, antenatal care visits, infections and other morbidities and hospital admissions. One constraint with the HMIS is the lack of an effective nutrition monitoring and surveillance system for the early detection and management of nutritional problems for nutrition programmes.

Program Gaps in Maternal Undernutrition

The current interventions focus mainly on micronutrient supplementation with less emphasis on food-based approaches including dietary diversity. Other specific programmatic gaps in addressing the undernutrition among women include:

- Low coverage and compliance with iron/folic acid (IFA) during pregnancy, particularly during the post-partum period.
- Poor nutrition education/counselling for adolescent girls, pregnant and lactating women.
- Poor coverage of services for the most vulnerable population groups of mothers and children.
- Low iodine consumption in hill and mountain districts (73%) and rural areas (77.7%), especially in the hills of the Mid-West, Far-West and Eastern regions.
- Poor coordination between health and other key sectors.

In general, poor and marginalised groups differ substantially from the rest of Nepal's population. Based on the Demographic and Health Surveys of 2006 and 2011, some of these differences are:

- Much higher rates of fertility among Muslims (TFR 4.9 compared to 2.6 for the whole of Nepal in 2011)
- Adolescent fertility rates that are three times higher among the lowest wealth quintile relative to the highest quintile
- The stunting and wasting rates are much higher in children born to chronic energy deficient (BMI less than 18.5 kg/m²) mothers i.e. 47% and 18.9% than for normal (BMI 18.5-24.9) mothers i.e. 40% and 9.2% and overweight (BMI more than 25) women i.e. 27.2% and 7% respectively.
- 18 percent of women of reproductive age are thin or undernourished (BMI < 18.5 kg/m²) with the highest prevalence in the Central Terai sub-region (26%) and the lowest is in the Western hill sub-region (8%).
- A higher proportion of women are undernourished in rural (19%) compared to urban (14%) areas. The proportion of women in the Terai who are thin (23%) is almost double that in the hills (12%).
- Women in the lowest wealth quintile are more likely to be thin (22%) than women in the highest wealth quintile (12%).
- Almost 12% of women are of short stature (height <145cm). The proportion in the "no education" group (15%) is more than twice that of the group with an education of "SLC and above" (6%). Similarly, the proportion in lowest wealth quintile is 15.3% compared to the highest group (9.3%).
- Much higher use of antenatal care (4+ visits) among the wealthiest (84%) compared to the poorest (28%) quintiles
- Much greater use of iron/folic acid tablets/syrups during pregnancy (wealthiest quintile 84%; poorest quintile 28%)
- As per Maternal Morbidity and Mortality Survey 2008/09, almost 55% of maternal deaths occurred among illiterate women compared to those with some education. In the same study, the MMR was higher for Muslim (318 per 100,000 live births), Terai/Madhese (307 per 100,000 live births) and Dalits (273 per 100,000 live births) as compared to Janajati (207 per 100,000 live births), Bahun/Chhetri (182 per 100,000 live births) and Newar (105 per 100,000 live births).

However, in some instances, coming from a more marginalised caste can be beneficial with respect to health care practices. For example, Dalit and Janajati children are considerably more likely to be exclusively breastfed than Brahmin and Chhetris. These differences suggest that programmes and policies designed to improve the nutritional status of adolescent girls and women generally need to be sensitive to large differences by caste and wealth with respect to health knowledge, practices and outcomes.

10. Vision, Goal, Overall and Specific Objectives of the Strategy

Vision:

All Nepali women are well nourished, reach their intellectual potential and are able to lead a healthy and economically productive life to benefit themselves and their families.

Goal:

Improve the nutrition and health of adolescent girls, pregnant and lactating women

Overall objective:

Accelerate and sustain reductions in chronic undernutrition and micronutrient deficiencies in adolescent girls and pregnant and lactating women, particularly among disadvantaged and vulnerable groups.

Specific objectives¹:

The specific targets for the next five years (by 2017) are to:

- Reduce the prevalence of low body mass index (BMI) in adolescent girls aged 15-19 years from 26% (2011 level) to 21%.²
- Reduce the prevalence of anaemia in adolescent girls aged 15-19 years from 38% (2011 level) to 33%.⁵
- Increase consumption of adequately iodised salt among adolescent girls aged 15-19 years, pregnant and lactating women to > 90%.³
- Reduce the prevalence of low body mass index in women of reproductive age to 13%.⁶
- Reduce the prevalence of anaemia in pregnant women to less than 40%.⁶
- Reduce the prevalence of anaemia in lactating women from 39% (2011 level) to 34%.⁵
- Reduce the prevalence of night blindness among pregnant women from 5.2% in 2006 to <1% by 2017.⁶

11. Strategic Approaches and Components

Based on the causal analysis, existing interventions to address the problems and the gaps in the programme, the following strategic approaches and components are proposed to address maternal undernutrition:

- Enhance the capacity of the government to design, implement and evaluate programmes at central, regional and district levels with a particular focus on enhancing management and technical skills
- Integrate and strengthen maternal nutrition in key health programmes, including community based approaches
- Improve knowledge regarding maternal nutrition, including diet and care practices, through advocacy, community mobilisation and behaviour change communication.
- Involve appropriate non-health sectors in maternal nutrition interventions
- Strengthen knowledge and contribute to information on best practices for evidence-based planning, implementation and monitoring for effective maternal nutrition programming.

The above strategic approaches are in line with the Framework for Actions to Achieve Optimal Nutrition (Annex I) mentioned in the Lancet 2013 Series on Nutrition.

1. INSTITUTIONAL STRENGTHENING AND CAPACITY BUILDING

Strategic objective: Enhance the capacity of the government to design, implement and evaluate programmes at central, regional and district levels with a particular focus on enhancing management and technical skills.

¹ The indicators to be tracked are to be disaggregated by caste, ethnicity and wealth quintiles.

² Based on trend analysis of Nepal Demographic Health Surveys 2001, 2006 and 2011 and are conservative estimates based on previous experience with NGOs and Governments globally that suggest changes in indicators of about 10-15% over 5 years.

³ In line with targets set by Second Long Term Health Plan (1997 - 2017) and also adopted by National Nutrition Policy and Strategy 2004

- 1.1 At the central level, assign focal persons for maternal nutrition at CHD and FHD (safe motherhood focal person) with appropriate job descriptions. Job descriptions should include facilitating programme planning, implementation, budgeting and reporting to achieve maternal nutrition targets.
- 1.2 Review the reports on capacity assessment for nutrition. If required, carry out additional capacity assessments. Invest in human resources to enhance technical and management capacities of health cadres.
- 1.3 Based on reviews of existing pre-service training curricula, develop an integrated nutrition curriculum that includes adolescent girls and pregnant and lactating women. Make sure curricula are consistent with the MSNP, Scaling Up Nutrition (SUN), Renewed Efforts Against Child Hunger and Undernutrition (REACH) and other global and Nepal-specific strategies. Involve local institutes and universities to help do this.
- 1.4 After conducting a review of in-service curricula, incorporate nutrition for adolescent girls and pregnant and lactating women into the training curricula of health workers (including skilled birth attendants). The National Health Training Centre (NHTC) This will be implement this in coordination with CHD and FHD.
- 1.5 Develop integrated community maternal infant and young child nutrition (MIYCN) training materials and tools in line with the MSNP, including water, sanitation and hygiene (WASH), infection control, rest, reduced workload, reduced exposure to smoke, improved dietary intake, dietary diversification, value and use of locally available foods, etc.
- 1.6 Strengthen in-service training in maternal nutrition. Use cascade training (master TOT followed by district, sub-district and community training) for adolescent girls and pregnant and lactating women. Use harmonised health communication materials and tools.

2. MATERNAL NUTRITION INTEGRATED AND STRENGTHENED IN HEALTH PROGRAMMES

Strategic objective: Integrate and strengthen maternal nutrition into key health programmes, including community based approaches.

- 2.1 Under NUTEC, establish a working group or similar mechanism to integrate nutrition and care for adolescent girls and pregnant and lactating women into relevant existing health programmes.
- 2.2 **Adolescent girls**
 - Strengthen coordination between the Nutrition Section of CHD and the National Adolescent Sexual and Reproductive Health focal point in FHD.
 - Advocate for mainstreaming adolescent nutrition into the existing National Adolescent-friendly sexual and reproductive health services (SRH), in coordination with FHD, including harmonized tools for nutrition, dietary and care practices.
 - Deliver nutrition services (de-worming, iron and folic acid supplementation, nutrition and health education) in accordance with the School Health and Nutrition Strategy (MoHP 2006) and ASRH Guidelines (MoHP 2011) for adolescent girls in and out of school.
- 2.3 **Pregnant and breastfeeding women**
 - Strengthen iron folic acid supplementation to pregnant and breastfeeding women; and postpartum vitamin A supplementation
 - Harmonise nutrition counselling at key contact points within the health system i.e. during antenatal and post-natal care, immunisation, growth monitoring, and family planning, integrated

management of childhood illness, voluntary counselling and testing for HIV, etc. and as part of the Birth Preparedness Package.

- Improve dietary intake through community-based health and nutrition programmes involving health workers, mothers groups and influencers (husband, in-laws). Expand food supplementation to pregnant and lactating women in specific contexts e.g. high food insecure areas, people living with HIV, and under difficult circumstances such as during humanitarian emergencies, in collaboration with relevant organizations.

3. COMMUNICATION FOR IMPROVED MATERNAL NUTRITION

Strategic objective: *Improve knowledge regarding maternal nutrition, including diet and care practices, through advocacy, community mobilization and behaviour change communications.*

- 3.1 Advocate for improving the health and nutritional status of women through coordination with concerned divisions and centres within MoHP.
- 3.2 Advocate for the review and revision of the maternal nutrition (adolescent girls, pregnant and lactating women) component of the National Health Communication Strategy on MNCH and develop harmonized communication materials and tools.
- 3.3 Use clear and targeted communication to address food taboos, beliefs and practices among adolescent girls and pregnant and lactating women.
- 3.4 Increase family and community members' knowledge regarding access to health services, particularly among disadvantaged and vulnerable groups.
- 3.5 Increase knowledge about pre-pregnancy weight and the importance of nutrition among adolescent girls and women who intend to become pregnant as well as family members including husbands and mothers-in-law.
- 3.6 Through advocacy at the household and community, reduce the workload of adolescent girls and women and ensuring adequate rest for pregnant and lactating women. Using the same strategies, reduce indoor smoke pollution.
- 3.7 Ensure equitable access to family food by adolescent girls, pregnant and lactating women.

Adolescent girls

- Advocate for inclusion of adolescent nutrition in the national adolescent sexual and reproductive health service package and create awareness for improved access to these services.
- Increase knowledge among families and communities about the dietary needs of adolescent girls (including micronutrients) and care – delaying marriage and child bearing and having access to adolescent friendly health services.
- Communicate with men about their role in helping adolescent girls receive adequate nutrition and health care. Hold men accountable for actions that improve the health and nutrition of adolescent girls.
- Involve adolescents in discussions about nutrition among peer groups and engage them as change agents in their communities to improve nutrition and care practices.

3.8 Pregnant and lactating women

- Help communities understand the importance of pregnancy as a special event that requires improved/extra diet and care, with emphasis on the consumption of locally available foods and on dietary diversity.

- Communicate with men about their role in improving the nutrition of their wives and daughters, especially during pregnancy and when they are breastfeeding their babies.

4. MATERNAL NUTRITION BEYOND THE HEALTH SECTOR

Strategic Objective: *Involve appropriate non-health sectors in maternal nutrition interventions*

- 4.1 Using the MSNP as a blueprint, include activities in adolescent and maternal nutrition in all sectors. Carry out this work with NPC's Food Security and Nutrition Coordination Committee (FSNCC). The FSNCC serves as the multi-sectoral platform at national, district and village level.
 - 4.2 Engage public and private sectors in maternity protection (including breaks for breastfeeding and paternity leave). Help the public and private sector to amend, monitor and enforce the law.
 - 4.3 Encourage nutrition focal points from all key sectors (WASH, education, and agriculture, local development) to participate in the NUTEC maternal nutrition working group.
 - 4.4 Increase knowledge regarding dietary needs of adolescent girls and women by mobilizing community groups and networks (health-mothers' groups, child/youth clubs, ward citizen forums, health facility operation management committees, school management committees, parents' and teachers' associations, early childhood development management committees etc.). Focus particularly on family decision makers (including husbands and mother in-laws). Create demand for nutrition services through ASRH and maternal health programmes.
 - 4.5 Ensure that the multi-sectoral behaviour change communication strategy and tools are harmonized with the health sector maternal nutrition strategy. Incorporate food-based dietary guidelines and consumption of locally produced foods into during counselling of adolescent girls and pregnant and lactating women.
- 4.6 Ministry of Urban Development (MoUD)**
- Ensure access to improved sanitation facilities, soap for hand-washing and safe drinking water for adolescent girls and pregnant and lactating women.
- 4.7 Ministry of Federal Affairs and Local Development (MoFALD)**
- Strengthen the linkages for adolescent girls and pregnant and lactating women with social protection programmes e.g. child cash grants, especially in the poorest and most food insecure districts, in coordination with MoHP and for the adoption of food-based dietary guidelines.
 - Advocate that village development committee (VDC) block grants be used to improve the nutrition of adolescent girls and mothers.
- 4.8 Ministry of Agriculture Development (MoAD)**
- Link adolescent girl, pregnant and lactating women and their families with programmes that increase household production and consumption of micronutrient rich plant and animal source foods.
- 4.9 Ministry of Education (MoE)**
- Advocate for the inclusion of adolescent and women's nutrition in formal and non-formal curricula for grades 6-10 to address common food taboos, beliefs and practices. Also include food and dietary guidelines in these curricula.
 - Strengthen the Parenting Education Package to include the nutrition of adolescents and pregnant and lactating women.

- In areas with low enrolment and attendance, attract out-of-school adolescent girls into the formal education system through peer education and the provision of incentives such as midday meals and take-home rations.
- Reach out to disadvantaged and low-literacy groups by including maternal nutrition in locally appropriate literacy programmes, linked with income generating activities (including promotion of adequately iodized salt, iron folic acid supplementation with de-worming, consumption of diversified and MN-rich diet).

4.10 Advocate with appropriate ministries for inclusion of nutrition education and awareness related activities in their programme. For example, Ministry of Youth and Sports for promoting nutrition in youth programmes and sports, Ministry of Women, Children and Social Welfare for creating awareness through their district offices, child welfare committees and women's groups.

5. NUTRITION SURVEILLANCE, MONITORING, EVALUATION AND RESEARCH

Strategic objective: *Strengthen knowledge and contribute to information on best practices for evidence-based planning, implementation and monitoring for effective maternal nutrition programming*

- 5.1 Harmonise planning, implementation, monitoring and evaluation to maximise the coordination and management of programmes that address maternal undernutrition.
- 5.2 Involve implementing partners, civil society and other stakeholders in developing guidelines and indicators. Ensure that key indicators are harmonised with global recommendations and are incorporated into the national HMIS for use by all agencies.
- 5.3 Encourage external development partners to pilot promising interventions then conduct operations research. Use results to streamline programmes and identify innovations for scale-up.
- 5.4 Conduct formative research to identify cultural, social and economic barriers and bottlenecks that prevent women from accessing health-mother's group meetings, and community-based services such as parental education, and for adopting optimal maternal feeding and care practices.
- 5.5 Based on formative research findings, identify gaps in the continuum of care and develop more appropriate integrated health and nutrition services for adolescent girls and women.
- 5.6 Design modality and pilot the weekly supplementation of IFA to adolescent girls (in and out of school) for appropriate programme scale-up.
- 5.7 Advocate for inclusion of girls aged 10-14 years in nutrition related surveys, especially the Demographic Health Survey.
- 5.8 Explore avenues for calcium supplementation during pregnancy.
- 5.9 Conduct food consumption surveys and research to document the nutritional value of indigenous foods and the dietary practices of different communities.
- 5.10 Conduct research to explore various social transfer options in order to improve nutritional status during pregnancy as well as birth outcomes

12. Strategic Areas of Focus

It is critical that programs account for the needs of different groups. As noted above, those from marginalised castes are at a particular disadvantage when it comes to nutrition and health. Just as importantly, poverty (as measured by wealth quintile) is an important (and more consistent) predictor of poor nutritional status.

Efforts to improve nutritional status should "lift all boats." In other words, more advantaged castes and socioeconomic classes should be included in the nutrition activities, with a major focus on the disadvantaged.

Given the near universally inadequate consumption of animal source foods, increasing women's consumption of these foods should be an objective of policies and programs throughout the country. Likewise, delayed pregnancies and adequate birth spacing are critical to preserving the health of adolescents and young mothers.

While reducing underweight should be a priority for the entire country, women in the Terai, Western Mountains and those in Far Western Regions need to be targeted urgently. Anaemia is also particularly acute in the Terai and government and non-governmental efforts to reduce it should address both diet and infection.

In the mountains and hills, consumption of iodized salt should be a priority and cessation of smoking among pregnant and other women should receive extra consideration in the hills where it is most problematic.

13. Other Linkages of this Strategy

This strategy is part of a broader Maternal Infant and Young Child Nutrition (MIYCN) Strategy, which will also include an Infant and Young Child Feeding Strategy and a detailed Communication Framework for Maternal Infant and Young Child Nutrition (MIYCN).

There will be a separate and detailed Plan of Action for the MIYCN Strategy, which will incorporate the Monitoring and Evaluation framework.

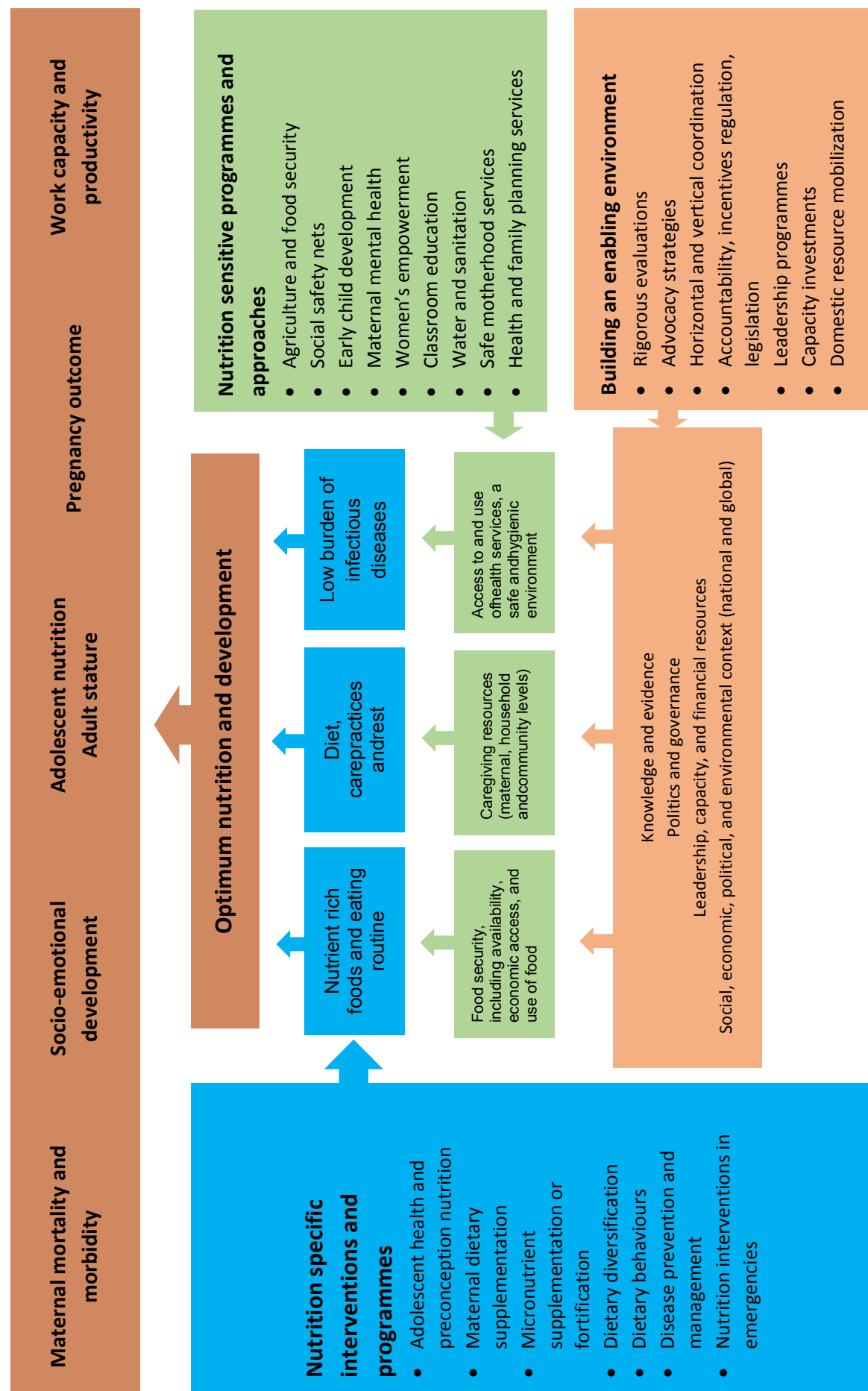
The strategy has been developed in line with the Nepal Health Sector Program 2010-2015, the National Nutrition Policy and Strategy and the MSNP.

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Annex

Annex I Framework for action to achieve optimum maternal nutrition (Adapted from Lancet 2013)



Annex II

Composition of Working Group

SN	Name	Organisation
1	Dr Shilu Aryal	Family Health Division
2	Ms Mangla Manandhar	Family Health Division
3	Dr Amit Bhandari	DFID
4	Dr Asha Pun	UNICEF Nepal
5	Mr Pradiumna Dahal	UNICEF Nepal
6	Ms Neera Sharma	Save the Children
7	Ms Sophiya Upreti	World Food Program
8	Dr Maureen Dariang	NHSSP
9	Ms Pooja Pandey Rana	SUAAHARA/USAID
10	Mr Lila Bikram Thapa	Nutrition Section, CHD
11	Representative	NESOG

Composition of Core Group

SN	Name	Organisation
1	Mr Raj Kumar Pokharel	Child Health Division
2	Prof Dr Madhu Dixit Devkota	Institute of Medicine
3	Dr Shilu Aryal	Family Health Division
4	Ms Sophiya Upreti	World Food Program
5	Mr Pradiumna Dahal	UNICEF Nepal
6	Dr Kirk Dearden	SUAAHARA/USAID
7	Mr Sumit Karn	Nutrition Section, CHD/SUAAHARA

Annex III**Number of Meeting Held during the Process**

SN	Meeting	Date
1	1 st Working Group Meeting	5 January 2012
2	1 st Core Group Meeting	26 January 2012
3	2 nd Core Group Meeting	2 February 2012
4	3 rd Core Group Meeting	8 February 2012
5	4 th Core Group Meeting	15 February 2012
6	5 th Core Group Meeting	23 February 2012
7	6 th Core Group Meeting	29 March 2012
8	7 th Core Group Meeting	2 May 2012
9	8 th Core Group Meeting	20 July 2012
10	Consultative Workshop	26-27 July 2012
11	9 th Core Group Meeting	15 August 2012
12	10 th Core Group Meeting	12 September 2012
13	11 th Core Group Meeting	19 September 2012
14	2 nd Working Group Meeting	7 November 2012
15	12 th Core Group Meeting	12 November 2012
16	13 th Core Group Meeting	22 November 2012