



National Nutrition Strategy

Ministry of Health
Timor Leste



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National Nutrition Strategy

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1: Background

The people of Timor Leste have experienced harsh and difficult conditions as a result of colonial and occupational rule which has greatly contributed to the poor nutritional status of the people today. The country is one of the poorest in the region, with not only low income but also poor performance on social indicators such as education, literacy and health.

The basic causes of under nutrition in society relate to both the current and historical background of the society and factors external to the society. They relate to ‘macro’ issues which impact upon people’s access to resources and their choices. Thus basic causes include things such as education levels, income per capita, productivity and gross national product, mineral resources, land and water availability, infrastructure and governance. Moral and spiritual beliefs and values and civil society awareness and activism are also important considerations on analysis of the basic causes of under nutrition.

Timor Leste is still largely an agrarian society; in 2001, agriculture was the main source of income in 94 per cent of sucos. 79% of households reported in the MICS 2002 that they owned or had access to farmland. In rural areas the proportion went up to 87% but even in urban areas such as Dili or Bacau, about 26% of households claimed to own agricultural land. However 24% of families owned less than 0.5 ha of agricultural land and 60% between 0.5 and 2.0 ha. Yet as noted above food security, national or at household level, is not assured due to seasonal shortages, low productivity, low access to land and the fact that Timor Leste has little or no comparative advantage in agricultural commodities. Timor Leste is also poorly endowed with natural resources, except for oils and gas, which is yet to bring revenue to the country.

Women have a generally low status in Timor Leste society. Many East Timorese do not yet seem to fully appreciate women’s rights or to embrace gender equality. Women (including girls) continue to be discriminated against in the ownership of assets, access to social and economic services, and participation in making decisions affecting their lives. The prevalence of a multitude of traditional practices and the absence of statutory laws make the identification and enforcement of women’s rights difficult. Having said that, women currently constitute 25% of the Constituent Assembly, compared to a Civil Service Law target of 30% and gender parity has largely been achieved in primary school enrollment, although not in secondary or tertiary level participation.

Rights to nutrition

Timor Leste has unconditionally accepted the principles and obligation of all International Human Rights conventions by the signing of these conventions in 2002 along with the inclusion of human rights in the National Constitution of the country. In

doing this the government has accepted the responsibility to respect, protect and fulfill the rights of its citizens including the right to nutrition.

The right to nutrition was first enshrined in the International Covenant on Economic, Social and Cultural Rights (ICESCR), which was adopted by the UN General Assembly in 1966 and entered into force in 1976. It recognizes the right to food, education and health. The right to nutrition, particularly of women and children, is specifically covered in many parts of the Convention on the Rights of the Child (CRC), which was ratified in 1990. The CRC also covers the protection of fetal and infant growth. In the preamble, it states “the child, by reason of physical and mental immaturity, needs special safeguards and care, including appropriate legal protection, before as well as after birth”. The obligation to fulfill requires the State to adopt appropriate legislation, administrative, budgetary, judicial, promotional and other measures towards the full realization of the right. It also requires the State to directly provide assistance or services for the realization of that right. This Policy and Strategy document therefore aims to delineate how the State of Timor Leste will respect, protect and fulfill the rights of its citizens to the right to optimal nutrition, as defined in the Convention on the Rights of the Child and other human rights instruments.

1.1: Analysis of the Situation in Timor Leste

Undernutrition in Timor Leste

A detailed analysis of the nutrition situation in Timor Leste is to be found in attached annexes. The highlights of the analysis are as follows:

- In 2002, 42.6 per cent of under-five children were found to be underweight.
- 46.7% of children were found to be “too short” or stunted
- 12% of under-five children are wasted in Timor Leste, meaning they are too light for their height. Wasting is generally an indicator of recent, acute food insecurity or illness.
- Records of nearly 2,500 hospital births in Dili in 1997 found 17% to be low birth weight. In MICS 2002 survey 25% of mothers said their baby was “below average weight”.
- The MICS 2002 survey found 21% of women to be shorter than 145cm and therefore considered to be at significant risk and 59% to be shorter than 150cm.
- MICS 2002 also found 28% of women to have a Body Mass Index (BMI) lower than 18.5%, which is underweight, 7% had BMIs under 16 indicating severe undernutrition. Only 4% of women were found to be overweight; having a BMI greater than 25.
- The MICS 2002 found that exclusive breastfeeding was only just above 60% at birth and by five months; only about 20% of infants were still exclusive breastfeeding.
- The MICS 2002 found that coverage of iodized salt in Timor Leste was 72%.
- MICS 2002 reports that 35% children 6-59 months were covered with vitamin A capsules in the last six months
- The MICS also found 27% of women reported having received a vitamin A capsule post partum.

- A decade ago anemia was found to affect two thirds of women and young children in Timor Leste.¹

Maternal, Infant and Child Mortality

Maternal, infant and child mortality rates are important macro indicators of the well being of populations. As discussed in the section on the consequences of undernutrition, undernutrition is often a major underlying cause of mortality and at least half of the under five children who die in the world today would probably not have died if they had not been malnourished. No such calculations have been done for the contribution of maternal undernutrition to maternal mortality but it is likely to be high as well.

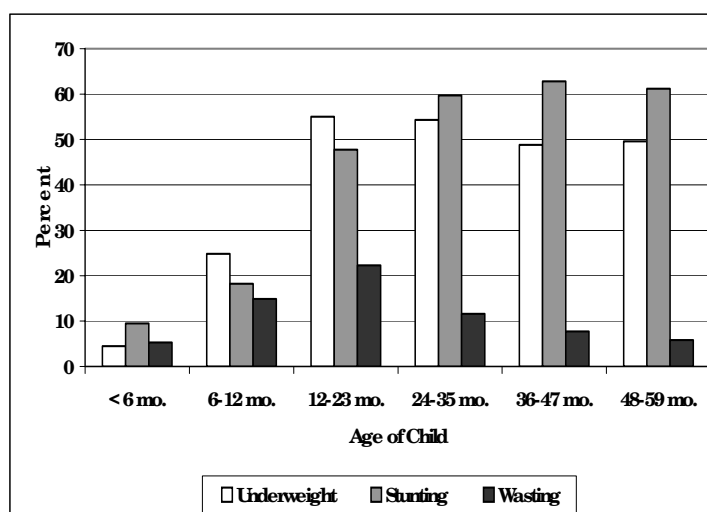
Infant mortality in Timor Leste is estimated to be between 78-149 per 1,000 live births compared to a regional average of 33 and under 5 mortality rate is 124-201 per 1,000 live births, well in excess of the regional average of 43^{2 3}. Women bear an unacceptable burden of maternal mortality and morbidity with maternal mortality rates estimated to be between 350-800 per 100,000 live births. This is by far the highest maternal mortality rate in the region and is similar to those found in Sub-Saharan Africa⁴.

Undernutrition Problems (life cycle context)

From the time when Timor Leste was part of Indonesia, survey data has always suggested that Timor Leste (then East Timor) had the worst nutrition situation of any province. Indeed, data collected through a Multiple Indicator Cluster Survey (MICS), supported by UNICEF and ECHO in 2002 indicates that Timor Leste's nutrition situation is amongst the poorest in the Eastern Asia and Pacific region.

Child Undernutrition

Underweight: 42.6 per cent of under-five children were found to be underweight (<2 S.D low weight for age) in 2002. This compares to data from 1998, which gave a rate of 45%. In 1986 the rate was believed to be 55%. As such, the underweight prevalence appears to be gradually falling. Unlike in other countries, prevalence of underweight does not show major variation between geographic regions and across wealth quintiles. Unusually, prevalence amongst boys was found to be higher (44.2%) compared to 40.9% in girls. As is seen in other countries underweight



prevalence differs across the age groups, rising from only 4.5% in children under 6 months to 55% in children 12-23 months. Thereafter it levels off at about 50% in children 24-59 months.

Stunting: The MICS in 2002 provided the first data on the level of stunting (low height for age) in Timor Leste children; 46.7% of children were found to be “too short”. This compares to a regional average of 21% and an Indonesian rate of 49.3% in 1999.

Wasting: 12% of under-five children are wasted in Timor Leste, meaning they are too light for their height. Wasting is generally an indicator of recent, acute food insecurity or illness. Timor Leste’s rate is significantly higher than the regional average of 4%. No comparable data exists for Indonesia.

As with underweight prevalence, relatively little variation is found in either stunting or wasting across geographical regions, wealth quintiles or even mother’s education.

Temporal Manifestations

As already discussed, much of the child under-nutrition that is seen in the first years of life is the result of inadequate nutrition during foetal and infant growth period⁵. At the population level, child growth is normal after the second year of life, even in the most disadvantaged populations. Consequently it is important to consider temporal manifestations of undernutrition and to give programmatic attention to improving maternal nutrition and trying to reduce low birth weight rates, as an important way to improve later child growth^{6 7}. Although the extent of adult, and especially maternal undernutrition, is not well documented for Timor Leste, it is likely to be very poor and of far greater consequence than is commonly realized. Maternal height and pre-pregnancy weight has enormous influence over birth outcomes, with shorter lighter women more likely to have low birth weight babies and to experience difficulties in childbirth including maternal death.

Birth Weight: Little information is available on birth weight. Records of nearly 2,500 hospital births in Dili in 1997 found 17% to be low birth weight suggesting unacceptably high rates even in an urban setting. The MICS identified women who had had children in the last 12 months. Although only 8% of these were low birth weight (below 2.5kg) these data are probably not reliable, as only 10% of babies born in the previous year had been weighed. When women were asked to subjectively evaluate their babies’ weight, more than 60% said that it was average but 25% felt that it was below average. This compares to a response of 2% given to the same question in 1997 for a Demographic and Health Survey.

Maternal Weight and Height: Anthropometric data on mothers from MICS 2002, suggest the nutrition situation of women is quite poor. The MICS 2002 measured the weight and height of women 15-49 who were caretakers of children under 5, whether or not they were the biological mothers. Height data was collected because maternal height is a measure of past nutritional status and reflects the cumulative effect of social and economic outcomes on access to food and disease during childhood and adolescence. The survey found 21% of women to be shorter than 145cm and therefore

considered to be at significant risk and 59% to be shorter than 150cm. Women's height was also compared with her weight to calculate a Body Mass Index (BMI). A BMI of below 18.5 is considered a risk factor and such women are classified as having chronic energy deficiency (CED). 28% of women were found to have a BMI lower than 18.5%, 7% had BMIs indicating severe undernutrition. 4% of women were found to be overweight; having a BMI greater than 25.

Analysis of the Causes of Child Undernutrition in Timor Leste

Below, the possible causes of undernutrition in Timor Leste are analyzed using the causality hierarchy expressed in UNICEF's Conceptual Framework of the causes of undernutrition introduced above.

The Immediate Causes

It is important to understand that the causes of poor nutrition are not simply lack of appropriate food. Rather the immediate causes of undernutrition include both disease and inadequate dietary intake. The synergistic relationship between illness, particularly infection, and undernutrition is such that the combined effect of the two is greater than the sum of the two parts. Thus recent analysis of causes of child death have found that "53% of all child deaths could be attributed to being underweight". Of these, 35% of all child deaths are due to the effect of underweight status on diarrhea, pneumonia, measles, and malaria.⁸

Inadequate Dietary Intake

Hardly any data exists on dietary intakes of energy and/or specific nutrients in the population of Timor Leste. Food consumption data suggests that micronutrient intakes are likely to be worse in the interior areas as compared to Dili. Pedersen and Arneberg⁹ report information on dietary diversity that was investigated by the Indonesian BPS surveys. Social surveys (SUSENAS) from recent years reported that households spent on average two-thirds of their total expenditures on food, which is high. The largest expenditure is for rice (more than 20 percent). Vegetables, beverages, meat, oil/fat, roots, tubers, fish, eggs, milk, peanuts, fruit, and spices follow in descending order. There are no available data on the quantity of the above items consumed per capita or average caloric intakes. The data from the 1998 SUSENAS survey shows that there were significant differences in the types of food consumed in Dili compared to the rest of Timor Leste. The consumption in Dili was more varied; with much more frequent consumption of animal products such as milk, egg, meat and fish than in the interior. Such products are rich in micronutrients such as iron, vitamin A and zinc.

The MICS 2002 data suggest *breastfeeding* and complementary feeding practices are far from optimal and dietary intake of the majority of infants and young children is inadequate. 44% of children 0-5 months were found to be exclusively breastfeeding. However this data is misleading as it includes all children between birth and five months. In reality the MICS 2002 found that exclusive breastfeeding was only just

above 60% at birth and by five months, only about 20% of infants were still exclusive breastfeeding.

Although 63% of children 6-9 months were found to be receiving *complementary solid food* this is somewhat misleading as it implies relatively good complementary feeding practices in that complementary feeding is not being started too late. This is indeed so but as illustrated above in the diagrammatic representation of the cumulative percentages of children, it can be seen that complementary feeding has already started in 95% of children around the time of birth – this is much too early and presents a serious problem because it reduces the intake of the breastmilk and is a potential source of infection. One ‘good’ finding from the survey is that the giving of water does not seem to be a major practice although there are quite a lot of ‘other liquids’ given and both water and ‘other liquids’ seem to be particularly common at around the time of birth.

An Oral Health Survey carried out in 2002 found that 58% of women stated that their child had used a bottle at some stage and the mean length of *bottle feeding* was 21.2 months (SD 10.5; range 2-48 months). This is extensive considering that both this and the MICS survey found mean duration of breastfeeding to be only about 15 months. 39% of children did sleep or had slept with the bottle. Liquids most commonly provided in the bottle were: tea with sugar 79%, cordial 69%, soft drink 68%, formula 66%, sweet canned milk 54%, water 53%, water with sugar 52%. These are very poor practices that affect significant proportions of the young children.

Apart from the macro nutrients, which primarily contribute to size, the body also needs *micronutrients*, in small amounts, for the proper functioning of specific processes or functions. Some micronutrient deficiencies are particularly common because it is hard for poor communities to consume adequate amounts for the bodies needs.

Iodine is needed for production of thyroid hormones which are necessary for many body processes. Most significantly deficiency leads to poor brain development and if it occurs during pregnancy causes cretinism, severe mental and physical retardation, in the resulting child. In its milder but much more common form, it limits the intellectual capacity of whole communities whose mothers have not eaten enough iodine during pregnancy and early childhood. Survey results from 1991 found a total goitre rate of 26.2% in school children in Timor Leste¹⁰, suggesting that the whole population is both at risk and likely to be affected by iodine deficiency unless salt is adequately iodized and available to all.

In order to address this, most countries in the world are *fortifying salt* with iodine to ensure the population access to adequate iodine. The MICS 2002 found that coverage of iodized salt in Timor Leste was 72%. This suggests that the majority of the population is protected from iodine deficiency. This good coverage is due to the fact that the majority of Timor Leste’s salt is imported from Indonesia where iodized salt is readily available. It is important that the salt importers continue to request iodized, rather than non-iodized salt. Iodized salt coverage is lowest in the Western region where much of the limited local production of salt, most of which is un-iodized, is located.

Iron deficiency is the most widespread micronutrient deficiency in the world. A decade ago anaemia was found to affect two thirds of women and young children in Timor

Leste.¹¹ Today it is highly likely that it continues to affect at least half of all reproductive age women in Timor Leste and probably an even greater proportion of young children. Unfortunately no recent data exists on either iron deficiency or anaemia prevalence. However, despite lack of conclusive information, it should be concluded that it is a major problem as a result of low consumption of iron-rich foods, particularly animal products, and excess losses from the body due primarily to hookworm infection and malaria. High fertility amongst reproductive age women is also likely to be a major contributor.

Zinc deficiency impairs innate and acquired immunity.¹² Zinc also has direct effects on the gastrointestinal tract that lead to an increased clinical severity of acute enteric infections.¹³ As a result, zinc deficiency increases the risk of mortality from diarrhoea, pneumonia and malaria by 13-21%.¹⁴ Zinc deficiency may also negatively affect growth as growth retarded children respond well to zinc supplementation.¹⁵

Vitamin A deficiency is prevalent, child mortality can be reduced by 23-34% following vitamin A repletion.¹⁶⁻¹⁷⁻¹⁸⁻¹⁹ Weekly, low dose vitamin A and/or carotene supplementation in pregnancy has also been found to reduce maternal mortality by 40%.²⁰ The link between vitamin A and mortality is believed to be related to vitamin A's role in immunity from infectious disease and in pregnant women through its effects as an anti-oxidant on eclampsia, pre-eclampsia and possibly placental abruption.

Importance of Disease on under-nutrition

Disease is the second immediate cause of undernutrition in the Conceptual Framework. It causes undernutrition through excessive use and loss of nutrients from the body and reduced intake due to reduced appetite. Undernutrition in turn, reduces the ability of the body to fight the infection and in some instances, eg. vitamin A deficiency, increases susceptibility to the certain diseases.

Although information on diseases is also not easy to get in a truly representative fashion, there is little doubt about what the main disease problems are. Malaria is cited in all sources as one of the three main causes of mortality in Timor Leste, together with tuberculosis and upper respiratory tract infections. To be ill appears to be common in Timor Leste. The MICS 2002 found that 56% of all under five children were reported by their caretakers to have been sick in the two weeks prior to the survey.

While the MICS 2002 was not able to make a clinical determination of malaria, it did find that 27% of under five children had experienced a fever, possibly malaria, in the two weeks preceding the survey. 47% of these children had received anti-malaria treatment for their fever.

In much of the developing world, diarrhea is a major cause of death among young children. Even if it does not kill directly, severe and/or frequent bouts of diarrhea can weaken resistance of children to other disease and contribute to undernutrition. Using a definition of three or more loose watery stools per day or blood in the stool, MICS 2002 found that 25% of children had had diarrhea in the previous two weeks. Diarrhea was most common in the 12-23 month old child but relatively even distributed according to geographic coverage (except that the eastern region had considerably less), and wealth quintile.

No data is available on the parasite load of young children or reproductive age women in Timor Leste but in view of the fact that only about half of the population has access to clean water or a toilet it is likely that the worm load, in particular, hookworm is high. This will cause an extra nutritional burden on those affected as they must compete with the parasites for available nutrients.

Gynecological infections/STDs are common, if unreported diseases of reproductive age women, especially those sexually active and living in conditions of poor sanitation. Unfortunately no data is available on their prevalence but they can significantly contribute to poor health, nutrition and sexual well-being.

The Underlying Causes

The underlying causes of undernutrition have three essential, yet alone insufficient components. One is related to household food security, the other to the availability of health and sanitation services, and the third is related to how these resources and others are used to care for the mother and child during the vulnerable periods of pregnancy and infancy²¹. These are the main areas where interventions are possible to prevent and reduce maternal and child undernutrition.

Household Food Security

The findings from the 2001 Timor Leste Living Standards Measurement Survey show severe stress in food availability during December and January for a greater majority of the population – the lean months preceding the harvesting of maize and rice, the major food crops, with significant stress also during November and February.

However, in a number of cases food security is a serious problem for many other individuals and families depending on availability of choice of crops, arable land, geographic location and seasonal variations in climate and infestations.

Maternal and Child Caring Practices

The aspects of care for women and children include issues related to how and whether resources available in the household and/or at the community level are made available to women, pregnant and lactating mothers, infants and young children and young girls in particular. Caring practices are an essential component of the underlying causes analysis because they very much determine how well household food security resources and health, water and sanitation services are used to improve the situation of women and children.

Care of the Sick Child: MICS 2002 data on how children are cared for when they are sick, suggest that care of sick children is far from optimal. This is a serious concern as proper care at home can significantly reduce morbidity rates of some diseases and the fact that some 50% of kids were reported ill in the two weeks preceding the survey. Examples of poor care identified in the MICS include: only 7% of children with any illness took increased fluids and continued eating as is recommended, and only 48% of children with malaria received an appropriate anti-malarial drug. However, more than 95% of children with diarrhea received “a recommended treatment” such as breastmilk

or ORS, 57% of children with ARI received “acceptable medical treatment” and 60% of caretakers knew at least two signs of illness that require immediate medical attention.

Maternal Care: Maternal care has been relatively neglected in social development and there is limited data on both the status of women and their situation, including in regards to their health and nutrition status. However, as already noted, there is growing recognition that the health and nutritional status of the mother directly affects the well-being of her infant by affecting foetal growth and also indirectly by compromising her ability to provide optimal care for her child and to access necessary resources.

Mortality Rates: Comparison of male and female mortality rates provide an indication of whether males get preferential treatment such as better access to food or more health services. In Timor Leste male mortality rates amongst both infants and children under five are higher than for girls. While males do biologically have higher mortality rates, the difference of 22 points in infants and 34 points in children under five, is quite a lot higher than what would be expected from biological differences alone. Additionally the gap seems to have increased since the late 90s when the gap was only about 15 points. Investigation of the cause of this is needed.

Maternal mortality rates are extremely high. It could be as high as 800 per 100,000 live births which is one of the highest in the world. This is a clear indication of the poor status of women and the low access to services which would improve her health and nutrition and provide emergency obstetric care if required. It is also likely a reflection of the high level of fertility detailed below.

Total Fertility Rate: Average family size is 5.7 in Timor Leste but significantly larger families are not uncommon; 9% of households had 9-10 members as reported by the MICS 2002. The same survey concluded that “at current patterns of fertility each woman in Timor Leste will give birth to more than seven children during her life time” as the total fertility rate is estimated at 7.8%. This is consistent with some of the highest rates observed virtually anywhere in the world and appears to have increased from the 1996 rate of 5.0 calculated by the DHS survey. This level of fertility would suggest extremely short birth intervals of well under 3 years over much of a woman’s lifetime and this clearly poses a significant problem for the health of the mothers and their children.

Teenage Pregnancy Rate: Evidence is now being presented that women tend to start producing babies relatively late in life. For the cohort 15-19, there are comparatively few births compared with the age groups between 20 and late 30s who have consistently the highest average number of births.

Care during pregnancy: Care of women during pregnancy, and indeed during ‘pre-pregnancy’ is particularly important. Pregnancy makes extreme demands on a woman’s body. Although physiological changes take place to help women meet the requirements of pregnancy, such as slowing of the metabolism, increase of the blood volume, diversion of nutrients and resources to the growing foetus, women nevertheless have significantly increased demands during pregnancy. For example, women’s iron requirements in pregnancy. Low birth weight rates give an indication of the care of women in pregnancy and as noted above, 8% of babies weight at birth were low birth weight and a quarter of women felt that their baby was smaller than average.

Health and Environmental Sanitation Services

Immunization Coverage: A national immunization program is being undertaken although coverage in Timor Leste is low; the MICS 2002 found that only 5% of children 12-23 months were fully vaccinated (3 doses each of DPT and polio and one dose each of measles and BCG). A massive 58.5% of children of the same age reported not have received any vaccination at all. BCG coverage, which is generally high because it is given at or around birth, was only 33% and measles coverage, which is often the lowest, was only 28%. Stratification of the data does not suggest major differences across geographical areas, wealth quintiles or mother's education level.

These vaccinations rates suggest a marked deterioration since the mid-1990s data when the DHS survey indicated that 56% of children were fully vaccinated. As such few complete the full course although some 40% appear to have received several of the full set of vaccinations.

Coverage of Antenatal Care: Ante-natal care, like child immunization is a key health service that even the poorest communities should be able to access. However, like immunization, the MICS 2002 found that only 43% of women, who had given birth in the last year, had received antenatal care from a skilled health worker. Only 52.5% had received any form of ANC. The current coverage of ANC compares to a 1996 rate of 70.7% as found by the DHS.

Birth attended by Trained Personnel: Although more than 40% of women who gave birth in the year before the MICS 2002 survey sought trained medical antenatal care, only 26% of women were attended by trained personnel during delivery. This figure fell to 12% in highland areas. The low amount of support and medical care that women get during delivery and their low nutritional status is largely to blame for the high maternal mortality rates seen in Timor Leste.

Vitamin A capsule coverage: As noted above, vitamin A capsule coverage, although improving, remains low. Coverage of under 5 children was almost half of the targeted population in February 2003 and only 27% women who delivered in the past year reporting having received a vitamin A capsule. Vitamin A is distributed though bi-annual month long campaigns through the health system. It is clear that despite mass media messages encouraging caretakers to bring children for vitamin A supplementation during the campaign, many families do not get the message or do not chose to respond to it. Vitamin A has also been included in some national immunization campaigns. This can be expected to increase the coverage and perhaps also create a habit of coming for vitamin A campaigns but they cannot be expected to be the primary distribution system indefinitely.

The nutritional interventions of micronutrient supplementation, micronutrient fortification, food supplementation and nutritional knowledge transfer each have a different set of costs and suitability for helping to achieve nutrition goals and realization of the right to adequate nutrition. **Micronutrient supplements** are immediate level interventions that are relatively cheap and guaranteed to be efficacious if all individuals can be ensured of their ingestion. **Fortification** is also relatively cheap and has the advantage of not requiring encouragement to consume. The disadvantage is that it requires a food that is centrally processed and widely consumed among the target

population such as salt. **Free food supplements** are very expensive and difficult to maintain the funding for, and can only be justified in emergency situations and/or at critical times of growth in the life cycle when cost benefit calculations warrant them. School feeding will contribute to improved cognitive development and school attendance and completion rates but is not likely to have a significant nutritional affect because growth faltering occurs in the first two years of life and cannot be recovered later. Food supplements for pre-pregnant, pregnant and lactating women however occur at a critical period of the life cycle and will ensure optimal foetal and infant growth which will ultimately have benefits throughout the life cycle. Hence feeding women, rather than school children, should be prioritized. To the extent possible targeted feeding schemes are best developed with a minimum of central funding and a maximum of community participation in local food provision and production. **Nutrition knowledge for behavior change** can be reasonably cheaply provided but the changing of behaviors takes time and requires much more than just producing poster and leaflets.

2: Policy Context and Guiding Principles

The **Constitution of Timor Leste** recognizes the right to nutrition. The Constitution incorporates many of principles from the UN human rights instruments. There are separate sections on civil and political rights and on the social, economic and cultural rights. The rights of the child are fully recognized. Amongst the economic social and cultural rights the right of all citizens to health and medical care is recognized. The right to food and nutrition is not specifically spelled out, but the entitlement to social assistance and security is covered.

This National Nutrition Strategy (NNS) will be implemented under the over-arching principles of primary health care and within the direction of the **National Development Plan**, the **Health Policy Framework**, **Basic Package of Services** and **Maternal Health Policy**. (currently under development). The MHNS also addresses a number of international obligations agreed to by the government of Timor-Leste.

The over-riding goals for the development of Timor Leste are to reduce poverty and to promote rapid, equitable and sustainable economic growth. Key elements of the **Poverty Reduction Strategy**, which is contained in the National Development Plan (NDP), include the provision of basic social services and security of person and property, including food security. Thus the provision and effective use of basic social services, in particular health and education services, is seen as an important means to break the poverty cycle.

Macroeconomic policies that currently underpin the development strategy therefore include priority to public spending on services that are used by the poor (e.g. primary education, basic health care, rural water supply and urban slum upgrading) and the reduction of the rural-urban gap in access to and affordability of basic social services.

Food security is recognized as an important concern for the population in general and the poor in particular. The NDP therefore aims for improvement in overall food availability in the country, which will contribute to improved food security at the household level. It notes that further targeted interventions may be necessary that can address in particular those most at risk, women and children. Specifically the NDP envisages school feeding and the distribution of milk and food supplements to pregnant and lactating women to partly address these issues. This MHNS seeks to contribute to these goals.

The **Health Policy Framework** of the government of Timor Leste assigns greatest priority for resource allocation to a comprehensive primary health care approach. While this includes essential clinical services, promotive and preventive interventions at the primary level have a greater focus (60%) than curative, rehabilitative or palliative care at the secondary and tertiary level. Promotive and preventative interventions are recognised as having the greatest potential for producing the greatest health outcomes in the longer term and therefore contributing most significantly to poverty reduction and national development. Nutrition interventions are well recognized as being some of the most cost effective and powerful of the promotive and preventive interventions²³.

The MOH strategy is to ensure the provision of basic packages of preventative/promotive services, curative services and rehabilitative services through the district health system i.e. mobile clinics, health posts, and community health centres. The choice of services is influenced by the incidence or prevalence of the disease or condition, the probability of suffering severe disability or dying from it and its potential as an emerging problem of socio-economic importance. For nutrition, the basic package of preventative/ promotive services encompasses periodic de-worming, micronutrient supplementation promotion of breastfeeding, growth monitoring and promotion of locally produced food. Other items in the basic package of preventative/promotive services include immunization, safe motherhood, environmental health, family planning, and communicable diseases/malaria prevention. The basic package for curative care addresses the major diseases such as malaria and severe under nutrition. These services will be provided through 64 district community health services with inpatient facilities, 174 health posts and numerous mobile clinics. National targets of 90% coverage with the Basic Package of Services are necessary to achieve population wide prevention of undernutrition.

The capacity of the government health system has developed at a steady rate with a move from centralized service planning moving from the Central Services Directorate to District Health Management Teams. Operational plans are now being developed at the district level based on a number of key primary health care principles. Community participation, multisectorial and interagency (NGOs, etc) coordination for the basis of an integrated approach to local problem solving and identification of strategies to improve access and equitable services and interventions. Plans are based on delivering the Basic Package of Services. Basic nutrition interventions are part of this BPS and are included in these district health plans.

This National Nutrition Strategy will be developed within the multisectorial philosophy of the MoH. As such the strategies will be finalised in collaboration with the Food Security Policy currently being developed by the Ministry of Agriculture, Forestry and

Fisheries (MAFF)²⁴. Coordination with the MAFF is also needed in the event of emergency situations, defining the role of the health sector in the surveillance of and response to acute food shortages.

3: Policy Objective

The objective of the government of Timor Leste in developing the National Nutrition Strategy (NNS) is to provide guidance for implementation of interventions to ensure adequate nutritional status of the population. The government recognizes that policy development is taking place within a juncture of time where the capacity of government departments is restricted by scarce resources, systems under development and in many cases relatively newly appointed staff. To account for these issues, policies are being developed to phase-in interventions as capacities grow. The National Nutritional Strategy will therefore be developed with immediate and longer term strategies starting with special emphasis on the mother and her child. The policy covers activities both within and beyond the Ministry of Health, including the donor community, NGOs, and the private sector. The interventions are intended to have high impact, be integrated, sustainable and community orientated and target the most vulnerable and critical periods of growth in the life cycle.

Timor Leste National Nutrition Strategy

Whilst the right to nutrition is a universal right, the ability of the State to ensure that nutrition rights of all citizens are realized will require long-term investments and planning. In the short and medium term some prioritization of actions and interventions will obviously be required. In the short term, the first priority will be given to protecting fetal and infant growth for the immediate causes of growth failure, i.e. inadequate intake of nutrients and infection. Longer term strategies will address food security as the next recognized priority.

Goal of the Nutrition Strategy

To provide directed interventions to improve the nutritional status of all citizens of Timor Leste.

^{**} A more useful goal would be reduction of stunting in children 2 years of age as moderate underweight (which makes up the majority of underweight) is a reflection of stunting. However, there is no international goal for stunting.

Components of Timor Leste National Nutrition Strategy

The Timor Leste National Nutrition Strategy is organized according to the three levels at which action is necessary – national (central services), service delivery and community/family. It is recognised that interventions at each level will often rely on and support interventions at other levels. All the fundamental guidelines, discussed in Section 1.2, are intrinsic to the way the following components are designed and implemented and work together.

Key components are:

- **Maternal and Child Nutrition**
 - **Ensure appropriate health and nutrition interventions for protection of foetal and infant growth**
 - **Support community processes and caring behaviours that contribute to protection of foetal and infant growth**
- **Food security**
 - **Multisectorial interventions**
 - **Community engagement in problem identification and interventions**
 - **Ongoing research**

This combination of immediate and longer term strategies will address the currently known nutritional needs of the community and enable further investigation of unnoticed or emerging needs in the future.

3: Component 1: Maternal and Child Nutrition

The MoH accepts the international strategic goals for nutrition adopted at the UN General Assembly believing them to be achievable within overall strategies of health interventions.

Maternal and Child Nutritional strategies are as follows:

Maternal Nutrition:

1. To reduce anemia, including iron deficiency by one third amongst women of reproductive age women.

Child Nutrition

2. To reduce low birth weight by a third.
3. To reduce child underweight by a third, (from 43% to 29%)*

Micronutrient Nutrition

4. To eliminate iodine deficiency disorders
5. To eliminate Vitamin A deficiency

Component 1.1: Ensure appropriate health and nutrition services for protection of fetal and infant growth

Nutritional interventions will be made available to the community and delivered within the Basic Package of Services at facility level. This component of the NNS elaborates on basic nutrition interventions, especially in relation to preventive/promotive services for the protection of foetal and infant growth.

- **Develop strategies to achieve 90% coverage with basic interventions**

Develop detailed guidelines and budget allocations for delivery of the basic package of preventative/promotive services through the health system, including outreach services as necessary, in order to ensure 90% coverage with these key interventions. Service protocols as referenced in Annex 1 provide further details on outreach services and below discussion on the basic package of preventative/promotive services.

- **Nutrition Surveillance**

Incorporate nutrition indicators into the Health Management Information system that is under development in order to ensure that the impact, processes, outcomes and responsiveness of the nutrition services are monitored and evaluated and to know whether the adopted strategies are producing the expected results. This system will also be expected to generate information to inform and trigger actions by the national emergency response unit.

- **Provide essential basic services**

A range of basic services will be provided through the district health system to 90% of the targeted population in order to protect foetal and infant growth. These basic services address the immediate causes of undernutrition at the most critical stage of the life cycle. These services are listed in protocols identified in Annex 1.

- **Nutrition knowledge and education**

As noted above, the provision of health education for behaviour change is an essential component of the basic package of interventions. Health education should be provided strategically through a combination of methods including one-to-one counseling, group education, print materials, TV and radio spots and other innovative methods such as community theater. Messages should be based on a good understanding of community situations and messages from different sectors should be integrated and re-enforcing. Health education is intended to change behaviour and result in better caring practices for women and children. However, in order to change behaviour, communities must have the resources and understanding, as well as the knowledge.

- **Rehabilitation of severely malnourished children**

Rehabilitation of severely malnourished children is a necessary curative service. It is already on-going and needs to be continued. However, as coverage of the above-mentioned basic package of interventions increases, the need for such services will become minimal.

Component 1.2: Support community participation processes and improved caring behaviours that contribute to protection of foetal and infant growth

The main objective of this component of the NNS is to recognize the vital impact that individuals and community have in effecting their own health. The NNS therefore identifies the following strategies to raise awareness of nutrition issues, to facilitate and support communities to acknowledge and practice better care behaviours regarding women and young children and to strengthen linkages between the health system and the community. Major activities will be to:

▪ Develop community processes in support of nutrition

Support the ability of the community to contribute in a meaningful manner in identifying local health related issues, options to enhance healthy outcomes and to participate in the development of planning and interventions to achieve those outcomes. The forums and methods currently being trialed in the development of District Health Plans are the preferred method for this process. Community representatives form an essential component of this community level engagement. Existing and appropriate community structures will be identified with their representatives included. These may include the Church, suco/village development committees, women's groups, mother support groups, community health workers, local NGOs to support the health system to improve the care of women and children and increase their access to health and nutrition services.

In particular, the aim will be to make the special nutrition needs of pre-pregnant, pregnant and lactating women and young children known to communities, and their members, so that they can identify issues and support improved dietary intake, use of health services and better health practices.

Some of the services identified above, such as provision of weekly multiple micronutrient supplements to all married women, child growth, pregnancy weight gain and women's MUAC monitoring and distribution of supplementary food to married women may be provided through or with the close collaboration of such community structures to achieve better coverage and compliance.

Community participation will be encouraged to identify means improve the community environment for protection of foetal and infant growth such as through reducing the workload of pregnant women, improving access to clean water and sanitation, providing assistance with child care and increasing the allocation of high quality foods to pre-pregnant, pregnant and lactating women and young children.

All activities will be included in the District Health Plan.

▪ Increase use of health services

Nutrition interventions will be included in the community participation mechanisms of health service planning. These mechanisms include direct interaction with community members or representatives in order to fully engage the community in addressing priority health concerns. In particular planning of health interventions will require collaboration with community representatives when planning outreach activities and mobile clinics to ensure the greatest level of community participation and to follow up individuals found to be undernourished or in need of services. Community participation forums will be encouraged to maintain records of at risk members of the community to ensure equitable access to all interventions available..

- **Pregnancy in undernourished women**

The NNS directly links with the National Reproductive Health Strategy (NRHS) in addressing the health implications of pregnancies in undernourished women. As such the strategies of the NRHS will be invoked to address concerns regarding women with a MUAC below 21cm from becoming pregnant.

- **Promote good care practices and protect women and children from unhealthy practices**

Good traditional care practices such as mother and baby sleeping together will be encouraged and reinforced. Community representation mechanisms will also be encouraged, and supported as appropriate, to identify socially acceptable measures to prevent unhealthy traditional practices such as ritual and overt exposure of the new mother and baby to household smoke, eating down and food taboos during pregnancy, discarding of colostrum and pre-lacteals and ritual feeding of newborns and infants.

- **Contribute to increased access to and management of clean water and sanitation**

Clean water and sanitation is essential for optimal nutrition. Therefore community health forums will consider local needs and where appropriate support initiatives to increase community coverage of clean water for drinking and washing along with better sanitation. The health system will also provide health education to improve use of water and sanitation resources and to practice hygienic practices.

- **Maternity and Paternity Leave**

As the economy of Timor Leste strengthens, future consideration will be given to the potential to support optimum fetal and child growth by enabling expectant and new mothers and fathers to have paid leave from employment (paid and self) in order to spend time at home with new members of their family (newborns and adopted children). It is recognized that such time is needed to enable optimal care of young children, for example to establish and maintain breastfeeding patterns, to bond optimally and to enable new biological mothers to recover physically from the stress of pregnancy and delivery. As social services are developed, a key priority will be to research the social value and affordability of an entitlement for all expectant and new mothers and fathers to receive a social benefit to compensate them during this non-productive period.

4: Component 2: Food security

Under nutrition is widespread across the general population and is recognized as a consequence of ill health, poor nutritional practices, food insecurity and intergenerational transmission of under nutrition from mother to child. It is recognized that East Timor rural communities suffer regional food shortages as they do not enjoy year round access to crop production. However, the national levels of energy food resources appear to be adequate, if not well distributed, with serious deficits in

protein foods widespread. Household food security is therefore a major concern both to the community themselves and the government.

National Nutrition Strategy will therefore:

- Link with other ministries (especially the Ministry of Agriculture, Forestry and Fisheries) in a multisectorial approach to addressing food security issues
- Contribute to other ministry initiatives, from a public health perspective, in regard to food security programs.
- Engage the community in household food security problem identification and action
- Encourage and draw on field research to inform potential interventions

Component 2.1: Multisectorial interventions

The MoH is committed to addressing the determinants of health by applying a comprehensive health care approach to interventions. Such an approach recognizes that most of these determinants lie outside the direct responsibilities of the MoH. This is particularly true with the issues behind under nutrition. A combined and well coordinated multisectorial approach is essential to address under nutrition and the major determinants of food security.

Note: The following strategic components are under development in consultation with Ministry of Agriculture, Forestry and Fisheries and other relevant ministries.

▪ Intra and intersectoral coordination

The MoH will seek to establish a national mechanism that facilitates a multisectorial approach to addressing the determinants of priority public health concerns. Along with the consideration of other public health priorities, this mechanism will consider issues regarding under nutrition and food security in particular.

Existing coordination mechanisms for implementation of the National Development Plan and the Poverty Reduction Strategy will be considered in developing this mechanism.

Interagency coordination is also necessary to ensure a coordinated approach is taken for optimizing allocation and use of resources along with reducing potential for overlap of services.

Engagement of the commercial sector is also an essential component of a comprehensive approach to public health 'healthy' interventions. As both the private and public sector interact at all levels, and food is primarily distributed by the public sector, then the development of policy and identification of intervention strategies must be undertaken in conjunction with the private sector.

By example:

- A national committee, which included representatives of MoAFF and MoH, could consider how to take into account nutritional as well as economic needs in the promotion and support of small scale horticulture for improved household and community food security, rural employment and equitable poverty reduction
- A committee which included Ministry of Education could consider how to include and ensure the adequacy of nutrition education in all appropriate school, adult literacy and tertiary education curricula in order to build public awareness of how to achieve optimal nutrition, especially during pregnancy and infancy.
- Further responsibilities could include consideration, or instigation, of research on specific public health issues including under nutrition.

▪ **Advocacy for nutrition**

Within its role as primary actor on nutrition, and an essential member of any under nutrition forum, the MOH will advocate within multisectorial setting for necessary inputs and support. For example with:

- Ministry of Finance for consideration of increased government spending on under nutrition reduction because it is an investment in human resource development and poverty reduction. Cost-benefit analysis will be undertaken to support this argument.
- External donors for allocation of resources
- Coordination structures overseeing implementation of the National Development Plan and the Poverty Reduction Strategy to continue to recognise the importance of reducing under nutrition

▪ **Develop legislation to create a supportive environment for optimal nutrition**

In recognition that the private sector significantly influences the supply and nature of food available to families and communities and the opportunities for providing care for nutrition, it is necessary to develop legislation and regulations that increase access to nutritious foods and protect families from commercial influences that could contribute to negative practices. Thus within a multisectorial forum the MOH may contribute to development of necessary legislations such as:

○ ***Food fortification policy including universal salt iodization***

Timor Leste will seek opportunities to fortify (or access fortified) staple foods and condiments that are eaten by significant proportions of the community, in particular rural communities most at risk of micronutrient deficiencies and least able to achieve appropriate intakes through food, with key micronutrients such as iron, iodine, vitamin A and zinc. An immediate option is to import widely eaten foods which are fortified (eg. flour, sugar, oil). In the future, staple foods and condiments which are produced in Timor Leste through large scale, well-run local industries could be fortified. Mechanisms and systems to verify and certify the safety and standard of processed

foods imported into and produced in Timor Leste will need to be developed in support of such a policy.

At the current time salt fortified with iodine is imported, mainly from Indonesia, and is eaten by the vast majority of the population. In order to achieve universal coverage and achieve the international 2005 goal to eliminate iodine deficiency disorders, the development of legislation will be considered mandating that all salt for human and animal consumption (including for food processing) that is imported into, produced in or traded in Timor Leste must be iodized. Appropriate monitoring and verification mechanisms will be established in accordance with eventual legislation.

In progressing the salt fortification strategy, liaison and integrated planning will be undertaken with the national Oral Health Salt Floridisation initiatives.

- ***Code of Marketing***

Breastfeeding practices are far from optimal in Timor Leste to the detriment of child health and nutrition. Throughout the world much of the poor practices related to breastfeeding can be attributed to mis-information on infant and young child feeding produced by the infant food industry in order to encourage greater use of their products. In order to protect women and their families from misleading marketing and inappropriate information on infant feeding, and as capacities are developed, the Ministry of Health will investigate the possibility of sponsoring legislation controlling the marketing and promotion of breastmilk substitutes and their use within health systems and by health workers. The objective of the law will be to ensure that women receive accurate and correct information about infant foods, in particular breastmilk substitutes (which include both infant formula and follow up formula).

5: Institutional Approach

Creation of a supportive policy environment and managerial capacity

The NNS will be implemented within the overall frameworks and approaches of the MoH. In this respect, nutrition interventions will be strategically and operationally planned and implemented within the pillars of a comprehensive primary health care approach.

This approach includes:

- stakeholder coordination and effort
- strengthened partnerships
- integrated systems
- advocating resource priority
- focused national commitment
- development, dissemination and implementation of national guidelines

Intersectoral approach

The Nutrition Strategy will utilize a multisectorial, intersectoral approach to problem identification, option identification and strategic interventions. This approach will be guided by the primary health care intersectoral coordination mechanism in which MoH will take the lead role. This coordinating mechanism will be defined and developed within the framework of the national Primary Health Care policy.

In particular issues of food security require a broad and integrated multisectorial approach that fall beyond the capacity of the MoH to address and require decisive and well supported action by all relevant ministries to facilitate change that will lead to a continuity of nutritional food supplies to the community.

The Nutrition Strategy will provide:

For the Ministry of Health:

- a framework for developing nutrition interventions within the Basic Package of Services
- a framework for advocacy for under nutrition issue identification and multisectorial action.

For all Service Directorate Departments:

- a map for providing leadership, guidance, technical support and workable strategies for districts and service providers.

For districts and sub-districts:

- a framework on which to strengthen the District Health Plans to address under nutrition and improve nutrition at the community level.

And for partner agencies:

For multi-lateral and bi-lateral agencies:

- a framework for considering and monitoring effective, coordinated support.

For implementation partners:

- a basis for strategic roles and consistent action towards a common goal.
- a guide to support agreed interventions within the District Health Plans.

This component identifies management systems and policies to create an enabling environment for actions to address under nutrition issues especially, to protect foetal and infant growth.

▪ **Human resource development and deployment**

The MOH will ensure sufficient health personnel are available and capable of delivering quality health services at all levels of the health system. The multi-skilling of health workers and service managers is integral to the integrated service delivery approach of the BPS. Incorporating awareness of nutritional issues and the ability to work at the community level on under nutrition issues will be a component of this multi-skilling. Consideration should be given to creating a central nutrition unit to lead the development of these resources.

▪ **MoH responsibility**

Although it is recognised that many sectors contribute to optimal nutrition, ultimate responsibility for nutrition as a public health issue lies with MOH. MOH is therefore responsible for coordinating, advising and advocate with other sector activities in support of nutrition. A multisectorial approach underlies the development of this Policy and Strategy.

▪ **Policy implementation**

Implementation of this Policy and Strategy will start with national level consultation with other sectors and actors, including relevant international agencies and NGOs. There will also be consultation within the MOH to align this Policy and Strategy with other sectoral policies. Thereafter there will be consultation and orientation with other levels of the health system and relevant other departments to support development of district plans for implementation.

Implementation will be incremental, initiated first in one or two districts which can thereafter serve as model districts, in order to test how to implement this Policy and Strategy and to finalize draft guidelines and implementation systems and assess impact. Thereafter in phase two, the Policy and Strategy will be implemented in remaining districts with the aim of reaching national coverage by 2005.

▪ **Policy linkages**

This Policy and Strategy links with other policies and strategies of the MOH and related sectors. Implementation will be undertaken within the context of planning and

implementation of the Basic Package of Services which includes implementation of all other strategies; EPI, malaria control, safe motherhood, IMCI and environmental health.

The NNS will be implemented within the financial and human capacity of the MOH. The MoH already prioritizes interventions to protect foetal and infant growth as the most cost-effective and crucial period within the life-cycle. As such maternal and child health interventions target women who are likely to be either 'pre-pregnant', pregnant or lactating and young children below five years. Food security will address under nutrition issues across the broader community. It should be noted that interventions in the NNS can be expected to have significant, population-level impacts well beyond improved growth and nutrition and are therefore highly cost effective even if their costs are high.

Community engagement in problem identification and interventions

The principle of community participation is strongly identified in all founding documents of the government of East Timor. Within the health sector this is also a pillar of comprehensive primary health care principles and has already been included in problem identification and priority setting at the primary level of service planning.

- **Continued engagement of community**

The MOH will continue to develop the planning and delivery of health interventions through mechanisms that support full community engagement in local problem solving, setting of priorities, identifying courses for action and implementation of healthy interventions.

- **Equitable representation**

Local mechanisms will be reviewed to ensure that all members of the community are represented in health planning, including representation of mothers and children, those not currently using or having access to health services and those being most vulnerable; single aged, chronic ill, destitute and landless.

6: Monitoring and Evaluation

The Ministry of Health will ensure that impact, processes, outcomes and responsiveness of the health system are monitored and evaluated in order to know whether the strategies outlined in the NNS are producing the expected results. Ongoing research is also required.

Strategy:

1. Develop, within the HMIS, a core set of performance and impact indicators and benchmarks for nutrition.
2. Evaluate the efficiency (access and equity) of under nutrition interventions
3. Train service level health workers to collect and analyze routine data
4. Undertake issue specific research

The main impact indicators are those related to achievement of the Timor Leste goals for nutrition. National goals will reflect those of the international community.

5.1: Periodic monitoring and evaluation

Implementation of the strategy will be assessed through outcome and process indicators such as are outlined in the following table.

Process Indicators				
Question	Indicator	How to Collect?	Frequency	Notes
Are pre-pregnant women and pregnant women receiving minimum nutrition interventions?	Coverage of target population with multiple micronutrient supplements.	Health system routine records. Or by community if distribution is through community mechanism	Monthly	Coverage should be periodically verified through survey.
	Coverage of target population with deworming.	Health system routine records. Or by community if distribution is through community mechanism	Monthly	Coverage should be periodically verified through survey.
	Proportion of target population under-going regular monitoring of weight gain during pregnancy.	Health system routine records. Or by community if weighing is organized by community alone	Monthly (To be included in Reproductive Health Strategy)	Coverage should be periodically verified through survey.
	Tetanus toxoid coverage of reproductive age women	EPI unit of health system	Monthly (Included in EPI Strategy)	Coverage should be periodically verified through survey.
	Proportion of target population sleeping under bed nets.	HH survey or by reports by community health workers	Every 2-3 years or monthly if monitored by community health workers (included in Malaria Strategy)	
Are infants and young children receiving minimum nutrition interventions?	Proportion of newborns weighed at birth	Routine reports of midwives, health facilities and TBAs	Annually (Part if IMCI Strategy)	Coverage can be verified if birth weight is noted in child health card
	Coverage of target population with deworming.	Health system routine records. Or by community if distribution is through community mechanism	Monthly	Coverage should be periodically verified through survey.
	Coverage of target population with multiple micronutrient supplements.	Routine reports of health system	Annually	Coverage should be periodically verified through survey.
Outcome Indicators				
Question	Indicator	How to Collect?	Frequency	Notes
Do adolescent girls, pre-pregnant women and pregnant women have improved nutrition?	Prevalence of anaemia of women at marriage	Health system	Annually	
	Proportion of women with pre-pregnancy/marriage weight of <40kg	Health system or community if weighing is done by community	Annually	Monitoring these two indicators also has a social mobilization purpose
	Proportion of women achieving weight gain during pregnancy of at least 6kg	Health system or community if weighing is done by community	Annually	
Do infants and young children have improved nutrition?	Exclusive breastfeeding rate at 6 months	HH survey	Every 2-3 years	
	Proportion of infants between 6-9 months receiving complementary food	HH survey	Every 2-3 years	

Most of the information, especially on the process or coverage indicators will be collected through routine reporting by the health system as part of the Health Management Information System.

The MoH will work with development partners to develop a process where these impact indicators will be assessed every two years through a multiple indicator cluster survey which includes anthropometric measurements and biochemical analysis and a questionnaire on behaviour.

Other information will be collected as part of the periodic multiple cluster survey. Data collected will be used primarily at sub-district and district level to evaluate implementation and make necessary programme adjustments, for example adjust distribution mechanisms to increase coverage. These same data will be reported up to higher levels for supervision, oversight and quality assurance.

5.2: Encourage and draw on field research to inform potential interventions

Within the comprehensive primary health care approach of the MoH, addressing the determinants of health is essential in achieving the goal of a healthy society. In this regard a broader range of research will inform decision making in regard to under nutrition within the NNS. In particular the MoH would benefit from health seeking behaviours studies and other related studies currently being undertaken by various groups in conjunction with accessing studies undertaken through other ministries.

The current scarcity of available resources within the MoH reinforces this need. Research is imperative to provide data and information on which to base public health decision making. The need for under nutrition and nutrition interventions will vary according to local, season and social practices.

- A multisectorial approach will draw on research resources from across relevant sectors, to enable a depth of analysis unaffordable by a single ministry.
- External development partners will also contribute to health and under nutrition research.

National Nutrition Strategy review:

The NNS will be reviewed within 2 years of acceptance to ensure responsiveness and appropriateness of strategies.

Annexes

NNS 01 = Basic Nutritional Intervention list

NNS 02: Considerations for the Development of Outreach Guidelines for Timor Leste

NNS 03: A Maternal Food Supplementation Strategy for Timor Leste

NNS 01 = Basic Nutritional Intervention list

Pre-Pregnant Women	Pregnant Women	Lactating Women
<ul style="list-style-type: none"> ▪ Weekly multiple micronutrient supplementation ▪ MUAC monitoring two times per year ▪ Provision of a fortified supplementary food for women in communities with > 30% of women with MUAC <21cm ▪ Provision of insecticide treated bed nets ▪ Immunizations (TT) ▪ Treatment of STDs, TB, malaria and anaemia ▪ Health and nutrition education to the family, in particular on optimal diet, hygiene practices, exclusive breastfeeding, use of health and environmental services and family planning 	<ul style="list-style-type: none"> ▪ Daily multiple micronutrient supplementation ▪ ANC ▪ Weight growth monitoring and counselling ▪ Presumptive malaria treatment ▪ Presumptive deworming in 2nd and 3rd trimester ▪ Provision of a fortified supplementary food for women in communities with > 30% of women with MUAC <21cm ▪ Ensure use of insecticide treated bed nets ▪ Immunizations (TT) ▪ Treatment of STDs, TB, malaria and anaemia ▪ Health and nutrition education, in particular on optimal diet, hygiene practices, exclusive breastfeeding, rest during pregnancy and use of health and environmental services 	<ul style="list-style-type: none"> ▪ Daily multiple micronutrient supplementation for 6 months after delivery ▪ Vitamin A supplement within 8 weeks of delivery ▪ Breastfeeding support and counselling ▪ MUAC monitoring two times per year ▪ Provision of a fortified supplementary food for women in communities with > 30% of women with MUAC <21cm ▪ Ensure use of insecticide treated bed nets ▪ Immunizations (TT) ▪ Treatment of STDs, TB, malaria and anaemia ▪ Health and nutrition education, in particular on optimal diet, hygiene practices, exclusive breastfeeding, use of health and environmental services and family planning
Infants 0-6 months of age	Infants 6-12 months of age	Children 12-59 months
<ul style="list-style-type: none"> ▪ Immunizations (BCG, polio, DPT) ▪ Protection of exclusive breastfeeding ▪ Monthly growth monitoring and counselling ▪ Ensure infant sleeps under insecticide-treated bednet with mother ▪ Provision of multiple micronutrient supplements to LBW babies ▪ Health and nutrition education to the family, particularly on exclusive and continued breastfeeding, appropriate complementary feeding, hygiene practices, use of health and environmental hygiene services, psychosocial stimulation, malaria prevention and care of the sick child. 	<ul style="list-style-type: none"> ▪ Weekly multiple micronutrient supplementation ▪ Vitamin A supplementation (100,000 IU) at six months ▪ Immunizations (measles) ▪ Protection of continued breastfeeding and counselling on adequate complementary foods ▪ Monthly growth monitoring and counselling ▪ De-worming two times per year ▪ Ensure infant sleeps under insecticide-treated bednet with the mother or provision of insecticide-treated bednet ▪ Zinc for diarrhoeal cases ▪ Promote home based ORT ▪ Treatment of malaria, respiratory and diarrhoeic diseases (IMCI) ▪ Health and nutrition education to the family, particularly on exclusive and continued breastfeeding, appropriate complementary feeding, hygiene practices, use of health and environmental hygiene services, psychosocial stimulation, malaria prevention and care of the sick child. 	<ul style="list-style-type: none"> ▪ Vitamin A supplementation two times per year ▪ Periodic growth monitoring and counselling two times per year ▪ De-worming two times per year ▪ Provision of insecticide-treated bednet ▪ Zinc for diarrhoeal cases ▪ Promote home based ORT ▪ Treatment of malaria, respiratory and diarrhoeic diseases (IMCI) ▪ Health and nutrition education to the family, particularly on hygiene practices, use of health and environmental hygiene services, psychosocial stimulation, and play, malaria prevention and care of the sick child.

NNS 02: Considerations for the Development of Outreach Guidelines for Timor Leste

The current utilization level of basic health services in Timor Leste is widely acknowledged to be very low. Reasons include lack of adequately trained staff, poor quality and unfriendly service, poor motivation and non-attendance of health staff, lack of supplies, mistrust of modern medical services and preference for traditional medicine of the community and remoteness and difficulties of access.

This low utilization and coverage of health services has undoubtedly contributed to the poor health and high mortality of the Timor Leste population. Therefore a key element of the Health Policy Framework and this Nutrition Policy and Strategy is to achieve 100% coverage of all targeted population groups with a package of basic services. As outlined in the Health Policy Framework this will entail human resource development, improved health financing strategies, service delivery systems, management structures, monitoring and evaluation, and, in the long term decentralization of management responsibilities to districts.

It is intended that basic health services will be provided predominantly through the nearest services to the community, the Health Post. However until such time as there is improved utilization of and demand for health services on the part of the community, it will be necessary to take services to the community in the form of outreach or mobile clinics, in order to achieve 100% coverage. Outreach services should therefore be provided to communities that cannot access existing health facilities due to distance and also those that do not access existing health facilities due to mistrust, lack of understanding of the importance of health services, reliance upon traditional healers etc.

The principle of outreach services is to take basic, usually preventative and promotive services rather than curative services, to the community, in order to prevent deterioration in health status. Successful and cost-effective outreach services require the following:

- Clear and detailed guidelines on how outreach should be performed; by whom, how often, what services to provide
- A regular, known schedule for outreach – known by both health system and communities. Outreach services are generally provided on a monthly basis.
- Outreach services need to be provided at a time and place convenient to the community
- Communication and coordination with the community so that they know when and which outreach services will be available and participation is maximized, preferably with support of the community
- Each outreach session should include **all** necessary services provided in an integrated manner in order to achieve highest coverage, greatest participation and cost efficiency. This will require coordination and teamwork on the part of the health delivery system.
- Allocating financing and identifying transport systems that are reliable
- Allocation of staff responsibility for performing outreach
- Lists of targeted individuals or at least estimated numbers so that coverage can be assessed – these lists/estimates can either be prepared by the health workers or by community leaders
- Necessary supplies in adequate amounts including cold chain (including the ice), vaccines, syringes, micronutrient supplements, de-worming tablets, health cards, health education materials etc.
- Appropriate recording and reporting of services provided and coverage achieved

- Two times per year the regular outreach service should be expanded to include activities needed on a periodic rather than monthly basis such as vitamin A supplementation for children below 5 years, growth monitoring of children 1-5 years, MUAC monitoring of married women and deworming of target populations. These 'expanded outreach' days, often called Maternal and Child Health Days might also include extra health education on a group basis, testing of salt from homes for iodine and other mobilization activities. Considerable mobilization should take place before these days in order to ensure greatest participation of all necessary target populations.
- Supervision and quality assurance monitoring

NNS 03: A Maternal Food Supplementation Strategy for Timor Leste

There is considerable evidence that improving maternal nutrition will improve birth outcomes in Timor Leste. Nearly a third of women of reproductive age have a BMI lower than 18.5, i.e. are excessively thin and have a greater risk of having low birth weight babies. Preliminary results from randomized control trials of zinc supplementation during pregnancy in Timor Leste suggest that providing zinc contributes to a number of improved birth outcomes for both the fetus/infant and the mother²⁶. Thus there would seem to be scope for improving both the quantity and quality of the diet of women before and during pregnancy and lactation, and expecting to achieve much better birth outcomes. How to improve the maternal nutritional status is the question that needs to be understood better in order to develop programmes. Timor Leste should consider developing maternal food supplementation programmes, and should consider the evidence base available in order to decide how best to intervene.

A recent WHO review of the of the literature concerning fetal nutrition and the programming of chronic disease concluded that the prevention of impaired fetal growth through improved nutrition of girls and women not only contributes to lower maternal mortality and better child survival and development, it may also help prevent chronic disease, and in particular, the obesity, diabetes, and CVD epidemic in developing countries. Furthermore, the benefit of improving maternal (and fetal) nutrition may go beyond what may be projected based on birth weights, since intrauterine programming may occur without verifiable effect on size or proportions at birth²⁷.

Part of the problem of promoting such approaches has been that these issues fall across three different health areas of action, namely nutrition, child health and maternal health. The main program of WHO related to child growth, the Integrated Management of Childhood Illness (IMCI), doesn't cover pre-natal conditions²⁸. The nutrition content of the Safe Motherhood programs of WHO is minimal, with the main focus of the Integrated Management of Pregnancy and Childbirth (IMPAC) placed on clinical procedures to deal with complications of these processes²⁹. The nutrition program of WHO doesn't have a strong maternal nutrition component³⁰.

The Commission on Nutrition Challenges of the 21st Century proposed a new paradigm of nutrition, which incorporates the double burden of under nutrition and diet-related adult disease and recognizes that this double burden is amplified by the link between maternal and fetal nutrition and a population's susceptibility to adult diet related disease³¹. Two recent meetings have called for the development of program interventions to improve maternal nutrition and prevent low birth weight^{32 33}. More recently the March of Dimes, an American NGO devoted to preventing birth defects has released an expert report entitled "Nutrition today matters tomorrow" which proposes a set of actions that can be taken at the national and district level to enhance fetal and infant growth. The report recommends that interventions must include the preconceptional female to achieve nutritional benefits in other parts of the life cycle³⁴.

Although a recent review of "what works" in nutrition³⁵ concluded that interventions to reduce the prevalence of low birth weight should receive a high priority in Asia, the results of randomised control trials that have investigated the effects are few. The only intervention shown to have any effect on IUGR was food supplementation with an adequately balanced protein/energy ratio³⁶. It is recognized that there are limitations to these findings in that most of these studies were carried out in non-nutritionally challenged populations, and did not look at effects after birth such as growth in infancy. More recently a five-year randomised control trial

of maternal dietary supplements in rural Gambia showed positive effects on birth weight and perinatal mortality³⁷. Another recent large randomised controlled trial of vitamin A supplementation to women of reproductive age in Nepal has reported a reduction in mortality related to pregnancy by half³⁸.

Despite the paucity of randomized controlled trial based evidence that improving maternal nutrition leads to improved birth outcomes including birth weight, there is considerable evidence from non-randomized controlled studies that real improvements can be achieved in birth outcomes in developing country settings by improving maternal nutrition. Such studies have shown that food supplements when consumed in sufficient amounts (i.e. among those proven to comply) produce improvements in mean birth weight of 77g in Bogotá, 298g in India, 180g in Mexico, 41g in New York and 41g in Montreal³⁹. A study carried out in Indonesia looking at the effects of maternal food supplementation on different birth outcomes showed a small improvement in birth weight that wasn't significant due to lack of power. Perhaps more important however, was that a positive and significant effect was seen in child growth. At five years of age the children of mothers that had been supplemented during pregnancy were taller than controls⁴⁰.

A non-randomized controlled trial comparing different interventions in Narangwal in India found maternal food supplements during pregnancy to be the most cost effective way to reduce perinatal mortality⁴¹. In these trials, village assigned different treatments and there was no blinding or randomization. Despite these methodological shortcomings, the results are not inconsistent with other studies. The food supplements used were cereal based food supplements cooked specially for mothers to eat. Although these studies were not able to measure birth weights, since families were not willing to let babies less than a month old be weighed or touched by "outsiders", it is likely that the effects on mortality were mediated through better fetal and infant growth. A comparative analysis of ten nutrition and health intervention projects, which included the Narangwal project, concluded that these sorts of interventions were effective and highlighted maternal nutrition supplements as having great impact on birth weight and death rates⁴².

The Participatory Nutrition Improvement Project (PINP) of the Government of Sri Lanka, implemented with support from UNICEF in the most disadvantage non-conflict areas of the country, has reported achieving a 50% reduction in low birth weight within five years⁴³. This program works at the district government level creating capacity to assess, analyze and develop actions to improve nutrition in the community. External nutrition facilitators trained by the program, work together with volunteer nutrition mobilizers living in each community. Community based action plans are developed, which are then partially financed by the program. Improving diet and care during pregnancy and lactation is one of the ten areas of action supported by the program. The actions prioritized include encouragement for husbands and other family members to better support pregnant and lactating mothers to: eat more; attend antenatal clinic and monitor weight gain; take iron/folate and vitamin C supplements; and take extra rest. The mid-term evaluation of the program found a low birth weight rate of 15.7% in mid 1999, as compared to the 28.7% found at base line in 1997⁴⁴.

The Integrate Child Development Service (ICDS) which has national coverage in India, has been shown to positively effect birth outcomes in an evaluation carried out in Varanasi, Uttar Pradesh. ICDS mothers receiving nutrition supplementation gained 110g more in pregnancy and had a mean birth weight that was 58g ($P<0.05$) greater than un-supplemented ICDS mothers. ICDS

supplemented women had a significantly smaller proportion of low birth weight babies (14.4%) compared to ICDS unsupplemented (20.4%) and non-ICDS women (26.3%). Multiple regression analysis showed that birth weight was associated with weight gain in pregnancy, length of gestation, caloric intake, and term hemoglobin⁴⁵.

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