NUTRITION ASSESSMENT REPORT
ACF INDONESIA
NTT PROVINCE, TTS DISTRICT

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EXECUTIVE SUMMARY

Action Contre la Faim - Indonesia (ACF) was established in 1998. Since then, projects in nutrition, food security, water and sanitation and disaster risk reduction have provided assistance to over 350,000 people. In NTT, ACF is currently working in one district, Timor Tengah Selatan (TTS), in the two sub-districts of Boking and Amanatun Utara.

The ACF programme in TTS currently has two components: food security and water and sanitation. This assessment was conducted to help define the ACF nutrition strategy in TTS, and make recommendations for the addition of Nutrition as a third programme component.

Main Findings from the Nutrition Assessment

Food insecurity and poverty are major contributing factors leading to a dietary intake lacking in diversity which is nutritionally inadequate in terms of both quality and quantity.

Analysis of the 24 hour dietary intake of almost 150 primary school children and women of reproductive age, found whilst over 50% of respondents ate 3 small meals or snacks a day, these consisted mainly of the staple carbohydrate foods, corn, cassava and starchy banana. Almost 50% had eaten no fruit or vegetables (except banana) within the previous 24 hours. Protein intake was found to be extremely low, with 62% of children and 53% of women eating no protein foods during the previous 24 hours. The school children's fluid intake was minimal (around 600-800ml a day) with 39% reporting they were drinking water which had not been boiled.

Whilst the vast majority of infants are breast fed, very few are breast fed exclusively to 6 months of age. From interviews with over a hundred parents of carers, it was found that 7% of infants were given complementary foods before 1 month of age, 57% before 2 months, 76% before 3 months, and by 4 months of age only 10% were still being exclusively breast fed.

The influence of some traditional cultural practices and beliefs was found to impact negatively on nutritional intake. Around a third of women reported they did not feed their newborn baby colostrum, and many women still follow the traditional practice of remaining inside the home and eating only partially boiled white corn (jagung bose putih) for a period of 40 days post partum.

Limited knowledge, understanding and information regarding the nutritional value of some of the more traditional locally available foods was found to lead to a perception that foods like rice, fish and cultivated vegetables, which need to be purchased, are necessary for a healthy diet. Foods like beans, eggs, fruits and vegetables are often sold, the money being used primarily to purchase rice, adding little nutritional value to the usual existing food stocks of corn and cassava.

The provision of health and nutrition services in TTS is not yet optimal. Limited staff levels, facilities, funding and resources as well as geographical and climate factors make delivery of comprehensive services a real challenge. The level of coverage is variable, and in general, the more isolated areas, away from main roads and district capitals, are

less well served. Policies, protocols and programmes aimed at the prevention, detection and treatment of malnutrition lack clarity and consistency.

Recommendations

It is recommended that ACF establish a nutrition component to complement their existing food security and water and sanitation activities in TTS. This should take an integrated approach aimed at increasing the production, availability and utilisation of nutritious foods for household consumption, whilst working with both the local communities and the local health service to build capacity to improve quality of and access to basic health and nutrition information and services.

Specific recommendations to any stakeholder are made to focus on the improvement or development of interventions regarding the following areas:

- Growth monitoring and classification of malnutrition
- Treatment of malnourished children and pregnant women
- Referral of severely malnourished children
- Standard nutrition messages with supporting IEC materials.
- Local food cooking demonstrations and practicals
- Training of health volunteers (Kaders)
- Kader recognition and profile
- Nutritional education of primary school children
- The establishment of small scale home nutrition gardens

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ABBREVIATIONS

ACF	Action Contre La Faim
BCC	Behaviour Change Communication
BGM	Bawah Garis Merah (below the red line), on growth chart.
BMI	Body Mass Index
CBO	Community Based Organisation(s)
CRS	Catholic Relief Services (INGO)
CTC	Community Therapeutic Care
CWS	Church World Service (INGO)
DAU	Dana Alokasi Umun (General Funding Allocation)
DoH	Department of Health
FGD	Focus Group Discussion
GAM	Global Acute Malnutrition
GOI	Government of Indonesia
GTZ	Deutsche Gesellschaft furTechnische Zusammerarbeit
HCP	Health Care Professional
HKI	Helen Keller International (INGO)
HI2010	Healthy Indonesia 2010
IEC	Information, Education, Communication
INGO	International Non-Government Organisation
KEK	Kurang Energi Kronis (Chronic Engergy Malnutriton)
KMS	Kartu Menuju Sehat (Indonesian growth monitoring card)
MoH	Ministry of Health
MUAC	Mid Upper Arm Circumference
MP-ASI	Makanan Pendamping Air Susu Ibu (Food to Support Breast Feeding)
NGO	Non-Government Organisation
NTB	Nusa Tenggara Barat (Province of Indonesia)
NTT	Nusa Tenggara Timur (Province of Indonesia)
PKK	Pendidikan Kesejahteraan Keluarga (Women's Organisation /Programme)
PKPSBBM	Public funding from the removal of fuel subsidies
PSG	Penentuan Status Gizi (Determining Nutritional Status)
PLW	Pregnant and Lactating Women
SAM	Severe Acute Malnutrition
SCUK	Save the Children UK
sd	Standard Deviations
SFP	Supplementary Feeding Programmes
SKPG	Sistem Kewaspadaan Pangan dan Gizi (Surveillance/early warning system for Food and Nutrition)
TFC	Therapeutic Feeding Centre
TTS	Timor Tengah Selatan (Kabupaten or District of NTT)
TTU	Timor Tengah Utara (Kabupaten or District of NTT)
WATSAN	Water and Sanitation
WFP	World Food Programme
WRA	Women of Reproductive Age
Wt/Age	Weight for Age (used to measure/classify underweight, BGM)
Wt/Ht	Weight for Height (used to measure/classify wasting, SAM & GAM)
Ht/Age	Height for Age (used to measure/classify stunting)

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91. INTRODUCTION

1.1 Action Contre La Faim in Indonesia

Action Contre la Faim - Indonesia (ACF) was established in 1998 at the invitation of the Ministry of Health to Action Contre la Faim - France. Since then, projects in nutrition, food security, water and sanitation and disaster risk reduction have provided assistance to over 350,000 people in Papua, Maluku, Aceh, Java, Sumatra and East Nusa Tenggara (NTT). In NTT, ACF is currently working in one district, Timor Tengah Selatan (TTS), in the two sub-districts of Boking and Amanatun Utara.

The ACF programme in TTS currently has two components:

- **Water and Sanitation** – To contribute to decreased public health risks and socio-economic burden associated with poor hygiene and low access to and quality of water. Activities include clean water supply and hygiene promotion education with women's groups and primary school children.
- **Food Security** – To improve in a sustainable way household food security. In Amanatun Utara agricultural training and support and seed distribution is being implemented with 300 households. Whilst activities in Boking sub-district focus on strengthening income generating capacity with 200 households.

1.2 Background Information on NTT Province and TTS District

NNT Province covers a total area of over 47,350 square kilometres, divided into 16 districts (Kabupaten), 191 sub-districts (Kacamatan), and 2608 villages (Desa). In 2005 the total population was 4,218,805. TTS district covers an area of 3,947 square kilometres and is divided into 21 sub-districts, with 215 villages, with a 2005 population of 405,678.

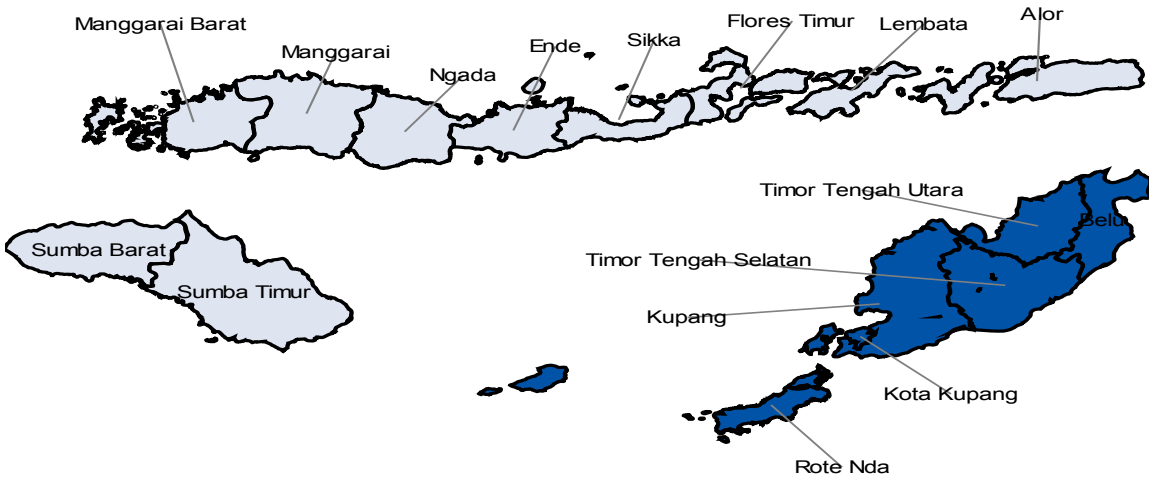

Figure 1: Map of NTT Province, Indonesia

See Appendix 1: Map of Timor Tengah Selatan, for a detailed map of TTS District NTT.

Population Breakdown and Household Data

The total population data from 2005 for NTT and TTS are shown in table 1, with breakdown of percentage men, women, women of reproductive age and children under five years of age. Poor individuals in all NTT were recorded as 1,276,416 (30%), but for TTS only 71,147 (18%) were reported. It is not clear if this data is a true reflection or due to the use of different criteria to define poverty in different districts.

	POPULATION					HOUSE-HOLDS	TOTAL POOR Individuals
	Total	Men	Women	Women of Reproductive age[1]	Children under 5[2]	Total Households	
TTS District	**405,678**	**200,517**	**205,161**	**44,938**	**45,423**	**91,534**	**71,147**
TTS% District		**49.2**	**50.8**	**11.1**	**11.2**		**17.5**
NTT Province	**4,218,805**	**2,102,042**	**2,116,763**	**647,191**	**384,071**	**1,747,660**	**1,276,416**
NTT% Province		**49.8**	**50.2**	**15.3**	**9.1**		**30.3**

Table 1: Population and Household Data for NTT Province and TTS District[3]

Maternal and Child Health Data

Maternal Mortality

The Maternal Mortality Ratio in NTT (2004) was estimated at 554 per 100,000 live births and is much higher than the national estimated average of 225 per 100,000 for the same period[4]. Data from the Department of Health TTS shows MMR levels of 1,165 per 100,000 live births in 2004, reducing to 612 and 627 per 100,000 in 2005 and 2006 respectively in TTS.[5]

The MMR in NTT 2004 remained over 4 times higher than the Government National targets for reduction in MMR to 125 per 100,000 set by Healthy Indonesia 2010. The MMR in TTS in 2006 was 5 times higher than the HI2010 target.

Cause of Material Mortality

Causes of maternal mortality in NTT 2004 were recorded as:
Bleeding (56%) other (21%), infection (13%) and eclampsia (10%).[6]

Causes of maternal mortality in 54 reported cases in TTS in 2006 were recorded as:
Bleeding, 40 (74%), other 11 (28%) and infection, 3 (5%).[7]

[1] *Women of Reproductive Age, based on BKKBN field data*
[2] *The Number of Under Fives is based on health services reports.*
[3] *NTT 2005 Health Profiles, PHO, 2006*
[4] *NTT Health Profiles, 2005*
[5] *Mother and child / family planning health profile, Timor Tengah Selatan, TTS 2007*
[6] *PHO and DoH 2005 Health Profiles 2006*
[7] *Mother and child / family planning health profile, Timor Tengah Selatan, TTS 2007*

Maternal Health Services

In NTT in 2005 coverage with a minimum of 4 visits (presentations during pregnancy) was recorded as 52.3%, with only 45% of pregnancies attended by a trained health worker, and only 8.1% of high risk pregnancies referred.[8] The target for the HI2010 is to achieve 60% coverage.

In TTS in 2005, coverage was found to be much lower in the more remote areas, where access to health services is difficult and there are staff shortages and lack of facilities, as opposed to more urban areas. Ayotupas (Amanatun Utara) reported 28% coverage, whilst Soe town reportedly achieved 68% coverage.[9]

Mortality in Children Under Five Years of Age

In NTT in 2005, recorded deaths in children under 5 years of age were:
Neonatal Mortality: 13% of the total, with 727 deaths among 91,775 live births (8 per 1,000 live births)
Infant Mortality: 37% of the total with 2,110 deaths (23 per 1,000 live births)
Under 5s Mortality: 50% with a total of 2,817 deaths (31 per 1,000 live births)
Data for cause of neonatal deaths lacked specificity, with 75% being recorded 'other', 24% as 'low birth weight, and 2% as tetanus.[10]
Based on health centre reports, the IMR in TTS in 2005 was 21 per 1,000 live births.[11]

Detailed data on cause of death for infants and children under 5 was not presented. In many cases medical cause of death is not known, especially if the child has not been seen by a trained health care professional. Death is often attributed to 'being sick' or having a fever and could be due to any of a number of causes including infection, malaria, malnutrition, tuberculosis, upper respiratory tract infection, acute watery diarrhea and dehydration.

[8] NTT 2005 Health Profiles, PHO, 2006
[9] TTS Central Statistics Bureau, 2006
[10] Provincial Health Office, NTT 2006
[11] KESKA, Family and child health sub-office, DoH, TTS, 2006

2. ASSESSMENT OBJECTIVES

The assessment was conducted to help define the ACF nutrition strategy in TTS, and make recommendations for the addition of Nutrition as a third programme component. The **Nutrition** intervention would have the main objective: to strengthen local capacity in preventing and detecting malnutrition.
The three main assessment objectives were to:

Understand the existing structures related to malnutrition detection and treatment in NTT province with special emphasis on TTS district:

- Assess the MoH policy regarding nutrition surveillance and treatment at national, provincial (and district) level.
- Assess the actual implementation of the policy at district / sub-district level.
- Assess non-MoH existing structures that are connected with the fight against malnutrition.

Understand the social and cultural determinates of malnutrition in NTT:

- Assess from a nutritional perspective the diet pattern/daily food intake and related traditional and cultural practices and beliefs.
- Assess the general knowledge about nutrition and food of women of reproductive age and school children
- Assess the content of existing nutritional awareness programs at school and Posyandu

Report on findings and make recommendations for the development of a nutrition component.

- Written report of findings.
- Recommendations for intervention to help build capacity and improve quality of and access to improved prevention, detection and treatment of malnutrition.
- Develop a proposed logical framework for Nutrition Component activities to complement existing programme.

3. METHODOLOGY

The nutrition assessment took place over a period of 38 working days, between 9th November 2007 and January 15th 2008. This included two days briefing and de-briefing in Jakarta, 32 working days in the field, based in Soe, TTS, and Kupang and four days report writing. Advertisement, interviewing and recruitment of 2 local assessment staff and development of the data collection forms took place during the first week, in addition to local meetings with stakeholders in Soe. Data collection in the field was conducted over a 4 week period, with 2 weeks spent in each of the two ACF programme area sub-districts (Boking and Amanatun Utara)[12]. The final week was spent in Kupang with meetings to collect secondary data and information. Report writing was carried out from home base at the end of the consultancy period.

Secondary Data Collection, Review and Assessment
Secondary data was collected from a wide range of sources at National, Provincial, District and Sub-district level. Information reviewed included published and unpublished documents; policy, planning and recommendation documents; health service implementation plans; statistics, monitoring and evaluation reports; surveys and assessments, and the results of meetings and discussions where written information was not available.

Stakeholders providing information included the MoH in Jakarta, the DoH in Kupang (NTT province) and Soe (TTS district), Puskesmas staff at sub-district level in Boking and Amanatun Utara, local and international NGOs, and other agencies.

Primary Data Collection
Primary data and information collection was conducted in Boking and Amanatun Utara sub districts through interviews, questionnaires, focus group discussions, participatory assessment activities, food diaries (24 hour recall), home visits and observations. A summary of information and data collected is shown below in Table 2, and discussed in further detail in the relevant sections.

Data collection forms, questionnaires and FGD questions and questionnaires were developed directly in Bahasa Indonesia, but FGD and most interviews with community members were held in Bahasa Dawan (the local language). The data was then recorded or transcribed into Indonesian by assessment staff (who do not speak English) and discussed and assessed with the consultant to produce summaries in English. English translations of the questionnaires and summaries of FGD and other data are shown in Appendix II

It should be noted that most of the information presented and discussed is of a qualitative nature, and although it has been possible to present some data in a quantitative form, this gives a 'snap shot' or overview rather than being statistically representative of the area as whole. Whist every attempt was made to gather information from a range of locations, for example Posyandu and primary schools in both

[12] It was discussed and agreed, due to time restraints and other practicalities, to limit collection of primary data to the two sub districts where ACF is currently operating. Primary data is therefore representative of those areas (Boking and Amanatun Utara), rather than TTS as a whole.

remote areas and those in the larger towns, randomised selection of locations or respondents was not attempted.

Source of Information or Data	Location	Method of Information or Data Collection
Puskesmas staff (3 Puskesmas)	Boking Manufui ,Boking Ayotupas, AU[13]	Interviews and questionnaires
Mobile Clinic at Posyandu Health Staff and Kaders (3 Posyandu)	Suni, Boking Noebana, Manufui Malla, Manufui	Interviews with HCP staff. Group discussions and questionnaires with Kaders Observation (form)
Posyandu Kaders (5 Posyandu)	Oebiloe, Manufui Meusin 1, Boking Meusin 2, Boking Nasi, Ayotupas, AU Fotilo, Ayotupas, AU	Group discussion and questionnaires with Kaders Observation (form)
Community members attending Posyandu (102 respondents)	All 8 Posyandu listed above	Exit interview/ questionnaire with 102 parents or carers attending Posyandu with children 24 hour diet recall with 20 WRA
Home visits with malnourished children (5 children)	Santian, Manufui 3 Meta, Manufui, 1 Nasi, AU, 1	Discussions and advice with families Observations Referral to TFC (one child)
Posyandu Kaders (1 FGD/ assessment)	Lilo, AU	FGD with 7 Kaders from 2 Posyandu. Assessment of understanding of malnutrition and knowledge of nutrition
WRA and PKK (4 FGD)	Snok, AU Nasi, AU Boking Lilo, AU	FGD with women of reproductive age Traditional cultural practice and infant feeding
SMA (secondary school) students (1 FGD/assessment)	Snok, AU	10 female SMA students aged 16 & 17 years old (WRA). FGD and assessment of understanding of malnutrition and knowledge of nutrition Food diaries / 24 hour recall
Community Leaders (2 FGD)	Boking Snok, AU	FGD regarding nutrition and related traditional cultural practices
Primary School Children (9 assessments – 116 children)	AU 5 assessments Boking 4 assessments[14]	Assessment of understanding of malnutrition and knowledge of nutrition Food diaries / 24 hour recall

Table 2: Summary of Primary Information and Data Collected

Due to time restraints, selection of Posyandu (and Kaders) for inclusion in the assessment was made according to clinics scheduled on the dates the assessment team were in the relevant sub-district. Consent was obtained and selection made in discussion with Puskesmas staff at all three Health Clinics in the ACF programme area. Parents or carers were approached by the 2 assessment staff as they left each Posyandu, and if they consented, were interviewed directly. Subsequent respondents

[13] AU, Amanatun Utara.
[14] A full list of schools and villages is shown in Section 4.5.5

were selected in the same way as the previous interview was completed, with a target of conducting at least 10 interviews at each Posyandu.

Focus group discussions were conducted in the afternoons, after attending a Posyandu or Primary school. The sites were therefore selected according to convenience of location, taking into account travelling time. Meetings were held with the head of the village in each location to obtain permission, and enlist the help of the PKK, who arranged a suitable place for the discussions and invited the attendees from WRA in the community. The FGD with Community Leaders were conducted in the main towns of each sub-district (Boking and Ayotupas, Amanatun Utara). They were again arranged through the head of the village, who identified and invited suitable participants to attend.

The assessment sessions in Primary Schools were scheduled in advance in agreement with the heads of schools. In Amanatun Utara, schools were selected in consultation with all heads of school from the district who were attending a meeting in Ayotupas. In Boking, the ACF Hygiene Promotion team scheduled nutrition assessment sessions at schools where they were conducting activities, to take place the following week.

4. ASSESSMENT FINDINGS AND RESULTS

4.1 The Health System Structure in Indonesia

The health system in Indonesia has undergone a process of decentralisation over recent years. Whilst the health system structure (shown in Figure 2 below) has remained the same, the roles and responsibilities at various levels have not. In May 1999 the Indonesian Parliament adopted two laws: Law on Regional Autonomy (Law No. 22/99) and the Law on Fiscal Balance (Law No. 25/99). As a result, the decentralisation of government services and functions was required to be carried out by 2001. Much of the operational authority and responsibility for health services has been delegated out in a move away from a central, top-down approach by the Ministry of Health. The responsibility of the Provincial Health Office has also been reduced, whilst the responsibility of the District Health Office has increased. The District Health Office is now directly responsible for planning and provision of primary care services. Hospital services however report to the Regent (Bupati).

Figure 2: The Structure of the Indonesian Health System

Free health service consultation, treatment and medication are available to all community members who cannot afford to pay. Families can access outpatient or inpatient health services (including treatment for malnutrition), at Posyandu, Puskesmas or at government run hospitals. Free services are provided via a SKTM (Surat Keterangan Tidak Mampu) letter from the village head stating they are unable to pay. This letter should be validated and then used to obtain an ASKESKIN (health access for the poor) card to confirm their entitlement. Funding is provided through a system managed by PT ASKES, which 'back charges' costs to central government.

4.2 Nutrition Policy, Strategies and Guidelines

The process of development of health and nutrition policy, strategies, service planning, guidelines, and targets at National, Provincial and District level resulting from the decentralisation process in Indonesia remains unclear. The role and responsibilities at different levels in the Government health service is not clearly defined.

The Indonesian Ministry of Health is reforming the process of policy formulation in the health sector. The Centre for Health Policy Analysis and Development of the Ministry of Health, is currently working with the support of GTZ to formulate standard policy and implementation guidelines to support national, provincial and district level health authorities. The context and objective of GTZ's interventions to support Policy Analysis and Development in the Health Sector are outlined below.[15]

There are various documents which describe strategies, guidelines and recommendations for nutrition intervention and treatment, but it is not clear which (if any) are actually national policies as such, or what the requirements or responsibilities at Provincial and District level are to implement such recommendations. It seems many centrally produced papers are advisory guidelines to be (optionally) used to develop individual Provincial and District plans and policies according to locally set priorities. There is a high degree of content overlap between different documents, they are not cross referenced, do not state if they supersede, replace or compliment other publications. Many statements or recommendations lack specificity or clear directives on how they should actually be practically implemented. Furthermore, few documents have been translated in to English, published to websites, or made widely available as electronic 'soft copies'. Dissemination still relies on the distribution of hard copies (often photocopied) and information does not reach all levels of the health service or other stakeholders. Summaries of the most relevant information are shown below.

4.2.1 Health Development Plan towards Healthy Indonesia 2010[16]

The 'Healthy Indonesia 2010' strategy was the reference document for development of the Provincial Health Masterplan for NTT 2006-09.

The strategy outlined in the Government of Indonesia's Healthy Indonesia 2010 recognised the limitation of available resources and prioritised 10 key programme areas to focus efforts to improve health (and nutrition):

1. *Health policy, health finance and health laws program.*
2. *Nutrition improvement program.*
3. *Contagious disease prevention program including immunization.*
4. *Healthy living behavior improvement and mental health program.*
5. *Settlement area, clean water and air program.*
6. *Family health, reproductive health and family planning program.*
7. *Occupational safety and health program.*
8. *Anti tobacco, alcohol and hashish program.*
9. *Drugs, dangerous substances, foods supervision program.*
10. *Prevention of accidents and injuries, including the traffic safety program*.

[15] GTZ, *Policy Analysis and Policy Development in the Health Sector*, GTZ website: www.gtz.de/en
***Objective**: The formulation of policy and the drafting of a framework for implementation meet the requirements of a decentralized health system.*
***Context**: During implementation of Indonesian decentralization policy, the confining of tasks and responsibilities to particular levels of government left much unclarified. There is still a lack of unambiguous implementation agreements backed by realistic financing, generally accepted quality standards for services, a clearly defined role for the private sector, and medium-term financial planning instruments. No systematic formulation of policies has been attempted in the health sector, nor have any analyses of how this might be financed, the prerequisites for implementation, or possible impacts.*

[16] Ministry of Health, Republic of Indonesia. *Health Development Plan towards Healthy Indonesia 2010. MoH, Jakarta, 1999.*

The **Nutritional Improvement Program** describes national average targets and very broadly outlines activities as follows:

This program is aimed at increasing the society's and institutions' nutritional state in order to increase autonomy, intellectuality and productivity of human resources.

Targets of this program are:

(1) declined prevalence of total protein energy deficiency (KEP) to at most 16% of the projected achievement of Pelita VI i.e. 30%;
(2) prevalence of disturbance due to iodine deficiency (GAKY) based on total goiter rate (TGR) declines from 18,0% to 13%, and new cretinism case is not found;
(3) prevalence of nutritional anaemia among pregnant women drops to 20%, among the under 5 years old to 16% and among female workers to 13%;
(4) society is freed from vitamin A deficiency problem;
(5) at least 80% nursing women breast feed exclusively;
(6) 80% adolescents in urban area and 70% adolescents in rural area have normal body height;
(7) increased number of population consuming balanced nutrition and decreased number of population suffering from malnutrition or over nutrition; and
(8) increased variability in food consumption towards food self-sufficiency.

Activities of this program consist of:

(1) public nutrition instruction, settlement of KEP and chronic energy deficiency (KEK);
(2) settlement of GAKY;(iodine deficiency)
(3) settlement of iron deficiency anaemia;
(4) settlement of vitamin A deficiency;
(5) settlement of micro nutrients;
(6) settlement of over nutrition;
(7) cultivation and improvement of nutritional state; and
(8) consolidation in implementation of food and nutrition surveillance system.

4.2.2 National Food and Nutrition Action Plan

The National Food and Nutrition Action Plan 2006-2010, from the National Development Planning Agency (BAPPENAS) was launched on September 12, 2007. This is described as a 'policy instrument integrating many sector strategies and policies related to community nutrition improvement'.[17] This appears to be the first time a National Food and Nutrition Action Plan has been developed, and can be seen as an attempt to take a more holistic approach to address existing problems of malnutrition and food insecurity. It identifies three main factors contributing to nutrition and community health problems:

- *Food availability at household level and family capability to provide food, which it states is 'closely related to family purchasing power.' (*but interestingly, does not mention household food production).
- *Family nutrition education and ability to provide for infants and children, especially exclusive breast feeding and complementary feeding practices, which it states is 'closely related to family effort to sustain infant and under-five health as well as a healthy environment.'*
- *Access to quality health service and utilization of community based health efforts and health facilities for promotive, preventative, curative and rehabilitative health service, eg growth monitoring of under 5's at Posyandu, pregnancy monitoring, checking infant and child health, supplementing vitamin A and complementary feeding, immunization etc. Of those factors, nutrition and health development clearly relate to development of other sectors, especially food, purchase power and education*

[17] National Food and Nutrition Action Plan 2006-2010, summary/press release taken from DoH Indonesia website www.depkes.go.id

The full document has not yet been reviewed by ACF or distributed to Provincial or District Health Departments. As of January 2008, it is still not available as an electronic soft copy, or translated into English.[18] As an action plan for 2006-2010, publication and distribution is clearly rather behind schedule. It remains unclear where this action plan fits in the process of health, nutrition and food security policy and planning, and whether it will be utilized by the relevant authorities in the ACF programme area.

See Appendix III: National Food and Nutrition Action Plan 2006-2010 Press Release

4.2.3 National Nutrition Guidelines[19]

A series of booklets produced nationally give guidance on different aspects of nutrition, as listed below:
Guidance for provision of local MP-ASI 2006
Housewives provide ASI
Working mother provide ASI too
Guidance for nutritional improvement in elementary schools
Guidance for balance nutrition
Guidance for nutritionally aware families (KADARZI)
Guidance for medical nutrition therapy
Guidance for hospital nutrition service
Nutritional improvement for families – manual for kaders
Training module for trainers – counselling for children under 5 years old
Implementation Chart book for malnourished child
Implementation Technical book for malnourished child

4.2.4 Provincial Health Masterplan for NTT 2006-09[20]

The Provincial Health Masterplan for NTT 2006-09 was developed during March and April 2006 facilitated by the Indonesian-German Health Sector Support NTT-NTB from GTZ, based on the 10 national programmes outlined in the 'Healthy Indonesia 2010' strategy.[21] This plan was also used as a basis for development of the District Health Masterplan for TTS 2007-10, in June 2007.

The community nutrition programme is outlined under five priority outputs:
1. The nutrition outbreak and malnourished cases are managed.

[18] The Indonesian version of this document has been obtained by ACF staff in Jakarta (Jan 2008), for translation into English.

[19] These booklets have been obtained by ACF Jakarta (Jan 2008). They are available in hard copy only and not translated into English. Copies will be sent to Soe office, and will provide valuable guidance to further develop recommendations made in this assessment.

[20] Provincial Health Masterplan for NTT 2006-09, GTZ, June 2006.
A hard copy of the plan has been left in the assessment file in the ACF office, Soe, and an electronic copy of the full document is on the GTZ CD, SISKES III, also in Soe.

[21] The 10 national programmes described here are different to the ones in the Healthy Indonesia 2010 document. Those used for the Provincial Health Plan are:

- Health Promotion and Community Empowerment
- Healthy Environment
- Community Health
- Individual Health
- Communicable Disease Control and Prevention
- Community Nutrition
- Health Human Resources
- Drugs and Medical Supplies
- Health Policy and Management
- Health Research and Development

2. Implementation of the KADARZI norm in the community[22]
3. Improvement of nutrition staff numbers and quality and quantity and competency of Posyandu kaders for nutrition.
4. Improvement of tackling activities in micro-nutrition problems.
5. Improvement of nutrition services in order to increase effort on hospital, health centre and other institution performance in disaster management.

Much of the plan is still very much in general outline stage. The Nutrition Programme will be further developed and clarified in a process commencing with a '**Road Map for Nutrition',** as part of a series of workshops to further develop Masterplans in a joint exercise (DoH NTT & NTB) in Bali in January 2008, which is again being supported and facilitated by GTZ. [23]
See Appendix IV: Provincial Health Masterplan for NTT 2006-09, for full document.

Although there are many different policy, strategy and nutritional guideline documents, the importance of each one is unclear. They all however describe similar priorities related to reducing malnutrition, increasing nutritional awareness and knowledge, and improving systems for nutrition surveillance, referral and treatment.

4.2.5 District Policy for Detection, Referral and Treatment of Malnutrition

According to Nutrition staff in DoH Soe, there is no central (National) or Provincial policy or protocol, as each District (Kabupaten) has the responsibility to develop their own. There is apparently no written document outlining the current nutrition policy, procedures and protocols in TTS. It is therefore not disseminated to the sub-district Puskesmas in the form of a standard reference document, which may explain lack of clarity and standard implementation, especially regarding supplementary food allocation. The nutrition 'policy' or current procedures were socialised verbally to Puskesmas level in 2005 and was outlined as follows:[24]

Nutrition Surveillance
Penentuan Status Gizi (PSG or Determining Nutritional Status) nutrition surveys are usually conducted every two years. The survey was undertaken in 2006, and was being carried out again in December 2007. Funding was allocated from the Provisional DoH for a repeat survey in 2007.

Growth monitoring
Children under 5 years of age are weighed monthly at the health post (Posyandu) and their nutritional status classified according to weight for age. Children are classified as either: overweight; well (good) nourished; malnourished or severely malnourished (weight for age). Data is reported from Posyandu to Puskesmas and by Puskesmas to District DoH.

Classification Nutritional Status and Referral for Treatment
Nutritional status is classified using the WHO-NCHS 1983 weight for age and weight for height data tables.[25] The terminology used to describe malnutrition can give rise to a lot

[22] KADARZI is an abbreviation of 'Keluarga Sadar Gizi'. This strategy is outlined in the 'Guidance for Nutritionally Aware Families' listed in section 4.2.3.
[23] Documentation and further information will be available from GTZ in February 2008
[24] Summary of notes from meeting at DoH TTS Nutrition Department: verbal explanation of nutrition policy and procedures in TTS.
[25] Published centrally by the Community Nutrition Directorate of the National DoH Office.

of confusion.[26] Children who are classified as 'gizi buruk' or severely malnourished (weight for age <-3 sd) with or without clinical signs of severe malnutrition (Marasmus or Kwashiorkor) or medical complications identified at Posyandu should be referred to Puskesmas.

The Puskesmas should evaluate the child for clinical signs of malnutrition and/or medical complications. They should also measure the height of the child, and classify their nutritional status according to weight for height. Severely malnourished are also described as 'gizi buruk' (weight for height <-3sd). Children with no clinical signs of malnutrition or medical complications should receive supplementary food and be treated in the community. Only those with wt/ht <-3sd and clinical signs of malnutrition or medical complications are referred to the nearest hospital for inpatient treatment.

Treatment of Severe Malnutrition

In TTS only children identified as SAM (<-3sd) *and* medical complications or clinical signs of malnutrition are referred to the public hospital in Soe. This is a general hospital and does not have therapeutic feeding facilities. The protocol and policy for SAM patients (with complications) has been developed by the Paediatric Doctor. Children are discharged according to 3 criteria:

1. Their weight has increased by 10% from admission weight (ie discharge is not according to nutritional status)
2. The child has no medical complications
3. The child has a good appetite

Some SAM cases (with no medical complications) are referred directly to TFC, RS Ibu dan Anak, a privately run facility in Kapan, Soe, funded by CWS.

Supplementary Feeding

The Minister of Health states that malnourished children (gizi buruk[27]) must get supplementary food, but the district must decide what form that takes and how allocated according to resources. Supplementary feeding programmes in TTS are discussed in detail in section 4.4.5.

Pregnant women

All pregnant women should have their nutritional status assessed, Women with a MUAC of <23.5cm are classified as KEK (Chronic Energy Malnutrition) and should receive supplementary food. A small (variable) amount of supplementary food for malnourished pregnant women has been available, but there are currently no supplies / resources to treat them.

[26] The same terminology is used to describe 2 indices, underweight and wasting (wt/age, & wt/ht) which leads to a lot of confusion when describing nutritional status, and defining and explaining referral guidelines. The term 'gizi buruk' according to the dictionary, simply means 'malnutrition' and is used variably to describe children under the red line on the growth chart (<-2sd BGM), at <-3sd weight for age (severe underweight) and <-3sd weight for height (severe wasting). An additional term 'gizi buruk biasa' literally means 'normal (severe) malnutrition' and is used to describe either children below the red line on the growth chart (BGM) or severe underweight (<-3sd wt/age). It's very important to try to clarify what exactly is meant each time the term 'gizi buruk ' is used, but this can be difficult (for example not stated in documents) and sometimes remains unclear. The differences between different forms of malnutrition are not widely understood and many national publications and provincial target statements reviewed lack clarity, and do not describe to which index they are referring when using the term 'gizi buruk'..

[27] Again, it is not clearly stated what is meant by the term 'gizi buruk'.

Supplementation of Vitamins and Micronutrients
There is a policy to distribute supplements for the three main micronutrient deficiencies in Indonesia:

- **Vitamin A** is distributed in February and August each year in the form of high dose capsules. There are 3 target groups: post partum women; babies 6-11 months; children aged 12-59 months.
- **Iron supplements** are distributed to PLW only via Puskesmas or midwives.
- **Iodine supplements** (high dose oil capsules) should be distributed to school children and WRA.

Implementation and coverage of vitamin and micronutrient coverage in TTS is discussed in more detail in section 4.4.6

4.3 Nutrition Status and Surveillance

There are three main sources of information on nutrition status: Government Surveys including Penentuan Status Gizi (PSG) Surveys; growth monitoring statistics from monthly weighing at Posyandu; and Nutrition Surveys commissioned or carried out by INGOs or other agencies. Cases of severe malnutrition with clinical signs of Marasmus or Kwashiorkor are also recorded by the Department of Health.

4.3.1 Summary of Recent Nutritional Data and Surveys

A review of currently available secondary data on nutritional status in TTS shows there is no recent comprehensive nutrition status data available. A summary of published and non-published data for children under five years old is shown below in table 3. Furthermore, much of the available data from the DoH may not be reliable or representative of the population group as a whole, as discussed further in sections 4.3.2 to 4.3.5 below.

The most complete and recent reliable data is probably the CWS/HKI Nutrition Survey, conducted in TTS in April and May 2006.[28] This measured **wasting** as global acute malnutrition (GAM) using NCHS reference data at 10%, and severe acute malnutrition (SAM) at 1.7% in children aged 6-59 months (GAM 9.4% and SAM 1.6% overall in under 5's). Levels of wasting were the highest in the 12-23 month age group at 14% GAM and 4.1% SAM. Whilst these results indicate a WHO classification of a high prevalence of wasting (10-14.9%), it should be noted that this data was collected around 20 months prior to the time of this assessment, and at the end of the 'hunger gap' experienced in the area for at least 3 months each year. Another report from Care International[29] reported wasting levels of >16% GAM and >1% SAM (WHO classification: very high prevalence) from programme data collected at Posyandu in TTU and Belu (neighbouring TTS) in January 2007. As wasting is generally accepted as an indicator of acute weight loss, which may develop and be resolved over a relatively short time period (due to seasonal food supplies, nutritional interventions, health status or other reasons) this data cannot be used to reliably estimate the current situation regarding wasting in the ACF programme area.

The data for height (or length) for age or **stunting** ranged between 38-57% in children under 5 years, and indicates long term or chronic malnutrition. The CWS 2006 survey

[28] CWS, Helen Keller Worldwide, Nutrition and Health Survey among Rural Poor in Soe, TTS, NTT, 2006
[29] Care International Indonesia, Food and Nutritional Security Assessment Report, Eastern NTT region March 2007

results showed a prevalence of stunting of 57% in the 0-59 month age group, which would be categorised using the WHO classification as very high (≥ 40%).[30] It also showed an increase in the percentage of stunting in children with age, rising from 14% in the under 6 month age group, to 65% (12-23 months old) and 75% in the 48-59 month age group. This indicates that many children who are not born with a low length for age become stunted due to a poor quality diet and insufficient food intake over a prolonged period, with a particularly sharp increase in percentage stunting in children between 6 months to 2 years of age.

Source of Data/Survey	Wasting %		Stunting %	Underweight %	
	Severe <-3sd	Moderate <-2 to -3 sd		Severe <-3sd	Moderate <-2 to -3 sd
SEAMO TROPMED, August 2005, NTT & NTB,[31] *Rapid Nutritional Assessment*	1.4	11.0	44.2	n/a	42.8
CWS/HCI, April/ May2006, TTS, NTT[32] *Nutrition Survey –*	1.6	7.8	57.4	14.8*	44.9*
PSG,2006 DoH TTS[33]	11.1**	25.0**	38.2	12.2	39.5
DoH Data 2006, TTS, NTT[34] *Data is as a % of attendees at Posyandu 2006*	n/a	n/a	n/a	7.3	32.7
CARE, January 2007 TTU & Belu, NTT[35] *Programme data from Posyandu*	>1.0	>15.0	n/a	n/a	n/a
DoH Data, August 2007, TTS, NTT[36] *Data % of attendees at Posyandu Aug 2007*	n/a	n/a	n/a	6.45	30.70
					*aged 0.5- 5 years **see comments in section 4.3..2

Table 3: Summary of recent nutritional surveys and data for children under 5 in NTT[37]

The reviewed data for weight for age or **underweight** ranged from 31-45% moderate and 6-15% severe underweight. The range for global underweight was therefore from 40-60%. This would be described as very high using the WHO classification (≥30%). Weight for age is the index used to monitor growth and report regularly on nutrition status of children attending Posyandu. Weight for age is a product of and affected by both stunting and wasting. As such it is often difficult to interpret as it is a combination of chronic and acute malnutrition. The CWS 2006 Survey in TTS measured global underweight at 56% overall in children under 5 years (60% in the 5-59 month age group), with 14.8% severely underweight (5-59 month age group). Again, this data showed a sharp increase in percentage underweight between 6 months to 2 years of

[30] World Health Organisation. Physical Status: The use and interpretation of anthropometry. WHO Technical Report Series 854. WHO, Geneva 1995.
[31] SEAMEO TROPMED, Rapid Nutritional Assessment among children 6-59 months and women of reproductive age in West Nusatenggara and East Nusatenggara, 2005
[32] CWS, Helen Keller Worldwide, Nutrition and Health Survey among Rural Poor in Soe, TTS, NTT, 2006
[33] PSG – see fuller explanation and comments in section 4.3.2 Penetuan Status Gizi
[34] Profile Kesehatan Keluarga Ibu dan Anak / Keluaga Berencana Kabupaten Timor Tengah Selatan (Family, Mother and Child Health and Family Planning Profile) TTS (2006), Dinas Kesehatan,(DoH) Soe, TTS, 2007
[35] Care International Indonesia, Food and Nutritional Security Assessment Report, Eastern NTT region March 2007
[36] Department of Health, Kabupaten TTS, Nutritional Status of Children 0-59 months of age, August 2007
[37] Note: Data is not directly comparable as collected using different sampling methods and at different times of the year and in different geographical areas.

age (9% at under 6 months, 33% at 6-11 months, 68% at 12-23 months). This indicates that many children who are not born underweight, become underweight due to a poor quality diet and insufficient food intake over a prolonged period.

In conclusion, data is consistent with a well established profile of malnutrition in NTT with chronic levels of stunting and underweight affecting around 50% of children under 5 years old. Also, it shows the commonly observed pattern of growth failure, where nutritional status declines seriously between 6-23 months of age. This growth failure can be largely attributed to poor breast feeding and complementary feeding practices as discussed further in section 4.5.4.

Data for acute malnutrition or wasting is not recent enough to give an indication of the current situation, and usually increases prior to harvest each year. A large scale nutrition survey being conducted by Helen Keller International in West Timor at the time of this assessment, is discussed in more detail in section 4.3.9. When published in early 2008, results will provide a much clearer picture of current nutrition status. It should be noted however that as data was collected in November and December 2007 around the start of the annual hungry season, the situation (particularly regarding wasting and underweight) could deteriorate rapidly during the following months, especially in view of reported low food stocks from the poor harvest 2007.

4.3.2 Determining Nutritional Status (PSG)

Penentuan Status Gizi (PSG) or Determining Nutritional Status surveys are usually carried out every 2 years throughout Indonesia. Data is collected at Posyandu and reported by Puskesmas to the District Health Department. This data is reported to the SKPG Department (Food and Nutrition Surveillance) at the Provincial Health Department who compile Provincial reports to submit to the Ministry of Health for national nutrition status reports.

A PSG survey was carried out in 2006. Data for NTT was not found on the MoH or Indonesian Nutrition Network websites and Provincial report for NTT 2006 was not obtained despite several attempts to meet with SKPG staff at the DoH in Kupang. Data from TTS (Sample of 3,577 children under 5 years) was available in the form of the PSG report to the Provincial DoH.[38] The results, particularly for weight for height measurements, however, do not appear credible. They show total wasting for TTS at 36%, with severe wasting at 11%. Recorded levels from Manufai Puskesmas for total and severe wasting of 64% and 26% respectively (in a sample of 76 children) are higher than recorded levels of severe underweight (8%), look very unlikely to be correct. This is probably a data collection or recording error, but should have been further investigated and validated.

In December 2007, a further PSG survey was being carried out in TTS, but at the time of the consultancy, data submitted was not yet complete, and results were not available. Measurements of age, weight and height were collected from a sample of 6,900 children under 5 years of age (300 children from each of the 23 Puskesmas). Additional data on household food consumption has been collected for Penentuan Konsumpsi Gizi (PKG, Determining Nutritional Consumption) using 24 hour recall in 810 households with children under 5 years of age.

[38] DoH Soe, PSG Balita Tinkat Kabupaten Timor Tengah Selatan Tahun 2006, March 2007

4.3.3 Growth Monitoring

Data is compiled on a monthly basis by the District Department of Health, using weight for age figures from children under 5 years old attending Posyandu for growth monitoring. This is compiled into one report by the Puskesmas (to send to District DoH) from reports from all Posyandu in their area. The DoH compiles data from all Puskesmas to produce data for the district (reported up to Province level). Data is reported as percentages for moderate (<-2 to -3 sd wt/age) and severe underweight (<-3 sd wt/age), and sometimes as Bawah Garis Merah (BGM or below the red line) which is the total of all >-2 sd wt/age or total/global underweight.

The most recent available monthly data August 2007 (moderate underweight 30.7%, severe underweight 6.5%) is shown in the summary table 3 in section 4.3.1. This gives a total underweight or BGM level for August 2007 of 37.2%. Data for TTS 2002-2007 as reported by the DoH TTS[39] is somewhat confusing, and it is assumed that there are mistakes in categorisation and calculation. One table (4.7) has values adding up to more than 100%, whilst another table (4.8) described as BGM probably actually shows just Gizi Buruk (except for 2006 which is BGM), as it shows a huge increase from around 5-7% in 2002-2005 to 40% in 2006. Data for severe underweight has therefore been interpreted as shown below:

2002 – 6.4%
2003 – 7.7%
2004 – 5.1%
2005 – 7.2%
2006 – 7.3%

Levels of severe underweight remain above the TTS DoH stated target of 5%.
It should be noted that this data is only from children *attending Posyandu* so cannot be seen as representative of all under 5s in the given areas. Values are probably an under representation as higher values are usually found in cross sectional, sampled household surveys (eg CWS 2006, 14.8% in children 6-59 month olds). Children also may be counted one month, but not the next if they do not attend clinic, and many children are not taken to Posyandu when the families are busy planting or harvesting in their fields, leading to potential bias.

Data on the height of children is not routinely collected, so there is no regular monitoring or surveillance of the levels of stunting and wasting.

4.3.4 Severe Malnutrition with Clinical Signs of Marasmus or Kwashiorkor

Data is collected by the TTS District DoH on number of reported cases in any year of 'Gizi Buruk' (severe malnutrition) with clinical signs of Marasmus or Kwashiorkor as shown below:

2002 – 75 cases
2003 – 38 cases
2004 – 39 cases
2005 – 43 cases
2006 – 7 cases

[39] Profile Kesehatan Keluarga Ibu dan Anak / Keluaga Berencana Kabupaten Timor Tengah Selatan (Family, Mother and Child Health and Family Planning Profile) TTS (2006), Dinas Kesehatan,(DoH) Soe, TTS, 2007 (pg 29 &30)

Data was not described as a percentage or ratio, but as reported cases. It is not clear if the sharp drop in identified cases in 2006 is due to an actual reduction in cases/levels, different classification criteria, missing data or lack of reporting (or other reason).

4.3.5 Low Birth Weight

Low birth weight, (not stated but assumed to be recorded <2.5kg) is also reported by the TTS DoH[40]. It is presumed (not stated) that this data is as a percentage of all newborns weighed.

2002 – 5.0 %
2003 – 4.4 %
2004 – 3.4 %
2005 – 2.6%
2006 – 1.6%

The reported reduction in LBW looks impressive over the 5 year period if data is accurate. It should be noted that this data is probably only from births attended by a midwife (over 50% are not in TTS), or weighed directly after birth by Kaders, midwives or other HCPs. During this assessment data was not collected specifically regarding the percentage of children who had recorded birth weights. It was noted however that many of the KMS cards seen at Posyandu did not have a birth weight recorded. The lack of complete data is likely to be largely influenced by the traditional practices where many births are still attended by traditional birth attendants and the mother and baby stay inside the traditional *'rumah bulat'* house for 40 days after the child is born. This is discussed further in section 4.5.3 Maternal Diet and Traditional Practice Post Partum.

4.3.6 Nutrition Status of School Children

There was almost no data found describing the nutritional status of school children in NTT. Levels of 'hindered' growth were reported from a survey of school children's height on entry to school in 2003 as 49.6% in TTS and average of 41.3% in NTT overall. It is assumed that this is data for stunting and that weight measurements were not made.[41] No data for weight for height or MUAC was presented.

There is some evidence that poor health, nutrition and hunger are adversely affecting school children in NTT: *Research conducted by SCUK in two sub-districts of the Belu district* (which neighbours TTS) *on factors affecting attendance reveal that almost 30% of children who experience attendance difficulties[42] cite health and poor nutrition/hunger as one of the reasons affecting their attendance.[43]*

The nutritional status in primary school children in NTT will be assessed by SCUK in a nutrition survey to take place in early 2008. This is described in further detail in section 4.3.9 Other Nutrition Surveys.

[40] Profile Kesehatan Keluarga Ibu dan Anak / Keluaga Berencana Kabupaten Timor Tengah Selatan (Family, Mother and Child Health and Family Planning Profile) TTS (2006), Dinas Kesehatan,(DoH) Soe, TTS, 2007 (pg 30)

[41] Survey Tinggi Badan Anak Baru Sekolah Tahun 2003 (survey of the height of children on entry to school). Gangguan Pertumbuhan (hindered growth) shown as a percentage. Data was provided by the Provincial DoH, Kupang on a one page photocopied summary including other reports. The full report of the survey was not available.

[42] Defined as absent from school for more than 6 days in any calendar month

[43] Brief overview of research on attendance conducted in 2 sub-districts of Belu Distritct by SCUK NZAID Education Project, January-April 205. Unpublished document, from SCUK January 2008.

4.3.7 Anaemia in Women and Children under 5 years of age

A review of available recent data on anaemia reveals a wide range in results from different surveys, and between data reported according to different age groups or sub-groups of the population and are shown in Table 4 below.

Differences could be due a number of reasons: different methods of testing sampling and assessment; seasonal differences; malaria infection; previous pregnancies and spacing of pregnancies; age; socio economic status; intestinal parasite infection; and coverage of iron supplementation among others.

Source of data	Group	Method / Measure	Anaemia %
DoH Kupang, NTT 2002, *Rapid Assessment*	Pregnant women NTT Pregnant women TTS Under 5s NTT Under 5s TTS WRA NTT WRA TTS	Not stated	**59.8** **58.8** **62.6** **58.7** **46.9** **42.2**
SEAMO TROPMED, August 2005, NTT & NTB,[44] *Rapid Nutritional Assessment*	WRA NTT & NTB	Measure: Hb < 12 g/dl = anemic Hb < 8 g/dl = severe anemia	**28.6** anaemic **1.1** severe
CWS/HCI, April/ May2006, TTS, NTT *Nutrition Survey*	Children 3-59 months Children 3-23 months	Finger prick test 20% sub set (HemoCue) Hb <11g/dl = anemic Hb < 9 g/dl = severly anemic	**55** **86.7** anaemic **39.1** severe
CWS/HCI, April/ May2006, TTS, NTT[45] *Nutrition Survey*	Non pregnant women	Finger prick test 20% sub set (HemoCue) Hb < 12g/dl = anemic	 **28**
			WRA = women of reproductive age

Table 4: Summary of Anaemia data from recent surveys in NTT

Anaemia in children under 5 years old in TTS was reported to be 55 to 59%, which would be categorised as high (≥40%) according to WHO classifications. The CWS survey found a very high level of anaemia (87% with 39% severely anaemic) in children in the 3-23 month age group.

Anaemia in WRA and 'non-pregnant women' in TTS was reported at 42 and 28% respectively from a DoH rapid assessment in 2002 and the CWS survey in 2006, whilst the SEAMO TROPMED rapid assessment in 2005 found levels of 29% anemia, (1% severe) throughout NTT and NTB. The DoH 2002 assessment also measured levels of anaemia in pregnant women in TTS at 59%.

This data would indicate the importance of efforts to increase iron supplementation coverage in TTS for PLW which remain below target (as discussed in section 4.4.6). The extremely high levels of anaemia found in pregnant women, would almost certainly be a contributing factor to the high maternal mortality rate (with 74% being attributed to

[44] SEAMEO TROPMED, Rapid Nutritonal Assessment amoung children 6-59 months and women of reproductive age in West Nusatenggara and East Nusatenggara, 2005

[45] CWS, Helen Keller Worldwide, Nutrition and Health Survey among Rural Poor in Soe, TTS, NTT, 2006

'bleeding' in TTS, as mentioned in section 1.2), and could play a significant role in LBW and the very high levels of infant anaemia described above.

4.3.8 Iodine Deficiency

There is little recent data available regarding iodine status and deficiency levels in either TTS or NTT as a whole. A survey and data analysis of iodine status from urine samples was carried out in NTT 2002, but the report of findings was not available from the Health Department at the time of this assessment. A DoH report 2003[46] (probably data from the 2002 survey) categorised NTT as 'severe endemic iodine deficiency' (endemis berat) with reported iodine deficiency in 38.1% of primary school children and 43.4% pregnant women (national average 16%). The most severely affected Districts are Sumba Barat, Sikka, Ende, Manggarai, Ngada, Alor, TTU and Belu. TTS was classified as medium level deficiency (GAKY sedang). The provision of iodine supplements and the use of iodised salt is discussed in more detail in section 4.4.6 below.

4.3.9 Other Nutrition Surveys

Two further surveys have been conducted in the ACF programme area in 2007, but survey reports were not yet available at the time of the assessment. One more nutrition assessment (Primary School Children) will be conducted by SCUK in early 2008 as described below:

Church World Service (CWS) Survey 2007

This end line survey was carried out in March 2007 by SEAMO-TROPMED as a follow up to the 2006 baseline survey: CWS, Helen Keller Worldwide, Nutrition and Health Survey among Rural Poor in Soe, TTS, NTT, 2006. This survey will show results after intensive intervention from CWS, and therefore will provide valuable data to evaluate the programme. As such it will probably not be representative of areas where no intensive nutrition programme intervention has taken place, or other areas in TTS.

Nutrition Survey West Timor, HKI 2007

A large scale survey (4,800 households) was being conducted by Helen Keller International (HKI) on behalf of Care & CWS, UNICEF and UNOCHA in West Timor (including TTS) in November and December 2007. Details of data collection and contact details are shown in Appendix 5, Nutrition Survey West Timor, HKI December 2007. This major study, when published, will represent the most comprehensive and up to date nutrition data available for West Timor and TTS. The report is due to be published in January or February 2008.

Save the Children UK (SCUK) Nutrition Assessment, Primary School Children NTT, 2008

A ten week assessment will take place in February to April 2008 to investigate nutritional status and related issues in primary school children in SCUK programme target areas in NTT (Sumba Barat, Belu, TTU and Kupang) and make recommendations on possible school health and nutrition interventions. A report of finding and recommendations may be available in mid 2008 from SCUK in Kupang, NTT.

[46] Data from Provincial DoH, Kupang. Reference source for data is unclear, as it was provided in the form of two unreferenced photocopied pages, from a 2003 report.

4.4 Nutrition Service Implementation in the Sub- Districts

The provision of health and nutrition services throughout NTT, including TTS, is not yet optimal. Limited staff levels, facilities, funding and resources as well as geographical and climate factors make delivery of comprehensive services a real challenge. The level of coverage is variable, and in general, the more isolated areas, away from main roads and district capitals, are less well served.

During the assessment visits were made to Puskesmas, mobile clinics and Posyandus in the ACF programme area sub-districts of Amanatun Utara and Boking. The terrain in many areas is very difficult with steep unpaved roads, which make access and travel for even short distances time consuming, uncomfortable and at times dangerous. During the dry season, conditions are hot and dusty, and roads are full of potholes, rocks and dried out gullies. During the rainy season, roads quickly become muddy and flooded, with some areas completely cut off (sometimes for months at a time) by wide, fast flowing rivers with no bridge crossings. Health service ambulances are very limited (one per Puskesmas) and unsuitable as they do not have 4 wheel drive. Many staff (especially, for example pregnant female staff) are understandably not prepared or able to use motorbikes to travel to the less accessible areas, especially alone. Many isolated village level services and posts (PUSTU and POLINDES), are difficult to staff, as living conditions are tough, with unsuitable accommodation and very limited access to electricity, water, and fresh foods. We found some facilities unattended, with the community reporting that there were no staff or that staff actually lived elsewhere (for example Soe and even Kupang) and only came to the field for a few days a month.

Data collection and reporting requirements are a major responsibility and burden. They represent a high proportion of the sub-district health staff workload, with much information still being compiled through cumbersome systems, by hand in notebooks and hand drawn tables. Often this data is not critically evaluated or used to make evidence based intervention or planning decisions. Some of the data does not actually make sense or look rational, and if some values were indeed accurate, should have raised cause for concern and intervention or alarm (after re-validation). Time, services, resources and funding remain focused on curative interventions, rather than prevention and health promotion.

4.4.1 Health Centres (Puskesmas)

There are three Puskesmas in the ACF programme area – two in Boking Sub-District (in Boking and Manufui) and one in Amanatun Utara Sub-District (in Ayotupas). The Boking Puskesmas does not have facilities to admit and treat inpatients, whilst Ayotupas Puskesmas has 6 inpatient beds. The distances to the District General hospital in Soe (from the Puskesmas) is Boking 74km, Manufui 64km, and Ayotupas 78km. Each Puskesmas has one ambulance, and some motorbikes: Boking (4), Manufui (4) Ayotupas (5) for staff use.

Puskesmas opening hours are generally 8am to 12noon Monday to Thursday, closing at 10 or 11 am on Fridays. Outside those hours it is not usually possible to see a Doctor, have tests (e.g. malaria) or collect medicines or supplementary foods. Some Doctors will see patients outside these hours on a ‘private’ basis, but the patient would generally have to pay. In some areas health service Doctors run a private practice from home in the afternoon or evening.

Nutrition services, delivered through Posyandu and Puskesmas are the overall responsibility of a nutritionist, based at each Puskesmas. At the time of the assessment, Ayotupas and Manufui Puskesmas had a nutritionist, with responsibility delegated to a midwife in Boking. The population, facilities and staff levels according to the 3 Puskesmas are summarised in Table 5 below.

Puskesmas	Total Population	Polindes	Posyandu	Staff	Doctors	Nutritionists	Midwifes
Boking	12,800	1	26	13	2	0	3
Manufui	9,793	2	19	9	1	1	3
Ayotupas	19.177	3	34	14	1	1	2

Table 5: Summary of Puskesmas Population, Facilities and Staff in ACF Programme Areas.

Posyandu schedules are drawn up by the Puskesmas, to be held around the same date each month in each village, usually between 1st-20th, to allow time for monthly sub-district statistics to be collected and reported to the District DoH. In reality, the schedule is not always followed, or dates are changed at short notice. Some of the Posyandu are held much less regularly, or run in a reduced form by the Kaders (health volunteers) with data delivered to Puskesmas. All Posyandu should be attended by a midwife or nurse, although this is often not the case. The planned timetables are difficult to staff, especially with limited transport, for example Ayotupas had 14 Posyandu scheduled on one day in December. With a total of staff 14 (not all HCPs), 1 ambulance and 5 motorbikes, it is difficult to see how this could be achieved.

In an attempt to overcome limitations, 'mobile clinics' at selected sites, covering several Posyandu are staffed by a team of health care professionals from the Puskesmas less frequently (3 or 6 six monthly, or even annually in remote areas) to provide access to basic health services like vaccination, services for pregnant and lactating women, pharmacy and sometimes dentistry.

The Puskesmas is responsible for the provision of services through Posyandu. These include growth monitoring, supplementary food (either blanket or to the malnourished, depending on the supplementary feeding programme), and the distribution of nutritional supplements (iron tablets, iodine and vitamin A), as well as immunisation, pregnancy and post natal monitoring and referrals.

It should be noted that in Indonesia, **Midwives** have a very broad job description and responsibility. They are not just responsible for pre and post natal checks and delivery as in many countries. Their responsibilities extend to children up to 5 years old including vaccination, nutrition, supplements, growth monitoring, and diagnosis and treatment of common illness including malaria, diarrhoea, parasites, respiratory tract and other infections.

4.4.2 Integrated Health Posts (Posyandu)

During the assessment we visited a total of 8 Posyandu. Three, in Suni (Boking) and Noebana and Santian (Manufui) had medical (mobile clinic) services provided by the Puskesmas. The 5 other Posyandu had no clinical services (3 in Boking and 2 in Amanatun). Posyandu were selected according to the Puskesmas schedule, when the team was in the area as they spent alternate weeks in the two sub-districts. Posyandu

were also selected where possible to represent a cross section from each Puskesmas, and include the more remote areas, as well as those nearer to the Puskesmas, towns or the road.

Posyandu & Village	Puskesmas	Kader	Children under 5 years old			Pregnant Women	
			Registered	Attended	%	Registered	Attended
SUNI[47]	Boking	5	n/a	n/a	n/a	n/a	n/a
MALLA,SANTIAN[48]	Manufui	5	30	27	90	0	0
NOEBANA, NOEBANA	Manufui	5	84	78	92.8	10	10
FATULUI, NOEBANA	Manufui	5	57	38	66.7	3	3
SUNI, NOEBANA[49]	Manufui	5	48	42	87.5	1	1
OEBILO,BOKING	Boking	5	56	24	42.9	0	0
OEMOL, MEUSIN	Boking	5	91	51	56	0	0
AIB ONI,MEUSIN	Boking	5	93	55	59	5	5
SINAR HARAPAN II, NASI	Amanatun Utara	5	102	44	43	3	3
MERPATI NOMENI, FOTILO	Amanatun Utara	5	78	64	82	0	0
Total /average percentage			**639**	**423**	**69%**	**22**	**22 (100%)**

Table 6: Posyandu Registration and Attendance.

Numbers of under 5's registered at each Posyandu varied (range 30-102), as did the percentage attending which averaged 69% (range 43-93%). Attendance was highest in Manufui Puskesmas area, where the Doctor and medical team are very active in the field. Lack of medical services or attendance by HCPs was the main reason cited by the community for not attending Posyandu regularly. All Posyandu had 5 kaders, (19 male and 31 female). See table 6 above.

[47] At Suni Posyandu, the usual growth monitoring activities had already taken place, the clinic we attended was a special 'Desa Terpencil' (isolated village) service which is held once a year for Suni and Mella villages. This was staffed by a Doctor, a Midwife (also responsible for Nutrition) a Pharmacist and Hygiene promotion staff. Attendees could consult with a doctor and receive medication, pregnant women were vaccinated against tetanus and given iron tables (but not physically examined). There was also a talk on personal hygiene. A 'one off' distribution of hygiene supplies (washing powder, soap, toothbrushes, and toothpaste) was given out. MP-ASI food supplements (one month's supply of fortified porridge and biscuits) were also distributed to all children under 2 years old. One small child was seen who looked like he had cretinism caused by iodine deficiency. It was very busy and chaotic. We were unable to get Posyandu data (communities from several Posyandu attended) as the records were all with the village midwife, who was in Kupang.

[48] Malla Posyandu was staffed by 4 staff from Manufui Puskesmas: 1 Doctor, 1 nurse, 1 midwife, 1 pharmacist. There were medical checks and treatment and vaccinations. There were no pregnant women registered.

[49] In Noebana, this was also a 'mobile clinic' rather than a Posyandu as such. It was attended by Kaders and community from 3 Posyandu, and growth monitoring was taking place for the Posyandu based there. 5 staff from Manufui Puskesmas, a doctor, midwife, pharmacist, dentist and nutritionist. Medical/dental checks and medication, and physical checks, immunisation and iron supplements were given to pregnant women. Supplementary food was distributed. Several older adults were observed to have obvious goitre (iodine deficiency). There was one very malnourished child. She appeared to be suffering from a disability (probably cerebral palsy).

The majority of children (90%) were taken to Posyandu by their mother. Distance walked to Posyandu was recorded as: less than 1km (42%), 1-3km (45%) and 3-5km (13%). Nobody reported having to travel more than 5km. Around 70% of carers said they always brought their children each month.[50]

According to the Kaders interviewed at all Posyandu[51], and a FGD with one group of Kaders[52], the main health problems encountered are diarrhoea, vomiting, malaria, coughs and colds, and skin conditions. They described maternal/community lack of knowledge and understanding about hygiene, health and nutrition as still being very low. They felt an improvement of the diet, hygiene practice regarding food and drink, a cleaner environment, and the use of toilets and mosquito nets were the main ways to improve health and nutrition, and reduce illness.

4.4.3 Growth Monitoring

Figure 3: A child being weighed at Posyandu

Children under 5 years old were observed being weighed at Posyandu. In some cases the scales were not checked and zeroed before use, some of them were damaged or very old and 'not working well'. Many of the children were being weighed wearing lots of clothes, and their shoes. Weights were read out by one Kader and registered in a book by another.

[50] Data from Posyandu exit interviews conducted with 102 parents/carers.
[51] Data from Posyandu interviews with groups of Kaders
[52] Information from FGD with Kaders from Lilo Posyandu, Amanatun Utara

The weights were not recorded directly onto the KMS card in at any of the Posyandu we attended, but filled in later by the Kaders, often after the children had been taken home. The results of the growth monitoring were not observed to be shared with the children's carers. The KMS cards were not given to parents to take home, but kept by the Kaders or the midwife, as they said they often got lost or damaged if taken home. As a result, the information from growth monitoring was not being used as a basis to advise the parents on the nutritional status of their child, to feedback on the child's progress or to give information and advice when a child weight was either stable or going down.

Many children (around 33%) did not have a KMS card, as supplies had run out, and the Kaders had not been given more. There were also problems with old or damaged balance weighing scales and there were no height or length boards to further check the children's (wt/ht) nutrition status for referral where necessary. Of the 102 parents/carers asked, only 8 said they knew the nutritional status of their child, with the remaining 94 (92%) stating they did not know or had not been told.[53]

Pregnant women were not being weighed or having their MUAC measured to screen them for malnutrition as the District policy states. There were no scales for weighing adults or MUAC measuring tapes.

The Kaders were all very conscious of the poor equipment and lack of stationery to record results (they all had to buy notebooks, pens and other stationery themselves). Many of them said they needed weight /height boards and some suitable new scales.

Data from growth monitoring is compiled to give values for malnutrition in the area. One major limitation of this data collection method is that it is only from children seen at Posyandu, so not actually representative of all under 5's in the area. It is also not clear if the percentages calculated are for total number of children attending or number of children registered, and seems to be recorded differently in different areas, so the data collected at Posyandu is not really considered reliable or usable for the purpose of describing the incidence of malnutrition.

4.4.4 Referral of Severely Malnourished Children

The referral policy outlined by the DoH in Soe is not well socialised or understood at Posyandu level. Different Posyandu have interpreted it in different ways, and some Kaders said that they were not confident to refer a malnourished child unless there was a midwife there. It was also noted that if a child was referred to Puskesmas following weighing, they often didn't get taken and if they went, received medical treatment for other conditions but were not treated for the malnutrition. Referral was discussed in the FGD with the Kaders. They stated:

'*There is not a system for referring gizi buruk (severely malnourished) children by the Kaders to Puskesmas, and the Kaders would hope that there would be a system, besides getting supplementary food, so that they the children could also get medical treatment for any illness they have***.'**

[53] Data from Posyandu exit interviews conducted with 102 parents/carers.

Figure 4: A severely malnourished child seen at Posyandu

4.4.5 Supplementary Feeding

Treatment available for moderate and severe underweight and wasting in the community varies according to supplies of supplementary foods and funds available. Consequently there is confusion at the Posyandu level. The target groups also vary, for example severe or severe and moderate underweight (wt/age), for different age groups <2years or <5yrs. Some provision is to all children under 2 years of age, some according to economic status (i.e. sometimes only those classified as from poor families receive treatment), and some only for malnourished children. Recent DoH administered supplementary feeding programmes implemented throughout TTS are described below:

- **Dana Alokasi Umum (DAU) and PKPSBBM.**
  DAU (General Funding Allocation) and PKPSBBM (funds raised from the lifting of fuel subsidies) are centrally allocated GOI funds of 10,000 rp per day (about US$ 1 per day) allocated to each gizi buruk child (wt/age) for 3 months (October to December 2007). This is in the form of cash distributed to the Puskesmas, to purchase food according a standard menu and a very detailed and specific shopping list of foods which should be provided. The shopping list was developed centrally in

Jakarta, and is not representative of food intake patterns or food availability at sub-district level in much of NTT.

- **MP-ASI (Makanan Pendamping Air Susu Ibu - Food to Support Breast Feeding)**
  This is in the form of packaged food, provided to the districts by the Provincial DoH. It is allocated to moderate and severely malnourished (wt/age) children under 2 years of age from 'poor families'. The assessment criteria for 'poor families', and who should make that assessment, is unclear. Current distribution is for 90 days for the period October 2007 to January 2008 through Posyandu. There are two different rations:
  Fortified rice porridge powder for babies 6 to 11 months of age.
  Fortified biscuits for children 12 to 23 months of age.
  More supplies would need to be requested by the District DoH from the Province (if available) if the decision is taken to continue distribution after January 2008.

- **Milk powder, oil and sugar**
  This was supplied by the WFP for distribution by the DoH through Posyandu. Rations were distributed on a 2 weekly or monthly basis, for 10 months for gizi buruk children (wt/age), and for one month for kurang gizi (moderate underweight) children, aged 6-59 months old. Each child received 2kg milk powder, 1kg sugar and 1liter of oil per month. This programme was discontinued at the end of November 2007

- **PMT Penyuluhan (Pemberian Makanan Tambahan)**
  Money is collected on a voluntary donation basis at Posyandu and used to fund occasional practical cooking demonstrations, using local foods, after which the food is shared out and eaten by all attending. There are no requirements for this to be implemented, and the level of activities is not recorded / known.

Other supplementary feeding programmes in TTS
In addition to the supplementary feeding projects run throughout TTS (mentioned above) there are two other programmes being implemented in some sub-districts of TTS by CWS and the WFP through Posyandu. These are not in ACF programme areas:

- **Church World Service** has a supplementary feeding programme in TTS in 4 Kecamatan. The SFP is targeted at malnourished children through Posyandu, and provides 'wet feeding' 5 days a week, using local foods.

- **World Food Programme** (working with GOI) has a 'Nutrition Rehabilitation Programme' including supplementary feeding in TTS in 9 Kecamatan (not Boking or Amanutan Utara) in 138 Posyandu & 222 schools. All children under 5, PLW (lactating women with infants under 6 months of age) and all primary school children in targeted Posyandu and schools receive supplementary food. Beneficiaries in TTS are over 16,000 children under 5 years of age, 2,366 PLW and 36,453 school children.

  Selection of intervention areas was in collaboration with the DoH and DoE at District level. WFP also conduct workshops and training for kaders and supply flipcharts and posters for nutritional information and education for children and pregnant women.

The policy on the various forms of supplementary food described by the DoH is not clearly understood at Posyandu level. It is not being implemented in the same way in all

areas. Some children are receiving partial rations and some none at all. Lack of transparent and clear socialisation of information is causing confusion regarding the various criteria for different provisions, what entitlement is and who should actually be receiving assistance. This is causing mistrust and social jealousy, with families in one area reportedly not bringing their children to Posyandu if they don't get supplementary food.

In some Posyandu, Kaders said supplies were different every month and sometimes they had no supplementary food to give to malnourished children. Several mothers said they got different rations each month, and that what they had been given was not enough to make a difference.

Supplementary food distributed from the DAU / PKPSBBM funding (to the value of $1 per malnourished child per day), seems particularly unclear and problematic. Food should be purchased locally by Puskesmas staff (dry goods) and Kaders (fresh foods), with receipts being returned to the District DoH. Monthly rations are listed in grams (but sold per unit or small pile) and the lists contain many items which are not available at sub-district level. One Puskesmas said it had received none of this funding. At one Posyandu, a small bag of mung beans (about 500g) for the month was given to gizi buruk (severely underweight) children via the Kaders, at other Posyandu we saw no food being given out. In one sub district, those with children who were gizi buruk had to go Puskesmas to collect supplementary food for the month which consisted of:

'*5kg rice, 4 packs (800g) of milk powder (SGM), 1kg sugar, 30 eggs, 500ml vegetable oil, 1kg mung beans, one pack of dried beef powder, 5 tomatoes, 5 carrots, 5 potatoes, 4 packs of tofu, 15 green beans, 2 packs tempe (soya beancake), 10 each of red shallots and garlic, 1 pack of spinach and kangkung (leafy green vegetable)'.*[54]

There appeared to be no recording of, or signing for supplementary food, and no monitoring or evaluation being carried out as to its effectiveness. Many Kaders commented, and it seems inevitable, if a large amount of food is given at one time, food will be consumed by the whole family in a few days and will not just be given to the malnourished child for whom it was intended.

4.4.6 Vitamin and Micronutrient Distribution

High dose Vitamin A supplements are distributed to children under 5 and lactating women (with babies under 6 months of age) throughout Indonesia via Posyandu in February and August each year. In some areas women are also given a high dose vitamin A supplement directly post partum. Targets for 90% coverage were set in the Healthy Indonesia 2010 strategy (target to reach by 2010), which have been adopted by NTT, with TTS setting their own lower target at 70% coverage.

Percentage coverage for Boking, Manufui and Ayotupas, and average coverage rates for TTS are shown in table 7 below. From this data it can be seen that overall coverage has largely not met targets. The highest coverage achieved was in children 1-5 years of age in Boking in February 2007, and has been attributed to intensive follow up with door to door distribution to those who did not attend Posyandu. It is not clear why the distribution level (TTS average 11.9%) to lactating women was very low in August 2007.

[54] Information from FGD with Kaders from a village in Amanatun Utara

% Coverage 2007	Babies 6-11 months		Children 1-5 years		Lactating Women	
	Feb 2007	Aug 2007	Feb 2007	Aug 2007	Feb 2007	Aug 2007
Boking	40.7	35.9	86.4	49.4	49.4	7.4
Manufui	34.2	43.3	63.8	68.8	68.8	1.5
Ayotupas	43.9	45.4	57.8	60.8	60.5	8.9
TTS average	43.4	47.0	67.5	67.5	71.4	11.9
TTS targets 2010	70.0		70.0		70	
NTT targets 2010	90.0		90.0		90	

Table 7: Targets and coverage for Vitamin A supplementation, NTT and TTS

Iron supplements are available to help prevent and treat iron deficiency anaemia in pregnant and lactating women. They should be given during the first and third prenatal checks during pregnancy (Fe1 and Fe3) and postpartum. Targets (derived from Healthy Indonesia 2010) have been set at achieving 100% coverage at Fe1 and 80% coverage at Fe3 and post partum in TTS, and 90% (for pregnant women) in NTT. Average coverage rate for TTS 2006 remained below target as shown in table 8 below.

% Coverage 2006	Fe1	Fe3	Lactating Women Post Partum
TTS average	65.1	66.5	48.6
TTS target 2010	100	80	80
NTT target 2010	90% of pregnant women		?

Table 8: Targets and coverage for Iron supplementation, NNT and TTS.

Data for individual sub-districts was not obtained, although Boking Puskesmas reports 63% (for 2006 or 2007?) It's not clear if this data is a true percentage of all pregnancies, or just those women who access maternal and neonatal health services from trained midwives.

Iodine Supplementation, in the form of high dose iodine oil capsules, is provided to some primary school children, women of child bearing age, and pregnant and lactating women. The distribution mechanism, targets and policy on this lack clarity and are somewhat confusing.

In NTT 2006 some districts were distributing iodine supplements, whilst others (including TTS) were not. Targets for distribution are stated as 80% of women of childbearing age (NTT Province) and 70% for TTS District. Overall distribution in NTT 2006 is reported at 40%, with the absence of distribution in TTS 2006 being attributed to late ordering of supplements by (all) the Puskesmas.
Despite the Province being described as having a high (severe) level of endemic iodine deficiency (the relevant survey report could not be located in DoH Kupang) and stated targets by 2010 (TTS & NTT) for supplementation to at risk groups of 70-80%, nutrition staff in the Provincial DoH, report that iodine supplementation in NTT will be discontinued in 2008. Efforts will instead be focused on getting legislation passed (at District level) to make iodisation of all salt (including locally produced sea salt) compulsory. Legislation has already been passed in TTU and Ende Districts of NTT[55]. A survey to test iodisation levels of salt on sale in NTT is planned for 2008.

[55] Information from conversations with staff in the Nutrition Improvement Department of the NTT Provincial DoH, Kupang, December 2007.

4.4.7 Kader Training

Many of the Kaders have attended training, which was focused on weighing, completing the KMS cards and the registration, recording and reporting procedures. They have had very little training to enable them to give practical advice and counselling regarding nutrition and breast feeding for families with malnourished children. Most Kaders were keen to attend further, more detailed training, especially if there were IEC and BCC materials (flipcharts, posters etc) to help them facilitate education and discussion sessions on nutrition, improved hygiene practices and related health topics with the community. The following comments are from the Kaders at a FGD:

'The last time the Kaders attended training was 2005. It was facilitated and run by the Puskesmas: the nutritionist, and the staff responsible for the malaria programme and MCH. Material covered included how to complete the 'road to health' (KMS) growth monitoring charts and the '5 table' system (registration, weighing, recording, medication/immunization and health information and advice). The training was not adequate enough because it was just basic information, and not detailed enough for new Kaders, so they (newer Kaders) were still unable to undertake the tasks in Posyandu. The outcome was that it was the longer established Kaders who continued to carry out most of the activities in Posyandu'[56]*.*

They also commented that they have little recognition or respect for the voluntary work they do, and have no official badges or clothing to identify them to the rest of the community as trained Kaders. They often have to purchase stationery themselves, and pay for their own transport to the Puskesmas to deliver monthly data reports. Some felt they should receive a small incentive or per diem.

4.4.8 Nutrition IEC and BCC Resources

There is a lack of materials to convey nutrition information and education to the community. The health promotion department at the District DoH had no posters, flipcharts or other materials to distribute to the Puskesmas and Posyandu. The health promotion department of the Provincial DoH in Kupang, had just received a delivery of materials from Jakarta at the time of the assessment, but these resources were still in the warehouse, so the content was not known, and they were not yet available.

At the Posyandu level, some Kaders were using the 'Buku Kader'[57] as a reference. They received these books following training, but had not been given the accompanying flipchart for use giving advice and information the community.[58]

4.5 Nutrition Knowledge and Dietary Intake

4.5.1 Food Security

[56] Information from FGD with Kaders from a village in Amanatun Utara

[57] Buku Kader, Usaha Perbaikan Gizi Keluarga (Kader Book, Efforts to Improve Family Nutrition, Unicef/MoH 2000, Jakarta.

[58] Information for this section has been compiled from a review of information in the form of verbal interviews and printed reports/handouts, from Posyandu, Puskesmas, District and Provincial DoH including: Heath Profile of Women and Children in TSS, 2007; Minimal Service Standards for NTT(photocopied page); Iodine capsule, Iron and Vitamin A distribution 2006 report summaries from the Nutrition Departments in DoH Soe and Kupang.

Food insecurity throughout NTT, including the ACF programme area is a well documented problem. Each year communities face a hunger gap or 'hungry season' of at least 3 months, when household food stocks are depleted and they are waiting for the next harvest.

In 2007 ACF conducted a Food Security Baseline Survey, in Boking and Amanatun Utara sub-districts.[59] This found that agriculture was the main economic activity for 86% of households. Food production lacks diversity, with corn, cassava and bananas being the main crops and therefore the main foods consumed. Only 4% of households reported growing vegetables. The low production of protein foods (beans and pulses, nuts, eggs, livestock), oil (eg coconut oil), fruit and vegetables leads to the consumption of an unbalanced diet lacking in protein, vitamins and minerals.

The Food Security survey also found reported average household income is very low, at around US$15 per month. Around 37% of income is spent on food, with rice being the main food purchased. This adds little nutritional value to the diet, but it is perceived as 'better' than corn or cassava. During the nutrition assessment it was very evident that communities aspire to the standard 'Indonesian diet' based on rice, fish or chicken and cultivated green vegetables. In most cases however these foods are not produced or available, and families do not have adequate income to buy them. On several occasions the assessment team were invited to eat with community groups or health volunteers who expressed embarrassment and apologised if there was no rice, when a meal based on corn (jagung bose) was served.

Two markets, one small, local market in Suni, Boking and one larger weekly market in Ayotupas, Amanatun Utara, were visited during the assessment. There was very little fresh food on sale. Small amounts of vegetables: water spinach; kelor leaves; cassava leaves; tomatoes; chilli and onions were available, in addition to a few eggs, some beans, tiny dried fish and a few live chickens. Vendors (mostly older women) said their main customers were civil servants, and that they usually sold very little. Most of them stated they use the money to buy rice.

The assessment was carried out at the end of the long dry season, and communities reported that their diet was becoming more limited, notably, many no longer had stocks of beans to eat (just those saved for seed) and that cassava leaves, usually eaten as a vegetable were becoming scarce, as they had already harvest much of the cassava.

Whilst poor feeding practices (especially in small children) and lack of knowledge about nutrition certainly contribute to malnutrition, food insecurity and poverty are undoubtedly major factors contributing to poor nutrition status.

4.5.2 Diet During Pregnancy

Beliefs and practices regarding diet during pregnancy vary in different villages. From the four FGD held with WRA, all groups said the best foods to eat in the earlier stages (first 4 months) of pregnancy were foods that the baby likes, and therefore do not make the woman feel nauseous or 'hot' (indigestion or heartburn). Foods make a woman nauseous because they are not suitable for the baby, or the baby does not like them. This is probably associated with morning sickness experienced by many women in the

[59] Food Security Baseline Survey Report, Boking and Amanatun Utara Sub-Districts, TTS District, NTT Province, Indonesia, November 2007.

first trimester of pregnancy. Suitable or 'good' foods mentioned included dog meat, other meat, fish, beans, cake, white corn with husks removed, certain types of banana, unripe mango, cassava leaves and other vegetables.

In Boking, the group said that there were no forbidden or restricted foods during pregnancy. In Amanatun Utara several foods were described as forbidden:

- Fried corn is not eaten as it is believed to cause the amniotic fluid to dry up and makes childbirth difficult.
- Dried cooked /burnt rice from the bottom of the cooking pan is not eaten as the child would become black and the woman would defecate when giving birth.
- Other foods avoided are rice beans (small brown beans), fish and papaya leaves, (which contradicts some of food mentioned above as being good to eat during pregnancy).

From the fourth month of pregnancy the woman should eat the foods she wants to eat and drink lots of water, or the cooking liquid from corn with the husks removed (jagung bose), so the baby can move around in the womb.

It was also mentioned that pregnant women should not bake cassava, banana or other foods in the fire under the cooking pot whilst rice or corn is being cooked. The belief is that this will cause difficulty during giving birth.

Figure 5: Women taking part in a focus group discussion in Amanatun Utara

In general, beliefs and practices regarding diet during pregnancy were not found to be overly restrictive, and would not have a significant negative influence on nutritional intake. The exception being in areas where protein and iron rich foods (beans and fish) are 'forbidden' and therefore avoided.

None of the groups mentioned a need to eat iron rich foods, or that women should eat more during pregnancy (especially the third trimester). The importance of iodine intake prior to or during pregnancy was not mentioned. Most women were not using iodised salt at home. As mentioned previously, many women do not take iron supplements during pregnancy, or receive high dose vitamin A supplements post partum.

4.5.3 Maternal Diet and Traditional Practice Post Partum

According to local traditional practices, the mother gives birth at home in the traditional house '*rumah bulat'* or '*lopo*', assisted by a '*dukun bayi'* or traditional birth attendant and her family. After giving birth the mother and baby stay inside the '*rumah bulat'* until the baby is 40 days old. The ritual of '*panggang sei* ' is carried out where hot, smoking charcoal is burnt under a low wooden bed with no mattress, inside the 'rumah bulat' which has no windows or other ventilation. This is believed to help healing and prevent infection, but often results in burns and blisters on the woman's back and legs. During the first 3 days post partum, the woman should not move from the bed and not urinate. A towel soaked in boiling water is used to cleanse the body, and applied as a hot compress on the breasts to express the colostrum which is then discarded, and help the 'white milk' come through.

Figure 6: A Traditional house or '*Rumah Bulat*'

For the first 40 days after giving birth the woman eats only white corn, which has the outer husks removed (*jagung bose putih*) and is part cooked in water with no salt. The cooking water from the corn, ginger tea or chicken broth is given as a drink as it helps the milk come through. In some areas white chicken meat is eaten if available. It is believed that eating just 'white foods' helps produce white breast milk, and helps healing because the woman's womb still has cuts. Other foods are believed to cause infection (especially other meats or oily foods) and harm the baby or cause diarrhoea.

In women who follow this traditional diet post partum, nutritional intake is very restricted, and is highly unlikely to meet their (increased) nutritional requirements. In particular, the diet lacks protein, fruit and vegetables and oil or fat, resulting in insufficient energy, protein, iron, and vitamin and mineral intake. The poor quality of the maternal diet would be expected in turn to affect the nutrient content of breast milk. This of particular concern as it was found that many babies are exclusively breast fed for less than two months (as discussed below in section 4.5.4).

The practice of remaining in the home for a period of 40 days post partum, may also result in a delay in commencement of infant vaccination and growth monitoring, and restricted maternal uptake of post-natal services, including iron and high dose vitamin A supplementation.

4.5.4 Breast Feeding Practices and Introduction of Complimentary Foods

Breast feeding practices vary throughout the area and between different women. According to local traditional practice and beliefs colostrum is not given to newborn babies. It is thought to be unclean, not good for the baby, could make the baby ill, and some women mentioned that as it was yellow in colour, it was infected (like the puss from an infected wound). Women wait until the 'white milk' comes through and during this time (2-5 days) the baby may be breast fed by another woman or more often given sugar water to drink.

This practice appears to be on the decline, and from the Posyandu exit interviews, 67% of women said they had fed their baby the colostrum (33% had not). The majority (57%) initiated breast feeding immediately after birth, with 14% starting on the second day, and 27% waiting until day 2-5 until the milk became white. Only one woman was unable to breast feed and the baby was breast fed by another family member.

At the Posyandu and FGD, many women stated they had been given information and now understood that it is important to give colostrum, saying it was 'healthy, contained lots of vitamins and good nutrition for the baby.' Some women also said giving colostrum would mean the child would not be sick so often when it was older.

Whilst the vast majority of babies (all 102 from the exit interviews), are breast fed, very few are breast fed exclusively to six months, and complementary foods are introduced very early. As shown in Table 9 below, 7% of babies were given complementary foods before the age of 1 month, 57% before 2 months, 76% by 3 months, and by 4 months of age only 10% were still being exclusively breast fed. Only 3% of mothers continued to breast feed exclusively until 6 months of age, as recommended by the MoH.

Posyandu / Puskesmas		Age First Food Given to Babies[60]					
		<1 mth	1-2mth	2-3mth	3-4mth	4-5mth	>6mth
Suni	Boking	3	5	5	1	0	0
Santian	Manufui	0	1	2	5	0	1
Noebana	Manufui	2	13	1	0	0	0
Oebiloe	Manufui	1	3	4	4	0	0
Meusin1	Boking	0	12	3	1	0	0
Meusin2	Boking	0	12	1	0	0	0
Nasi	Ayotupas	0	0	0	1	7	2
Fotilo	Ayotupas	1	4	3	2	0	0
Total /Percentage		**7**	**50**	**19**	**14**	**7**	**3**
Cumulative Percentage		**7**	**57**	**76**	**90**	**97**	**100**

Table 9: Exclusive Breast Feeding and Age First Food Given to Babies

There is a very widespread belief that if a baby cries, it is hungry and 'asking for rice or food'. Most women do not believe it is possible for a baby get enough nutrition from breast milk alone, certainly not until the baby is 6 months old. Even if a woman wants to continue to exclusively breast feed, she may be under a lot of pressure especially from her parents, parents in law or other family and community members to give the baby food at a very early age. Complementary foods may also be given by other family members without discussing first with the mother.

Breast feeding is discontinued at any age from 4 months to 2 years. This depends on the mother and other factors including:

- If the baby is not eating well, breast feeding is stopped and then the child eats well.
- Breastfeeding is only discontinued when the baby is moving around and walking, because if it is stopped before that the baby can become ill.
- If breastfeeding is continued too long, it's not good for the mother's body and she will lose weight.
- If the woman becomes pregnant again breastfeeding is stopped as the milk is not 'clean' and can cause the child to become weak and unenthusiastic. The baby in the womb will also not develop properly.
- If the woman wants to continue studies or work.

In some areas, the infant is taken from the mother at one year old, to the home of the traditional leader (Kepala Adat) for four nights. This is because it is thought after the age of one year old the baby should no longer be given breast milk. During the time away from the mother, when the baby cries it will not be given breast milk, so it will stop breast feeding.

It is common practice in the area for another woman to breastfeed a baby if the mother is ill or dies in childbirth, is unable to breastfeed, or is away from the child to work in the fields or for other reasons. In general, the mother would only give the child to a woman older or senior to her in the family or community. It would not, for example, be considered appropriate for a younger sister or cousin to feed the child of her older relative. In some cases the family can receive free formula milk from the Puskesmas,

[60] Data from Posyandu exit interviews (reported retrospectively for all children under 5 years of age) from 102 respondents – 2 respondents did not know age first food given or were still being exclusively breast fed.

especially if the mother has died. Alternatively the baby is given 'white porridge' (made from rice and water), or given normal cow's milk (made up from powdered milk).

Complimentary foods are mainly porridge made from rice, corn or occasionally commercial 'ready to mix' porridge. They may also be given half cooked egg and mashed banana. In general, protein foods (for example beans, peanuts, eggs, fish meat or chicken) and fruits and vegetables are not added to the porridge, especially for children under 6 months. Traditionally, babies are fed half cooked egg and baked bananas as their first food, after they have been taken out of the '*rumah bulat'* to church at 40 days old. It was reported that from the age of about 6 months children are given the same food (initially mashed), as the rest of the family, and eat when they do, 2 or 3 times a day. Sometimes extra food would be given if it is available.

Children under 2 years old are not given a certain type of banana 'ukim mtau ai' as it is believed to cause the teeth to rot. Young children (up to 5 years old) are not given pork, as it is considered too oily, and may cause diarrhoea.

The diet fed to small children of rice or corn porridge is bulky, has a high water content and low energy and nutrient density. Food is not given frequently enough (ideally 5 times a day), and would benefit from the addition of some oil and protein-rich foods like beans, eggs, or fish, and vegetables. Combined with a short period of exclusive breast feeding, the diet is unlikely to meet the child's energy or nutrient requirements, which results in growth failure and a decline in nutritional status, particularly in the 6-23 month age group, as already discussed in section 4.3.1.

4.5.5 Primary School Children

The nutritional knowledge and dietary intake of 116 primary school children was assessed in 8 schools and one community group (4 in Boking, 5 in Amanatun Utara).

Nutritional Knowledge

The children had all studied some basic nutrition at school, in class 5 at primary school from the text book: 'Jendela Sains' (*Window on Science),* Lingkungan dan Alam Sekitar *(Environment and Natural Surroundings).*[61] This includes material on balanced nutrition and the main food groups, carbohydrate, protein, vitamins and minerals and water.
See appendix VI: Primary School Nutrition Curriculum, for more details.

The children were from class 5 and 6, and aged between 9 to 15 years old. Participatory games and techniques were used with the children to encourage all to participate in the assessment.

[61] 'Jendela Sains' (*Window on Science),* Lingkungan dan Alam Sekitar *(Environment and Natural Surroundings) 5A,* for class 5 SD (primary school) and MI. Sri Harmi, PT Tiga Serangkai Pustaka Mandiri, Solo, 2004

Figure 7: Why is good nutrition important?

Using 2 drawings, one of a malnourished and one of a well nourished child, all groups of children were able to correctly identify which child was malnourished and assign 10 questions/statements about health and nutrition to the appropriate child. Questions included:

- Which child is better nourished and healthier?
- Which child is more likely to become sick?
- If both children were sick, which one would take longer to recover?
- Which child would be stronger and more intelligent?
- If both children were ill, which one has a higher risk of dying?

See figure 7 'Why is good nutrition important?'

Using a series of food photograph cards, children were asked to allocate foods to the appropriate food group: carbohydrate, protein, and vitamins and minerals (see Figure 8). In general the children did not have a good understanding regarding a balanced diet, and which foods contain which nutrients. The exception was in one school (SD Bunn, Suni, Boking) where the children were able to describe the components of a balanced diet and correctly group the foods.

Figure 8: Food group photograph cards

Children were also asked what they knew about the three main micronutrient deficiencies in Indonesia, Vitamin A, iodine and iron. About half had some knowledge regarding vitamin A and iodine, the deficiency diseases, and food sources. None of the children were able to describe iron rich foods or the effect of iron deficiency.

Dietary Intake

The children were given food diaries to draw and describe their food and drink intake during the previous 24 hours. They were then asked to further describe the food and cooking methods with the facilitators to cross check.

An example of one food diary is shown below in Figure 9.
This child's 24 food intake consisted of:
Morning: baked cassava and a glass of water (not boiled)
Lunch: boiled corn and a glass of water (not boiled)
Evening meal: boiled cassava with chilli sauce and a glass of water (boiled).
This example was quite typical of intake overall.
See appendix VII 'Primary School Children's Food Diaries' for more examples.

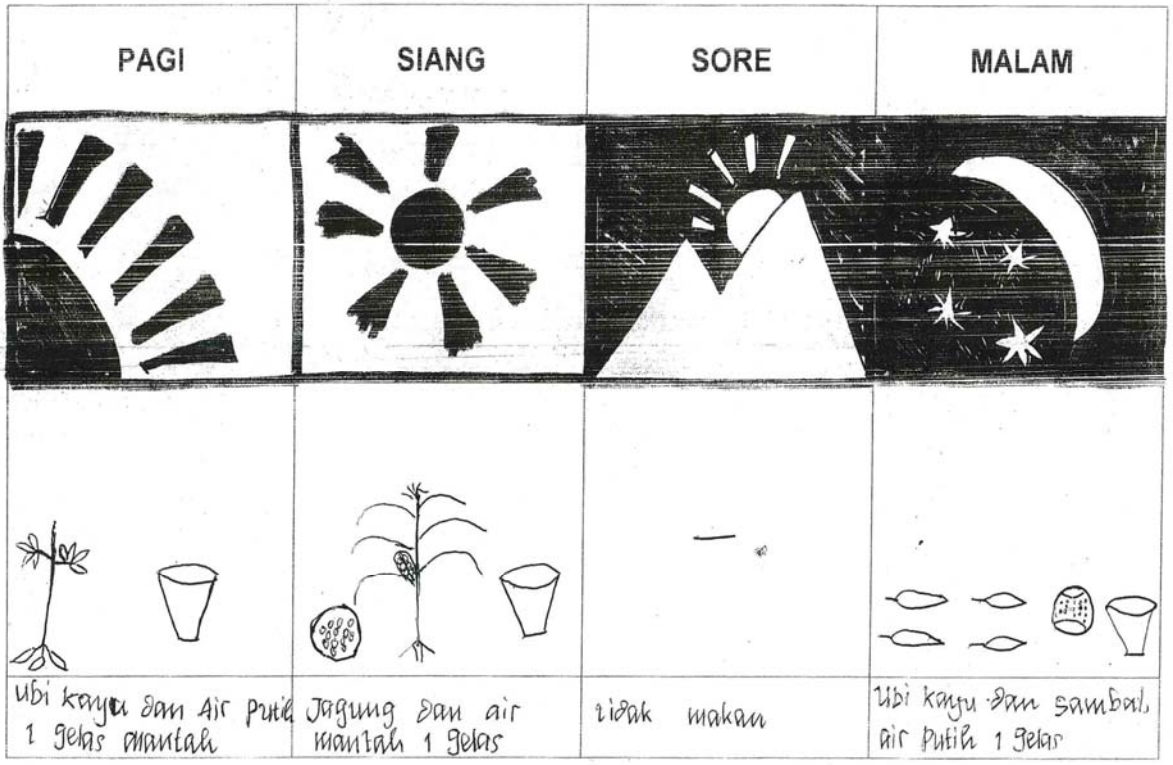

Figure 9: Primary school child's 24 hour food diary

In general the food intake pattern consisted of 3 or 4 small, mainly carbohydrate meals or snacks, of corn, cassava or starchy banana. Only small amounts of fruit and vegetables and protein had been consumed. Fluid intake was low, at around 600-800ml per day, generally taken as water and coffee. Around 39% of children were drinking water which had not previously been boiled, and most children did not carry water with them, or eat or drink whilst at school. The majority of children (110/116) did however eat something in the morning before leaving home for school. Table 10 below shows the number of meals or snacks taken in the previous 24 hours.

School or Village	Sub-District	Number of Children	Number of Meals or Snacks in 24 hours		
			Two	Three	Four
SD Maf,Tumu,	AU	20	3	14	3
SD GMIT, Tumu	AU	12	0	11	1
SD GMIT,Putain 2	AU	11	1	0	10
SD Negeri, Patal	AU	18	3	8	7
SD Tuanas, AU	AU	12	0	5	7
SD Leonmeni	Boking	9	0	4	5
Meusin, Boking	Boking	8	0	5	3
SD Bunn, Suni	Boking	15	0	8	7
SD Oepnion	Boking	11	0	8	3
Total		**116**	**7**	**63**	**46**
Total Percentage			**6%**	**54%**	**40%**

Table 10: Frequency of Meals or Snacks in 24 hours, in 116 Primary School Children.

The frequency of intake of fruit and vegetables was calculated from the food diaries. Bananas, which are mainly the starchy varieties which are boiled or baked, were viewed as carbohydrate rather than fruit. From Table 11 below, it can be seen that almost half of the children (48%) had not eaten any fruit or vegetables in the previous 24 hours. Only 8% of children reported eating three portions, with 44% eating either one or two portions in the 24 hour period. The situation appears the worst in two schools in Amanatun Utara, where the highest proportion of children had eaten no fruit or vegetables. The most commonly reported fruit and vegetables were papaya leaves and flowers or cassava leaves. This data indicates the diet is lacking in sources of vitamin A and C.

School or Village	Sub-District	Number of Children	Number of Portions of Fruit or Vegetables in 24 hours			
			None	One	Two	Three
SD Maf,Tumu,	AU	20	8	7	4	1
SD GMIT, Tumu	AU	12	11	1	0	0
SD GMIT,Putain 2	AU	11	3	3	5	0
SD Negeri, Patal	AU	18	15	1	2	0
SD Tuanas, AU	AU	12	1	4	4	3
SD Leonmeni	Boking	9	2	2	4	1
Meusin, Boking	Boking	8	0	1	4	3
SD Bunn, Suni	Boking	15	9	5	1	0
SD Oepnion	Boking	11	7	2	1	1
Total		**116**	**56**	**26**	**25**	**9**
Total Percentage			**48%**	**22%**	**22%**	**8%**

Table 11: Portions of Fruit or Vegetables in 24 hours, in 116 Primary School Children.

The frequency of intake of protein foods was also calculated from the food diaries and summarised below in table 12. The majority of the children (62%) had eaten no protein foods during the previous 24 hours. Protein source was mainly a small amount of beans (usually small brown rice beans) cooked with corn (jagung bose), with just a few children eating a small amount of fish (mostly small salty dried fish), and two had drank milk (diluted, tinned condensed milk). None of the children had eaten peanuts, tofu or tempe, egg, chicken or other meat. Children at schools in Amanatun Utara (Tumu) had the lowest intake of protein, with 31 of the 32 children eating none during the previous 24 hours. This data indicates the intake of protein and iron rich foods in the diet is very limited.

School or Village	Sub-District	Number of Children	Number of Portions Protein Foods in 24 hours			
			None	One	Two	Three
SD Maf,Tumu,	AU	20	19	1	0	0
SD GMIT, Tumu	AU	12	12	0	0	0
SD GMIT,Putain 2	AU	11	5	2	4	0
SD Negeri, Patal	AU	18	14	1	3	0
SD Tuanas, AU	AU	12	9	3	0	0
SD Leonmeni	Boking	9	1	5	2	1
Meusin, Boking	Boking	8	6	2	0	0
SD Bunn, Suni	Boking	15	6	8	1	0
SD Oepnion	Boking	11	0	6	3	2
Total		**116**	**72**	**28**	**13**	**3**
Total Percentage			**62%**	**24%**	**11%**	**3%**

Table 12: Portions of Protein Foods in 24 hours, in 116 Primary School Children

4.5.6 Women of Reproductive Age

The nutritional knowledge and dietary pattern of Women of Reproductive Age (WRA) was assessed in a group of 10 SMA (upper secondary school) girls ages 16 and 17 years old, during a focus group discussion[62]. A sub-group of 20% of women respondents leaving Posyandu were also interviewed using 24 hour diet recall.

Nutritional Knowledge

The female students at SMA, had studied nutrition at SMP (lower secondary school). Their knowledge regarding nutrition was assessed using the same tools as the primary school children, with some additional questions. They were able to describe and recognise the physical signs of malnutrition, and the consequences of malnutrition in babies and small children. They also had a good understanding of the components of a balanced diet and were able to correctly assign local foods to energy, protein, and vitamins and minerals (fruits and vegetables) groups according to the standard groupings used in Indonesia for health and education materials.

Whilst they understood the importance of iron and iodine in pregnant women, and were able to explain the consequences of deficiency, they had no knowledge of the recommendations for exclusive breast feeding to 6 months of age. None of them had ever received iodine supplements, and none of them used iodized salt at home.

Nutritional knowledge assessed in the FGD with Kaders showed they had a similar level of knowledge as the older school girls, with a good understanding of a balanced diet and vitamin and micronutrient deficiencies.

It was noted that whilst the theory of a balanced diet and nutritional requirements was learnt by those who had received education or training, this information was not applied or used well in a practical setting to give specific information and advice on ways to improve dietary intake using locally available foods. Many community members felt that a 'proper' nutritious diet (generally seen as rice, fish and green vegetables) was not attainable for them as they do not have those foods and they could not afford to buy them. There was very little understanding of the nutritional value of locally available foods, or that an equally nutritious, balanced diet could be achieved using locally grown foods: corn and cassava; beans and pulses; and available fruits and vegetables.

Dietary Intake

In general, the dietary intake of WRA followed the same pattern as the schoolchildren. The majority of respondents were eating snacks or small meals 3 times a day, as shown in table 13 below.

School or Village	Sub-District	Girls/Women		Number of Meals or Snacks in 24 hours		
		Age	No.	Two	Three	Four
SMA Ayotupas	AU	16-17	10	0	6	4
WRA	Boking	22-28	10	2	5	2

[62] Results from the FGD are shown in more detail in Appendix 2

WRA	AU	23-30	10	3	6	0
Total			**30**	**5**	**17**	**6**

Table 13: Frequency of Meals or Snacks in 24 hours, in 30 WRA.

Almost 50% (14/30) of the women and girls had eaten no fruit or vegetables (except banana) during the previous 24 hour period, as shown in Table 14 below. However, fruit and vegetable intake was better in the group of secondary school girls than in the women attending Posyandu.

School or Village	Sub-District	Girls/Women		Number of Portions of Fruit or Vegetables in 24 hours			
		Age	No.	None	One	Two	Three
SMA Ayotupas	AU	16-17	10	1	5	3	1
WRA	Boking	22-28	10	6	2	2	0
WRA	AU	23-30	10	7	2	1	0
Total			**30**	**14**	**9**	**6**	**1**

Table 14: Number of Portions of Fruit and Vegetables in 24 hours, in 30 WRA.

Protein intake in WRA was also limited, with over 50% of women and girls eating no protein foods during the previous 24 hours. As shown in Table 15 below, protein intake was higher in the group of secondary school girls than in the women attending Posyandu, where only 5/20 (25%) had consumed protein rich foods.

School or Village	Sub-District	Girls/Women		Number of Portions Protein Foods in 24 hours			
		Age	No.	None	One	Two	Three
SMA Ayotupas	AU	16-17	10	1	6	3	0
WRA	Boking	22-28	10	7	3	0	0
WRA	AU	23-30	10	8	2	0	0
Total			**30**	**16**	**11**	**3**	**0**

Table 15: Number of Portions of Protein Foods in 24 hours, in 30 WRA

Whilst this data is from a small sample, the diet of the schoolgirls from SMA was notably more nutritious than that of the primary school children or the women attending Posyandu. Their diet was more varied and contained more protein, and fruit and vegetables. In the previous 24 hours, one girl had eaten meat, 7 of the 10 had eaten fish, many of them had eaten rice as well as corn and cassava, and some fried foods and cake (so therefore oil and egg). The differences are considered to be likely due to socio-economic factors. In general, children continuing their education to SMA level come from better off families, who can afford to pay for their continued schooling. These children are not required to stop attending school early because of other responsibilities including water and fire wood collection, working in the fields and looking after younger siblings, or because they are sick, malnourished and/or hungry as is often the case in NTT. The additional foods in their diet were also those which have to be purchased rather than being produced or grown locally by subsistence farmers. This data could be viewed as another indication that food insecurity and poverty are major factors influencing poor dietary intake and malnutrition in TTS.

4.5.7 Other Traditional Beliefs and Taboos

In addition to the FGD with groups of women and kaders, FGD were held with community leaders, one in Boking and one in Snok (Amanatun Utara), to explore their opinions regarding nutrition problems in the area, and how they are related to local customs and traditional beliefs and practices. They were attended by traditional leaders (Kepala Adat) and heads of villages and neighbourhoods.[63]

Discussions revealed that they felt there was a problem with malnutrition in the area, and that those most at risk were children under 5 years of age. They cited illness and disease (including malaria), poor care and hygiene practices, poor diet during pregnancy and in young children, poverty and insufficient food stocks as the main causes of malnutrition. They also noted that many families cannot afford to buy vegetables and protein foods, so many eat and feed their children just corn.

They said that children needed to have vegetables and beans added to their foods and parents should pay more attention to food hygiene and cleanliness. As well as following traditional practices especially following birth, women should visit traditional healers and pregnant women and children under 5 years old should go to the Posyandu regularly to get medical checks and medication and advice regarding malnutrition.

In Snok, Amanatun Utara, the group were not aware of the MoH recommendations regarding exclusive breast feeding until 6 months, and said first foods are usually given at around 4 weeks, but not because of traditional law or religion, just because it is normal practice. They felt this practice could be changed through giving advice and information repeatedly through Posyandu.

In Boking, the community leaders were aware of recommendations from MoH, but their understanding was that exclusive breast feeding should be to 4 months of age (the previous MoH guideline until about 2001). Here again, they said foods were first introduced at around one month, which is semi-cooked egg yolk. In Boking this is due to local traditional practice, which they felt could not be changed as the traditional law has been passed down from their ancestors. Although they thought maybe sometime in the future this would change, it was not possible now.

There is a traditional practice where if a woman or child needs to go to the Puskesmas or hospital, permission must first be sought from the male head of the family, grandparents and relatives (and according to the ancestors). This was explained as a matter of respect. Also this meant if there was a cost involved the whole family would make a financial contribution.[64]

Both groups felt that men did not understand enough about their children's health and nutritional status, but said it is the responsibility of both parents and the health volunteers. Despite that, they thought that they had enough information to make the decision to take children to Puskesmas or hospital if necessary.

[63] See appendix 2 for Summary of FGD translated into English.

[64] The assessment team saw one child who had was born premature and clearly with a low birth weight, she was the eighth child, and only one of three who were still alive. Despite the mother wanting to take the child to hospital, permission had been denied by her husband and the child's grandparents, and she had to stay in the Rumah Bulat according to the wishes of the ancestors and traditional law.

There are some sub-groups within the community who follow additional traditional practices:

- Some families are forbidden to eat meat from animals with four legs.
- Certain groups cannot eat goat meat at harvest time.
- Some groups cannot eat certain varieties of banana.

Other restrictions or practices apply at certain times:

- No harvested food can be eaten until the family has been to church.
- It is forbidden to eat tomatoes or sugar cane before the planting season, as they are believed to cause cuts or sores all over the body.
- If somebody is going to the field to plant crops and they meet with anybody else, they are forbidden to speak to them because if they do the crops will grow but be eaten or destroyed by livestock or other animals.
- Many people believe that they should not speak whilst picking and selecting mung bean seed for planting as this will result in crop failure.

5. CONCLUSION

The findings of this nutrition assessment indicate that the prevention, detection and treatment of both chronic and acute malnutrition in TTS are not yet optimal. Poor nutritional status and inadequate nutritional intake is contributed to by a number of factors, which include:

- Food insecurity and poverty, leading to a dietary intake lacking in diversity which is inadequate in terms of both quality and quantity.
- Limited knowledge, understanding and information regarding the nutritional content and uses of some of the more traditional locally available foods.
- Poor breast feeding practices, and the early introduction of complementary foods.
- Some traditional cultural practices and beliefs which impact negatively on nutrition status.
- Sub-optimal coverage and provision of health and nutrition services, particularly regarding growth monitoring, referral and treatment of malnutrition, and delivery of micronutrient supplementation.
- Lack of clarity and socialisation of nutrition service entitlement and availability, and the policies and procedures on which they are based.

In attempting to address the various factors influencing nutritional status, a holistic, integrated approach is needed. The addition of a nutrition component to the existing ACF programme in TTS, should aim to increase the availability and utilisation of nutritious foods for household consumption, whilst working with both the local communities and the local health service, to build capacity to improve quality of and access to basic health and nutrition information and services.

6. RECOMMENDATIONS

It is recommended to further develop the existing ACF programme in TTS, with the addition of a Nutrition Component to the established Water and Sanitation and Food Security Components. The pilot of nutrition component interventions would be most appropriate in Amanatun Utara where the Food Security Component already has agricultural training, seed distribution and experimental gardens, and Hygiene Promotion activities have been run successfully through local primary schools and women's groups (PKK).

The selection of the entry point locations for recommended interventions should be decided following consultation with staff at the Puskesmas in Ayotupas, the Departments of Health and Education in Soe, Posyandu Kaders, PKK and other community members or groups in Amanatun Utara. ACF staff already working in the sub-district should also be consulted.

6.1 Growth Monitoring and Classification of Malnutrition

The current system of growth monitoring should be improved regarding the following points:

- The Posyandu and Puskesmas should be equipped with the following: weighing scales; length and height measuring boards, MUAC tapes, KMS cards and pregnancy monitoring booklets. ACF should ensure that these are provided in the pilot area[65]
- All children should have a KMS card, which is completed at Posyandu following weighing.
- KMS cards should be shown to all carers (following completion), and feedback given regarding nutrition status, feedback should be given if a child is failing to put on weight or is losing weight.
- Underweight (weight for age) children should have their height measured to assess their weight for height status.
- All pregnant women should have their MUAC measured and recorded.
- Malnourished women and children should be referred for treatment in accordance with a clarified referral policy and pathway.

6.2 Treatment of Malnourished Children and Pregnant Women

The District policy and protocol for the prevention and treatment of malnutrition in children (weight for age) and pregnant women (MUAC < 23.5) through supplementary food distribution in the community needs further assessment, clarification and formalisation. This should be a long term programme, which is based on an evaluation of evidence including which previous intervention has been the most practical to implement, acceptable to the health volunteers and the community, and effective. It should rely much less on short term interventions which are funding or supply lead. A programme could be tested in the ACF pilot area.

- The policy and protocol should be clearly documented and socialised to Puskesmas staff, Kaders and the community.
- A regular supply of supplementary food needs to be available in sufficient quantities.

[65] In practice this may mean ACF providing height boards, MUAC tapes and other materials, and duplicating KMS cards and pregnancy booklets if necessary (with DoH permission).

- Distribution and treatment need standardisation with clear statements on what supplementary foods should be available to whom, with a timeframe for treatment.
- A transparent system to monitor and report on distribution (eg signed distribution cards or lists, to confirm receipt) should be established. This would help reduce mistrust in the community and potential for corruption.
- A system for monitoring and evaluating effectiveness should be established.

6.3 Referral of Severely Malnourished Children

The existing referral system for children identified with Severe Acute Malnutrition (SAM) as described by nutrition staff at the DoH in Soe needs further clarification and formalisation, with Kaders, Puskesmas, District Hospital and the TFC in Soe. The possibility /feasibility of piloting Community Therapeutic Care (CTC) should be explored, especially following review of the HKI nutrition survey data, if indicated. The following tools should be developed:

- Clear, written guidelines and a graphic flowchart showing the referral pathway. This should include referral of SAM cases with medical complications to the District Hospital and those with no medical complications to the TFC in Soe. Referral of cases discharged from the District Hospital who are still SAM to TFC.
- Standard referral forms, to be completed and given to the carer to present at Puskesmas, Hospital or TFC. This should include age, weight, height, MUAC, nutritional status (weight for age and weight for height), previous nutrition treatment (eg supplementary foods), medical conditions and medication details, vaccination and micronutrient supplementation history, and space for further comments.
- Clear written guidelines on discharge back into the community, to include clarification of protocols used for the treatment of severe malnutrition both in the TFC and any for any continuing prescribed CTC.
- Standard forms to describe nutritional status, treatment given and recommendations for further treatment and monitoring in the community.

6.4 Standard Nutrition Messages with supporting IEC Materials.

Development of standard nutrition messages and locally relevant participatory IEC materials and games**.** Materials used to facilitate monthly delivery of 10 health and nutrition information and education at Posyandu and Primary Schools: These messages could be complemented by the delivery of hygiene promotion messages at Posyandu with the use of existing ACF IEC materials.

- Balanced nutrition and the components of a healthy diet.
- Nutritional content and value to the diet of local foods
- Exclusive breastfeeding to 6 months of age.
- Feeding of babies and small children to include complementary feeding, timing of introduction and nutritional content.
- Diet during pregnancy.
- Vitamin A deficiency, supplementation, and local food sources
- Iron deficiency anaemia, supplementation and local food sources
- Iodine deficiency and the importance of the use of iodised salt.
- Growth monitoring and the importance of good nutritional status in children.
- Small scale nutrition gardens and improving variety, quality and availability of food intake (see also section 5.9 Nutrition Gardens).

6.5 Local Food Cooking Demonstrations and Practicals

Development of a programme of local food practicals and demonstrations. Recipes would be demonstrated and cooked at Posyandu (or on other days if this was not thought practical). A different recipe would be produced each month, to make use of current local food availability and harvest. Participants would be asked to make a small contribution (either food or money) and the food would be shared out to everyone to try afterwards. This would be similar to the PMT Peyuluhan activities which are occasionally run through Posyandu, as described in section 4.4.5.

The practical sessions should also be used to reinforce other messages and information. For example supply soap and towels and make sure everyone washes their hands before cooking, and all children also wash their hands before eating. Make sure all utensils are clean and dry before use, and preparation area is as clean as possible. The ingredients and recipe should be discussed before starting the practical. An example would be nutritious porridge made with corn, mung beans, pumpkin and a little oil, which it should be explained (or checked if the community already understands) will provide energy from corn and oil, protein and iron from the mung beans, and vitamin A from the pumpkin, therefore providing balanced nutrition in one meal. Pumpkin seeds would also be an example of a good source of protein and other micronutrients and iodised salt should always be used and its importance reinforced each month. CRS Kupang has developed a book of local recipes which may be appropriate for use in food practicals.

6.6 Training of Health Volunteers (Kaders)

Kaders need further training to increase their knowledge regarding nutrition and their capacity to effectively undertake growth monitoring, make appropriate referrals and give nutrition advice and information to the community as a whole and individually to the carers of malnourished children. Training should be based on enabling them to carry out implementation of the 5 interventions recommended above. A series of 5 short, specific interactive training sessions, in small groups in their own villages would be recommended. Past experience has shown this method to be more effective than the usual health department trainings which lecture to a large group.

6.7 Kader Recognition and Profile

As many kaders have said they feel undervalued and lack recognition and respect from health staff and the community, attempts should be made to improve their profile. Following training they should be issued with Kader T-shirts to wear at Posyandu and a laminated list of trained kaders clearly displayed at Posyandu. Certificates of training could be presented to them at the next Posyandu in front of the community attending, to help identify them and give recognition that they have successfully completed training.

6.8 Primary School Children

As mentioned above in Section 5.4 Standard Nutrition Messages with supporting IEC Materials, these materials could also be used to facilitate nutrition education activities through primary schools in much the same way as the Hygiene Promotion sessions were delivered, by ACF.

6.9 Nutrition Gardens

Small experimental nutrition gardens could be established in the pilot Posyandu and primary school area if feasible. There would obviously need to be land available and an adequate water source nearby. Nutrition gardens would serve as ‘learning sites’ for the community and school children, to try planting more diverse crops, especially outside the

rainy season, when very few crops are usually planted. They could also provide food to be used in the cooking practicals.

The gardens could serve as nursery sites where seedlings for fruit and vegetables like papaya, pumpkin, tomato and aubergine, chilli, kelor,[66] local varieties of beans, and other green leafy vegetables were raised to be transplanted in the gardens, and taken home to plant around individual houses by health volunteers, teachers, school children and other community members.

It is expected this would be a joint project run by the Nutrition and Food Security Components with assistance from the Watsan Component if water supply was an issue. Community involvement should include school committee and/or parent groups, and kaders and PKK.

6.10 Participatory Planning

The above recommendations would obviously require further detailed planning to develop the Nutrition Component of the programme. Much of the information contained in the report, and the recommendations are based on participatory assessment of the current situation and observations and suggestions from the stakeholders who were consulted. In taking this concept forward it is recommended that a series of participatory planning sessions with target communities, health and education staff, volunteers, CBOs, school committees and community leaders should be undertaken. This would include discussion on the most appropriate locations and timing for activities, taking into account potential time commitment, seasonal workload and food availability, and what they consider feasible and practical.

[66] Kelor (Indonesian) - Local drought resistant tree, with edible green leaves (Moringa olifera)