

**EVALUATION OF
COMMUNITY
MANAGEMENT OF ACUTE
MALNUTRITION (CMAM)**

NEPAL COUNTRY CASE STUDY

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Evaluation of Community Management of Acute Malnutrition (CMAM): Nepal Country Case Study.

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This evaluation case study report for Nepal was commissioned by the UNICEF Evaluation Office and the Nepal Country Office and constitutes a part of a global evaluation of *Community Management of Acute Malnutrition (CMAM)* that examines UNICEF's CMAM programme performance in five countries. The Nepal case study report was prepared by independent consultants, Sheila Reed, Camille Eric Kouam, Devendra Chhetri, Pushpa Kamal Subedi, Prakesh Sapkota, and Uddhav Sigdel.

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ACRONYMS

ACF	Action Contre la Faim
AIDS	Acquired Immune Deficiency Syndrome
AUSAID	Australian Agency for International Development
CB-IMCI	Community-Based Integrated Management of Childhood Illnesses
CBNCP	Community-Based New-born Care Package
CBS	Central Bureau of Statistics
CERF	Central Emergency Response Fund
CHD	Child Health Division
CMAM	Community Management of Acute Malnutrition
CO	Country Office
CPAP	Country Programme Action Plan
CTC	Community Therapeutic Care
CWW	Concern Worldwide
DACAW	Decentralized Action for Children and Women
DDC	District Development Committee
DFID	UK Department For International Development
DHO	District Health Office
DoHS	Department of Health Services
ECD	Early Childhood Development
ENN	Emergency Nutrition Network
EPI	Expanded Programme of Immunisation
EU	European Union
FANTA	Food And Nutrition Technical Assistance
FGD	Focus Group Discussion
FP	Family Planning
FCHV	Female Community Health Volunteer
GAM	Global Acute Malnutrition
GDP	Grow Domestic Product
GoN	Government of Nepal
HFA	Height For Age
HIV	Human Immunodeficiency Virus
HKI	Helen Keller International
HMIS	Health Management Information System
HP	Health Post
HW	Health Worker
IASC	UN Interagency Standing Committee
IEC	Information Education Communication
IMAM	Integrated Management of Acute Malnutrition
IMAMI	Integrated Management of Acute Malnutrition of Infant less than 6 months
IMCI	Integrated Management of Childhood Illness
IMR	Infant Mortality Rate
IYCF	Infant and Young Child Feeding
LFA	Log Frame Analysis
MAM	Moderate Acute Malnutrition
MDG	Millennium Development Goals

MoHP	Ministry of Health and Population
MOU	Memorandum of Understanding
MSNP	Multi-sectoral Nutrition Plan of Action
MUAC	Middle Upper Arm Circumference
NDHS	National Demographic and Health Survey
NGO	Non-Governmental Organisation
NHSP	Nepal Health Sector Programme
NPC	National Planning Commission
NRH	Nutrition Rehabilitation Home
NTAG	Nepali Technical Assistance Group
NYOF	Nepal Youth Opportunity Foundation
OTP	Outpatient Therapeutic Programme
PHC	Public Health Clinic
PHO	Public Health Office
RUSF	Ready to Use Supplementary Food
RUTF	Ready to Use Therapeutic Food
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SHP	Sub-Health Post
SWC	Social Welfare Council
SWOT	Strength, Weakness, Opportunity, Threat
TOR	Term Of Reference
TOT	Training of Trainers
UNDP	United Nations Development Programme
UN	United Nations
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VAM	Vulnerability Assessment Monitoring
VDC	Village Development Committee
VHW	Village Health Worker
WFA	Weight For Age
WFH	Weight For Height
WFP	World Food Programme
WHO	World Health Organisation
WVI	World Vision International

EXECUTIVE SUMMARY

The Government of Nepal (GoN), Ministry of Health and Population (MoHP), and UNICEF have been piloting the Community-based Management of Acute Malnutrition (CMAM) program since 2008; it currently operates in five districts. The Nepal CMAM programme aims to improve access to treatment for acute malnutrition among children 6-59 months of age, to promote integration of the CMAM programme in regular health services, and to create effective treatment capacity of the health system. In 2012, the programme will be expanded to the Integrated Management of Acute Malnutrition including infants under six months of age (IMAMI) in six new districts. Other ongoing nutrition programmes include Infant and Young Child Feeding (IYCF), micronutrient supplementation to children and women, food fortification, and food distribution in food insecure areas.

Wasting, a measure of acute malnutrition, has remained stagnant over the last decade in Nepal; it was estimated at 11% in 2001, 13% in 2006, and 11% in 2011. Currently Severe Acute Malnutrition (SAM) affects 2.6% of children under five years of age. The MoHP and UNICEF undertook this evaluation to assess CMAM programme performance and gather lessons to inform scaling-up of CMAM. The CMAM evaluation in Nepal is part of a global evaluation commissioned by UNICEF, which covers five country case studies and a synthesis report. The four CMAM components in Nepal are: 1) Community outreach (screening, referral, follow-up, and community mobilization); 2) Outpatient treatment (OTPs) for SAM children without complications; 3) Inpatient treatment in stabilization centres (SCs); and, (4) Management of moderate acute malnutrition (MAM) through IYCF counselling.

The criteria of relevance and appropriateness, effectiveness and coverage, efficiency, and sustainability were applied to CMAM components and cross cutting issues. To accommodate time and budgetary limits, data were obtained from secondary sources, health system databases, visits to sample CMAM sites and interviews with stakeholders. Quantitative data on beneficiaries were analysed to determine whether programme targets had been met. Qualitative data also supported the analysis. Varying levels of programme maturity (from nine to 25 months) were factored in by creating reference periods for each district.

Key Findings and Conclusions

Relevance and Appropriateness

Evolution of CMAM Strategy. CMAM's performance for treatment of children admitted with SAM has been of high quality whether through NGO implementation (2008-2010) or UNICEF technical support to the MoHP (2011-2012) with implementation through the national health system. The latter is likely to be more sustainable but this should be further evaluated in the future. Government commitment to promote community nutrition is evident in the National Nutrition Policy and Strategy and plans to implement IMAMI, however in practice, not enough GoN resources are devoted to strengthening nutrition services.

Global Guidance and National Needs. Assessment, planning and monitoring activities did not consistently analyse performance challenges such as group identities, the work burdens of women and health staff, seasonal migration, and use of alternative health care systems. District level participatory reviews have considerably strengthened the programme since late 2010; however, earlier efforts were needed for results based planning with district and village actors. National guidance is not adequate on Community Outreach and MAM management; standards are needed to judge performance of these components. There is currently no effective framework to guide integration of CMAM with the national health system.

UNICEF's Technical and Organizational Support. UNICEF's support for CMAM has effectively promoted success in meeting Sphere standards for children admitted with SAM; advocacy efforts resulted in district councils endorsing the CMAM approach as part of the district development agenda. Leadership by UNICEF and the MoHP is promoting stronger nutrition services and emergency planning through the nutrition cluster. However, coordination between sectors and programmes affecting nutrition outcomes at central and district levels, and with donors and other stakeholders, requires much more attention in order to achieve scale up and impact on the prevalence of malnutrition.

Effectiveness, Coverage and Quality of Services

Community Outreach. Female Community Health Volunteers (FCHVs) effectively use Middle Upper Arm Circumference (MUAC) for screening and referral; Vaccination and Vitamin A campaigns are used efficiently for mass screenings. The admissions of 7,806 SAM cases in OTPs and SCs exceeded targets. However, it is probable that some groups are missed in screening such as those who migrate for work or live long distances from health services. Furthermore follow-up on referrals is not recorded to ensure that all identified severely malnourished children are admitted and that feeding and care practices for moderately malnourished children have improved as per the IYCF counselling.

The District Health Offices (DHOs) are taking greater responsibility for community sensitization; an increase in community mobilization activities boosted admissions to CMAM services. However, DHOs require more guidance and resources for outreach activities. Major constraints to implementing home visits by FCHVs include overburdening by numerous programmes, access and transport problems, and inadequate incentives.

Outpatient Therapeutic Programmes (OTPs). The increase in OTPs (from 56 to 75) was correlated with an increase in admissions. Nevertheless, a main reason for non-compliance is the distance to the OTP to collect the Ready to Use Therapeutic Food (RUTF) so supplies are not close enough for all of the beneficiaries. Assessments of OTP operational capacity were mainly positive indicating adequacy of equipment and knowledge of guidelines. Stimulation for children such as through play areas is missing and in some sites, water supplies and latrines are inadequate. In many centres, staff members do not have sufficient time to provide nutrition information to caretakers.

All **Sphere Minimum Standards** for treatment of children admitted with SAM were exceeded in all five districts. As of June 2011, out of 5,609 discharged children, 86% recovered, 0.7% died, and 9% defaulted. The average length of stay was 49 days, and the average weight gain was 4.8 g/kg/day, indicating successful out-patient care. Migration of admitted children to another country or district contributes to a higher default rate in the terai. Out of a total of 4,830 recovered children, 1.2% relapsed, a relatively low rate. A higher relapse rate in Bardiya (3.5%) may be due to the infectious disease burden.

Stabilization Centres (SCs) for Inpatient Care. The quality of service in pilot SCs is generally very good and has resulted in high stabilized rates (95.31%), and low death (0.42%) and default rates (2.71%) among children admitted. Standards for the ratio of SCs per number of OTPs and beds per centre are needed; adequate bed space was lacking in some SCs. Children who were discharged from SCs were not always tracked back to the OTP.

Management of MAM. The National Medical Protocol for CMAM promotes IYCF counselling and home based preparation of supplementary foods. Systematic monitoring of nutrition status changes is lacking and home visit follow up is weak. The use of mothers' groups for counselling is seen to promote behaviour change though not as effectively as home visits. A proposed Supplementary Food Program (SFP) must be considered in light of the additional cost implications and possible dependency issues. Current strategies do not include enough preventive approaches such as participation of extended family,

focus on the most at-risk moderately malnourished children, and promoting greater access to local weaning and complementary foods.

RUTF Acceptability, Supply, Delivery, and Storage. UNICEF imports RUTF which is delivered by the Department of Health Services (DoHS) to the OTPs. Although some digestive and palatability adaptation is needed for acceptance by children it is usually achieved satisfactorily. Emphasis on advanced planning and procurement in view of logistics challenges has improved RUTF availability, however, supply management needs to be strengthened to protect RUTF from rodents and other damages.

Monitoring and Reporting. CMAM monitors have effectively assisted to strengthen local capacity for monitoring. The CMAM data analysis system is being merged with the Integrated Management of Childhood Illness (IMCI) programme; however, better data management is needed to track screening because repeated screenings are not flagged. No follow-up treatment coverage surveys have been conducted. Joint efforts are not strong enough to harmonize and standardize reporting for numerous child development programmes managed at the district level and to address distance and access issues which weaken monitoring by DHOs and FCHVs.

Cross Cutting Issues

Integration of CMAM in the National Health System. Ownership of CMAM by the GoN is still partial but a firm basis has been established through training national staff and integration of CMAM in their duties. Human resources, however, are strained to meet quality standards and demands for services. Stronger GoN roles are needed in performance management, planning, financing, procurement and supply management, human resources development, integration of CMAM indicators in the national system and tackling issues affecting demand for national health services. The national training curriculums for health workers do not foster the necessary understanding of nutrition principles, and in communities, nutrition issues require much greater sensitisation especially for men.

Integration with Other Programmes. Progress has been made in integrating CMAM with the IMCI and IYCF protocols. Good coordination linkages were developed in districts but meetings and monitoring visits, particularly conducted jointly with other sectors, are not frequent enough. Lack of a unified scale up strategy for 22 programmes addressing child survival and development has led to the duplication of services. Collaboration among sectors that impact acute malnutrition is supported by inter-ministerial plans but is still weak in particular with infections control (e.g. diarrhoea, ARI and HIV), water, sanitation and hygiene (WASH), education, early childhood development, social protection and food security and poverty alleviation.

Equity. Pilot districts were effectively selected where wasting is very high, including those that were more difficult to access, across three ecological zones comprising mountains, hills and the terrai. However, there was no specific strategy to identify and reach the most vulnerable. More girls than boys were admitted to the programme despite greater prevalence of malnutrition in boys, but the reasons are not well understood. Appropriate attention is not devoted to gender and vulnerability issues in policy documents, assessments, monitoring tools, reviews and evaluations.

Capacity Development. The CMAM programme created a more enabling environment at all levels of the health system in a very short period of time through capacity-building of MoHP. Cascade training reached over 8,500 people. Linking CMAM training with other child development programs would expand the number of people with knowledge about CMAM. More effort is required to provide refresher training, training on counselling and advanced training on malnutrition management.

Cost Analysis

Share of Capital and Recurrent Costs. UNICEF's share of capital costs far exceeds that of the GoN due to investment in capacity and protocol development and procurement of equipment. However, the GoN's share of recurrent costs is higher (56% versus 44%). UNICEF's share of all costs is around 53% but the GoN's growing participation in cost sharing through integration of CMAM into the health system has reduced UNICEF's contribution over time.

Share of Total Costs among CMAM Components. The share of the total cost is highest for OTPs (46%), followed by Community Outreach (30%) and MAM management (23%). Costs for Community Outreach are higher than the costs of MAM management because the former includes all the screened children.

Cost Per Beneficiary. The district-based cost for treating children admitted with SAM is highest in Jajarkot (US \$125 per child) due to high capital costs and fewer SAM cases, followed by Mugu (\$106), Achham (\$93), Bardiya (\$58) and Kanchanpur (\$56). The average cost of RUTF consumed per child is \$39. The highest cost was in Mugu followed by Achham, Jajarkot, Bardiya and Kanchanpur, indicating that the RUTF cost per child decreases from more remote (mountain, hill) to less remote (terai lowland) settings, mainly due to transportation costs.

Sustainability and Scale Up

The main sustainability issues are capacity, coordination, and mobilization of resources. Joint approaches and collaboration are fundamental for optimum use of resources such as for training and retaining trained and experienced health system staff. Joint assessments and planning are critical to prepare the districts to integrate CMAM and for expansion in emergencies. Opportunities for local production of RUTF should be more intensively pursued and cost efficiency should be viewed in light of palatability and acceptance. Funding sources are not diversified enough; the GoN investment should be strengthened.

Scale up is needed to address severe malnutrition country-wide (e.g., 11% wasting affecting 385,000 children and 2.6% or 91,000 children suffering with SAM). The potential for scale up is excellent using direct support to the government with technical assistance for integration of CMAM in the health system, developing the IMAMI, and pushing integration with IYCF and other programmes.

Key Recommendations

Policy Guidelines, Coordination, and Advocacy

1. Unify the “National Medical Protocol for CMAM” and the “Treatment Guidelines for Outpatient Treatment for CMAM” into one cohesive set of official guidelines, expanding sections on Community Outreach and MAM management and including guidelines for infants once the IMAMI programme is developed.
2. Renew coordination in support of nutrition policies and programmes, including the GoN's Multi-sectoral Nutrition Plan (MSNP)¹ and the National Nutrition Policy and Strategy, by all organizations supporting nutrition-related programmes such as health and population, agriculture, education, WASH and local development through inter-ministerial groups, the IASC clusters, UNDAF and district coordination arrangements, among others.
3. Study options for improving MAM management including strengthening counselling and home based preparation of local supplementary foods, as well as alternative options, for example, supplementary feeding programmes, voucher schemes, and child cash grants. Develop guidelines and protocols for

¹ Under the leadership of the National Planning Commission (NPC), five key Ministries – Ministry of Health and Population (MoHP), Agriculture and Cooperative (MoAC), Education (MoE), Physical Planning and Works (MPPW), and Local Development (MoLD) have developed nutrition-related sectoral plans .

setting programme objectives and performance indicators.

Programme Design, Planning, Monitoring and Reporting

4. Link CMAM (and IMAMI once it is developed with definitions, goals and indicators) through joint assessments and programme planning with government and assistance organizations working with infections control (especially for diarrhoea, ARI and HIV), water and sanitation, early childhood development, social protection, and food security programmes, and plan for periodic treatment coverage surveys.
5. Define a Community Outreach package in view of community based challenges and link it tightly with MAM management to increase impact of counselling and community support.
6. Strengthen performance monitoring and trend analysis for screening of the under-five population, referral follow-through, self-referrals, readmissions, reasons for default and relapse, and MAM management performance. Based on an in-depth review of the existing Nutrition Information System (NIS), integrate core IMAMI indicators into the HMIS.

Implementation

7. Strengthen the capacity of the MoHP staff to expand CMAM and launch IMAMI through capacity building linked with other child health and development programmes. Develop the needed national human resource capacity, strengthen central MoHP leadership, strengthen logistics and supply management and the role of FCHVs, and cover gaps in training.
8. Strengthen the existing OTPs and SCs in terms of effective community outreach and logistics, increasing the number of SCs and OTPs in the existing CMAM districts considering population density and accessibility.

Sustainability and Scaling Up

9. Scale up CMAM in the current pilot districts and in priority new districts using direct technical assistance and support to the national health system through joint assessment and planning, which identifies multi-sectoral nutrition stakeholders; integrates scale up of CMAM with other child survival and development programmes; covers sensitisation to CMAM; and identifies the worst-off groups and their characteristics.
10. Establish GoN commitment for increasing its share of funding and donor commitment for funding and technical support to the scale up. Secure programme funds in anticipation of higher costs in hills and mountains; reduce costs by involving community members in screening and self-referrals.
11. Support local production of RUTF for longer-term sustainability and cost-efficiency, particularly during the scale up phase; Support improvement of Sarbottam Pitho., a local weaning food, based on current complementary feeding practices and its promotion using a carefully designed social marketing strategy.

1. INTRODUCTION

Severe acute malnutrition (SAM) is estimated to affect about 20 million children under five years of age globally. With increased frequency and intensity of natural disasters as well as economic uncertainties, it is likely the numbers of children affected by SAM will increase. UNICEF has made significant investments in more than 55 countries to scale up treatment of severe acute malnourished children through Community-based Management of Acute Malnutrition (CMAM) initiatives.

To consolidate the achievements made and to further enhance, scale up and expand CMAM services, an independent evaluation was undertaken to generate concrete evidence on how well the global and country level strategies have worked, on CMAM's acceptance and ownership in various contexts, and on the appropriateness of investments, for example, in capacity development and supply components. The evaluation team has conducted a comprehensive assessment of CMAM in five countries (Nepal, Pakistan, Ethiopia, Chad, and Kenya) and drawn lessons for use by national governments, UN agencies, NGOs, and other stakeholders.

In Nepal, around half of under-five mortality (54 per 1000 live births) is associated with malnutrition.² The Ministry of Health and Population (MoHP) and UNICEF have been piloting CMAM starting with one district in 2008; it is currently operating in five districts out of 75. The UNICEF Nepal Country Office undertook this evaluation of the pilot efforts to generate lessons and recommendations from CMAM pilot districts. The evaluation is the first phase (formative) of a two phase evaluation in Nepal. The second phase, to be undertaken later in 2011, will consist of an endline survey to analyse changes in the nutrition status of children and in quality of life.

The evaluation will assist in advocating for resources for strengthening existing programmes and expanding community based treatment to the most affected areas of the country. The MoHP in 2012 has decided to scale up Integrated Management of Acute Malnutrition including infants under six months of age (IMAMI), starting with 6 additional districts of Nepal in 2012 with the support of UNICEF (in five districts) and ACF and UNICEF (in one district). At the same time, UNICEF will support MoHP to maintain and further strengthen the existing five pilot districts incorporating the specific evaluation recommendations. The Nepal country case study will also be part of the global consolidated CMAM evaluation report, which is expected to enhance the global CMAM knowledge and evidence base for sharing with other countries, as well as serve as input for advocacy and policy decisions on its future directions.

This report is divided into seven chapters:

1. Introduction (with an overview of development and nutrition in Nepal)
2. Evolution of The Nepal CMAM Programme, CMAM Policy, Programme Design, Governance and Partnership and Past Evaluations and Reviews
3. Evaluation Scope and Methodology
4. Programme Effectiveness and Quality of Services
5. Cross-cutting Issues
6. Cost of the Programme, Sustainability and Scale Up
7. Conclusions and Recommendations

² Ministry of Population and Health (MOPH) [Nepal], New Era and Macro International Inc. 2007. *Nepal Demographic and Health Survey 2001*. Kathmandu, Nepal: Ministry of Population and Health, New Era and Macro International Inc.

1.1 Overview of Development in Nepal³

Challenges to development in Nepal include its varied ecology and difficult to access remote populations, socio-economic exclusions, slow economic growth, high unemployment and poverty, disparities in access to basic services and opportunities, and political instability. With an area of 147,181 square kilometres, Nepal is divided into three ecological regions: terai, hill and mountain.⁴ Each region is a narrow strip of land stretching from east to west. The terai is the most developed in terms of food production, marketing and road networking, while the mountain region is the least developed.

Nepal's decade-long internal political and violent conflict between the state and the Maoist groups ended in 2006, and the peace agreement opened up many opportunities for development. On the other hand many challenges remain. Although there is progress on political reform, the government remains unstable because of changes in leadership and by interest groups jostling for power through nationwide general strikes (bandhs). Despite the political upheavals and conflict, there has been improvement in the poverty situation. Poverty has reduced from 42% to 31% in the decade up to 2004 and down to 25% by 2011.⁵ However, food insecurity affects an estimated 3.5 million people due to recurring droughts, floods and persistent poverty and acute food shortages affect 63% of households in the Far and Mid-West districts.⁶ Furthermore, there are wide variations in development across the districts, and development gains have varied inequitably, manifesting themselves as gender, caste, ethnic and geographic disparities. For this reason, increasing numbers of Nepalese seek employment in India and other countries.

Data indicate that potentially Nepal will be able to achieve most of its MDG targets by 2015, including reduction of extreme poverty and child mortality⁷, except for the more complex challenges — full employment and climate change. Although there has been some progress on the hunger indicators, recent rapid rises in food prices and the consequences of climate change pose the main challenges in achieving the hunger reduction target. The average growth for agricultural GDP in 2000-05 was only 2.8 percent, which is only slightly above the population growth rate. Each year, humanitarian crises occur as a result of natural disasters (e.g., floods, landslides, hail, and droughts) or food insecurity caused by natural disasters or events such as the food, fuel and financial, “3Fs” crisis. The various crises have increased the vulnerability of children and pregnant and lactating women.

The Government of Nepal (GoN), in partnership with donors and assistance organizations, changed the development priorities following the restoration of democracy in 1990. Development programmes became more directed towards the eradication of poverty, building people's capabilities by improving health and education, reducing gender inequalities, and empowering women. Community participation in development was more valued.⁸ Decentralization was initiated to strengthen local development and non-governmental organizations and the private sector were encouraged to assist. Economic reforms were initiated and efforts for bringing marginalized groups into the main stream of development became a major concern of planning. More standards were set for monitoring and evaluation of development programmes. In line with the Aid Effectiveness agenda, the UN system in Nepal is currently taking steps

³ Synthesized from UNDP website on MDGs, WHO country report 2006, CIA World Factbook, “Child Poverty and Disparities in Nepal”, 2010, Government of Nepal and UNICEF.

⁴ The **Terai** has a subtropical to tropical climate and altitudes to 1,000 meters. The **Hill Region** abuts the mountains and varies from 800 to 4,000 metres (2,625 to 13,123 ft.) with progression from subtropical climates to alpine climates. The **Mountain Region** situated in the Great Himalayan Range, makes up the northern part of Nepal. It contains the highest elevations in the world

⁵ Central Bureau of Statistics 2011. Nepal Living Standard Survey, 2011. Kathmandu: Central Bureau of Statistics .

⁶ World Food Programme, Food Security Monitoring and Analysis System

⁷ According to the UNDP website, the deaths of newborns pose the greatest challenge to reduction of child mortality.

⁸ Local level governance institutions (village development committees (VDCs) and district development committees - DDCs), local level public service institutions, local groups (mother groups, forestry groups, etc.) and NGOs

to harmonize its programmes with government systems through sector-wide approaches and joint programming to lessen transaction costs of the government.

The current policy environment is supportive to human development. The 2006 Interim Constitution of Nepal requires that governance be more inclusive, participatory and decentralized. The Three Year Interim Plan (2010/11-2012/13) incorporates the MDGs and the second National Health Strategic Plan.⁹ Communities have made remarkable progress (see Box 1.1) towards meeting poverty and health related MDG goals. Sustainability of gains in the long term beyond 2015 is also an important issue currently being addressed.

Box 1.1: Progress Toward 2015 Millennium Development Goals in Nepal¹⁰

1. **Reduction of poverty** by five percentage points from 2004 to 2009 resulting in 25.4 percent of people living below the national poverty line (NPC, 2010). Some geographic areas are still facing chronic hunger and chronic under-nutrition, or stunting among children under five in these areas remains very high at 41%.
2. Increases in net **enrolment in schools** to 93.7% by 2009 (DOE, 2009), indicating the MDG will likely be met. Literacy among the 15 to 24 year age group was 86.5% in 2008 (CBS, 2009), suggesting the 100% target will likely be met.
3. **Gender equality** has improved substantially; equal access to primary education by girls and boys has already been achieved. Women's participation in the formal labour force and political domain has grown significantly.
4. The **under-five mortality rate** has decreased significantly to 50/1000 (NFHP, 2010).
5. The **maternal mortality ratio** also has dropped significantly to 229/100,000 (FYD, 2009), pointing to a reduction by three-quarters by 2015.
6. The target of **the reversal of HIV/AIDS** (prevalence for 15-49 years is 0.49 in 2007) and other diseases is likely to be met if efforts are intensified.
7. **Environmental sustainability** is not being addressed adequately. The proportion of people using wood as their main fuel was 68.4 percent in 2008 (CBS, 2009). The proportion of people with sustainable access to an improved water source was 80 percent in 2010 (DWSS, 2010). The population with sustainable access to improved sanitation was only 43 percent in 2010 (DWSS, 2010).

1.2 Nutrition in Nepal

The available indicators demonstrate that acute malnutrition in children under five is seriously high in Nepal when interpreted as per the World Health Organization's (WHO) crisis threshold.¹¹ Table 1.1 shows that the prevalence of SAM has either increased (2001 - 2006) or remained constant (2006 - 2011), while the prevalence of GAM has fluctuated around ten percent.

⁹ According to second National Health Strategic Plan, a community-based nutrition programme will be progressively introduced, starting from the wards with the highest incidence of malnutrition. The community-based approach will need piloting but, if the experience in the pilot districts is positive, the programme will be progressively scaled up to cover 45% of wards in the country by 2013 (see Nepal Health Sector Programme -Implementation Plan II(NHSP-II) 2010-2015 p.48).

¹⁰ Nepal Millennium Development Goals, Progress Report 2010, Overview of Progress, pages 6-8 . Sources of data are; (NPC) Department of Education (DOE); (FYD) Central Bureau of Statistics (CBS)

¹¹ The per cent of GAM is acceptable if =<5%, poor; 5-9%, serious; 10-14% and critical >15% and plus.

Table 1.1: Comparison of Prevalence of SAM and GAM

	SAM (WFH z-score < -3)			GAM (WFH z-score < -2)		
	2001	2006	2011	2001	2006	2011
Ecological Region						
Terai	1.6	3.4	3.2	13.4	16.6	11.2
Hill	0.6	1.6	1.7	5.7	8.4	10.6
Mountain	0.9	2.9	3.2	6.2	9.4	10.9
R/U area¹²						
Rural	1.1	2.8	2.6	9.7	13.3	11.2
Urban	0.6	1.2	2.7	8.2	7.5	8.2
Gender						
Boys	1.3	3.1	3.4	10.6	12.9	12.0
Girls	0.9	2.2	1.8	8.7	12.3	9.7
All Nepal						
	1.1	2.6	2.6	9.6	12.6	10.9

Source: NDHS 2001, 2006 and 2011 Reports.

In the hill and mountain regions, the prevalence of SAM and GAM is increasing, while in the terai region, the prevalence has fluctuated drastically and has reached 3.2 and 11.2 percent, respectively, in 2011. The prevalence of SAM is higher in the urban areas compared to rural areas in 2011, while the GAM is higher in the rural areas. The prevalence of SAM and GAM is higher among boys than among girls. In the absence of in-depth research on food security and child development in Nepal, the reasons for serious incidence and prevalence are difficult to explain (and beyond the scope of this evaluation) particularly in view of the positive progress on some MDG indicators as described above. It is noted that there are still geographic areas of food insecurity, and that sanitation and hygiene are unsatisfactory in most of the country. Certainly, the combinations of factors that lead to child malnutrition have not been effectively addressed in the past decade.

Infectious diseases are rampant in Nepal and seriously affect the nutrition status of children. About 70% of all health problems and deaths in Nepal are attributed to infectious diseases, and many children die from preventable and treatable diseases such as diarrhoea and/or dysentery and acute respiratory infections. Cholera outbreaks occur during the rainy summer season, and intestinal parasitosis alone constitutes one of the major public health problems in Nepal with as many as 60% affected. Vector-borne diseases such as malaria, leishmaniasis and Japanese encephalitis are endemic in the *terai* region and in settlements/villages on the river banks between hills. Other prevalent viral diseases include hepatitis, Herpes, Measles, Mumps, Rubella, Hantavirus, and tuberculosis. Outbreaks of diseases like diarrhoea, dysentery, cholera, enteric fever, jaundice occur frequently and are attributed to a contaminated drinking water supply. Keeping in view the rapid spread of HIV infection in Nepal, related opportunistic infections will likely pose challenges in the future.¹³

¹² Rural area constitute around 3,914 Village Development Committees (VDCs), urban area constitute 58 municipalities. Rural area covers around 98% of the total land area and around 85% of the national population . .

¹³ Shiba Kumar Rai, Kazuko Hirai, Ayako Abe & Yoshimi Ohno; "Infectious Diseases and Malnutrition Status in Nepal: an Overview"; Mal J Nutr 8(2): 191-200, 2002, page 3.

1.3 Policy and Programmes to Address Nutrition¹⁴

National Structure to Support Nutrition Policy. The Ministry of Health and Population (MoHP) is the lead agency for nutrition in Nepal. The MoHP Nutrition Section of the Department of Health Services has developed the National Nutrition Policy and Strategy (in 2004 and revised in 2008) including infant and young child feeding, overseen by the Child Health Division (CHD). The policy requires greater advocacy and implementation at all levels. Nutrition is a top priority in the Three Year Interim Plan (TYIP) and in 2011, a Multi-Sectoral Nutrition Plan of Action (MSNP) was developed as part of the TYIP, under the leadership of the National Planning Commission (NPC) and involving five key Ministries: Ministry of Health and Population (MoHP), Agriculture and Cooperative (MoAC), Education (MoE), Physical Planning and Works (MPPW), and Local Development (MoLD). As part of the Multi-Sectoral Nutrition Plan of Action, the five key ministries have developed nutrition-related sectoral plans in, for example, Health, Agriculture, Education, Physical Planning and Works, and Local Development.

At the district level, the Female Community Health Volunteers (FCHVs), Village Health Workers (VHWs) and Maternal and Child Health Workers (MCHWs) working under supervision of District Health Offices (DHOs) are the key agents who promote changes in health and dietary behaviour. They empower the communities through women groups and are responsible for, among other duties, mobilizing communities to support, for example, biannual Vitamin A supplementation. They are tasked with the assessment of the nutrition status of children 6-59 months of age through MUAC screening and nutrition education and counselling services to the relevant child caretakers.

National Nutrition Programmes. The GoN has made improvement in the nutritional status of children and women a top priority and is committed to meeting relevant targets for the MDGs, the World Fit for Children¹⁵ goals, and the National Nutrition Plan of Action which is part of the National Nutrition Policy and Strategy. The national strategy to reduce malnutrition uses a multi-sectoral approach. Other programmes such as water and sanitation, hygiene promotion, livelihood development, health and microfinance are also implemented.

The GoN has addressed the issues of malnutrition as evidenced in the following documents and activities over the past 40 years: the 1970 Ministry of Food and Agriculture Plan; the 1975 Department of Health Multisectoral Plan (Health, Education, Agriculture, and Panchayat); the 1977 National Nutrition Co-ordination Committee established under National Planning Commission; and the 1978 Pokhara Declaration. Multisectoral Plans (Health, Food and Agriculture, Education and Panchayat) were included as part of Sixth Five Year Plan (1980-85) with nutrition objectives; however, these objectives were not translated into clear targets and programmes despite support from WHO and UNICEF. In 2002, the GoN formed a national nutrition steering committee with 17 members.

The National Planning Commission (NPC) has initiated multi-sectoral collaboration on nutrition and planning to form district-level nutrition and food security steering committees that work toward performance indicators for agriculture, health, education, local governance, and water and sanitation in addition to nutrition. Volunteers have been deployed to initiate district-level activities. Their main objective is to sensitize all stakeholders to initiate synergistic programmes. This is a well-coordinated and consolidated plan. As per the NPC, regular steering committee meetings will be conducted to finalize some indicators in this regard, including nutrition, agriculture, health, education, water, and sanitation.

¹⁴ World Bank Nepal Nutrition Brief; Government of Nepal, MoHP, Introduction letter for the National Nutrition Strategy and Policy, 2008; WHO Nepal website

¹⁵ The Declaration and Plan of Action adopted by the General Assembly Special Session on Children in 2002 (*A World Fit for Children*) provide a more detailed vision for children, and are of particular relevance to the work of UNICEF;

While considerable progress has been made in addressing micronutrient deficiencies, substantial additional efforts are still required to meet national and global goals. To this end, various nutrition interventions supported by the GoN have been introduced in recent years including the following.

- The Infant and Young Child Feeding Programme (IYCF) since 2004, based on the WHO/UNICEF global strategy for IYCF
- Micronutrient supplementation and fortification, such as for Vitamin A, iron and folic acid, salt iodization, and micronutrient sprinkles distribution
- Supplementary food distribution in food insecure areas
- Therapeutic feeding for severely malnourished children through CMAM
- Management of SAM and MAM with complications in fourteen Nutrition Rehabilitation Homes
- Development of guidelines for treatment of infant malnutrition in the Integrated Management of Malnutrition in Infants under 6 months of age (IMAMI).

The MoHP has worked toward integration of community-based nutrition activities with other health and development programmes such as Decentralized Action for Children and Women (DACAW), the Community-Based New-born Care Package (CBNCP), Early Childhood Development (ECD) and the Community-Based Integrated Management of Childhood Illnesses (CB-IMCI) programme.

Role of Donors and Assistance Organizations. UNICEF Nepal advocates for interventions to improve the nutritional status of children and provides technical support and consultative services to the government. There have been intensive engagements with policy-makers as well as donors to leverage funding towards scaling up nutrition (SUN); with Nepal being identified globally as one of thirteen 'early riser' SUN countries. Save the Children supports nutrition advisors to the MoHP Child Health Division. The World Food Programme (WFP) distributes supplementary foods for children aged 6 to 36 months largely in food insecure areas targeted by the WFP Vulnerability Assessment Monitoring (VAM) programme. The Nepali Technical Assistance Group (NTAG) works with government, donors and assistance organizations to conduct nutrition and health surveys and manages a nutrition information sharing network.

The United States Agency for International Development (USAID) has embarked on an Integrated Nutrition Programme (INP) or "Suaahara" to scale up essential nutrition and health actions and a "Feed the Future" programme for rapid and sustainable agriculture-led growth to tackle the root causes of hunger for Nepal. USAID also contributes to health and family planning and helps support 50,000 FCHVs to spread nutrition and hygiene messages. The UKAID's Department for International Development's (DFID) 2009 global strategy to address "The Neglected Crisis of Malnutrition", has been implemented in Nepal to reduce acute malnutrition and associated morbidity and mortality in children under five years of age.

The World Bank is formulating a "1,000 days or Sunalaula Hazar Din project" in line with the multi-sectoral nutrition plan in priority districts, and a Nepal Agriculture and Food Security Project (NAFSP) to enhance achievement of nutrition outcomes of food security initiatives through the agriculture in the most food insecure districts in the far and mid-western regions. Renewed Efforts against Child Hunger and Under-nutrition (REACH) is being initiated in the country to strengthen government coordination on food and nutrition security and to support ongoing efforts to scale up nutrition. The Bank is involved in supporting social protection in Nepal through both technical and financial assistance. While the government does have some social protection programs - including civil service pension system and safety nets, including social pensions, food-for-work, micro-credit, micro-insurance, etc. The recent GoN budget has significantly expanded the breadth of social protection programs and their planned expenditure on social

protection. For example the GoN is considering a workfare program, expanding school meals and putting in place a food distribution system.

Nutrition in Emergencies. UNICEF takes the global lead role in nutrition in emergencies and has made commitments through its annual work plan with the MoHP Child Health Division (CHD). This role is both preventive and responsive and includes development of a preparedness plan, capacity building for government health staff, piloting of CMAM, and rapid assessments in emergencies.¹⁶ Because acute malnutrition is considered a “silent emergency” in Nepal (based on the WHO crisis threshold as defined above), CMAM is being piloted as a nutrition in emergency intervention to address acute malnutrition in Nepalese children among the most highly affected districts.

In Nepal, a UN Interagency Standing Committee (IASC) nutrition cluster has been meeting since late 2010 and is led by UNICEF and the Nutrition Section of the MoHP, includes the WFP, the World Health Organization (WHO), Helen Keller International (HKI), World Vision International (WVI), Save the Children and various national NGOs.¹⁷ The cluster is a coordination and preparedness mechanism to ensure timely and effective response in emergencies and through this response to prevent further nutrition deterioration. The cluster has been instrumental in promoting development of the guidelines on emergency nutrition assessment and monitoring system, infant and young child feeding in emergencies (IFE) and the management of moderate acute malnutrition (MAM) in humanitarian crises and silent emergencies.

DFID has provided funding for emergencies, through support for CMAM, IYCF, strengthening coordination capacity of the aforementioned nutrition cluster, and in conducting nutrition surveys.¹⁸ The Central Emergency Response Fund (CERF) managed by the UN Resident Coordinator’s office has contributed to the nutrition response to the 2010 flood and cholera disaster in Nepal and will be contributing support to further strengthen and expand CMAM in an additional six districts in 2012.¹⁹ The European Union (EU) in addition to the CERF funding assisted to strengthen national capacities for emergency response, including CMAM and will continue to support CMAM over the next two years.

¹⁶ Commitment letter from UNICEF to the CHD for strengthening emergency response, 2008

¹⁷ Interagency Standing Committee Nepal, Emergency Nutrition Cluster Meeting Minutes, December 2010

¹⁸ MOU UKAID and UNICEF on emergency nutrition project funding, December 2009.

¹⁹ UNICEF’s confirmation for Approval of Emergency Funding from CERF, 15 September 2010 and 06 April 2012.

2. PROJECT DESIGN, CMAM POLICY, GOVERNANCE AND PARTNERSHIP IN NEPAL

The chapter discusses CMAM programme evolution, programme design, and governing policies and agreements on management of partnerships for implementation of CMAM.

2.1 CMAM Pilot Programme in Nepal: Evolution

Before the launching of CMAM in Nepal in 2008, the treatment of acute malnutrition was carried out mainly in Nutrition Rehabilitation Homes (NRHs) created by the Nepal Youth Opportunity Foundation (NYOF). Assistance to families of malnourished children focused mainly on household counselling on hygiene, feeding practices and balanced diet, and on treatment with a mix of therapeutic milk (WHO recipe) and food. The NRH approach required the child and his/her caretaker to stay in the NRH for a minimum of four weeks which posed difficulties for the caretakers with other children or work responsibilities and thus led to a high default rate. In addition, the NRHs could not address malnutrition on a large scale due to their limited number (14) and low capacity of each NRH nutrition unit (10 to 20 beds). Community based screening and treatment programmes were undertaken in some areas by NGOs, but the data on these programmes are limited.

In order to address these constraints, UNICEF and the MoHP carried out a preliminary study to assess the feasibility of implementing Community Therapeutic Care (CTC), now widely known as Community-based Management of Acute Malnutrition (CMAM).²⁰ A major impetus for the implementation of CMAM in Nepal was the publication in March 2007 of the WHO/WFP/SCN/UNICEF joint statement on Community-based Management of Acute Malnutrition, which recognized that *“large numbers of children with severe acute malnutrition can be treated in their communities without being admitted to a health facility or a therapeutic feeding centre”*. The feasibility assessment recommended conducting pilot projects in different implementation scenarios based on geographical and cultural specificities in order to evaluate if and how malnutrition challenges could be overcome and to generate lessons learned for nationwide implementation.

In 2008, five potential districts for pilot projects were selected: Achham, Bardiya, Jajarkot, Kanchanpur and Mugu. The criteria for selection included the following: 1) high prevalence of acute malnutrition; 2) high stabilization capacity (hospital infrastructure) to house stabilization centres; 3) high incidence of poverty; 4) diverse eco-geographical zones (two projects are located in the terai [Bardiya and Kanchanpur], two in the hills [Achham and Jajarkot], and one in the mountains [Mugu]; 5) sufficient accessibility; and 6) presence of CB-IMCI and adequate security. Assessments and baseline surveys were undertaken in all five of the selected districts by two International NGOs, Action Contre la Faim (ACF) and Concern Worldwide.²¹ The assessments recommended implementation in collaboration with the national and district health authorities and working through the existing health structures and with the health staff (e.g. hospital and health post staff, FCHVs) as well as the local NGOs and the community-based organisations linked to health-related issues (e.g. women's groups). Estimates of the prevalence of acute malnutrition are summarized in the table below. These estimates are higher than national estimates for SAM, 2.6 percent and GAM, 12.6 percent (NDHS, 2006) in all districts, except Jajarkot.

²⁰ CTC Feasibility Assessment, UNICEF with the MoHP, 2007.

²¹ Nutrition Anthropometric Survey, Mugu, Achham, Kanchanpur ACF, 2008; Nutrition Survey Report, Jajarkot, Sustainable Development Initiative report to Concern, 2008.

Table 2.1: Estimates of the Prevalence of Malnutrition in Five Districts in 2008

	Bardiya	Achham	Mugu	Kanchanpur	Jajarkot
GAM (%)	16.2	18.0	26.6	17.0	10.5
SAM (%)	2.8	3.6	7.1	3.3	2.4
Source:	CWW, 2008A	ACF, 2008A	ACF, 2008B	ACF, 2008C	CWW, 2008B

2.2 CMAM Design and Implementation in Nepal

As per the provision of Nepal Health Sector Programme Implementation Plan (NHSP-IP) II, UNICEF has been supporting the MoHP to pilot CMAM. As stated in the NHSP II, *“If the results of ongoing pilots prove promising, the programme will also support community-based management of severe acute malnutrition, using ready-to-use therapeutic foods. This is a potentially cost-effective alternative to rehabilitation of acutely malnourished children in rehabilitation centres. It will work in close cooperation with facility-based rehabilitation centres”*.²²

The CMAM programme in Nepal is based on the global comprehensive CMAM strategy. However, children with MAM do not receive supplementary feeding as in some other countries. MAM management consists of counselling caretakers on IYCF. There are ongoing efforts to support local RUTF production and an economic feasibility study will be implemented during the expansion phase in 2012. (See diagram below).

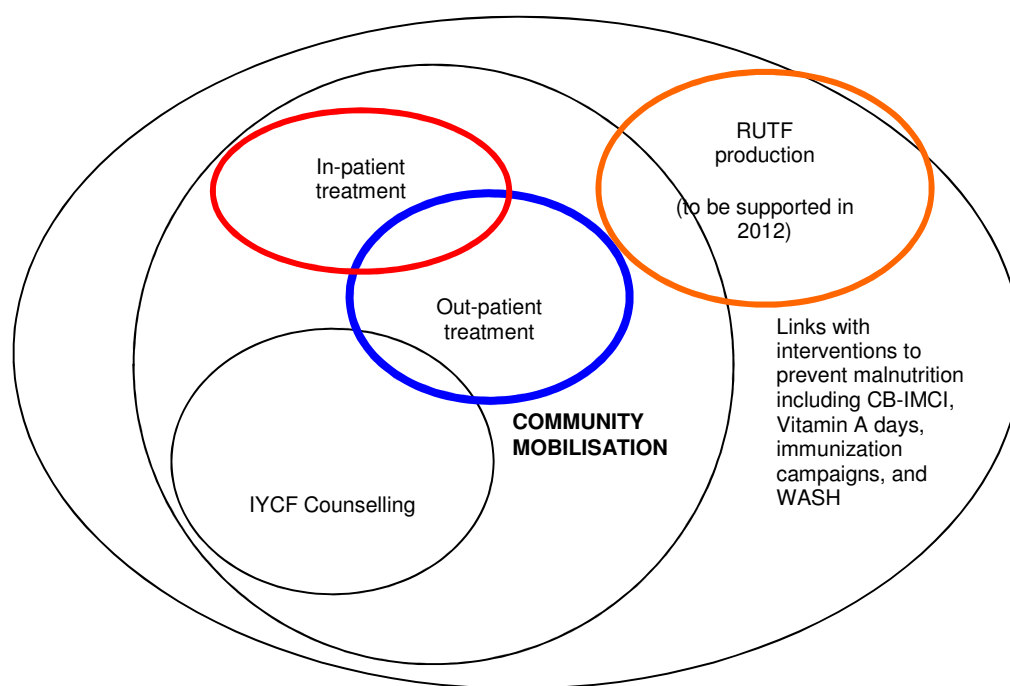


Figure 1. The CMAM Programme Linkages in Nepal.

²² NHSP-IP II, page 32, third paragraph

The primary objective of CMAM was to mount an effective emergency nutrition response in the Far and Mid-Western regions to reduce acute malnutrition and associated morbidity and mortality in children under five years of age. The pilot programme is designed to evaluate the feasibility of the CMAM approach in different districts and different agro-ecological zones in Nepal. Recommendations will be made regarding the potential scale up of the CMAM approach to most of the districts in the country. The specific objectives include:

- To build the capacity of local health structures, FCHVs and local NGOs in addressing acute malnutrition through the implementation of CMAM; to evaluate the effectiveness in increasing the coverage, identification, and effective treatment of SAM cases, initially over a pilot period and, in the longer term; and to evaluate the effectiveness in reducing SAM prevalence over a period of 5 to 10 years.
- To examine various modalities for introducing CMAM to the health system in relation to other interventions (e.g., nutrition/food security/CB-IMCI), and to document the process and outcomes for lessons learned.
- To explore the potential for national or regional (in neighbouring countries) production of ready-to-use therapeutic food (RUTF), potentially in an alternative formula, and to promote and follow up research and investment by the food industry in this field.
- To provide immediate emergency nutrition response to food security crises in target districts, especially for the management of SAM.

The CMAM approach in Nepal is inspired by the CMAM global approach, which hinges on four major principles: 1) maximum coverage and access; 2) timeliness; 3) appropriate medical care; and 4) nutrition rehabilitation and care as long as it is needed. The four principles are addressed through the implementation of four components, as described below. (See the Nepal CMAM Programme Logic Model in Annex 4).

1. **Community outreach**, which includes:

- i. Active case-finding to ensure early detection by measuring the Mid-Upper Arm Circumference (MUAC) of children less than five years of age, early presentation and referral
- ii. Sensitisation of the community on the availability of services for treatment of malnourished children
- iii. Community awareness raising (on CMAM and malnutrition) through education on malnutrition causes and prevention
- iv. Follow-up of children after discharge through home visits

2. **Outpatient Therapeutic Services**, which is provided to children aged 6 to 59 months with severe acute malnutrition (SAM), good appetite and no medical complications. The outpatient services (Outpatient Therapeutic Programmes – OTPs in Nepal) are integrated into the routine health services, at selected Public Health Clinics (PHC), Health Posts (HP) and Sub-Health Posts (SHP), provided by the Ministry of Health and Population. The OTPs do not monitor moderately malnourished children and children with MAM are not admitted to the programme, they are identified and referred to the FCHVs for counselling. The following activities are performed:

- i. Medical assessment and anthropometric monitoring
- ii. Systematic medical treatment
- iii. Home-based treatment and rehabilitation with RUTF and weekly or fortnightly follow-up for routine medical treatment using simplified medical protocols and additional RUTF rations.

The CMAM programme was initiated in each district with OTP activities at different dates (Table 2.2) and the duration of the programme varies among the districts. At the time of the evaluation, the Bardiya programme was active for 25 months, while Kanchanpur and Jajarkot programmes were only nine months old. Currently there are 75 OTPs in the five pilot districts, with services that vary considerably across the districts depending on many factors such as availability of health facilities, population densities, and community usage. Most of the OTPs are in primary health centres and health posts, and some OTPs are also initiated in few sub-health posts as per need and request of DHOs and PHOs.

Table 2.2: Outpatient Treatment Services (OTPs) - CMAM Nepal

	Bardiya	Achham	Mugu	Kanchanpur	Jajarkot	Total
OTP started date	May, 2009	Jan, 2010	Jul, 2009	Sep, 2010	Sep, 2010	
Initial # of OTPs	11	16	7	12	10	56
Added # of OTPs	4	10	0	5	0	19
Total # of OTPs	15	26	7	17	10	75
Duration* (months)	25	17	22	9	9	

*Duration means duration of CMAM being in operation from the date of start to 12 May, 2011.

3. **Inpatient care** is provided at Stabilization Centres (SC) integrated into MOHP health facilities to children aged 6 to 59 months with MAM or SAM and medical complications and/or no appetite and to infants below six months of age. Currently, there are six SCs in the pilot districts, two in Achham district and one in each of the other four districts. Activities performed are:
 - i. Medical treatment and nutrition rehabilitation according to the WHO guidelines (WHO, 1999)
 - ii. Severely malnourished children aged 6 to 59 months are transferred to outpatient service when the medical complication is stabilized and appetite returns
 - iii. Moderately malnourished children aged 6 to 59 months are discharged to their homes when the medical complication is resolved and the appetite returns
 - iv. Infants less than six months of age receive specialized treatment until full recovery.
4. **Outpatient Services** which targets children aged 6 to 59 months with moderate acute malnutrition (MAM) and no medical complications. In the CMAM programme in Nepal, it is important to note that there is no provision of supplementary foods (SF) to children with MAM as may be found in other countries. The exception would be in the case of a food security emergency; SF is always accompanied by counselling on IYCF. (The MoHP considers behaviour change communication to be an effective strategy to improve child feeding and care practices. MAM therefore is managed through counselling. Activities performed to manage MAM include:
 - i. Behaviour change communication to improve child feeding and care practices, including counselling on IYCF
 - ii. Discussion of social taboos that inhibit good child care practices

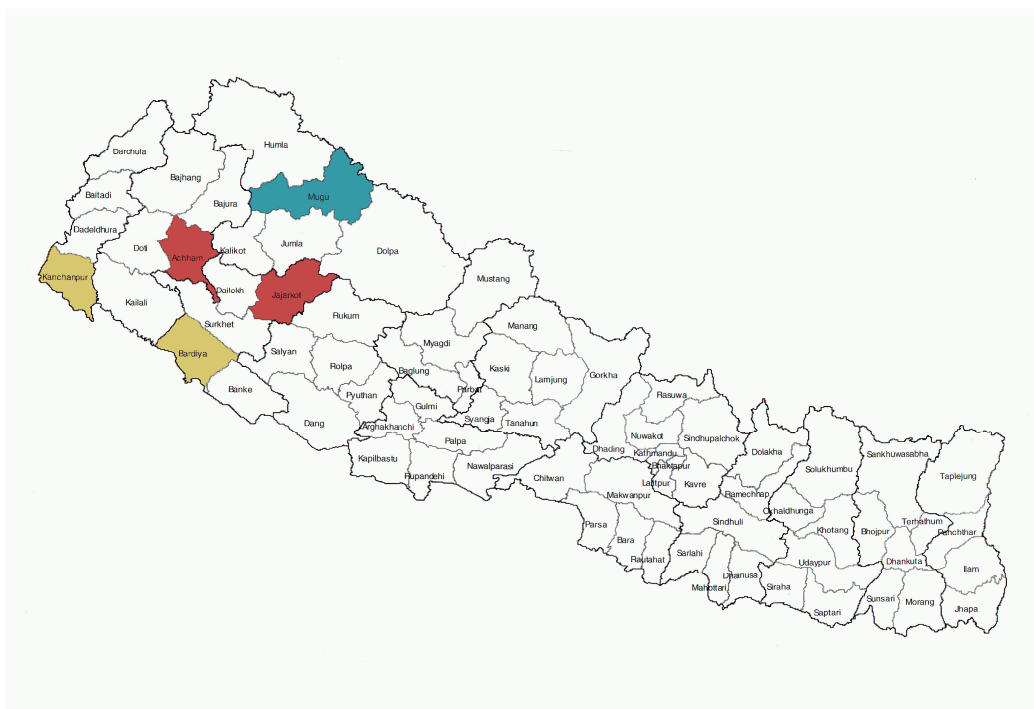


Figure 2. CMAM Programme Pilot Districts in Far and Midwestern Regions.

2.3 CMAM Policy²³

The National Nutrition Policy and Strategy sets forth principles that guide policy including human rights, nutrition as a pre-condition for development, promotion of a healthy life and universal primary education, infants and young children as prioritized groups and the role of women in promoting nutrition. Strategies promoted include community participation, coordination among intra-sectors (the various sections and divisions in the Department of Health Services), coordination among inter-sectors (ministries of agriculture and cooperative, education, local development, Social Welfare Council, and assistance partners and the private sector), decentralization, advocacy, communication, integration (e.g. with EPI, IMCI, MCH and FP), monitoring and evaluation, research and capacity building.

UNICEF works with national government leadership, in cooperation with international partners and through partnership frameworks, to promote the best results for children. UNICEF in Nepal has adopted CMAM as one of its activities under the Nutrition Project in the Country Programme Action Plan (CPAP) for 2008-2012 which is reflected in its Annual Work Plans. A regional support agreement between UNICEF, whose regional office for Nepal is located in Kathmandu, and Valid International was established to assess CMAM and to provide support for consolidation and expansion of the programme. Globally, UNICEF's Medium Term Strategic Plan (2006-2011) prioritizes four focus areas, including young child survival and development, which is an overarching theme for malnutrition.

In addition to GoNt and UNICEF resources, CMAM receives support from the CERF funds and individual donor contributions. Major donors include DFID and the EU.

²³ Compiled from: Nepal National Nutrition Strategy, 2008, UNICEF's Medium Term Strategic Plan (2006-2011), UNICEF Agreement with Concern Worldwide amendment, 2009

Guidelines and Protocols.- National guidelines adapted from international guidelines were developed in Nepal in 2009 for the pilot CMAM. The two medical protocols, mentioned below, used in the programme were developed jointly between the Nutrition Section of Child Health Division (CHD) of Department of Health Services (DoHS) under Ministry of Health and Population (MoHP), UNICEF, ACF and Concern Worldwide and approved by the MoHP.

1. The **National Medical Protocol** for the CMAM pilot covers admission, counselling, therapeutic treatment, running the stabilization centres, discharge procedures, and monitoring and evaluation.

2. The **Treatment Guidelines for Outpatient Treatment in CMAM** addresses screening and referral, assessment, systematic treatment and routine medicines, nutrition treatment, follow-up and discharge, and supplemental medicines.

Standard, internationally-adopted CMAM protocols were adapted to fit existing health systems and services. Efforts were made to harmonize CMAM with other national protocols such as IMCI protocols. Proposed amendments were only made for the districts where CMAM was to be implemented (e.g. adding MUAC to the identification of SAM and MAM). The aim was to ensure maximum integration and harmonization between these programmes, with minimum disruption to standardized health practices in the country. More significant changes were made, however, to reflect current research findings and international practice. This included three primary changes to standard CMAM protocols:

- A MUAC cut-off point of 115mm was incorporated as the primary referral and admission criteria
- 15% Weight Gain was adopted as the OTP discharge criteria for Nepal
- Cases of Moderate Acute Malnutrition (MAM) with complications were to be referred and admitted to a Stabilisation Centre (SC).²⁴

Relevant international guidelines include the Sphere Standards (2011) for nutrition in emergencies.

2.4 Management of CMAM and Partnership Arrangements²⁵

The Government of Nepal and UNICEF have entered into a Basic Cooperation Agreement since 1996 and adhere to a Master Plan of Operations that establishes the general terms under which they cooperate. CMAM in Nepal is managed under the auspices of the Ministry of Health and Population (MoHP). Administration and management arrangements for CMAM have been set out in MOUs and agreements among the MoHP, UNICEF and other partners, which are based on detailed proposals for implementation of the programme.

Management arrangements for monitoring and technical assistance to the MoHP and DHOs have evolved and have varied with the location and available resources to support the pilot projects. The establishment of an international NGO office as support to the DHO in Bardiya was replaced after 14 months by consultants and advisors from the MoHP and UNICEF. Consultants from UNICEF provide technical assistance in Achham and Mugu, although in Mugu an international NGO implemented CMAM in parallel to (not integrated with) the national health system for three months. In Jajarkot and Kanchanpur, national NGOs are providing technical assistance based on the consensus between UNICEF and MoHP.

²⁴ Final Evaluation of Concern Worldwide/MoHP CMAM Pilot Project in Bardiya District, February 2010, page 11.

²⁵ Proposals: CMAM Pilot Project in Collaboration with the MoHP, ACF and UNICEF Project Proposal, Achham and Mugu, 2008; CMAM Pilot Project in Collaboration with the MoHP, Concern and UNICEF, Amended Proposal 2009; Agreements: Project Cooperation Agreement between ACF and UNICEF for CMAM in Achham and Mugu, 2009; Approval letter from CHD for expansion of CMAM to Jajarkot and Kanchanpur, January 2010.

1. Bardiya: (2008-2011) technical assistance and monitoring support was provided to the DHO from November 2008 to December 2009 by Concern Worldwide. In 2009 June, Concern Worldwide ended its involvement in the Bardiya district and currently technical as well as monitoring support is provided to the DoH by the MoHP's Nutrition Section and UNICEF jointly.
2. Achham: (2009-2011) technical as well as monitoring support is provided by UNICEF directly through a UNICEF nutrition consultant
3. Mugu: (2008-2011) ACF implemented CMAM in parallel to the health system, with its own nutrition centres and staff, until 2009 for three months. Only two OTPs were operated by ACF when it left Mugu; monitoring support is currently provided to the DHO by UNICEF directly through a UNICEF consultant, and CMAM activities are implemented within the health system.
4. Jajarkot: (2010-2011) and Kanchanpur: (2010-2011): Technical assistance is provided by national NGOs.

Box 2.1: CMAM Technical and Monitoring Assistance

CMAM Technical and Monitoring Assistance Provided to the MoHP and DHOs						
District	International NGO	National NGO	CMAM monitors	CMAM nutrition consultant	MoHP CHD	UNICEF Nutrition Section
Bardiya	Concern Worldwide from Nov. '08 to Dec. '09	Community Development Organization	11 monitors as from April 2009	1 year	Periodic visits	-
Achham	Concern technical assistance October – December 2009	None	8 monitors as from September 2009 through DHO since the beginning	1 ½ years	Periodic visits	Oversight by one staff in district
Mugu	ACF from 2008-2009 for three months only – for two OTPs	Friend for Needy Children for same two OTPs	7 monitors as from 2008 –	1 ½ years	Periodic visits	-
Jajarkot	None	Nepal Public Health and Educational Group – only for eight months	4 monitors as from December 2009 – handed over to DHO	-	Periodic visits	-
Kanchanpur	None	Youth for World Nepal only for eight months	4 Monitors as from May 2009 – handed over to DPHO		Periodic visits	=

2.5 Past reviews and evaluations²⁶

The findings and recommendations from previous CMAM monitoring exercises and evaluations have been woven into the discussions in this report with appropriate referencing. Most evaluative exercises were carried out with regard to the CMAM pilot project in Bardiya, which was initiated first. The project was implemented by Concern Worldwide in collaboration with Ministry of Health and Population, Child Health Division, Nutrition Section. The implementation partners were District Health Office (DHO), Bardiya and Community Development Organization (CDO/Local NGO). The project was financially supported mainly by the UNICEF/Nepal Country Office. Concern Worldwide had carried out the CMAM project in Bardiya District as per the project agreement signed with the Social Welfare Council (SWC). The project period covered 14 months from November 2008 to December 2009.

Concern Worldwide produced an annual report to UNICEF in 2009 for Bardiya and Achham, where it provided technical support. This report covers results, cross cutting issues, constraints and learning. Concern Worldwide also supported a Simplified-LQAS Evaluation of Access and Coverage (SLEAC) carried out in Bardiya in November 2009.

UNICEF and Valid International conducted a **monitoring mission** in November 2009 as part of a regional support agreement to assess CMAM and to provide support for consolidation and expansion of the programme. The objectives were to: 1) review existing National CMAM Guidelines; 2) master training of trainers for MoHP staff; and 3) review the pilot CMAM programme. In 2010, UNICEF Nepal issued a synopsis report “Challenges Ahead in Nutrition”, which documents strengths and lessons from the CMAM pilots.

CMAM district annual reviews were conducted in various years in the five CMAM pilot districts (Achham in 2010; Mugu in 2010; Bardiya in March 2011; Kanchanpur in July 2011; and Jajarkot in July 2011). Mid-year reviews also took place in all five districts. In the review meetings, through SWOT analysis, major issues that needed to be addressed for programme improvement were identified and actions agreed upon to address them.

A **CMAM regional review workshop** took place in Nepalgunj in September 2010 with participants from all five districts. The participants visited the oldest CMAM programme in Bardiya and made observations of lessons and good practices applicable to other districts. Overall lessons and constraints were compiled.

Two evaluations were carried out within months of each other on the CMAM programme in Bardiya District. While both were end of project evaluations and aimed to collect lessons learned, they had somewhat different objectives and scope.

1. The **Social Welfare Council (SWC) evaluation** was carried out by a team of four consultants from the Ministry of Health and Population, Social Welfare Council, a financial expert and a nutrition expert. Data collection took place in December 2009 and the report was published in March 2010. The objectives were to assess the acceptance of CMAM by health workers and community, feasibility

²⁶ References: CMAM Mid-Year Review Meeting, Bardiya, 12-13 August 2009; UNICEF and Valid International Mission Report, November 2009, by Saul Guerrero & Gertrude Nyirenda. November 8th – 18th, 2009; CMAM Annual Report, 2009, submitted to UNICEF by Concern Worldwide; Final Evaluation of Concern Worldwide/MoHP Community Based Management of Acute Malnutrition (CMAM) Programme, Bardiya District, Nepal, February 2-19th, 2010 by Saul Guerrero, CMAM Advisor; Government of Nepal Social Welfare Council Evaluation of the CMAM Pilot Project in Bardiya, March 2010; Powerpoint Presentation, DOH, Achham, May 2011.

and sustainability of CMAM within the health system, effectiveness of CMAM for curing of severe acute malnutrition and financial management of the project. The data collection process included visits to 11 municipalities and interviews with health system staff and mothers.

2. **A final evaluation supported by Concern Worldwide** was carried out by an independent consultant in February 2010. This constituted the final evaluation of the pilot project for accountability to donors, and the organization left Nepal shortly afterward. The primary objective was to assess the performance and level of integration of the CMAM pilot programme in Bardiya district. The evaluation focused on 1) the national CMAM pilot strategy; 2) the performance using standard and pre-agreed indicators, and; 3) the lessons learned and its implications for the future roll-out of CMAM services nationwide. The data collection process included interviews among health system, UNICEF and Concern Worldwide stakeholders. Beneficiaries of the project were not included in the interview list.

In preparation for the May 2011 independent evaluation team visit, the **DHO CMAM team in Achham** prepared an analysis of the pilot progress over the past year. The analysis, presented to DHO staff and leaders of political parties, included a SWOT analysis and analysis of numbers of MAM and SAM cases and admissions to the programme.

3. EVALUATION SCOPE AND METHODOLOGY

This chapter contains the evaluation scope, objectives, users, team, methodology and constraints. The chapter also explains how data quality was assured.

3.1 Evaluation Scope

The primary focus of the evaluation is to determine the degree of success of the CMAM pilots in five districts in Nepal and to generate lessons and recommendations for strengthening and expanding CMAM in needy areas. Research questions were examined to determine the pilots' success with respect to relevance and appropriateness, effectiveness and coverage, efficiency and quality, and sustainability and scalability. The evaluation gathered lessons learned and examined cross cutting issues such as results based management, integration in the national health system, equity and gender equality, capacity development, national ownership, partnerships, guidance and support and cost analysis. The research design relied on baseline and routine monitoring data and in-depth interviews and focus groups discussions (Annex 1).

3.2 Evaluation Objectives

The purpose of the evaluation is to assess the performance of CMAM pilots in Bardiya, Achham, Mugu, Kanchanpur, and Jajarkot. The lessons and recommendations from the evaluation will be used by stakeholders in Nepal as well as in other countries by national governments, UN agencies, donors, and NGOs for strengthening existing programmes as well as for advocating for leveraging resources for effective CMAM strategies and interventions in areas in need. The objectives of the evaluation are:

1. To undertake analytical assessment of the progress achieved in implementing CMAM to identify key successes, good practices, and gaps / constraints that need to be addressed.
2. To examine CMAM programme performance using standard OECD/DAC criteria of programme relevance/appropriateness, efficiency and quality of services, effectiveness, impact (potential) and sustainability.
3. To examine the effectiveness of related cross-cutting issues such as coordination and management; gender and other forms of equity; capacity development; advocacy and policy development; and information/data management.
4. To document good practices and generate evidence-based lessons and recommendations to strengthen ongoing efforts towards the expansion of CMAM coverage in Nepal and other countries in need and towards strengthening global /regional level guidance and support.

The performance of the pilots was assessed against the three assumptions and indicators outlined in the national CMAM pilot strategy which include the following:

- CMAM will reduce the barriers of access to treatment for acute malnutrition and, therefore, increase the percentage of children receiving treatment (coverage) from less than 1% to 50%;
- CMAM can be sustained through integration in the regular health services with existing human resources and facilities; and
- CMAM can create effective treatment capacity for children suffering from severe acute malnutrition.

3.3 Evaluation Team and Consultative Bodies

The national evaluation team for Nepal was composed of: Devendra Chhetry, statistician, Pushpa Kamal Subedi, anthropologist, Uddhav Sigdel, demographer, and Prakash Sapkota, economist. The national consultants were joined by Camille Eric Kouam, CMAM expert, and Sheila Reed, evaluation expert, who formed the global synthesis team. The global synthesis team provided oversight to ensure that the evaluation framework, design, study implementation, including quality data collection, analysis and report writing are aligned with the global evaluation quality and standards. The team was supported in implementation of the evaluation by the UNICEF Nepal Nutrition Section.

A national Evaluation Reference Advisory Group (ERG) with participants from the Department of Health Services, relevant academic institutions, national and international nutrition and food security experts, UNICEF, EU, DFID, World Health Organization, World Food Programme, and other donor representatives, was established by UNICEF Nepal to ensure broad-based national ownership of and support to the evaluation. The ERG members reviewed the draft evaluation framework and design, research instruments and tools, plan of analysis, draft consolidated report, and contributed to the management response to the evaluation. The team met with the ERG four times to present the evaluation design and discuss progress with data collection and received advice for modification of the design and analysis.

3.4 Evaluation Methodology

A comprehensive research and analysis framework was developed to assess the CMAM activities in the pilot sites (Annex 1). This evaluation comprises a descriptive analysis of the process (activities) and the outputs (results) of the programme, as well as an economic cost analysis of the CMAM program. Both quantitative and qualitative data were analysed for this evaluation. This evaluation does not use a pre/post comparison design and, therefore, does not lend itself to attributing any effects to the CMAM programme. Data were collected from primary and secondary sources. The evaluation addresses the Nepal CMAM TOR questions designed by the UNICEF Nutrition Section in Nepal which interfaced with but did not totally encompass the global CMAM evaluation questions.

3.4.1 Evaluation Work Plan

Evaluation planning was initiated well in advance of arrival of the global evaluation team with development of the TOR and recruitment of the national team. The evaluation commenced in Nepal on 9 May 2011 with a discussion among the evaluation team and the ERG, followed by team meetings to develop and finalize methodology and data collection tools. The data collection at the CMAM sites took place over a period of 20 days and included extensive air and road travel to reach the communities and health posts. The team also conducted interviews and collected quantitative data in Kathmandu. The reporting period extended into August 2011.

3.4.2 Data Collection Methods, Tools and Sources of Data

The team conducted a review of project documents and secondary data sources. Over 40 documents were consulted as well as MoHP databases (Annex 6). The primary qualitative data collection methods at national, district and Village Development Committee (VDC) levels consisted of focus group discussions, consultative meetings, workshops and in-depth individual interviews with key informants. Perceptions on the quality of services, the effects of these services on the beneficiaries' quality of life, constraints and recommendations were assessed. In addition, there was direct observation of CMAM activities, facilities and supplies. Interview and focus group discussion guides were designed according to the questions posed in the TOR. A grid was developed to document direct observations of CMAM activities. Data were triangulated to ensure validity of conclusions, as outlined in Table 3.1.

Table 3.1: Methods of Data Collection by Sources of Data and Nature of Data

Nature of Data	Sources of Data	
	Primary	Secondary
Quantitative	Health Facility inventory	Baseline survey Routine monitoring data e.g. length of stay
Qualitative	Focus Group discussion Direct observation In-depth individual interviews Consultative meetings and workshops	CMAM Policy and programme, UNICEF's strategic Plan, and other development partners' documents Baseline survey reports and grey literature as relevant District Development Committee (DDC) reports
Triangulation	Mix of surveys, consultative meetings/workshops, community surveys and emerging out others	Review of qualitative and quantitative data from the baseline survey reports, CMAM policy and programme documents and previous reports

3.4.3 Sampling Design

A purposive sample of health facilities was selected for visits to ensure adequate representation of OTPs/SCs, and taking into consideration logistical and accessibility issues as well as the need to coordinate with the District Health Offices. Six Stabilization Centres and 13 OTPs in the five districts were visited. This sample comprised more than 20% of the total number of SCs and OTPs.

Beneficiary and community sampling sought to include a broad range of stakeholders, including mothers and fathers of malnourished children, and other males such as community leaders and heads of political parties. The team conducted approximately 40 key informant interviews including staff from:

- Ministry of Health and Population (Child Health Division, District Health Offices, OTPs, SC staff)
- NGOs (Helen Keller International, NTAG, Save the Children)
- Independent nutrition and food security experts and academics
- UNICEF staff and consultants (Nutrition, Health, Water and Sanitation, senior management, field office management, CMAM nutrition consultants and monitors)
- Other UN agencies (WHO, WFP)
- Multilateral and bilateral donors (World Bank, EU, DFID, USAID, AUSAID)
- Private sector (Potential RUTF/RUSF producers)

The team conducted 46 focus group discussions with more than 200 participants representing community health workers (FCHVs), community leaders, and beneficiaries of CMAM (mothers and fathers of children benefitting from the programme). Table 3.2 gives an overview of informants met at district and VDC levels (Annex 5).

Table 3.2: Overview of People Interviewed at District and VDC Levels

Data collection methods and informants	Achham	Bardiya	Mugu	Jajarkot	Kanchanpur	Total
1. In-depth Individual Interview						
Health Worker/OTP In-charge	2	2	2	2	3	11

CMAM Monitor	2	2	2	2	2	10
CMAM Focal Person	1	1	1	1	1	5
CMAM Consultant	1	-	1	-	-	2
DHO	1	1	1	1	1	5
SC Nurse	1	1	1	1	3	7
Total Individual Interviews	8	7	8	7	10	40

2. Focus Group Discussion

Participants

FCHV ²⁷	3	2	2	2	1	10
Mother Group	-	-	2	2	1	5
Mother of child with SAM	1	2	2	1	1	7
Mother of discharged child	1	2	1	2	1	7
Mother of child still on the programme	2	-	1	1	1	5
Mother of child with MAM	1	-	2	1	1	5
Father of child with SAM	-	1	1	1	-	3
CMAM Monitor				1		1
OTP In-charge				1		1
Health post management committee	1			1		2
Total Focus Group Discussions	9	7	11	13	6	46

3.4.4 Cost analysis approach

For the purpose of estimating the CMAM cost, the total annual CMAM expenses were disaggregated according to the scheme in Figure 3.1.

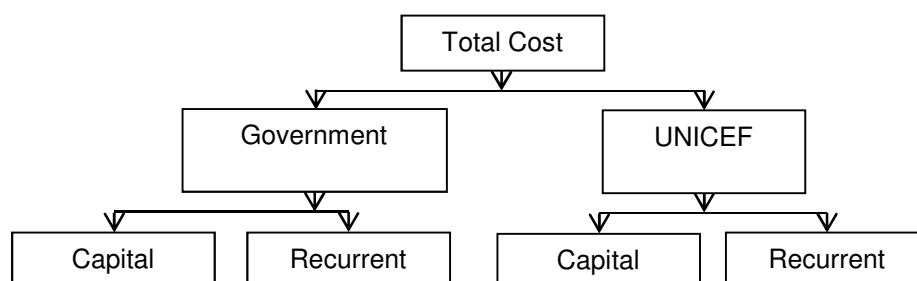


Figure 3.1: Disaggregation of Total Annual CMAM Expenses.

UNICEF provided the financial data on CMAM implementation and the data were broken down into capital and recurrent costs as described in Box 3.1..

²⁷ FCHVs are the main community workers involved in the screening, referral, counselling, monitoring and follow up visits.

Box 3.1: Capital and Recurrent Cost Items for CMAM Implementation

Capital Cost Items	Recurrent Cost Items
1. Capacity building training	1. Review, monitoring and refresher training
2. CMAM model and Protocol development	2. Supply of RUTF
3. Information and Communication	3. Transportation of RUTF
4. Equipment	4. Freight charges

To estimate the government costs, relevant data were collected from the Nutrition Focal Points of the District Health Offices during the CMAM site visits. To assess the economic value of the services provided by the government and community health workers, a time allocation framework was used to assess their respective time contribution. After subtracting the SAM and MAM cases from the total screened children, the remaining cases were considered as “normal”.

The major cost components of the government were the imputed values of the services rendered by the government health workers and community workers, including their regular salaries. Similarly, training contribution was also assessed. In the training components, supervision, monitoring, and review were grouped into recurrent cost, whereas Training of Trainers (TOT) and other capacity building training were grouped into capital costs. The annual value of the capital cost was estimated taking into account the life of the capital goods considered. The life of the TOT costs was assumed to be of five years. Capital and recurrent costs of government included several major items (Box 3.2).

Box 3.2: Capital and Recurrent Cost Items for CMAM Training

Capital Cost Items	Recurrent Cost Items
1. Equipment	1. FCHVs' activities
2. District TOT	2. VHW and MCHW activities
3. Health worker training	3. Health workers at OTPs
4. FCHVs' training	4. Health workers at non-OTPs
	5. Health workers in SCs
	6. District level focal point, manager and others
	7. Training and meeting
	8. Other cost (e.g. RUTF including transportation, biological test, medicine, stationary/ photocopy and communication)

3.4.5 Quality Assurance

Capacity for the data collection process was strengthened through discussion and finalization of the questionnaires and checklists through two-day extensive meeting among national and global consultants and feedback received from UNICEF. The meeting included discussion regarding evaluation tools, interview skills, qualitative data compilation and consideration of ethical issues in relating to people interviewed. The responsibilities of the team members were clarified with regard to coverage of TOR questions and implementation of the work plan.

In the management of data processing and analysis the following procedure were applied:

- Data collected from tools/techniques/checklists were entered and analysed by computer software.
- Well-trained and experienced data entry operators were involved in data entry process.
- The clean data sets then were converted into qualitative software for the purpose of analysis.

Qualitative information was translated, transcribed and triangulated. Primary and secondary qualitative information was also compared and as well as complementing quantitative analyses with qualitative analyses.

The evaluation report, as with the evaluative process, was assessed on the basis of the UNICEF Evaluation Report Standards (2004) and the Active Learning Network for Accountability and Performance (ALNAP) Pro Forma standards (2001). Both draw on good practice in evaluation of development and humanitarian action, incorporating both recognised evaluation standards and OECD-DAC evaluation criteria with other cross-cutting issues.

3.4.6 Limitations of the Evaluation

The evaluators experienced the following constraints to data collection and analysis.

- Inter-district comparisons were limited by different levels of programme maturity in each district; however comparisons can be interpreted in view of the reference period for each district.
- Limited reliable quantitative data related to the MAM component were available and thus little quantitative analysis was possible for MAM management. However, the available quantitative data was analysed and considerable qualitative data on MAM management was collected and analysed.
- The data were collected only from the national health system, and information on use of traditional medicine or private clinics to treat malnutrition was not included in the analysis. Data collected in the baseline surveys were referred to in order to have contextual information on the use of alternative health services.

4. PROGRAMME EFFECTIVENESS AND QUALITY OF SERVICES

This chapter presents findings on programme effectiveness and quality of services across the four CMAM components: Community Outreach, Outpatient Treatment Services for children with Severe Acute Malnutrition (SAM) without medical complications, inpatient care for children with SAM and medical complications, and services for children with Moderate Acute Malnutrition (MAM). The effectiveness of each of the component activities is assessed using a cross district comparison of the performance against programme indicators and standards, as well as coverage, quality, timeliness and sustainability. The chapter also covers Ready to Use Therapeutic Food (RUTF) supply, storage and acceptability issues. Throughout the chapter, the 'reference period' refers to the period from starting date of the programme in each district until May 2011 (Table 2.2).

4.1 Community Outreach

Community outreach is a fundamental concept for CMAM which is defined as *stimulating the understanding, engagement and participation of the target population in prevention, identifying and active referral, follow-up and monitoring of malnutrition*. As per the National Medical Protocol for CMAM, there are two main objectives for community outreach/mobilization:

- To ensure that the maximum possible number of severely malnourished children access treatment (achieve good programme coverage).
- To increase community awareness on malnutrition.

The activities involved are typically: 1) active case finding and screening of children to identify those with SAM or MAM; 2) referring the identified severely malnourished children to OTPs for validation and admission and moderately malnourished children to counselling (supplementary feeding is not used in Nepal to manage MAM); 3) home visits to monitor SAM treatment; and, 4) raising the awareness of the community about the causes and prevention of child malnutrition and the existence of services for malnourished children.

4.1.1 Screening

The CMAM programme's objectively verifiable indicator for screening is: "Seventy percent of the total child population in the district being screened for acute malnutrition".²⁸ The needed frequency of screening is not clarified in international guidelines or pilot project documents. The National Medical Protocol does not stipulate frequency. The *Nepal Health Worker CMAM Training Manual 2009* (Module 3) mentions five possible times when children will be screened for malnutrition: 1) during daily routine work (by the FHCV or at health posts); 2) during growth monitoring and promotion activities as part of the PHC-ORC; 3) during any other activities in the community by the health worker or FCHV such as mothers' group meetings, and general organized screening events etc.; 4) by Early Childhood Development (ECD) facilitators on a quarterly basis for all children enrolled in the facility; and 5) by private practitioners and traditional healers who should advise caretakers to link with the FCHV of that area for a MUAC test if they suspect malnutrition.

The screening of children for CMAM in Nepal is nearly always conducted using Middle Upper Arm Circumference (MUAC) and checking for bilateral pitting oedema, as indicators for referral. The screening

²⁸ ACF CMAM Pilot Project in collaboration with MOHP Nutrition Section, Mugu and Accham Districts, 2008, page 11

through MUAC is based on the WHO revised growth standard that included MUAC <115 MM and bilateral pitting oedema. Inclusion of the MUAC criteria has proved to be essential in the implementation of the CMAM pilots.²⁹ Weight/height is used (applying criteria of HT/WT ratio <-3 SD, as per the recommendations of the March 2007 of the WHO/WFP/SCN/UNICEF Joint Statement on CMAM) in the OTPs to confirm the MUAC referral. One of the above three criteria are used to admit children in the OTPs.³⁰

The use of the MUAC tape is a viable way of promoting sustainability of services because of its simplicity and compatibility, with easy and early case finding and referral in the community.³¹ Its use in CMAM in Nepal has been justified in the project proposal by the MoHP, UNICEF and Concern Worldwide (2009, page 3).

“Using MUAC for both screening and admission simplifies screening so that it can be handled by local health workers and community volunteers without the need for bulky equipment. Traditionally, admission to therapeutic feeding programmes is determined on the basis of Weight for Height, which identifies a different population of malnourished children. However, MUAC is the anthropometric indicator with the best prognostic value for mortality. Unlike weight for height, MUAC has a direct relation to muscle mass and is therefore a direct measure of nutrient reserves. Thus screening and admission by MUAC targets malnourished children at highest risk of mortality”.

In the Bardiya programme, the main administrators of the MUAC, the Female Community Health Volunteers (FCHVs) were assessed for screening skills including use of MUAC measurement, oedema assessment, recognition of danger signs and knowledge of community messages, and their performance was found to be good (78%).³² The Social Welfare Council evaluation (2011) found that FCHVs successfully identified SAM using MUAC in Bardiya in all but a few cases.³³ This evaluation found that FCHVs in Mugu used the MUAC correctly.

Interviewees mentioned some issues with the use of MUAC. The reading of the MUAC tape, which classifies children as red, yellow or green, may not contribute to a more targeted approach to prevent SAM and keep discharged children from sliding back into SAM. Moderately malnourished children close to the cut-off point with SAM may be more at risk than those closer to normal range but MUAC does not always alert caretakers and health workers to highlight these children for more intensive counselling and monitoring. Mistakes are sometimes made in screening and mothers whose children were mistakenly identified as SAM and went to the clinic for admission, sometimes walking for hours, may find out that their child is moderately instead of severely malnourished and do not receive any RUTF or supplementary foods.³⁴ This experience may not promote repeat MUAC testing for these children. Further, the use of MUAC should be a means to enhance community understanding of the nutritional issues that it identifies and this was not always evident in communities.

²⁹ Final Evaluation of Concern Worldwide/MoHP CMAM Pilot Project in Bardiya District, February 2010, page 10.

³⁰ W/H is a more accurate indicator for estimating nutritional status of children but it requires equipment and trained staff to consult anthropometric tables. MUAC requires only the MUAC tape and is easy to interpret so is feasible for use by the FCHVs. Nevertheless the MUAC measurements need to be confirmed at health facilities using W/H. Some children could be diagnosed as malnourished by FCHV whereas they are not while measured at health centre using W/H. The district assessments indicated some disparity in identification between MUAC and W/H.

³¹ International Workshop on the Integration of Community Based Management of Acute Malnutrition, Washington D.C., April 28-30, 2008 p.5

³² Concern Worldwide Annual Report to UNICEF on the Bardiya Pilot CMAM, 2009, page 6.

³³ Evaluation of the CMAM Pilot Project in Bardiya, Social Welfare Council, 2011, page 15.

³⁴ This finding was also in agreement with the finding of the SWF Evaluation.

A large number of children are typically screened en masse during vaccination or Vitamin A campaigns which typically occur twice a year, but routine screening is performed for the most part by the FCHVs. Some children are identified in clinics when they present with illnesses. In all five districts visited, FCHVs use different opportunities to screen children as described in the box below.

Box 4.1: Screening and Referral Process

"We screen malnourished children during home visits and community events. We take their MUAC. If it is in the red colour, we make a slip for the child and we refer him/her to the OTP". FCHV, Achham.

"We generally screen children once a month during mothers' group meetings. We also screen them during vitamin A and immunization campaigns. We take their MUAC. If it is in the red colour, we refer them to the health post". FCHV, Bardiya.

"We call all children of the village in a spot to screen SAM cases but tubby children are excluded. Some care takers do not come to spot and some are absent during home visits. We are also the member secretary of mother groups and MUAC is measured during mother group meeting". FCHV, Jajarkot.

"We screen the children using MUAC test; children with red colour are referred to OTP and children with yellow colour are referred to counselling. We also screen the children during mothers' group meetings". FCHV, Kanchanpur.

The MoHP and DHOs have achieved a high degree of success in rallying communities to participate in campaigns. Caretakers generally indicated that the FCHV's are also a major outreach agent for screening.

"FCHVs told us to go to the health centre. They are the ones that send us here. It was during the polio day. They go to the field and they measure the arms of children, and if they find a problem they refer the children here". Caretaker, Achham.

The screening results per district are found on Table 4.1 below. Screening coverage is difficult to ascertain because data does not indicate repeat screenings or children covered by alternative health services, thereby limiting capacity for estimating overall CMAM programme coverage. Two issues with screening data relative to need for the performance indicator for coverage (70% of children are screened) are as follows.

1. Although the recommended frequency of individual screening is not stipulated with regard to CMAM, other programmes promote quarterly (ECD) or bi-annual screening. Screening data generally does not include the names of children and does not specify whether screening was performed at mass screenings, community based routine screenings or identification at clinics during visits to treat illnesses. The data covers more than one year in all cases. Thus conclusions cannot be made on whether individual children are screened as often as necessary.
2. Screening numbers are cumulative and likely to include repeat screenings of the same children, therefore cannot be considered conclusive on the coverage of screening of the entire population of children. Actual numbers of children screened are then likely to be less than the overall numbers in Table 4.1.

Table 4.1: Screenings by Community

District	Children Under 5 ¹ in 2010	Screenings during the reference period (Contains some repeat screenings)	Screenings related to population size (not conclusive as% of population)
Bardiya	56848	51611	91
Achham	42484	39561	93
Mugu	12393	8914	72
Kanchanpur	60637	57191	94
Jajarkot	20049	16949	85
Overall	192411	174226	91

Source: Based on VIT A Campaign 2011

Screening data is useful as indications of trends. Comparison analyses of districts shows that although the CMAM pilot programme in Mugu is relatively old (22 months), the screening coverage is the lowest (72%) as compared to other districts. Some reasons are the remoteness and inaccessibility of the villages by vehicle as well as low population density (12 persons/square kilometre). In Mugu, FCHVs mentioned that *“to screen malnourished children in the village we walk 2-3 hours from one village to another village for home visits”*. Health workers in Mugu also said that FCHVs *“cannot screen all children due to geographical constraints”*.

By some accounts, some families with a malnourished child are self-identified and it is possible that a significant number of malnourished children are identified and admitted to the programme when coming to the clinic for other health issues. This is explained by health workers and caretakers.

“Children referred by FCHVs are registered in the IMCI register. If a child is SAM s/he is admitted to the OTP. Many caretakers of malnourished children are also coming directly to OTP and they are requesting measuring and weighing their children”. HW, Jajarkot.

“Some (children) are screened by FCHVs but many of the malnourished children are admitted during the check-up at hospital”. Caretaker, Jajarkot.

As indicated in Table 4.1, the screening coverage in Kanchanpur is higher compared to Jajarkot; however, this difference is probably due to the higher population density in Kanchanpur than in Jajarkot (236 versus 61) as well as a greater number of OTPs in Kanchanpur than in Jajarkot (17 versus 10). Another factor that could explain this difference is that in Kanchanpur, intensive community mobilization activities were conducted in the last three months of the reference period to boost screening and the number of admissions (Fig 4, Annex 3).

The screening coverage in Achham is slightly higher than in Bardiya, which is unexpected because the population density in Achham is lower than in Bardiya (138 versus 189). However, this difference may be explained by the greater number of OTPs in Achham than in Bardiya (26 versus 15). This may be explained by the fact that the CMAM pilot program in Bardiya is older than in Achham (25 versus 17 months); therefore there might be some decrease in the intensity of screening activity by FCHVs when the program is maturing and as severely malnourished children are identified, treated and discharged.

A critical concern for screening is the need to ascertain the areas and population groups where screening is inadequate and why. Children not captured in screening exercises may be considered the most at risk. The reasons given by interviewees for missing children in screening and referrals include the following:

- There is frequent migration, for example to Bardiya district, by families coming from the hills and mountains in search of economic opportunities and FCHVs are hard pressed to seek out new arrivals in order to cover children living in these families.
- Families may migrate to India or other countries in search of work and their children may not be screened in these places or they seek assistance in another country's national health system.
- The census data for the district may not be precise; it is not known exactly how many people are living in the districts or the number of people who migrate for work due to their extreme poverty.
- For those who use private clinics, data are not available on screening and referral to the FCHVs.

4.1.2 Referral

The CMAM programme's objectively verifiable indicators for referral and admission are as follows:³⁵

- 40% of screened children identified with SAM in the last half year actually accessing and attending the nearest health facility to receive treatment.
- 50% of screened children identified with SAM during coverage study (Bardiya) actually receiving treatment and follow-up services.

A total of 7,806 children were admitted in SCs and OTPs during the reference period (Table 4.2 below for more details). Key data indicating percentages of children with referrals who were taken to the health facility were not available for all districts and this creates a gap in the understanding of the screening/referral/admission process. Data available for Achham indicates that the total number of SAM children admitted to the programme exceed the estimated numbers in the baseline study of 2008 (1,639 children admitted in 2010 exceeds estimated number in 2008 baseline data – 1,421 children).

Interviewees identified the following problems in referrals and admission to the programme:

- Mothers of potential severely malnourished children who receive a referral may not respect it and do not take their children to the clinic for a variety of reasons, among them, heavy work burdens, distance to the clinic, and lack of understanding of childhood development and the health implications of poor nutrition.
- Moderately malnourished children are not admitted to the programme at the clinics and there are no data on follow-up on their cases.
- Mothers may use traditional healers and private clinics and these numbers are not registered in government records.

Among the 7,806 admitted SAM cases, only 258 (0.15%) had medical complications. This supports the global assertion that the majority of children with SAM do not have complications and can be treated in the community.³⁶

³⁵ Concern Worldwide. *CMAM Pilot Project, In collaboration with MoHP Nutrition Section; Bardiya and Achham District*. Aug 2008/Amendment 2 May 2009, page 11

³⁶ The FANTA document on CMAM (2008) says that only 30% of SAM children have complications and are admitted to the clinics. The result found in this evaluation confirms this assertion; the complicated SAM cases are even far below 30%.

**Table 4.2: Admitted SAM as Compared to the Number of Recorded Screenings
(Contains Repeat Screenings)**

District	Total cumulative screened children	Projected population aged 6-59 months	Screening per child per year (on average)	Admitted children in SCs	Admitted children in OTPs
Bardiya	307824	56958	5.4	28	2634
Achham	241662	42561	5.7	180	1754
Mugu	50844	7899	6.4	8	917
Kanchanpur	305862	62126	4.9	17	1966
Jajarkot	107049	20358	5.3	25	547
Overall	1013241	189902	5.3	258	7548

Source: Based on information relating to cost analysis collected during the field operation

Generally, once referred children reach the clinic, health workers verify the MUAC readings to further ascertain the stage of treatment for malnourished children. The process of admission of referred children is also described in the box below.

Box 4.2: Admission Mechanisms for Referred Children

"We all do anthropometric check-up of the child referred by FCHVs. We take MUAC, weight, height, and temperature. If it is less than 150 mm, the z-score less than -3, he/she is admitted in our IMCI register. We fill the register and we start treatment with plumpy-nut". HW, Achham.

"Children are screened by FCHV for SAM and MAM in the community. FCHVs refer SAM children to the OTP and they provide counselling for MAM cases. In the OTP all the coming children are screened, even those that are not referred by FCHVs. We measure MUAC, height, weight and oedema to make sure that referred children are screened correctly". HW, Bardiya.

"We recheck all the children referred by FCHVs and we treat SAM children only in this OTP". HW, Mugu.

"We re-examine all children referred by FCHVs using MUAC, weight and height measures. We also check malnourished children who are coming directly to the OTP". HW, Kanchanpur.

In the five pilot districts, MUAC is the most prevalent measurement and is well accepted as a means to rapidly facilitate early case identification. The table below indicates that 78% of the total admitted cases (7,548) were diagnosed through MUAC criteria. The high percentage of children referred through MUAC and confirmed at the clinics through weight/height confirms a good screening and referral performance by the FCHVs, and confirms that most children can be identified in their communities, rather than at clinics.

Table 4.3: Percentage of Admission by Criteria

District	MUAC	WFH	Oedema	Total	N
Bardiya	71.2	28.6	0.2	100.0	2364
Achham	85.4	14.0	0.6	100.0	1754
Mugu	63.6	27.8	8.6	100.0	917

Kanchanpur	83.0	17.0	0.0	100.0	1966
Jajarkot	94.3	5.1	0.5	100.0	547
Overall	78.3	20.4	1.3	100.0	7548

Compared to other districts, the percentage of children admitted in Mugu through the oedema criterion was much higher. Mugu is less developed than the other districts and the high level of food insecurity, lack of adequate protein and calories in the diet and poor hygiene and child care practices are some possible reasons for a relatively high percentage of oedema cases in this district. The data indicates that referral is a challenge in Mugu because of the distances to the OTPs and for the same reason, children may attend clinics less regularly thus symptoms of malnutrition may be more progressed before the child is identified and admitted for treatment. Families may also not be aware of the meaning of the swelling.

4.1.3 Home visit follow-up

Case follow-up in the home is described in the global CMAM protocol.³⁷

"In a minority of cases, outpatient care protocols will trigger a follow-up home visit to:

- *Check on a child who is not thriving or responding well to the treatment*
- *Learn why a child was absent from an outpatient care follow-on session*
- *Learn why a child defaulted (defined as missing three outpatient care follow-on sessions in a row)".*

The "National Medical Protocol for CMAM" states that *"where possible, Village Health Workers (VHW), Maternal and Child Health Workers (MCHWs) and FCHVs can trace those patients that default and need to be followed up. This is to encourage defaulters to return and complete treatment, but also to find out what are the reasons for defaulting and if there is anything that needs to be changed in the programme to prevent defaulting"*. The National Medical Protocol does not specify follow-up activities; however, the (national) Health Worker Manual for CMAM (2009), Module Three, lists the steps in detail regarding the roles of the FCHV for home visit follow-up, including observing the administration of the RUTF.

No quantitative data are available to examine the effectiveness of activities for follow-up, such as the problems encountered in the OTP or SC-based and household level monitoring or the frequency of home visits. Although the Health Worker Manual mentions that visits should be recorded on a follow up/home visit form, in practice home visits are not documented by the FCHVs. Home visits by FCHVs were seen to be inadequate by health workers and communities.³⁸ The following reasons for weak follow-up through home visits were offered:

- There are no referral forms and/or a structured reporting system for follow-up
- FCHVs are overburdened with numerous programmes, and they could not follow-up on CMAM regularly
- Access problems are widespread, such as lack of transport (in Bardiya FCHVs have requested bicycles), and very wide and/or scattered catchment areas with long distances between villages (e.g., in Mugu)
- FCHVs do not receive incentives for follow-up.

The issues regarding follow-up are not discussed in detail in any evaluative documents. The Concern final evaluation on the Bardiya programme notes: *The data analysis did show that on average, children*

³⁷ *Training Guide for Community-Based Management of Acute Malnutrition (CMAM)*. USAID, FANTA, 2008 . Module 3, page 3. oduewww.fantaproject.org.

³⁸ See also a related discussion on counselling in the MAM component below.

are defaulting after only one visit to the programme. Discussions held during the evaluation suggested that miscommunication between health workers and caretakers, distance and the perceived recovery of the child are the primary reason for defaulting. These are common reasons affecting CMAM programme attendance in other contexts. Experience has also shown that addressing these issues can rapidly improve programme performance.

Through qualitative interviews it was clear that FCHVs, caretakers and other community members were aware that both medical and community-based follow-up is a critical aspect of CMAM. FCHVs attend or manage women's group monthly meetings which may complement home visits to encourage defaulters to re-join the programme; the information received at the monthly meetings on child feeding and hygiene was considered important by caretakers. However, some experts and programme managers as well as literature mention the importance of household level support to encourage women to practice good feeding practices and the need of mothers to hear words of encouragement.

"In terms of encouraging mothers, it is hard to surpass the simple greeting: How are you and how is your child today? Then it is hard to replace a visit to the home for quick results, when assessing the problems the mother confronts and to offer a few suggestions to improve efficiency in cooking and cleaning procedures". **Community nutrition expert in Nepal**

4.1.4 Community sensitisation and mobilization

The National Medical Protocol promotes community mobilization through "*discussions held with key people in the community to give orientation on nutrition, malnutrition, and the CMAM programme.*" The key messages to transfer are mentioned in the Health Worker Training Manual (2009) in order to reduce barriers to access.

1. Raising awareness about malnutrition as a health problem
2. Informing the communities regarding the CMAM programme
3. Reducing walking distances to screening and OTP services
4. Ensuring CMAM services are offered free of charge and people are aware of this
5. Ensuring inclusion of marginalised groups
6. 'Repairing' the negative reputation of government health services.

The job descriptions of CMAM monitors also involves community mobilization and they were intensively involved in launching CMAM with the communities. Global guidance points out that a careful balance is required in planning and implementing community mobilization in order to generate a cycle of positive feedback in the community so that mothers/caregivers refer each other to the services. Careful assessment, strategy formulation and development of messages are important steps to avoid miscalculations which may generate negative feedback and reduce participation.³⁹

Several constraints were identified on effectively passing prescribed messages to the community:

1. Typical signs of wasting are rarely seen in Nepal, and caretakers generally refer to severely malnourished children as being "weak" rather than "thin". Community mobilisation strategies in other CMAM contexts have generally relied on the ability of caretakers to recognise SAM as a specific condition.⁴⁰
2. A number of FCHVs noted that in most towns and villages there is generally a lack of understanding of the basics of nutrition and contributing factors to malnutrition such as polluted water, poor sanitation and hygiene, and parasites. Further, this observation is not always related

³⁹ *Training Guide for Community-based Management of Acute Malnutrition*, Module 3, USAID, FANTA, AED, UNICEF, Concern, Valid International, 2008, section 3.1 . . .

⁴⁰ Final Evaluation of Concern Worldwide/MoHP CMAM Pilot Project in Bardiya District, February 2010, page 25.

to the degree of poverty; for example, people who are better off and who are leaders may have children who are moderately or severely malnourished. .

3. In some villages there is a lack of concern about the poorer members of society who may be more vulnerable to malnutrition and thus not much is done to help them. This highlights the importance of the role of the FCHVs in visiting the more vulnerable families.
4. Language is an issue in some parts of Mugu district where the majority of care takers of malnourished children (Sherpa and Lama) is not familiar with the Nepali language, and for this reason may not go to the OTP.
5. Village leaders and political leaders who take part in steering the District Health Office activities are aware of the resources brought to the villages by CMAM such as the jobs for local people and the RUTF, but in general, males in the patriarchal society may see the role of caretakers as being primarily assumed by women and thus do not promote the sense of their own or community responsibility; the additional work burden for women in seeking CMAM services is not always well appreciated by males.
6. Health workers who are otherwise well trained in medical procedures may themselves lack understanding of the causes of malnutrition and are not able to effectively sensitize patients. At the national to district levels, the GoN has relatively recently placed emphasis on issues of malnutrition and integrating them into other services however, as yet not all health workers have been trained in nutrition theory and practice
7. A significant percentage of people rely on private practitioners including pharmacists, herbalists and traditional health practitioners or faith healers who are not always approached to be included in the CMAM sensitisation activities.
8. Community mobilization activities may be rather hit and miss and depend upon the motivation of the district and/or UNICEF and partners to prompt activities.
9. Coverage of community outreach activities in the areas covered by a non-OTP health or Sub-health post is usually lower than the areas surrounding an OTP health facility. Thus, there is a need to strengthen/expand community outreach services in non-OTP health facilities to include community screening and sensitization.

The Concern Worldwide final evaluation in Bardiya mentions that the difficulties faced in the Nepalese context in terms of identifying SAM required a stronger sensitisation approach. Previous experience with integrated CMAM programmes has shown that complementary, mass media activities to support grassroots efforts (e.g. FCHVs) significantly increase programme performance. Limited human and financial resources are likely to hamper any integration of these activities into MoHP national and district level plans, but as part of the national roll-out of CMAM, alternatives should still be explored.⁴¹

4.2 Outpatient Therapeutic Programmes (OTPs)

The treatment for severely malnourished children without medical complications and a good appetite is managed in Outpatient Therapeutic Programmes (OTPs). Currently there are 75 OTPs in the five pilot districts, and the number has increased from 56 in the past two years. Most of the OTPs are located in a room or building in primary health centres (PHCs), hospitals and health posts (HP), and some OTPs are also initiated in few sub-health posts (SHP). They are staffed by health system staff, typically nurses who are seconded from their normal work posts. The treatment in the OTPs is totally free of charge. All the necessary medicines for children are provided by the government although there are medicine shortages

⁴¹ Ibid, page 26.

from time to time. This section discusses coverage of the OTPs, quality of services at the OTPs visited, and detailed analysis on admitted children as well as capacity of OTPs.

The functions of the OTPs as stipulated in the National Medical Protocol for CMAM (these are based on the protocol of the IMCI programme assessment) are:

- Take anthropometric measurements to confirm screening and referral results
- Administer appetite test
- Assess condition of child and presence of complications and refer to the SC as needed
- Provide nutritional treatment through the distribution of RUTF and instruction on its usage
- Monitor the child's progress through visits to the OTP at stipulated periods
- Discharge the child when the weight goal of 15% is reached.

A health worker describes his/her role in the OTP.

"We use anthropometric tests to confirm the SAM cases. We provide RUTF including counselling for SAM children. We advise FCHVs to monitor and follow-up the under-treatment cases. In two weeks period of time, care takers of SAM bring their children to OTP for follow-up. If a child gained 15% of his weight, then treatment is over. If children are identified with medical complications, we refer them to SC". Health Worker, Mugu

4.2.1 Coverage of the OTPs and of SAM

The OECD-DAC manual on evaluation criteria defines coverage as: *The need to reach major population groups facing life-threatening risk wherever they are.* In the case of the five CMAM pilots, the district boundaries determined the area in which coverage is analysed. Children with SAM outside of the district boundaries were not targeted by the CMAM pilot programme but other nutrition and health programmes may have had some impact. The following discussion covers two aspects of coverage, geographic coverage of health posts by OTPs and whether higher OTP coverage resulted in greater treatment coverage of severely malnourished children.

Coverage of health posts. An assessment of the existing health system capacity to cover children for malnutrition was performed in 2009 in Bardiya district by Concern Worldwide, to determine whether the programme was capable of having the needed impact and it was found that the overall coverage in the district was < 50%. The study suggested that distance was a key barrier to access, even if calculations suggest that average walking distances are well within the norm of CMAM programmes elsewhere. This suggested a low cost-benefit ratio (high effort, low reward) and/or the need for further decentralization of CMAM services (e.g. to SHP level). These findings also reinforced a need for greater community mobilization to improve access as well as the importance of performing appetite tests.⁴² In order to increase coverage in Bardiya, four additional OTPs were developed and community outreach was enhanced.

A major issue with regard to coverage is lack of an agreed way to define and judge coverage. The number of planned OTPs should logically depend on the expected number of SAM cases to be admitted which is calculated annually by the MoHP, based on population density. There is no coverage norm for OTPs for CMAM but it is recommended by WHO that all health centres should be covered as they are generally planned and built based on population density (or WHO and/or national health facility coverage standards). While it may be advantageous to have an OTP in each health facility, the costs would need to be assessed related to the desired results of the programme. The most critical related issue is the

⁴² Final Evaluation of Concern Worldwide/MoHP CMAM Pilot Project in Bardiya District, February 2010, pages 22 and 23 . This analysis was performed using Simplified-LQAS Evaluation of Access and Coverage (SLEAC) but the analysis for this evaluation did not use SLEAC.

capacity of the OTP, that is, how many SAM cases can it identify, admit and treat? The impact of distance and the associated higher default rates may also be related to issues with acceptance of the RUTF and the hardship imposed by numerous trips to the OTPs.

This OTP coverage analysis indicates to some degree how accessible the OTPs are to mothers and what the probability is that a mother will have to walk to a more distant health post for admission and follow-up if her child is screened or confirmed as SAM. Table 4.4 below indicates an overall 39.5% coverage of health facilities in the five pilot districts. The least covered district is Mugu, with 26.9% whereas the most covered is Kanchanpur (81%). Mugu is less covered possibly due to the scattered health facilities in remote locations and the challenges in capacitating an OTP.

Coverage of severely malnourished children. The analysis of geographic coverage of OTPs is somewhat inconclusive with regard to treatment coverage of SAM children for the following reasons.

1. Other health facilities which are not designated as OTPs provide some services for MAM and SAM such as counselling, educating and mobilizing the FCHVs and health workers.
2. Preliminary analyses made in this evaluation suggest that the numbers of malnourished children may have been somewhat underestimated in the baseline surveys and new surveys are needed. The cases of SAM admitted in Mugu (925) would indicate that more than the baseline projected number (880) has been reached despite poor coverage by the OTPs. (See Table 4.2, all districts have exceeded the baseline estimates for SAM cases in admission of SAM except Kanchanpur at 99% which is a relatively new programme).
3. Other evidence presented above, such as high presence of oedema in severely malnourished children in Mugu may indicate that SAM is not efficiently identified and treated which may be related to the distance to the OTPs or a lack of a full understanding of the programme. On the other hand, the district with the highest coverage of OTPs, Kanchanpur, had the lowest coverage as per above, plus the highest default rates. This is most probably due to the fact that it was a relatively new programme with a few OTPs (only 12) operating at the beginning of the programme (See Tables 4.5 & 4.6 below.)

This result demonstrates that CMAM presence in health facilities is still below 50% despite more than two years of implementation in some districts (Bardiya and Achham).

Table 4.4: Health Facilities Covered by OTPs

District	Number of existing OTPs	Number of Health Facilities ¹	Coverage of OTPs as per existing health facilities
Bardiya	15	33	45.5%
Achham	26	75	34.7%
Mugu	7	26	26.9%
Kanchanpur	17	21	81.0%
Jajarkot	10	35	28.6%
Overall	75	190	39.5%

Note: Health facilities include PHCs, HPs and SHPs

Source: ¹Department of Health Service, MoHP

4.2.2 Capacity of the OTPs

This assessment is based on visits to 13 OTPs. A checklist was used to assess the capacity of the OTPs and the findings were generally positive. To summarize the results:

- All health facilities had necessary equipment and tools (height boards, weigh scales, MUAC tapes, equipment for clinical examination of children, anthropometric tables) in good working condition.
- There were adequate supplies of RUTF and essential medicines.
- The needed registration forms, formats and guidelines were present in all facilities.
- All the visited sites were in generally well organized, with good crowd management.
- Health workers were helpful and they had positive attitudes with caretakers.
- Children were correctly weighed; the height and the grade of oedema (if present) were measured.
- Children were admitted and discharged as per criteria defined by the national protocol.
- Child information and data were well recorded the IMCI register.
- Caretakers received medicines, RUTF, as well as information on how to administer them.

Some of the issues include:

- Supplies were generally well stored except in Achham and Mugu where the District Hospitals experienced problems with rodents in the RUTF storage areas.
- None of the centres had play area or toys for physical and psychological stimulation of children. The importance of stimulation for malnourished children is expressed below.

A key means to stimulate appetite is to stimulate the mind; children need some form of activity to provoke mental stimulation, which may be encouraged by the caretakers and health workers. The use of stimulation, even counting to a child, can keep the child from having to use a feeding tube due to no appetite. Community nutrition expert

- Some OTPs did not have water taps and some did not have latrines (only 13 of the 19 CMAM sites visited had water taps and some did not have adequate latrines) in good condition (such as poor supply of water).
- Many health workers in charge complained about their heavy workload and needs for additional staff.
- Nutrition counselling of caretakers at the OTP sites was not up to standard. Health workers mentioned lack of time to dedicate to counselling. On average they spent 3 hours per day on CMAM activities, and the remaining time to other health activities in the centre, as evidenced by the following remarks.

“We provide service for malnourished children including ORT/OPD/mediation/other complication referred by FCHVs and field health workers (...). We spend at least 3 to 4 hours on CMAM activities per day. We counsel mothers as well if we have time, because next to all the services we are providing, we also handle data reporting”. Health Worker, Jajarkot.

4.2.3 Admissions

Admission of a child in an OTP is the entry-point for the treatment of SAM. Children who are “recovered” indicate success of CMAM in treating SAM. A total of 7,548 SAM cases were admitted in the 75 OTPs of the five districts during the reference period (Table 4.5).

For the purpose of comparing admission across districts, the average monthly admission of each district was used given that the maturity of the OTP services during the reference period differed across districts (see Table 4.6). The average monthly admission is highest in Kanchanpur (218 cases) and the lowest in Mugu (42 cases). The variation in average monthly admission is explained to a large extent (76 percent) by the population density, since the correlation between the two variables is 0.87.⁴³ It can be concluded

⁴³ Population density measures the number of individuals per square kilometre, and is a proxy measure of remoteness in the context of Nepal. Low level of human capability development, high incidence of poverty, food insecurity etc. are common characteristics of

that one major barrier to the admission of children in OTPs is the low population density and thus a lower number of health facilities. Initial assessments in the districts also indicated high utilisation of private clinics or alternative health providers in Mugu.

Table 4.5: Inter-district Comparison of Admission of SAM Children in OTPS

	Bardiya	Achham	Mugu	Kanchanpur	Jajarkot	Total
Total admission	2364	1754	917	1966	547	7548
Average monthly admission	95	103	42	218	61	92
Population density	189	138	12	236	61	

Total admission as compared to target

The objectively verifiable indicators for admissions are: *40% of screened children identified with SAM in the last half year actually accessing and attending the nearest health facility to receive treatment (period coverage) and 50% of screened children identified with SAM actually receiving treatment and follow-up services (point coverage).*⁴⁴ Measurement against these indicators is difficult as the screening data does not include referrals or identified cases. The only data available are the outdated baseline survey data.

The number of admitted children is higher than the prevalence of SAM in the districts according to the baseline studies, with an increase of almost 17 percent in admission, meaning an overall coverage of 120% of estimated children with SAM. These high admission figures may be due to increases in SAM over the period of 2 years, underestimation of the numbers during the baseline studies (the baseline studies used both W/H and MUAC), over reporting, or high re-admission cases. The under-five children population is not precisely determined by census/surveys and may fluctuate in some districts due to the migration of families to India and other countries for work, particularly of the very poor. Once back in their district some children of these families are re-admitted in the OTPs, which may explain this high admission number. This increase in admission is higher in Bardiya (33.4 percent) and Achham (21 percent) which are the most mature CMAM pilot programmes.

Table 4.6: Number of Admissions as Compared to the Targets

District	Total Under 5 Children	Estimated SAM cases (target)*	Admitted SAM cases in OTP and SC	Difference/Admitted SAM cases
Bardiya	56848	1592	2392	+ 33.4%
Achham	42484	1529	1934	+ 20.9%
Mugu	12393	880	925	+ 4.8%
Kanchanpur	60637	2001	1983	- 0.9%
Jajarkot	20049	481	572	+ 15.9%
Overall	192411	6483	7806	+ 16.9%

Notes:

Estimated SAM = Total Under five children*Prevalence of SAM as per baseline surveys conducted in 2008

remote areas in Nepal. Remote area is out of main streaming of development, and government efforts is to bring it into the main stream.

⁴⁴ Concern Worldwide. *CMAM Pilot Project, In collaboration with MoHP Nutrition Section; Bardiya and Achham District.* Aug 2008/Amendment 2 May 2009, page 11

Difference = (admitted - targeted)

Estimated children with SAM are based on WFH while the admitted SAM cases are based on MUAC

Monthly Admission Trends

The monthly trend of admission is displayed for each district in Annex 3 with some observations. (The admissions by gender are discussed in Chapter 5 on cross cutting issues.) The numbers of admissions are adversely affected by the following factors among others:

- National and local festivals – these usually occur in September-October and/or October-November when all public health offices are closed.
- Agriculture seasons - planting and harvesting seasons, which vary across ecological region; many FCHVs and other health workers are occupied with agriculture activities.
- Public strikes (Bandhs) – most common in Bardiya and Kanchanpur; these occur at various times of the year and are generally announced a week or a few days in advance.

A comparison of admission trends in three districts (Bardiya, Achham and Mugu) was conducted using two time periods – one in the beginning of the reference period (called first period) and one at the end of the reference period (called the second period). This analysis largely avoids the seasonality bias. The factors likely to increase admissions are 1) Expansion of the programme sites – Bardiya, Achham and Kanchanpur added more OTPs and/or satellite OTPs; 2) Programme interventions such as media campaigns.

There are some assumptions that may explain the trends.

1. Since there was no prior programme that specifically targeted severely malnourished children, the initiation of the programme would capture available children with SAM in the beginning, but as time passes on, or in the second period, the SAM cases will not be as abundant as in the first period, and there will be a reduction in the admissions in the second period. Based on this assumption, the programmes in Bardiya and Achham appear to have higher admissions initially than Mugu's. (Table 4.7). (This may then have something to do with the success of community outreach.)
2. The number of OTPs may be a determining factor, for example, Mugu's programme started with 2 OTPs in July/August, 2009; 4 OTPs were added in January/February in 2010, and finally 1 OTP was added in October/November 2010. The monthly number of admission is low in the first few months, but after the addition of more OTPs, the number has increased (Fig 3 in Annex 5).

Table 4.7: Comparison of Admission of Total SAM Cases between Two Periods

	First Period		Second Period
	Duration	April/May 2009 to Mar/Apr 2010	Apr/May 2010 to Mar/Apr 2011
Bardiya	Total Admission	1451	748
Achham	Duration	Dec/Jan 2010 to Apr/May 2010	Dec/Jan 2011 to Apr/May 2011
	Total Admission	722	360
Mugu	Duration	Jul/Aug 2009 to Apr/May 2010	Jul/Aug 2010 to Apr/May 2011
	Total Admission	363	426

4.2.4 Nepal SAM Treatment Judged by Sphere Standards

The pilot programme has succeeded in each district to meet the Sphere standards for treatment of SAM in admitted children.⁴⁵ Out of the total of 5,609 discharged children, 86 percent recovered, 0.7 percent died, and 9 percent defaulted (Table 4.8). The average length of stay was 49 days, and the average weight gain was 4.8 g/kg/day. This analysis indicates the success of the CMAM pilot programme for outpatient care. The non-recovery rate was 0.7 percent and transfer rate was 3.6 percent (comprised of 2.6 percent transferred out to SC, 0.8 percent transferred to OTP, and 0.2 percent medical transfer).

Table 4.8: Performance Indicators of OTPs by District

	Sphere Standard	Bardiya	Achham	Mugu	Kanchanpur	Jajarkot	Overall
Recovery rate	> 75%	84.0	87.4	87.6	88.1	85.5	86.1
Death rate	< 10%	0.4	0.5	2.0	0.1	1.9	0.7
Default rate	< 15%	12.1	4.8	6.3	10.1	12.3	9.0
Length of stay	< 60 days	42	52	58	47	46	49
Weight gain	> 4g/kg/d	4.7	6.2	4.4	4.5	4.1	4.8
Relapse rate	-	3.5	1.2	1.4	0	0	1.2

Note: Average Weight Gain and Length of Stay for outpatient care are not essential indicators but can provide information on the effectiveness of treatment (FANTA 2008). There is no Sphere standard for relapse rate.

According to key informant and focus group interviewees, a major reason for higher default rate in the terai districts – Bardiya and Kanchanpur – is the tendency for children migrating with their families seasonally to another country (such as India) and between districts to be screened and admitted but then subsequently move without completing the programme. Some interviewees mentioned that the higher default rate in Jajarkot (and Kanchanpur) as a newer programme is the weak follow up and coordination between health workers and CMAM monitors. The higher death rate in Mugu, although well below 10 percent, may be due to the greater prevalence of oedema which can indicate more advanced deterioration from malnutrition.

Out of a total of 4,830 recovered children, almost two percent relapsed. The indicator “relapsed cases as percentage of recovered cases” tends to increase with the duration of the programme.⁴⁶ It is therefore too early to make conclusions since they may further increase. However, a low relapse rate is considered to be evidence of success of the CMAM pilot programme. Another attributing factor may be the high infectious disease burden in the terai (see Background section). Some interviewees thought the target weight gain of 15 percent should be increased to prevent relapse, however, before this could be considered, the reasons for relapse should be well known, and are likely to include root issues in food security and household food management. If this is the case, putting greater efforts into prevention may be more cost effective.

⁴⁵ Sphere standards were developed for resource-intensive, NGO-led emergency programming, not integrated programmes in developmental contexts.

⁴⁶ The older the programme (like Bardiya), the higher the relapse rate. This means children that were treated through the programme but sent back in the community where the root causes of malnutrition are not addressed. Consequently they come back to the health centre or are diagnosed again in the community as malnourished after some time. The lesson learned is that addressing SAM without working on prevention would not be effective in the long term, because some of the treated children will come back after some time (relapse), even though the percentage is small.

The following are issues regarding relapse mentioned by interviewees.

- Relapse cases are re-admitted which means those numbers are included in the admission numbers and thus double counted. Although the number is currently not large, it may increase and thus a separate category of data collection should be made on relapse and subsequent recovery; this should be accompanied by a narrative on why the relapse occurred.
- Some children relapse more than once indicating that there may be more serious problems.
- More follow-up and additional MUAC testing is required at household level to prevent and identify relapse; mothers who have gone through the programme may be hesitant to repeat it if their child relapses and/or to have the child identified as a relapsed case.

Discharge data includes children who have completed the programme and have achieved the needed weight gain and these are “recovered” children. Among discharge data there are also deaths, defaulters, transfers, and non-recovered.⁴⁷

Table 4.9: OTP Admissions and Discharges

District	Admissions	Discharges	Percentage Discharged
Bardiya	2364	2072	88
Achham	1754	1555	89
Mugu	917	805	88
Kanchanpur	1966	715	36
Jajarkot	547	462	84
Overall	7548	5609	74

Note: The ratio being almost constant in the four districts is an indication of the consistency of data.

A number of 5,609 (74 percent) children were discharged whereas 1939 (26 percent) were under treatment. The percentage of discharge is almost the same in all districts, except in Kanchanpur where it is 36 percent due to most of the cases being recently admitted. The reason is that during the last three months intensive community mobilization through CMAM monitors and FCHVs was carried out in Kanchanpur, since the admission progress was very low.

Box 4.3: Management of SAM cases without medical complications

“Before launching the programme we used to identify malnourished children by measuring weight, height and refer to Nepalgunj (...) We could diagnose malnourished children but we could not treat them. There was no management protocol. We mainly provided nutrition education and some Doctors prescribed TB drugs. Now there has been a major improvement. For SAM children we provide RUTF and medicines”.
HW, Bardiya

“As advised by FCHV we visit OTP to treat our SAM children. Before we did not know why children were losing weight and becoming thin, but now we know. The number of death cases is decreasing once this programme started”. Caretaker, Bardiya

“We receive RUTF when our children are diagnosed as SAM by health workers”. Caretaker, Achham

“We come to OTP as advised by FCHVs during mothers’ group meeting. Health workers give us RUTF”.

⁴⁷ This data is lumped together to allow comparison based on the number of discharges .

after medical verification". Caretaker, Mugu

"FCHVS told us to take our children to this centre. The health worker rechecked them and provided us with RUTF for the first two weeks". Caretaker, Kanchanpur

4.3 Stabilization Centres (SCs) for Inpatient Care

As per the National Medical Protocol for CMAM, inpatient care is provided in SCs for severely or moderately malnourished children with medical complications and/or no appetite and to infants below 6 months of age. The medical complications are generally severe nutritional oedema, anorexia, convulsions, lethargy, unconsciousness, high fever ($> 39^{\circ}\text{C}$), severe dehydration, severe anaemia, hypoglycaemia, and hypothermia ($< 35^{\circ}\text{C}$). There is no standard for the number of SCs; WHO recommends to establish them and to build their capacity according to the expected number of SAM cases with medical complications.

The SCs in Nepal generally consist of two designated beds in a separate room or mixed in with other beds for people receiving inpatient care in a hospital. Children are admitted to SCs either through referral from OTPs, FCHVs or from emergency hospital services where they are diagnosed as malnourished when they consult for illnesses like malaria, diarrhoea, and lower respiratory tract infection among others. The role of the SCs is to stabilize medical complications of children admitted, and to ensure feeding with therapeutic milk, using feeding tubes if there is no appetite, as per the WHO protocol. The children in the SC must be accompanied by their caretaker and full time staffing is required to monitor the feeding process. When medical complications are stabilized and the appetite has returned, severely malnourished children are referred to OTPs, whereas MAM cases are discharged for follow-up by FCHVs through counselling.

4.3.1 Capacity of the SCs

Six SCs were visited by the evaluation team. The Mugu SC was not functioning on a full scale due to the exiguity of assigned space. Only two children were admitted in the SCs during CMAM site visits, one child in each Achham SC. The following observations were made:

- All the required equipment and supplies were present in all the SCs.
- The number of beds was insufficient to handle the caseload.⁴⁸
- As with the OTPs, there was a lack of a play area and toys (as discussed above, stimulation is important).
- Some health workers complained about workload, saying that next to the SC activities they also perform other health activities in the hospital. They suggested recruitment of a health worker that will be specifically dedicated to care of children with medical complications.

In the box below (4.4), health workers and caretakers provide detailed information on the admission and treatment processes in the SCs.

⁴⁸ There is no standard for the number of beds or toys. This depends on the caseload, which also depends on seasons. Generally during rainy seasons there are more admissions of SAM with complications, due to high incidence of diarrhoea and other infectious diseases. This is also the case during lean season in some countries. The beds might be empty in some periods, but insufficient in others, thus the children may be admitted in the adult wards. The evaluation team found that in several SC's there were sometimes two children per bed or other outpatient beds were used.

Box 4.4: Management of Malnourished Children with Medical Complications in SCs

"There was no classification of SAM and MAM children before CMAM programme was launched. SAM and MAM children were managed as normal clients who were seeking treatment. We used to advise mothers of thin children to give them nutritious foods, green vegetables and pulses. Now when we receive SAM children with medical complications, we admit them in SC for treatment using F75". HW, Jajarkot.

"Most of the children are referred by FCHV. Once they get here, we take MUAC, weight and height. We also verify medical signs and symptoms (...) We provide treatment for SAM children with F75 at SC. Usually the cases are discharged within 14 to 20 days". HW, Achham.

"We provide services to SAM children with medical complications. The nature of SC handling cases at Zonal hospital is quite difficult as preparing F75 and feeding admitted inpatient sometimes take time. We provide 7 days services on average to SAM children with medical complications in this SC". HW, Kanchanpur.

"After measuring MUAC, FCHV told me to take my child to the hospital. Health worker re-examined and admitted him for treatment. At the beginning, F75 was given to my child". Caretaker, Kanchanpur.

During the reference period, a total of 258 children (51% girls and 49% boys) were admitted to the six SCs. In Bardiya, a total of 42 cases were referred from OTP to SC during the reference period but the total number of admitted cases in SC was 28 during the same period. (Please see table on 'Aggregated Inpatient Data of the Reference Period' in Annex 8). These 24 children might be missed during the transfer from OTPs to SCs, or this could be considered as 'absenteeism' in the data monitoring system. Therefore, it is important to put into place a follow-up strategy to track referred children and ensure they reach the SC.

4.3.2 Performance of Stabilization Centres

Out of a total of 258 admitted cases to SCs, around 95% were stabilized (disaggregated as 77% recovered and 18% transferred to OTPs), 0.4% died, 3% defaulted, and 2% underwent medical transfer (Table 4.10). The quality of implementation of the SCs in each district is very good and has resulted in high stabilized rates (95.3%) and low death (0.4%) and default rates (2.7%). In general, it is not intended that severely malnourished children recover from SAM in SCs, rather that complications are stabilized and then they are transferred to OTPs with a new status of "SAM with no complications". Exceptional cases that are discharged as recovered from SCs are children under 6 months of age, and the MAM children with complications.⁴⁹

Table 4.10: Performance Indicators by District

	Sphere Standard	Bardiya	Achham	Mugu	Kanchanpur	Jajarkot	Overall
Stabilized rate	-	100.0	95.0	87.5	100.0	92.0	95.3
Recovery rate	> 75%	57.1	80.0	0.0	100.0	92.0	77.5

⁴⁹ In the CMAM Nepal design (see annex) children with MAM and complications are also admitted in the SCs. Once the complications are stabilized they are discharged, and not transferred to OTPs, because they do not have SAM, but have MAM without complications. They are then managed by FCHVs through counselling.

Death rate	< 10%	0.0	0.0	0.0	0.0	4.0	0.4
Default rate	< 15%	0.0	3.9	0.0	0.0	0.0	2.7
Transfer out to OTP rate	-	42.9	15.0	87.5	0.0	0.0	29
Medical transfer rate	-	0.0	1.1	12.5	0.0	4.0	3.57

Note: there are two categories of recovered children: (a) those that were admitted with oedema, and who become normal or MAM after the oedema was reduced; (2) MAM cases that were admitted with medical complications. Once complications are stabilized they are discharged and registered as recovered.

Data on the length of stay and the weight gain were not available because they are not computed in SCs in the pilot districts. Overall, the inpatient care in SCs has reduced the mortality of SAM children and it has improved in efficiency since the programme started. Some health workers interviewed thought that mothers were more confident in the effectiveness of the services, because generally they can go back home within a week after admission. According to key respondents and the analysis of available data, the inpatient CMAM component can be considered effective in Nepal, however, improvements are needed in the procurement of beds, play areas, toys, staff and data monitoring. Some interviewees questioned the cost effectiveness of having a separate SC where they exist rather than merging the SAM with complications with other inpatients but this aspect would require more analysis.

4.4 Services for Children with Moderate Acute Malnutrition (MAM)

According to the National Medical Protocol for CMAM, the treatment for MAM is to provide caretakers with counselling on child feeding and care practices as per the IYCF protocol.⁵⁰ Children identified with MAM in Nepal are generally not enrolled in supplementary feeding programmes. However, they may receive some SF through WFP's SF distribution in food insecure districts of Nepal in the Maternal and Child Health Care (MCHC) Programme. There is no supplementary feeding programme (SFP) currently attached to the CMAM.⁵¹ The protocol directs FCHVs to provide counselling of caretakers of moderately malnourished children in the community. There is no comprehensive body of guidelines developed specifically for MAM management in Nepal. The National Medical protocol sets out the following guidelines for MAM without complications (children identified by MUAC between 11.5 and 12.5 cm):

- Counselling should be provided for caretakers on the importance of nutrition for child development and proper child feeding and child care practices, with special attention to the home based preparation of Sarbottam Pitho⁵², energy density of child food and feeding frequency, hygiene and sanitation, and the importance of sharing responsibilities for child care among family members as per their time availability.
- All non-complicated moderately malnourished children are to receive monitoring and counselling by the FCHVs until he/she has reached MUAC > 12.5 cm. The FCHV will encourage caretakers to take

⁵⁰ Several changes were recommended to the protocol, including stating clearly that moderately malnourished children should receive deworming, Vitamin A supplementation and measles vaccination which other programmes require and provision of SF for discharge from OTPs. UNICEF and Valid International Regional Mission Report, November 2009, page 2.

⁵¹ However, supplementary foods (SF) are distributed in other programmes to their targeted populations, such as WFP's Lifecycle Nutrition programme which provides Wheat-Soya Blend to 22,000 children aged 6-36 months, some in CMAM districts. (Source: WFP Fact Sheet, Issue #1) Emergency programmes may also distribute SF.

⁵² also known as a "superflour" used to make porridge, such as for weaning, composed of (cleaned and roasted) two parts pulse – soybeans are best, but other small beans, grams and peas can also be used; One part whole grain cereal such as maize or rice, and one part another whole grain cereal such as wheat, millet or buckwheat. Some mothers sell this mixture on the market and some organizations such as Terre des Hommes are supporting women to meet the demand through production in small factories which are officially registered. ("Local Cuisine Can Save Children's Lives", October 2010, Marion Daricissac, TDH website.)

their children to the outreach clinic for growth monitoring in order to track improvements or deterioration of their nutritional status, and get relevant counselling.

- If weight increase is not achieved within two months after identification of MAM or when the nutritional status of the child further deteriorates, the child will be referred to the nearest health facility (with OTP) for investigation and systematic medical treatment, and if necessary referred to the Stabilisation Centre.

The objectively verifiable indicator for MAM is as follows: *Forty percent of screened children identified with moderate acute malnutrition receiving counselling on improved child feeding and care practices.*⁵³

Quantitative data is not available on the number of children with MAM identified in screening and referrals. Figures are not available on treatment through counselling and follow-up by FCHVs. Since there is no structured and standardized procedure for data collection and monitoring of children with MAM, the evaluation is mainly based on qualitative data.

The following issues were highlighted in interviews:

- A number of interviewees including FCHVs said that systematic follow-up of children identified with MAM with further MUAC tests and to judge the effectiveness of counselling is not performed.
- There is little monitoring at the household level of behaviour changes from either individual or group counselling.
- Since there is no routine follow-up, FCHVs and health workers were unable to judge how long a child remains in the MAM category and how long it takes for counselling to be effective to restore the child to a normal status; there is no evidence on how many identified children with MAM slip into SAM.
- FCHVs approach counselling somewhat differently and with different intensity, some covering more topics than others and some dispensing minimum information while others cover required topics in depth.
- The usage of the FCHVs of the mother's groups for general information dissemination is seen to be effective, however, it is not known whether all caretakers of children attend the group meetings but it cannot be a direct substitute for counselling at the household level where the individual circumstances are observed, as discussed in the quote below.

"Mothers have prepared special weaning foods for their children in Nepal for many decades but poverty and the work burdens of the mothers make this difficult at times. The availability of the donated foods such as Plumpy-Nut and WSB promotes convenience foods but their distribution is not always sustainable. The FCHVs and health centres can offer advice on how to prepare Sarbottam Pitho more easily and increase demand for the ready-made available in some markets which contribute to producer women's incomes. The potential of the extended family, especially the grandparents, to benefit from counselling and to pay special attention to malnourished children is underutilized". **Community nutrition expert in Nepal**

4.4.1 Identification and Management of MAM

In the five pilot districts, moderately malnourished children are identified along with those with SAM, such as through vaccination campaigns, mothers' monthly meetings, home visits, biannual national vitamin A campaign, other programmes such as IYCF and visits to health services facilities. In the past, anthropometric measurements were not routinely used to identify malnourished children but health workers delivered counselling on breast feeding and children received vitamin supplementation and

⁵³ Concern Worldwide. *CMAM Pilot Project, In collaboration with MoHP Nutrition Section; Bardiya and Achham District.* Aug 2008/Amendment 2 May 2009, page 11

complementary feeding. The management of MAM is described by FCHVs and health workers in the box below.

Box 4.5: Management of Moderately Malnourished Children

"We received training on how to counsel mothers. We advise them on good breastfeeding practices, complementary feeding and nutritious foods for the child, good hygiene and sanitation. We provide these advise to MAM children mothers as well, and we take MUAC of their children every month. Usually they recover after two to three months. But the recovery depends on how mothers take care of children". FCHV, Achham.

"The most effective programme is not for only SAM, but also MAM and all our nutrition programmes targeting under five children, because all cases are treated. We have counselling services for MAM mothers about breastfeeding, nutritious foods, hygiene and sanitation". HW, Achham.

"We mainly provide counselling to MAM mothers when MUAC of the child is found yellow". FCHV, Bardiya

"We provide counselling to mothers of MAM children. We spend 2 to 3 hours per day on CMAM activities in the OTP. If we provide them some micronutrients or supplementary foods or even iodized salt, MAM children will feel they are supported and this stimulate fast recovery". HW, Bardiya

"We mainly provide counselling to MAM mothers when child MUAC is found yellow. The literate women do what we counsel but illiterate women can't do so in practice. Carelessness is the main behavioural problems of MAM mothers". FCHV, Jajarkot

"We teach care takers of MAM children on how to prepare sarbottam pittho at home to minimize the chance of becoming SAM". HW, Kanchanpur

4.4.2 Perceived effectiveness of MAM management

At the national level, the MoHP considers behaviour change communication to be an effective strategy to improve child feeding and care practices and is focusing on improving the counselling programme. The Health Worker Manual for CMAM (2009) which is available in English and Nepali targets participants in Training of Trainers (TOT) for ministry and district levels and Health Workers and FCHVs with information about preventing SAM as well as preventive messages to disseminate in the community. The IYCF guidelines are interlinked with the training manual.

The national protocols focus largely on the guidelines for treatment of SAM, while the management of MAM does not receive similar attention, although the numbers of MAM cases are many times larger. It is noted that some evaluative documents do not address the treatment of MAM as a part of CMAM in detail or at all, or the effectiveness of the management of MAM as a means of prevention of SAM.⁵⁴ (MAM as part of other programmes is discussed in Chapter 5.) Some programmes such as DACAW in Achham, Mugu and Jajarkot support activities to prevent acute malnutrition. Similarly, the integration of the IYCF programme and training with CMAM contributes to prevention.

⁵⁴ These include: Final Evaluation of Concern Worldwide/MoHP Community Based Management of Acute Malnutrition (CMAM) Programme, Bardiya District, Nepal, February 2-19th, 2010, Saul Guerro, CMAM Advisor; Government of Nepal Social Welfare Council Evaluation of the CMAM Pilot Project in Bardiya, March 2010;

A key issue globally and nationally is how to effectively manage MAM and prevent the incidence of SAM. One argument for the inclusion of supplementary foods (SF) for treatment of MAM centres on the perception that counselling is not effective as the key treatment. Some proponents note that due to the high prevalence of MAM and GAM in Nepal, measures need to be urgently taken to prevent the progression into SAM of large numbers of children, particularly in emergencies. The UNICEF/Valid International Mission report notes, *“the absence of nutritional treatment for MAM is a notable shortcoming; not only because of the high number of MAM cases...but also because children recovering from OTP do not have a transitional stage (generally offered by SFPs) prior to being discharged.”*⁵⁵ Typically the OTPs distribute seven packets of RUTF for discharged recovered children to take home upon discharge.

It was clear from interviews with FCHVs that the frequency, methods of delivery and content of counselling varies among districts and FCHVs. This seems less due to effectiveness of training but rather upon the priorities of the health workers, their perceptions of the efficacy of counselling - especially for poor mothers who lack time and resources, diffusion of their efforts among many programmes, and the environment, such as distance to reach families and the support they receive in the local health system. Knowledge of the principles of nutrition and hygiene among other health workers may also vary. This phase of the Nepal CMAM evaluation did not undertake a structured survey to determine KAP changes from counselling; a survey will be part of the next phase and can promote conclusions on the outcomes of counselling. Qualitative data analysis for this evaluation indicated some of the prevalent attitudes, which should not be regarded as conclusions. The majority of interviewees, including FCHVs, health workers, caretakers, donors and management level staff thought that the distribution of supplementary foods for children with MAM should be considered but in light of the less sustainable aspects as well.

Arguments for provision of supplementary foods for MAM (and discharged children from SAM treatment):

- Counselling is not working effectively to promote behaviour change to the degree expected (however there is no substantive evidence one way or the other, the next phase of the UNICEF Nepal evaluation should provide some evidence).
- Chronic and acute food insecurity contributes to difficulties in accessing food.
- Women take on most of the labour attached to the household food supply and childcare and they are often hard pressed to attend to needs of their young children especially during planting and harvesting seasons. Male attitudes toward sharing these work burdens will require some time to change, thus providing SF will ease the workload of women.
- The mothers of children with MAM are frustrated about not receiving foods when RUTF is being given to SAM cases.

Arguments against provision of supplementary foods for MAM:

- It is part of the National Medical Protocol that preparation of foods to support children with MAM are home based.
- The SF is expensive and funds are limited globally as well to sustain the SFPs and once initiated it would need to continue for many years, which the government may not be able to sustain.
- The influx of large amounts of supplementary foods will work against local marketing, it is better to create and package such foods locally and place them in markets to be available on demand, letting Nepalese merchants do the management and take the risks.
- The logistics and storage systems would have to be managed (if by WFP) outside of the government systems and the national systems perhaps cannot sustain them.

⁵⁵ UNICEF and Valid International Regional Mission Report, November 2009, page 8.

- The SFP may become a means of addressing the issues rather than sustainable behaviour changes and community outreach and mobilization as intended by programme design; Mothers need better ways to manage, the counselling is a sustainable input to women's work management and child care practices.
- Allocating more resources to improve counselling or community outreach with nutrition messages is more cost effective to prevent both MAM and SAM. However, whether supplementary feeding is more effective treatment of MAM than counselling would need to be further tested. Plus, feasibility study of integrated supplementary feeding to manage MAM as part of the integrated management of acute malnutrition programme is needed.

Interviewees suggested some alternative approaches to the management of MAM:

- Involve males and extended family members such as grandparents in the MAM management process to facilitate more family time and focus on feeding the child with MAM.
- Make a hybrid solution for inclusion of supplementary foods which is more sustainable and less costly, such as focusing on the 25% of children with MAM that are more at risk of having SAM, by defining new cut-offs
- Supporting local production of Sarbattom Pitho on a larger scale and supporting women through vouchers to secure it in the market
- Rather than start a large scale supplementation programme, provide some ready to use supplementary food (RUSF) when the child is verified to be MAM until he or she reaches the normal range
- Counselling on its own is not enough to address the issue of MAM especially among the marginal and vulnerable groups, thus particularly in the food insecure areas supplementary feeding should be included based on feasibility studies on its integration into the CMAM programme.

4.5 RUTF Supply, Storage and Acceptability Issues

The National Medical Protocol for CMAM notes that the amount of RUTF a child should consume is 200 kcal/kg/day, which is comparable to the WHO recommendation of 150-220 kcal/kg/day for Phase 2 of the in-patient management of SAM.⁵⁶ The CMAM recommendation allows for some sharing with siblings. Health workers are in charge of prescribing the recommended amount of RUTF for SAM cases and to provide information to caretakers on how to use it. Currently in Nepal the RUTF distributed by the MoHP is manufactured in India and imported by UNICEF.

4.5.1 Supply mechanism and storage

UNICEF regularly supplies the five DHOs with RUTF. UNICEF and the CHD identify how much is needed, and then UNICEF procures and delivers supplies to the Logistic Management Division (LMD) of the Department of Health Services (DoHS) which transports the RUTF directly to the OTPs. In this system the regional warehouse is bypassed which normally is part of the government logistics system. UNICEF's role is to provide transportation costs to the transport companies. As per the government system, each OTP records receipt and distribution of supplies. The DHOs in turn are in charge of delivering the RUTF to functioning OTP sites, using local transportation means. The remoteness and inaccessibility of the CMAM pilot districts has created difficulties for ensuring timely initiation of CMAM activities, supply of essential nutrition supplies, and effective logistics. Furthermore, air and road services are extremely irregular especially to Mugu and Jajarkot districts.

⁵⁶ The in-patient management of SAM has two phases as per the WHO protocol. Phase 1: controlling medical complications and use of F75. Phase 2: use of F100, but RUTF is the child regained appetite between the two phases.

To prevent stocks from running out, procurement and supply of RUTF and other therapeutic foods, which are obtained from outside the country must be efficient. Delivery of supplies has been unpredictable and resulted in delays in the initiation of CMAM activities. Lessons learnt from the implementation of the CMAM pilots have led to better practices in early pre-positioning of essential nutrition supplies.⁵⁷ The CMAM regional review in five districts (Nepaljung, 2010) recommended the following:

- To promote effective management of supplying RUTF and other essential nutrition supplies, a management focal point will be created at central level based in the CHD.
- In all CMAM districts, CHD and UNICEF will jointly provide orientations to storekeepers of D/PHOs and OTPs for effective management of warehouses and supply mechanisms.

The strategic planning in the Nepaljung workshop helped to promote more effective logistics based on knowledge of seasonal constraints such as weather conditions and in view of the varying transportation costs for different districts. Health workers interviewed in all districts said that RUTF was supplied on a regular basis because they usually order the required quantity three months in advance; sometimes transportation problems occur from central to the district, but this is not common. Shortages of RUTF are rare and it is used in a timely manner. The evaluation team did not find expired RUTF stored in the visited OTPs and health workers did not complain about expired RUTF except in one district. Expired RUTF was a complaint at one of the hospitals that housed the SC and OTP, the reason given was lack of aggressive community outreach and rather an attitude of waiting for cases to come in.

The CMAM programme aims for integration in the health system and developing capacity of the MoHP for transport, storage and record keeping on the RUTF. This has largely been successful although DHOs do not always have optimum and large enough storage facilities and problems have been experienced with crowding and rodents. The RUTF is also very dense and its weight adds to storage and transport issues.

4.5.2 Acceptability

The RUTF currently used in the pilot districts is imported lipid based paste with no locally produced ingredients. The evaluation of CMAM in Bardiya by the Social Welfare Council (SWC, 2010) indicated that in general the treatment with RUTF was effective and although some digestive and palatability “adaptation” was sometimes needed for the acceptance by children it was usually achieved satisfactorily. The SWC evaluation found that one of the main reasons for non-compliance with treatment was the distance to the OTP to collect the RUTF and recommended the sub-health posts have supplies of RUTF.

The findings from this evaluation confirm SWC findings. In order to appraise the acceptability of RUTF, opinions of health workers, FCHVs and caretakers were sought. Their perceptions on use of RUTF are described below. Concerning the taste and side effects, respondents generally mentioned that:

“At the beginning, it sometimes causes diarrhoea, but not all the children are suffering from that”.
HW, Achham.

“The RUTF is very good, but there are sometimes complaints about diarrhoea from the mothers. They are advised to feed children with RUTF, along with breast feeding and good hygiene. Children like the RUTF. I came here once with a malnourished child, and he ate two sachets of Plumy-Nut during the appetite test (...) When they get use of it they finally accept it”. FCHV, Achham

⁵⁷ Report of the Regional Review of CMAM in Five Districts, 19-21 September, 2010, Nepaljung.

“RUTF is good. Some children dislike it at the beginning because it is something new for them. After practicing feeding they later like it. It is acceptable and maximum used. It is useful for our children”. Caretaker, Bardiya.

Some health workers raised the issue of the source of RUTF while managing SAM cases, as this source changed during the implementation of the programme.

“We faced some taste problem when the source of RUTF changed. The very first one (with red package, from France) was very well accepted. When we changed to the current one (green package – from India) there were some complains from mothers. They said children did not like the taste. We recommended them to frequently stimulate the child to eat; there are less complains these days”. HW, Bardiya

“The first type of RUTF coming from France was more easily accepted than that from India. But now children are used to the one from India and they like it”. HW, Mugu.

In general, both boys and girls with SAM receive the RUTF as prescribed, except in Mugu where health workers mentioned that:

“The distributed RUTF to SAM daughters is misused because it is shared with non-malnourished son/brother in the household. There exists such discrimination on girls. We are working on advising mothers not to do so anymore”. HW, Mugu.

Health workers, FCHVs and beneficiaries perceive RUTF as an effective treatment for SAM because of the rapid weight gain. It is well accepted by most children as they get used to it. Health workers and FCHVs do not think the distribution of the RUTF spoils the mothers with an easy fix, but rather that they really need this help. Nevertheless, consumption of RUTF must be linked to an effective behaviour change strategy. The issues related to counselling discussed above for MAM caretakers also apply to SAM cases. Commitment for funding might be a critical issue for the procurement or production of RUTF locally, given that there are potentials for its production and supply by local companies in Nepal and abroad (described in Chapter 6).

5. ANALYSIS OF CROSS-CUTTING ISSUES

In this chapter, strategies and principles which support CMAM throughout the programme components are discussed in terms of quality of planning and implementation and their relevance, effectiveness, efficiency and sustainability. These are results based management, information and monitoring systems, integration of CMAM into the national health system, implementing national guidelines, integration of CMAM with other policies and programmes, equity and gender equality, capacity development and training, and UNICEF's technical and organizational support.

5.1 Results-based planning and management⁵⁸

Results-based planning and management requires UNICEF and its cooperating partners to clearly define the expected results of programmes at the outset, agree on performance indicators, allocate resources to achieve the results, and to regularly review and evaluate progress, making adjustments as necessary.⁵⁹ Typical tools used in results based planning include: assessments, coordinated strategic planning, a Log Frame Analysis (LFA) with objectively verifiable indicators or performance indicators, information and monitoring systems, and decision making mechanisms, such as regular reviews and follow-up meetings that use monitoring and evaluation results to steer programme inputs.

5.1.1 Assessment and Planning

Global guidance describes what should be included in assessment and planning for CMAM: *“Existing health services and initiatives should be mapped and the programme planned with the relevant authorities and agencies to prevent duplication, build upon and strengthen existing structures and systems, and ensure that referral pathways, roles and responsibilities are clear.”*⁶⁰ A nutrition survey, a causal analysis assessment and a health system assessment are recommended prior to start-up of CMAM.

The National Nutrition Policy and Strategy was originally developed in 2004 but due to capacity and other issues, national approaches to counter malnutrition had not resulted in significant improvement in child nutritional status. The means to address SAM such as the Nutrition Rehabilitation Homes and a variety of small community based supplementary and therapeutic feeding programmes generally run by NGOs were not sufficient to address the incidence and prevalence and had met with varying degrees of success; data were also limited to judge their effectiveness. It was therefore appropriate to explore a more effective approach.

The Government of Nepal and UNICEF built CMAM upon a solid set of national feasibility and district-based assessments which include nutrition surveys, health system assessments, and health behaviour practices. In late 2006, UNICEF conducted a feasibility assessment report for Community-based Therapeutic Care (CTC) which effectively described programmes underway to address malnutrition and concluded that the CTC approach was relevant to the context in Nepal. The report broadly mapped out other relevant child health and nutrition programmes and clearly identified the major challenges which

⁵⁸ Documents consulted for this discussion include: CMAM Pilot Project in Collaboration with MoHP Nutrition Section, Mugu and Achham Districts, 2008, Action Contre La Faim (ACF), UNICEF, and MoHP; CMAM Pilot Project in collaboration with MoHP Nutrition Section, Bardiya District, 2008.

⁵⁹ UNICEF website.

⁶⁰ WHO/WFP/SCN/UNICEF Joint Statement on CMAM, 2007.

CMAM sought to address, but many of which persist today. The major challenges consisted of the following.

- Lack of identification and appreciation of malnutrition as a major health issue at the local level, both in the community and at many health facilities.
- Confusion among health workers and community members about the different types of malnutrition, particularly the distinction between underweight and acute malnutrition.
- Securing staff availability, capacity, and supervision for community outreach, increasing access to adequate medical assessment, treatment, and referral.
- Access to referral stabilization centres for SAM cases with complications, due to limited existing capacity, as well as socio-economic, geographical and infra-structure barriers.
- Perceived risk of over-emphasizing SAM treatment to the detriment of prevention, early identification and treatment of moderate malnutrition cases, although the CTC approach uses SAM treatment as one among other entry-points to address malnutrition.
- Cost-effectiveness requires correct targeting, but accurate data to identify communities with high rates of malnutrition is largely unavailable.
- Effectiveness and sustainability of the approach depends on training and supervision of both health staff at local health facilities and community volunteers and female community health volunteers (FCHVs), as well as community mobilization on malnutrition awareness.
- Relatively challenging logistical arrangements and financial costs related to transportation and distribution of RUTF to local health facilities.
- Potential for local production of quality Ready to Use Therapeutic Food (RUTF), preferably based on locally available foods, to increase availability and sustainable access to treatment.

The feasibility assessment was followed by nutrition surveys undertaken by Concern Worldwide in Bardiya and in Mugu, Achham and Kanchanpur by ACF. (ACF had been implementing therapeutic feeding in Mugu previously in two OTPs.) Concern Worldwide also conducted the baseline study in Jajarkot which was more comprehensive and contained a causal analysis and more detailed analysis of health behaviour and related issues such as sufficiency of water and sanitation. Most surveys considered population density and made recommendations for numbers of outpatient treatment points. The assessments varied somewhat in what they covered and did not include all the aspects recommended in global guidance for community assessment.⁶¹

Some demand issues in assessment and planning which came out in monitoring exercises and in interviews with regard to demand include the following.

- **Attitudes toward formal health services and other paths to treatment and their possible impact on uptake of CMAM.** The district assessments sampled health seeking behaviour, and found in general that families sought medical assistance either in private or public systems and many used pharmacies while a very small percentage used traditional healers. The percentages of families using government health facilities who sought treatment for a sick child in the 2 weeks prior to the survey were Kanchanpur 21.3%, Mugu 39.8%, and Jajarkot, 66%. Private health facilities were used in Kanchanpur, 27.3%, Mugu 42.9%, and Jajarkot, 33%. The main reasons for non-use of a government facility are that the distance to reach the facility was too great, drugs were not available, and the waiting time until consultation was too long.

⁶¹ *Training Guide for Community-Based Management of Acute Malnutrition (CMAM)*. USAID, FANTA, 2008. www.fantaproject.org. Module 3, section 3.2.

The issue of distance to the OTPs proved to be a constraint to the CMAM services as well. Although the use of private clinics is significant, there is little information available regarding their use for issues related to malnutrition and whether private clinics were included in sensitisation activities (traditional healers were included). Data are needed on whether perceptions of the health system had improved and whether treatment seeking behaviour changed after the initiation of CMAM.

- **Community homogeneity/heterogeneity:** Various identity designators (e.g., language, ethnicity, religion, and politics) can divide communities, making it necessary to provide information and services in an even-handed manner or to make special efforts to reach excluded or marginalised groups. There might be stigma in the community or the influence of peers or family members might serve as a disincentive.⁶² Not all surveys covered these issues. The Jajarkot assessment addressed some of these possible constraints and made recommendations regarding ensuring inclusion of lower caste groups, including disaggregation of data, home visits and coverage of transport costs.
- **Identification of seasonal labour patterns:** The assessments needed to flag the possible impact of seasonal harvesting and temporary migration issues, particularly in the Terai, on the progress and tracking of admitted cases, as an important issue for planning. These issues arose as constraints to completion of the programme. Greater coordination across district and international borders may be needed.

With regard to **supply**, the following was noted.

- **Government participation in assessment and planning.** The initial processes did not fully incorporate government participation which may have been later reflected in a variable degree of ownership among DHOs, possibly weakest (although not conclusively due to this reason) where the programme was initially implemented parallel to the government system in Mugu by ACF for three months and strongest where the DHO assumed strong ownership in the early stages in Achham.
- The **referral pathway** in Mugu was a bottleneck constraint for ACF in moving complicated cases to the SCs or hospitals.
- The **additional burden of CMAM on health workers** was under-rated and assumptions made that it could be easily assimilated with their duties for IMCI, etc. The main vehicle for integration of activities at the family level is the work of the FCHVs but the capacity of the FCHVs was not explored in detail.
- The feasibility assessment mapped out relevant programmes and discussed their possible interactions; some recommendations are mentioned with regard to **integration** particularly with IMCI, but no specific suggestions lead to collaboration with other programmes. This theme needed to be carried forth into the nutrition surveys and project proposals with outputs expected for collaboration. (Duplication exists between programmes as described below. There is no global guidance regarding integration.)

Causal analysis for malnutrition was not conducted in CMAM assessments and in assessment reports malnutrition is attributed to various causes such as humanitarian crises, natural disasters, food insecurity and poor child feeding practices, among others. Interviews with stakeholders indicate differing assessments as to where funding should be targeted to address the root causes. A joint assessment would be useful as a basis for determining national priorities and long term preventive measures.

Log Frame Analysis: A useful analysis of the results based approach is the Log Frame Analysis (LFA) which helps stakeholders to set out and to understand programme expectations, risks as well as

⁶² *Training Guide for Community-Based Management of Acute Malnutrition (CMAM)*. USAID, FANTA, 2008. www.fantaproject.org. Module 3, section 3.2.

assumptions that are made regarding the capacity to achieve programme results. The ACF and Concern Worldwide's (2008) proposal for Achham and Mugu includes an LFA but no updated LFAs were available to the team. The LFA is generally one of the major planning instruments that guide staff in their daily work and should be revised periodically based on programme reviews and monitoring.

Performance Indicators: The most recent list of CMAM performance indicators for the pilot projects were mentioned in the Concern Worldwide project proposal document (2008) and included indicators for coverage, integration in the health system, and effectiveness of treatment (coverage and treatment was discussed in the previous chapter). The Concern Worldwide evaluation of 2010 compares results with performance indicators, however, in some documents and in discussions the outcomes and results are not referenced in terms of indicators set out for the programme. The evaluators attended a presentation by the District Health Office in Achham which very effectively discussed results of the programme but did not compare them to performance indicators.⁶³

5.1.2 Information, monitoring and reporting systems

The Government of Nepal operates a Health Management Information System (HMIS) but CMAM indicators are not integrated into this system because it is still in pilot phase being implemented in five districts only. A description is lacking in the National Medical Protocol for CMAM regarding how the programme data will be tracked and monitored or how it relates to the HMIS in the future, when programme is expanded throughout the country. The Global Mapping Review of CMAM (2011) points to lack of consistent information and harmonization in reporting systems. This is also the case in Nepal. The CMAM monitoring system is generally managed by CMAM focal points at the DHO or CMAM consultants using desktop computers provided by the programme and tracks indicators at district level, for example, the numbers of discharges, deaths, defaults and transfers expressed as percentages of the total number of cases leaving the programme during the reporting month. The system also monitors admission data. CMAM data is analysed centrally through UNICEF and the MoHP systems.

There is no tracking of qualitative data and no supervision forms for this purpose. As mentioned in Chapter 4, the following data gaps should be addressed to strengthen the assessment of programme performance:

- Means of detection by type/place of screening
- The number of repeat screenings as a share of the total number of screenings
- Qualitative data on, for example, the effectiveness of community outreach activities, reasons for default, and effectiveness of counselling
- The number of referrals to OTPs and SCs and subsequent admissions
- Programme performance with respect to mam children
- The number of deaths related to malnutrition outside the CMAM programme

The CMAM monitoring plan aimed to integrate CMAM activities into existing registration and reporting formats (e.g. for IMCI). The integration of the CMAM reporting system with IMCI is now underway but has not fully occurred. CMAM children are reported on IMCI registers; however, any weaknesses in the IMCI reporting also apply to CMAM, such as the fragility of handwritten records. The Achham DHO reported progress with information management, including a regularized system of recording. Monitoring by the government is also constrained by the deficit of human resources in the MoHP, particularly in the Nutrition Section.

⁶³ Achham District Health Office presentation on CMAM, May 2011.

The data analysis programmes rely on the efficacy of data collected by health workers in clinics and OTPs presumably using standardized forms for each child developed or adapted by the MoHP. The OTP monitoring cards are complex and at times difficult for health workers to use and it was advised that they were replaced by a simplified version.⁶⁴ Interviews with health workers suggest that an impediment to effective data collection is the time-consuming reporting for CMAM admissions and tracking which are not easily integrated with those of other programmes. Health workers may be tasked with numerous forms to be filled out for each type of programme, which poses great stress in terms of their work burdens. No evaluative reports analyse in any depth the possible issues with the hand written information collection at the district level and propose viable solutions.

There is a need for a holistic package and recording on information, as well as common supervision. There were initiatives in the past, but they did not work. To keep information system and monitoring intact attention should be given to integration with IMCI to ease this process for health workers in the field, for example designing an integrated form to be filled out rather than the 32 forms each health worker has to fill out for programme reporting every month. This initiative has to start at national level; but the problem is that people (partners) are not open to adjust the forms. Nevertheless the timing is appropriate to raise this issue, given that all the health workers have this similar complaint. (NGO staff)

Regular reviews and adjustment of resources. Programme data is given to the (central) Task Force and UNICEF to regularly analyse the progress of activities. The monitoring system uses guidelines including checklists for each level of development for all districts. In the districts, reviews are conducted at OTP and FCHV levels. Meetings should occur regularly in the DHOs to assess the programme progress and discuss issues in implementation. The DHO in Achham reported monthly meetings of the CMAM team with the DHO management; however some district staff would like to have CMAM specific meetings at least every two months.

The role of monitoring the programme in the districts is carried out partly by the DHO CMAM focal points and CMAM UNICEF consultants. CMAM monitors have been engaged by most of the pilot programmes mainly seconded from local NGOs or civil society organizations. The role of the CMAM monitors was two-fold in the Bardiya pilot, first, to monitor health worker compliance with programme protocols and promote adequate data reporting and second, to support the implementation of community level activities, including carrying out sensitisation activities at Village Development Committee (VDC) level and monitoring the work of volunteers (FCHVs). The monitors serve as technical and communication bridges between communities and health facilities and other partners. The Concern Worldwide evaluation mentioned that the CMAM monitors were instrumental in helping to develop technical capacity in the staff to treat malnutrition. In Mugu, the CMAM monitors were assimilated into the DHO structures following the departure of ACF which helped to promote sustainability.⁶⁵ However, the position of CMAM monitor has ended in some districts and in the opinion of some interviewees this has weakened the quality of the services.

A major issue is the large distance between health posts and the absence of roads in some districts which make monitoring activities difficult. It is challenging for example, for the DHOs and CMAM monitors to supervise and collect feedback from the work of the FCHVs, and for the FCHVs to reach children in remote areas. Due to the lack of structured CMAM reporting mechanisms, the work of the FCHVs to monitor the programme is not documented.

⁶⁴ UNICEF/Valid International Mission report of November 2009, page 5.

⁶⁵ Final Evaluation of Concern Worldwide/MoHP Community Based Management of Acute Malnutrition (CMAM) Programme, Bardiya District, Nepal, February 2-19th, 2010, Saul Guerro, CMAM Advisor.

Actions taken to address weak areas of the programme include the following:

- Emphasis was placed on outreach, prevention and MAM by the DHO including education in schools on malnutrition; mobilization by ECD facilitators; and distribution of bags and umbrellas to community workers
- More linkages were established with WFP supplementary feeding programmes in food insecure VDCs
- More OTPs were established at sub-health posts to promote outreach and access in all districts
- The programme was reorganized in Kanchanpur and increased focus on community mobilization resulted in an increase in treatment coverage of severely malnourished children from 26% to 97%

The CMAM programme reviews in Bardiya (2009) and in Nepaljung (2010) listed numerous needed steering actions agreed by district stakeholders. Many programme improvements were implemented in the districts as a result of these reviews. They included strengthening district level planning, monitoring and review of CMAM, involvement of local governance institutions in CMAM management, integration of the nutrition review with the CB-IMCI review, and involvement of the Reproductive Health Department with CMAM.

Evaluations and monitoring reports should focus on activities used to support the CMAM components but they do not all cover them. Those not covered routinely include:

- Treatment and follow-up for MAM including counselling
- Data collection challenges in health posts
- Integration of CMAM with other programmes
- Prevention of acute malnutrition

5.2 Integration of CMAM in the National Health System and Local Ownership

A major goal of CMAM globally and nationally is ensuring sustainability by integration of the activities and logistics in the national health systems. Validation of ownership includes evidence that the programme is nationally managed with sufficient resources, including national accountability for input, outputs and outcomes. Roles should be assigned to government staff for supervision, coordination and monitoring. The MoHP, UNICEF and CMAM implementing partners all placed high priority on integration and ownership from the onset of the assessment process for the pilot programme. An adjunct objective of the pilots was to improve quality, access and demand for national health and nutrition services.

There are no global standards for integration and there is no commonly accepted definition of integration into health systems. This section looks at integration as specific interventions that increase access to health systems and improve outcomes. The presence of both integrated and non-integrated programmes in many countries suggests there may be benefits to either approach, but the relative merits of integration in various contexts and for different interventions have not been systematically analysed and documented. Adoption, diffusion and eventual assimilation of a health intervention in a health system necessarily involve their translation and transformation to ensure alignment of intervention elements with critical health system functions.⁶⁶ A challenge for CMAM is to determine how it is best integrated into the national health system and to set appropriate goals for management. The Global CMAM Mapping Review

⁶⁶This evaluation develops a framework for judging integration of CMAM which is based on a number of publications. The main framework and theory is evolved from the following documents: Rifat Atun, Thyra de Jongh, Federica Secchi, Kelechi Ohiri and Olusoji Adeyi. "A systematic review of the evidence on integration of targeted health interventions into health systems." 4 September 2009, and Rifat Atun, Thyra de Jongh, Federica Secchi, Kelechi Ohiri and Olusoji Adeyi "Integration of targeted health interventions into health systems: a conceptual framework for analysis", September 2009.

(2011) has recommended the following: ***Develop integration indicators: that demonstrate progress into health initiatives including Integrated Management of Childhood illness (IMCI), HIV/AIDS and tuberculosis, incorporation into annual health plans, health financing, pre-service training for doctors and nurses etc. National budget allocated to SAM could also be useful.***

The Social Welfare Council's evaluation of CMAM in Bardiya (2011) focused on integration of CMAM. The evaluation concluded that the training provided to almost all health workers and FCHVs, supply of RUTF, integration of referral systems and partial integration of reporting systems has established a firm basis for integration of CMAM in the regular activities of the health system. However, it was noted that CMAM services need to be delivered close to the community in the sub-Health Posts or even closer. It is noted in general by interviewees that, particularly in Mugu and Jajarkot, the health delivery system is weak, suffering from lack of qualified staff and high turnover of professional health staff, managers and health care providers at the district to the grass root levels. Some health facilities often find it difficult to provide routine health services.

For the purposes of discussion of the integration of CMAM into the national health system, the elements related to critical health systems intervention include the following (some of these elements are covered in more depth elsewhere in the report.)

1. Governance – accountability, reporting, performance management, coordination
2. Planning – needs assessments, priority setting, resource allocation
3. Financing – pooling of funds, payment methods
4. Service delivery - infrastructure, human resources, operational integration, referral systems, guidelines, procurement, and supply chain management
5. Monitoring and evaluation – information management and technology infrastructure, data collection and analysis
6. Demand generation – incentives, prevention; population interventions – education and promotion (community mobilization and sensitization).

This discussion indicates that for most of the following elements, integration in Nepal has reached a partial level.

1. Governance – Full integration occurs where when the governance arrangements for the intervention are similar to those for the general health services or the local/national administrative structures. Partial integration occurs where responsibility is shared by the existing general health care system and a specific structure created purposely for the intervention. In Nepal, the governance arrangement would be considered to be partial.

Although specific structures were created for CMAM (OTP, SC), they are currently managed by and incorporated into the national health services system. The great majority of personnel managing CMAM are government staff, with an appointed health worker at district level as CMAM focal point. UNICEF retains a role as advisor and partial provider of supplies and funding, whereas the roles of NGOs are now related to service delivery only. Government commitment is clear at the central management and policy level through the National Nutrition Policy and Strategy which addresses infant and child feeding. The MoHP plans to expand the CMAM programme (as IMAMI) to five more districts. One issue noted is that the Nutrition Section of the MoHP has not been given adequate capacity to manage the various nutrition interventions or to push for greater resources for nutrition intervention including CMAM services, especially for more OTP sites, for inpatient care services and for expansion of CMAM.

Evaluative exercises including data analysed for this evaluation pointed to several lessons regarding the governance of CMAM. The **international NGO implementation** modality experienced some constraints to merging with the national system and promoting ownership. The ACF in Mugu which ran its own CMAM centres, had problems making referrals for complicated cases to the DHOs, and due to funding constraints, ACF eventually left Nepal. The ACF programme was not evaluated. The evaluation of the Concern Worldwide pilot project (2010) noted in relation to Bardiya that *“At a national level, the Child Health Division (CHD) played a limited role in the supervision, monitoring and dissemination of information about the programme. At a district level, the DHO placed a number of (unconventional) administrative and bureaucratic hurdles that prevented the rapid implementation of activities in the district. Although DHO staff did participate in a number of the activities outlined in the pilot agreement – including the training of health workers and the coverage survey – there is no evidence to suggest that they have taken the leadership, or achieved any degree of real ownership.”*⁶⁷

The **DHO leadership of CMAM** has been appropriately supported by the MoHP and UNICEF since the DHO has operated without international NGO support starting in 2010. The degree of integration and ownership at district level has generally improved since then. UNICEF supported a CMAM nutritionist consultant to work closely with DHO focal points on a daily basis and CMAM monitors to follow-up on activities in the health posts. This support was effective and there are indications that capacity was built quickly in Achham for all management functions associated with CMAM, such as programme oversight, monitoring, data recording, coordination with other health programmes and capacity development.

Two districts use **national NGO services**, Jarkajot and Kanchanpur. In these districts, capacity building activities were recently completed and OTPs and SCs have been operating since September 2010. In Kanchanpur, the programme lacked direction which improved significantly following the review meeting when the DHO played a vital role in coordinating stakeholders. Programme treatment coverage increased dramatically (29% to 97% in six months) because of effective community mobilization. In Jarkajot, programme monitoring and management were weak but has since improved. In general, staff of government and partner organizations pointed to the need for stronger leadership among higher levels of management in the MoHP and DHO to promote service delivery and monitoring in communities and to better motivate health workers to undertake duties related to screening and data collection.

2. Planning – Full integration occurs when decision-making in relation to assessments, priority setting and resource allocation is undertaken by the stakeholders who are involved in the same tasks for the general health system, whereas partial integration occurs when the decision-making responsibility involves a range of stakeholders such as donors and civil society representatives and focuses more on the intervention over the general health care activities. Planning in Nepal may be considered as only partially integrated. As described above under results based management, government offices did not have full participation in assessment, planning and resource allocation with the international NGO implementation modality.

3. Financing – Financing refers to the pooling of financial resources to support CMAM and the way the funds are obtained. Revenue generation is a critical financing function. Full integration occurs when the intervention is funded entirely through the national or regional general health care budget. It is estimated by some interviewees that 40 to 45% of the health sector budget comes from abroad. Costing analyses for this evaluation based on secondary data indicates that for the five pilot districts, the percentage share of UNICEF cost is higher than that of government, around 53% versus 47%. The CMAM programme is provided free to the beneficiaries so it does not generate revenue.

⁶⁷ Final Evaluation of Concern Worldwide/MoHP CMAM Pilot Project in Bardiya District, February 2010, page 23

4. Service delivery – Services are considered to be fully integrated if their provision is the responsibility of general or multi-purpose health workers. Partial integration refers to instances where there is shared responsibility for the provision of services between general health workers and the CMAM staff.⁶⁸ Like IMCI, CMAM roles are shared among health workers who perform multiple tasks. The positive aspects of integration of service delivery include:

- Little additional infrastructure has been created for CMAM under the current operating environment, OTPs and SCs are generally housed within DHO facilities.
- Duties of staff hired for CMAM technical support have been largely handed over to the national health staff.
- Referral is also handled within the health system at district level.
- RUTF and medicines are delivered through the national health system delivery channels (but they are procured by UNICEF).
- Efforts have been made to integrate CMAM with the IMCI protocol for SAM management without complications (all admitted SAM children are recorded in the IMCI register) and IYCF protocol for MAM management.
- The National Medical Protocol for CMAM is based on global guidelines (discussed below).

Service provision is dependent on technical assistance from UNICEF through NGOs, CMAM monitors and nutritionists and funds for transport and provision of RUTF.

Human Resources – In general, evaluative reports and this evaluation found that MoHP staff had integrated CMAM into their duties and into other programmes to some degree but that improvement was needed to promote greater integration and ownership. Despite the fact that most CMAM activities are implemented by national health workers, integration is only partial. As discussed above, this section appraises integration as the degree of adoption, diffusion and eventual assimilation of a health intervention in a health system which involves their alignment of intervention elements with critical health system functions.

- Numerous DHO staff felt burdened by additional work that they said was created by the programme.⁶⁹ CMAM was not perceived by some as part of a regular nutrition or growth monitoring programme and it was seen to be run by CMAM staff. It was generally thought that the roles of health workers in relation to CMAM required further clarification and they needed more motivation to increase their interest in CMAM.
- A major issue concerning the FCHVs who are the key implementers of CMAM at the community level is the lack of government compensation for their work. Incentives have been provided in some districts for successful treatment and participation in other programmes, such as EPI, but FCHVs do not receive incentives for CMAM. There are mixed opinions regarding the efficacy of providing incentives.
- There are challenges to monitoring the performance of the FCHVs, such as remoteness of some areas and difficulties for health workers to reach these areas because of lack of transportation.
- Some general staffing issues in the national health system pose constraints to smooth integration, such as absenteeism and staff assigned to remote posts not staying there full time.

⁶⁸ The IMCI strategy is a good example of partial integration where interventions for management of a number of childhood illnesses are bundled (Bryce J, Victoria CG, Habicht JP et al. Programmatic pathways to child survival: results of a multi-country evaluation of Integrated Management of Childhood Illness. Health Policy and Planning, 2005, 20 (Suppl. 1): 15–17.0), but can be administered either separately through community workers trained exclusively in IMCI or through PHC facilities using general staff.

⁶⁹ This was also a finding of the SWC evaluation, page 28.

Sustainability of supporting functions– Streamlining CMAM into government systems can be facilitated by the government taking a greater role in provision and transport of supplies, integrating CMAM into the national information system and sponsoring periodic refresher training to upgrade knowledge and skills of health workers and volunteers. One expressed concern among many interviewees is the need for sustaining support for the programme when UNICEF support is no longer available, for example, ensuring that DHO has monitors to take over the duties of CMAM monitors funded by UNICEF. Another concern is how to inspire health workers to continue advocacy with the community such as with the community leaders.

Before starting screening activities, there were advocacy meetings with community leaders, training of health workers and female volunteers. These activities were supported by UNICEF. The main issue is how the programme can be run if there is no more support from UNICEF or any other partner. Health Worker

5. Monitoring and evaluation – The M&E function of a health intervention was considered to be fully integrated if the responsibility rests with institutions that retained overall responsibility for M&E in the health system. Partial integration occurs when M&E is undertaken jointly by staff from the regional health services and the CMAM programme. As discussed above, in Nepal there is no nutrition information system and CMAM is still in pilot phase and CMAM performance indicators are not yet included in the National Health Information System. A greater degree of coordination is required between stakeholders to review performance and steer the programme.

6. Demand generation – Demand generation, increasingly recognized as an important health system function, relies on a number of interventions such as the use of appropriate incentives, and information, education and communication (IEC) activities designed to change behaviour, as well as through community sensitisation and advocacy. Demand generation was considered to be fully integrated if mechanisms used to create incentives or IEC activities were provided jointly with the general services or were delivered by PHC workers. The issue of demand generation as such, is important but it is not widely discussed in evaluative reports. Demand is fostered by the free provision of services and RUTF. Training of health workers, communities and FCHVs as well as dissemination of information through campaigns have all contributed to demand. The successful treatment of children and their discharge from the programme has led to confidence in the CMAM approach.

As discussed above, community outreach and mobilization need to be strengthened to promote demand for CMAM services, as well as health system services. The reasons that caretakers may choose not to use CMAM services appear to be similar to the reasons that national health services are not used (distance to clinics, shortage of medicines, preference for alternatives such as private clinics, and long waiting times, among others). Confronting these issues includes discussing the use of private clinics versus national clinics and investing in services to increase demand. A much greater understanding and appreciation of the science and application of nutrition should be fostered. At the national level, management of acute malnutrition is not included into the national curriculum of health workers' training. Fostering demand must include activities that target males in the communities including elected or appointed leaders who influence the thinking and in District Development Centres (DDCs) and Village Development Centres (VDCs). Increasing demand also means that staffing requirements may increase and require additional staff to avoid compromising programme quality.

5.3 Implementing National Guidelines and Integrating CMAM in Existing Policies

The National Nutrition Policy and Strategy (2008) covers nutrition approaches to nutrition-related diseases and provides guidance for identification and treatment. While the strategy addresses infant and child feeding, the CMAM approach in addressing MAM and SAM and the use of the MUAC are not mentioned, nor are other programmes which are operating in the national health system. Thus the strategy requires more connection with programmatic realities to guide staff in understanding how the concepts should be integrated within the health delivery system.

In practice, most national attention is focused on emergency nutrition response for which funding is more readily available. Interviewees pointed to the need for more policy work on development aspects of nutrition, going beyond the MoHP and involving other ministries in the implementation of CMAM and malnutrition prevention activities. While most interviewees recommend that nutrition protocols and strategies should be updated using a broader and more integrated perspective, some go further to suggest that development of strategies has been vertical and now it is time to work on a common platform, by developing a common road map that integrates all child health activities.

The MoHP in coordination with UNICEF and implementing partners developed national guidelines for the pilot CMAM which were published in 2009: the **National Medical Protocol for CMAM** and the **Treatment Guidelines for Outpatient Treatment in CMAM**. These guidelines describe the implementation process of the four CMAM components. More detailed step by step guidance is found in the Health Workers Training Manual (2009). Overall, the CMAM guidelines are applied as designed, to the extent that there is existing capacity, respect of medical and nutritional protocols, and involvement of community members. However, a number of limitations in their efficacy were observed:

- The “WHO Guidelines for Inpatient Treatment” (2003) should be further adapted to the national setting and become more pragmatic in terms of human resources, commodities and equipment required and the objective indicators to be achieved.
- The two nationally approved guidance documents, the National Medical Protocol and the Treatment Guidelines, mainly focus on procedures carried out in OTPs and SCs for admitted SAM cases with relatively short discussions on Community Outreach and MAM components. These documents should be unified and revised to provide details on roles and responsibilities for Community Outreach and MAM, and they should be integrated with the development of MAM guidelines currently underway as well as the IMAMI programme.
- Official national guidelines should be unified with the activities described in the training manual and be more precise and practical with regard to expected work on the part of the FCHVs. For example, they could stipulate a recommended number of follow-up home visits for SAM cases with results expected for each visit including whether reports of the visits should be filed. However, the capacity and time limitations for the FCHVs should be considered in development of guidelines and job descriptions. ,
- The National Medical Protocol stipulates that *“standardized recording and reporting formats were to be developed by the Nutrition section (MoHP), in collaboration with pilot implementing partners during the preparation of the implementation”*. There were no formats shown to the evaluators and no existing CMAM reports in the DHO health facilities.

5.4 Integration and Coordination of CMAM with Other Policies and Programmes

To promote sustainability, effectiveness and efficiency, all programmes to promote the wellbeing of the CMAM target group, children under five, need to be integrated to the degree possible and coordinated to avoid overlap and duplication. There are risks involved in integration particularly since project outputs

may be more difficult to measure and for results to be attributed to the inputs of the programme. The National Nutrition Policy and Strategy promotes integrated approaches among ministries to address health and nutrition problems. The Joint Statement on CMAM (2007)⁷⁰ promotes integration with programmes which address HIV/AIDs and saving children's lives through:

“Integrating the management of severe acute malnutrition with other health activities, such as: preventive nutrition initiatives, including promotion of breastfeeding and appropriate complementary feeding, and provision of relevant information, education and communication (IEC) materials, and with activities related to the Integrated Management of Childhood Illness at first level health facilities and at the referral level, and initiating such activities where they do not exist.

The need for integration is reinforced in the Annual Report of the Resident Coordinator (2010) on the use of CERF grants.

Box 5.1: References to Integration in Annual Report of the Resident Coordinator (2010)

Lesson Learned	Suggestions for improvement	Responsible Entity
Raising awareness on malnutrition and the need for treatment remains a challenge in a country where severe acute malnutrition is common but where children mostly have no clear visual symptoms	<ul style="list-style-type: none"> • Conduct communication activities providing information and raising awareness on acute malnutrition as part of preparedness activities. • Integrate IYCF with CMAM and other therapeutic and supplementary feeding programmes to address the ongoing silent nutrition crisis. 	MOHP, UNICEF and other nutrition cluster partners
Quality management of SAM provides an opportunity to enhance quality of care provided to children aged under five	<ul style="list-style-type: none"> • Ensure integration of CMAM with community-based health and nutrition packages such as CB-IMCI, IYCF, etc. 	MOHP, UNICEF

Recently, the national IMCI technical committee decided to integrate CMAM with IMCI by including the three diagnostic criteria of SAM in the IMCI protocol: weight/height ratio <-3 SD, MUAC less than 115 MM and bilateral pitting oedema. There are at least 22 programmes that target early childhood survival and development in Nepal. These programmes are supported by the MoHP and other ministries in combination with a number of development partners. Two districts using national management of CMAM with UNICEF technical support, Bardiya and Achham, have already integrated the management and treatment of acute malnutrition into the other child survival and health programmes.

There are so many programmes here. The CMAM is just one of them. There are IYCF, EPI, FP, disease control programme, training, reporting; in total 22 programmes, including CMAM. There is one staff supporting CMAM specifically, the CMAM monitor. He also helps us to keep the data. CMAM is related to other programmes also, so we conduct all programmes in integrated process. CMAM is not a particular programme here; it is not a different programme (Health Worker from Achham).

The plethora of programmes being implemented has led to overlap and duplication of services. In the workshop “An Integrated Programme Approach for New-born, Child Health, and Nutrition”, a presentation

⁷⁰ *Community Based Management of Severe Acute Malnutrition*, Joint Statement by the World Health Organization, the World Food Programme, the United Nations System Standing Committee on Nutrition and the United Nations Children's Fund, 2007.

by the “Core Group for Child Health Review and Planning Workshop” in 2011, indicated that opportunities had been missed to integrate programmes due to different modes of scale up and lack of a unified scale up strategy. The presentation demonstrated that the vertical scale up of programmes has had the following effects:

- Resources are duplicated, including time and effort from central to community level in terms of for example, planning and training.
- Absenteeism occurs at health service centres due to multiple trainings, some with overlapping themes.
- There are too many BCC/training/IEC materials; too many flip charts but not properly utilized.
- Logistical inputs to support activities are expensive and time consuming.
- Different recording tools are used by most programmes; there are too many M&E tools.
- The health and nutrition messages can vary regarding the same concept; there were different messages given at different periods of contact, and sometimes no reinforcing of messages.

These issues indicate the need for strong **joint** assessment, planning and M&E. The establishment of the nutrition cluster coordination mechanism in 2010 offers opportunities for increased collaboration and refining linkages between programmes and sectors. Very good coordination linkages have been developed for CMAM implementation at district level. At national level, through emergency nutrition cluster and national nutrition group meetings, the coordination mechanism is effective in terms of sharing the process and outcomes, and involvement of national stakeholders. At local level, coordination with local governance units, NGOs and government agencies has been playing a vital role for the better implementation of CMAM project as it is implemented through government health system and with other organizations implementing health and nutrition programmes in the districts.

Although the coordination mechanism has been strongly established at different levels, further improvement is necessary to achieve the programme objectives, such as: (a) frequent monitoring visits to the districts and holding coordination meetings among the district stakeholders, (b) effective utilization of existing coordination mechanisms through capacity building and advocacy at national as well district level, (c) more involvement of donor communities in monitoring and onsite visits, (d) frequent coordination meetings at regional and national levels, and (e) strengthening coordination with other sectors such as WASH, communication, maternal and child health and education and local governance mechanisms at national and local levels.

CMAM must be linked to the other programmes, it promotes a different process and it needs to be scaled up along with the others, for example, the Community-Based New-born Care Package (CBNC), which is going to reach 75 districts. And in five years the goals of FCSB is total coverage. One must look closely at how CMAM is designed and build linkages into the model. (NGO partner)

5.5 Equity: Gender Equality and Reaching the Disadvantaged, Vulnerable and Less Reached

The National Nutrition Policy and Strategy sets out four principles that guide policy including human rights and highlights the role of women in promoting nutrition. The National Medical Protocol for CMAM does not flag attention to aspects of gender equality and equity in CMAM service delivery. Only data on admissions was gender disaggregated, thus analysis of the gender related issues concerning performance is limited. Global CMAM guidance is sparse regarding gender equality and equity in programme management. The CMAM training programme based on internationally accepted guidelines does not highlight these issues either. Thus, most bodies of guidance and standards for CMAM do not adequately integrate gender equality and equity and these principles are implied rather than explicit and not detailed in terms of practice.

The Sphere Project Handbook *Humanitarian Charter and Minimum Standards in Humanitarian Response* covers children and gender as cross cutting themes and highlights concerns regarding vulnerable groups. New guidance is forthcoming (now in draft form) from UNICEF and the UNEG regarding human rights, gender and equality in evaluations that is useful for programme planning.⁷¹

Gender and equity in programme design. The CMAM approach in Nepal is mainly inspired from the CMAM global approach, which is based on four major principles: maximum coverage and access, timeliness, appropriate medical care and nutrition rehabilitation, and care as long as it is needed. In the pilot districts the high admission rates, good quality of services, and low relapse and default rates attest to the efforts of health system staff to honour the principles. The project proposals and monitoring reports refer to use of women's groups to transfer CMAM messages, including women's empowerment. In designing the pilot approach, UNICEF and MoHP included districts in the hills and mountains which were more difficult to access and are locations of the very poorest districts in the country.

In general, CMAM programme documents and evaluative reports do not devote needed attention to gender and equity issues. Nutrition surveys conducted for the pilots do not disaggregate data by gender and only the Jajarkot survey looks at societal issues in terms of demand for services. Neither ACF nor Concern Worldwide project proposals focus on gender or equity issues in depth or address how these concerns will be managed in practice. The principle of maximum coverage and access has been addressed in the pilot districts yet children with SAM residing outside the borders of those districts in equally poor areas do not have access to CMAM services, which is an impetus to a scale up effort. The SWC evaluation in Bardiya notes that some communities in the terai, such as the *Tharu and Madeshi* tend to have higher rates of SAM compared to other ethnic groups. However, there is no follow-up data analysis on whether treatment was provided according to need and whether worse-off children were sought out and included.

It is well documented from a children's rights perspective that boys are favoured over girls in Nepal, although the MDG data indicates that gender inequities are improving. The patterns of gender/socio-economic composition, as well as the attitudes toward them are further contextualized through political, social, legal and class realities.

There is slight discrimination between male and female children with girls being less favoured, when there are many children, the youngest are more frequently ignored. (Health Worker, Achham)

Overall, the usual advantages given to boys in many social programmes are not apparent with CMAM; more girls have benefited than boys, although the reasons for this are not clear. Due to the free services, poor people who use CMAM benefit significantly. The impact on women's workload is also not clear, the travel to collect RUTF with children in tow may have imposed additional hardships for both women and children and may have interfered with planting and harvesting, or vice versa.

Discrimination was not noted in CMAM implementation yet potential beneficiaries may have forfeited usage of CMAM due to their own social values. The poor and disadvantaged may have been less willing to participate and they were not encouraged as strongly by the communities as they might have been.

⁷¹ UNICEF, "Guidance on Equity-Focused evaluations", draft July 2011; United Nations Evaluation Group (UNEG) "*Handbook for Integrating Human Rights and Gender Equality Perspectives in Evaluations in the UN System*", draft for review only. Both of these documents are in the review stage and are not quoted and only broad content is referred to.

CMAM Admission from Gender Perspective

The 2008 baseline nutritional surveys conducted in the five districts revealed that the prevalence of SAM is higher for boys than for girls in all districts, except in Jajarkot; however, the percentage of girls admitted to the programme was higher than boys in each district. The overall percentage of girls was 57% (Table 5.1).

Table 5.1: percentage of Girls Admitted to CMAM

Bardiya	Achham	Mugu	Kanchanpur	Jajarkot	Overall
60	58	52	56	59	57

Acute malnutrition is not only related to economic status, it is related to other factors such as awareness, hygiene, consumption patterns, and child care practices, among others. Wealthier children may be treated in private clinics or in India and are not reflected in programme admissions. In this context, the programme benefits children of poor parents. Prevalence of SAM is 3.2% among the lowest wealth quintile group and 1.2% among the highest wealth quintile group (NDHS 2006). However, there is not enough data to conduct a verifiable analysis.

The following should be considered in scaling up CMAM.⁷²

- Assessments, monitoring tools, reviews and evaluations should contain a set of questions regarding gender and socio-economic factors which may influence equity, access to and utilization of the programme.
- The most vulnerable groups should be defined (disaggregated by relevant criteria: women/men, class, ethnicity, religion, age, location, etc.) as well as what it will take to reach them, power relationships which may affect their access to services, what benefits they have received, whether they feel ownership, and what results the programme has had.
- Perform a bottleneck analysis to determine behaviour changes needed among the most vulnerable groups, interactions among the service providers and the worst-off groups, and assumptions regarding the worst-off groups and how they can be countered.
- Project proposals and agreements need to describe how the programme will address gender and equity in design and how it will be culturally sensitive.
- Project proposals should discuss how typical constraints will be addressed such as: Distance to the service, cost and availability of transport, costs of services, and time constraints.
- Programme data should be disaggregated as far as possible in view of the data collection capacity so gender and equity-related issues can be analysed.

5.6 Capacity Development/Training

As the CMAM pilot became integrated into the national health services, intensive capacity building was targeted in particular to the district health offices (DHO). CMAM is a new approach in Nepal and little CMAM experience was available in-country prior to pilot commencement when training activities were developed for various categories of staff. A Health Worker Training Manual was developed in 2009 and translated to Nepali. The CMAM pilot has created an enabling environment at all levels of the health system and demonstrated an outstanding impact in a very short period of time in terms of capacity-building of MoHP staff.

⁷² Ideas synthesized from: UNICEF, "Guidance on Equity-Focused evaluations", draft July 2011; United Nations Evaluation Group (UNEG) "Handbook for Integrating Human Rights and Gender Equality Perspectives in Evaluations in the UN System", draft for review only. Both of these documents are in the review stage and are not quoted and only broad content is referred to.

The training modality is the cascade type. Health Worker (HW) training at district level is comprised of community HW training at area based health facility level and FCHV training at VDC/community level. Training activities included district advocacy, planning and orientation, training of trainers (TOT) to develop human resource capacity for CMAM training facilitation at different levels, training of VHVs and MCHWs, and training of FCHVs for community outreach activities and counselling services. A total of 8,586 people received CMAM training. (Table 5.2, and for more detail see Annex 5). Refresher training and training for new HW staff was also conducted. IMAM and SMART training for nutrition cluster members was also organized

Table 5.2: Numbers of Participants in Capacity Building Training

Bardiya	Achham	Mugu	Kanchanpur	Jajarkot	Kathmandu	Total
1,855	3,110	697	1,581	1,273	70	8,586

Source: UNICEF 2010

Training has promoted quality of services in assessment, treatment and counselling. Training has resulted in changing attitudes toward nutrition and given staff confidence in conducting measurements, weighing, plotting and registration of complicated cases, admission, referral, treatment, and implementing discharge protocols. UNICEF supported TOTs for managers and district health service providers which enabled them to efficiently replicate the training. Two days of training was provided for FCHVs. Some trainees offered the following observations.

I received the District Training of Trainers (DTOT) on SAM, MAM, and how to address them. Three days SC operating training was useful for handling SC cases. The training is adequate for my job; but we need refresher training (**Health worker from Jajarkot**).

The training is not sufficient to manage all types of cases. If it is advanced it would be better. We refer complicated children to SC. We would like to receive training on how to manage complications in SAM cases. We only manage simple problems here (**Health worker, Achham**).

Training for health workers and FCHVs is sufficient as the procedures for measuring of MUAC and providing RUTF are clear. However, intensive training is needed on behaviour change strategy for both health workers and FCHVs in the early stages as counselling skill is not adequate and this component is the most important in order to overcome malnutrition in long-term. In addition, OTPs are understaffed which constrains the effectiveness of capacity building on prevention of severe acute malnutrition. The training manual needs to be updated to be more user friendly and should be very specific to treatment of SAM/MAM and intensive practical skills home-based management of MAM on counselling to mothers/caretaker and promotion of RUTF for treatment. The largest challenge seems to be efficiently transferring the knowledge of the manual to FCHVs level.

There are numerous potential strategies to promote national capacity to implement CMAM. The Institute of Medicine (IOM) and Kanti Hospital have several paediatricians trained as trainers for treatment of SAM. Once oriented on the approach, treatment protocol and technical backgrounds of CMAM, these experts are an important asset for the training of local NGOs and health workers on CMAM. Furthermore, several organisations in Nepal have been involved in the training of health staff and FCHVs in Community based Integrated Management of Childhood Illnesses (CB-IMCI). The same organisations could be approached as service providers for training on CMAM at health facility and community level. Moreover, the National Health Training Centre (NHTC) trains community health workers and should be involved in CMAM training.

5.7 UNICEF's Technical and Organizational Support

The role of UNICEF in coordination with WHO and WFP is mentioned in the joint statement on CMAM and includes mobilizing resources, facilitating local production of RUTF, supporting nutrition protocols, working with the government, the private sector, and NGOs, conducting operations research to refine protocols and jointly implementing CMAM in emergency and non-emergency situations.⁷³ The role of UNICEF in CMAM in Nepal is further defined in the MOUs and PCAs with government and partners.

UNICEF's support for the MoHP and the CMAM pilot districts has effectively promoted successes in meeting performance standards and the expansion of the programme to five districts using lessons learned. Technical support (planning, training, monitoring, capacity development to implement the four components) to initiate the pilots through international NGOs helped to lay the groundwork as capacity was built in the national health system. The transition from NGO support to UNICEF's direct support for government was appropriate but was also brought about through funding constraints. Capacity development activities for health system staff have been extensive and judged to be relevant and effective by participants. Support at the CMAM sites by CMAM monitors and nutritionists were largely effective and most have resulted in takeover of monitoring responsibilities by DHO and community members. UNICEF and partners have created an enabling environment for national scale up of CMAM.

The provision of RUTF and other supplies has been generally well executed through the national health system's logistics networks with some issues as described in the previous chapter. UNICEF's partnership and leadership with the MoHP in support of nutrition principles and practice in Nepal is improving through the management of the nutrition cluster and the development of UNICEF's CO nutrition section. Technical working groups in the cluster should result in more collaboration across programmes, greater focus on strengthening nutrition policy, and creating synergy across child health activities.

There is good coordination among UNICEF offices for CMAM. Very good support has been provided by the UNICEF regional office (Asia Pacific Shared Service Centre in Bangkok) and UNICEF headquarters in terms of funding, technical support, monitoring and evaluation of CMAM. Documents are shared with UNICEF regional and headquarters offices and they provide comments and suggestions on CMAM related issues. Continuing technical support from ROs and HQ is likely to be necessary through experts or multidisciplinary teams to help with issues including mobilizing funds, implementation, scale up, and improving information flow, and management and analysis of data.

Similar technical issues are found in Nepal as concluded in the Global Mapping Review of CMAM (2011). As in many other country programmes there is a need to further strengthen the national health and nutrition systems to promote integration and sustainability. Encouraging stronger leadership will probably be more attainable in collaboration with other stakeholders.⁷⁴ Interviewees pointed to some ways of improving UNICEF's technical support:

- Close monitoring to ensure that technical advisors, such as CMAM nutritionists and CMAM monitors, stay for the appropriate time in districts, and avoid prolonging their stay if capacity is sufficient, or withdrawing them before capacity is developed. The development of capacity in districts is likely to vary with the district, therefore typical needs cannot be assumed. It is also noted that trained staff may change positions or leave and transfer of their experience is critical.

⁷³ WHO/WFP/SCN/UNICEF Joint Statement on CMAM, 2007

⁷⁴ Similar to recommendation from the Global Mapping Review of Community-based Management of Acute Malnutrition (CMAM) with a focus on Severe Acute Malnutrition (SAM), UNICEF Nutrition Section, PD, New York, 2011, page 53.

- UNICEF and the government both require a more collaborative approach among sectors which impact acute malnutrition in Nepal such as with water and sanitation and food security. For example, WASH does not completely address issues in CMAM sites, a gap that is obvious at many CMAM sites.

6. ANALYSIS OF CMAM PROGRAMME COSTS, OPTIONS FOR SCALE UP, AND SUSTAINABILITY

This chapter discusses the costs of the programme and strengths and issues for scale up and sustainability.

6.1 Cost Breakdown and Comparison

6.1.1 Share of Capital and Recurrent Cost between the Government and UNICEF

The evaluation investigated, to the extent possible, the costing of CMAM in all five pilot sites in Nepal, using data available in the country. The following analysis indicates the costs borne by the GoN and UNICEF and assesses where investments should be made to promote sustainability and access to CMAM.

The estimated annual total cost of the CMAM pilots was calculated at US\$1.25 million. Breakdowns of this total cost between government and UNICEF within capital and recurrent headings are summarized in Table 6.1. Due to heavy investment of UNICEF for capacity building, CMAM protocol development and equipment procurement, the percentage share of capital cost of UNICEF is much higher than that of government (85% compared to 15%). The percentage share of recurrent cost of government is higher than that of UNICEF (56% compared to 44%), mainly due to regular salary of health workers working in OTPs and SCs paid by the government, imputed values of the services rendered by health volunteers, and other regular costs. In total, the percentage share of UNICEF cost is higher than that of government (53% compared to 47%).

Table 6.1: Breakdown of Total Cost

	Capital Costs		Recurrent Costs		Total cost	
	US\$	% share	US\$	% share	US\$	% share
Government	40,912	15.1	543,678	55.6	584,591	46.8
UNICEF	229,282	84.9	434,784	44.4	664,066	53.2
Total	270,194	100.0	978,462	100.0	1,248,657	100.0

Note: For Jajarkot and Kanchanpur (9 month programmes), the cost was extrapolated for one year.

The breakdowns of district level total cost between government and UNICEF within capital and recurrent headings are summarized in Annex 5. The main findings are described below:

- UNICEF's share of capital costs is higher than that of government in each district, probably because UNICEF is the initiator of the programme. The percentage share of capital cost of UNICEF is highest in Mugu (93.7%) and lowest in Achham (78.2%) as compared to that of government.⁷⁵
- The share of recurrent cost of government is higher than that of UNICEF in each district, except in Jajarkot, where the share of the government is 39.2% and that of UNICEF is 60.8%.⁷⁶

⁷⁵ As time passes on the government initiates expansion of the programme by adding more OTPs, therefore the share of the government increases. Achham has added the highest number of OTPs over the period of 17 months, so it has the highest percentage share of government capital cost among the districts. Mugu has not added a single OTP during the period of 22 months, explaining why it has the lowest percentage share of government capital cost.

- In total, the share of UNICEF cost is higher than that of government cost in each district, except in Achham (49% versus 51%) and in Kanchanpur (45.3% versus 54.7%). The percentage share of UNICEF's capital costs is higher than that of the GoN in each district. The reason for wide variation in the percentage share of capital cost of government across district is due to wide variation in the number of OTPs across district. This is demonstrated by the high correlation coefficient (0.94) between the number of OTPs and percentage share of capita cost of government. This means as the number of OTPs increases the percentage share of capita cost of government also increases.
- The percentage share of recurrent cost of government is higher than that of UNICEF in all those districts where the programme is operating for a relatively longer period of time. Such districts are Bardiya, Achham and Mugu. The high percentage share of recurrent cost of government in Kanchanpur is mainly due to government's massive community outreach intervention resulting in 64% of the total admitted cases (=1966) under treatment at the time of this study. If their treatment cost has have been included at the time of study, then the percentage share of UNICEF would have been high in Kanachanpur, perhaps as high as in Jajarkot.
- When the programme gets older, the percentage share of total cost (capital + recurrent cost) of government tends to increase (see cases of Bardiya, Achham, and Mugu, but the case of Kanchanpur is false as explained above). Simple regression analysis demonstrates that around 61 percent of the total variation in the percentage share of total cost of government across district is explained by the number of added OTPs across the districts.

In conclusion, UNICEF and the GoN investments in CMAM are nearly the same, with UNICEF's being a few percentage points higher. For the government to assume more of the costs while improving CMAM effectiveness, the best investment seems to be expansion of the programme by increasing the number of OTPs. This investment will increase both the capital and recurrent costs of the government and will promote sustainability through development of the capacity of the national health system. Expansion of the OTPs will facilitate access by reducing walking distance as well as reducing the workload of health workers in OTPs, which will have positive impact upon the service quality. The pilot in Achham has expanded rapidly; it started with 16 OTPs and added 10 more new OTPs. This has increased the cost to government, but implicitly increases the quality of services and coverage discussed in Chapter 4.

UNICEF's costs for protocol development and capacity development may decrease as protocols are completed, and programmes such as IMCI and IYCF are merged with CMAM and only require periodic updating. The investment in the TOTs should pay off in reduced capacity development costs. UNICEF's costs for equipping the new OTPs may rise initially as well as transport costs to more OTPs. As suggested in previous chapters, more advocacy with the government is needed to promote greater cost sharing for supply and transport and capacity development. Further, more in-depth study could reveal ways to economize on transport costs. Costs for capacity development might be reduced through joint training as discussed in Chapter 5.

6.1.2 Comparison of Costs among Children with SAM or MAM and Normal Children

Comparison of the total cost for optimum physical growth or for normal nutrition status in children, MAM, and SAM ("Normal Nutrition Status" is defined as SAM and MAM cases subtracted from total screened

⁷⁶ After reaching the maturity stage of the programme, the percentage share of recurrent cost of government is higher than that of UNICEF. Achham, Bardiya and Mugu have reached such stage, so the percentage share of recurrent cost of government is higher than that of UNICEF in these districts. The programmes of Jajarkot and Kanchanpur are 9 months old and have not reached maturity stage, therefore the percentage share of recurrent cost of UNICEF is higher than that of government in Jajarkot, but this is surprisingly not the case in Kanchanpur. The high percentage share of government's recurrent cost in Kanchanpur could be explained by the active screening intervention carried out during the last month – excessively large number of screening of cases in a short span of time. Sixty four per cent of the total admitted cases (=1966) were identified during this active activity, which is 48% higher than the number of total admitted cases during the same period in Jajarkot.

cases) is displayed in the figure below (Figure 3). The share of the total cost is highest for SAM treatment, which is 46%, followed by children with Normal Nutrition Status, 30% and children with MAM, 23% (Figure 3). It is noted that the cost for Normal Nutrition Status is higher than that of the MAM. This could be explained by the fact that the number of screened children is far higher than those identified as MAM⁷⁷. Moreover MAM children are managed through counselling, without getting supplementary foods, and this probably kept the cost lower. (Due to limited information available on use of medicines to treat SAM cases with complications at SCs the total cost of children admitted in SCs could not be estimated.)

The breakdowns of district level total cost between Normal Nutrition Status, SAM and MAM is summarized in Annex 8. The main findings are described below:

- While comparing the three components, the pattern – highest share for SAM and lowest share for MAM – follows in each of the district, except in Kanchanpur, where the children with Normal Nutrition Status have lowest Total Cost.
- Comparison of SAM total cost across district shows that the highest share is observed in Mugu. This could be explained by high transportation cost.
- Total cost for MAM is highest in Kanchanpur compared to other districts, possibly due to high number of MAM⁷⁸ cases being identified during the active screening campaign.
- Compared to other districts, Bardiya and Achham present the highest total cost for children with Normal Nutrition Status. This can be explained by the high number of children screened in these districts.⁷⁹

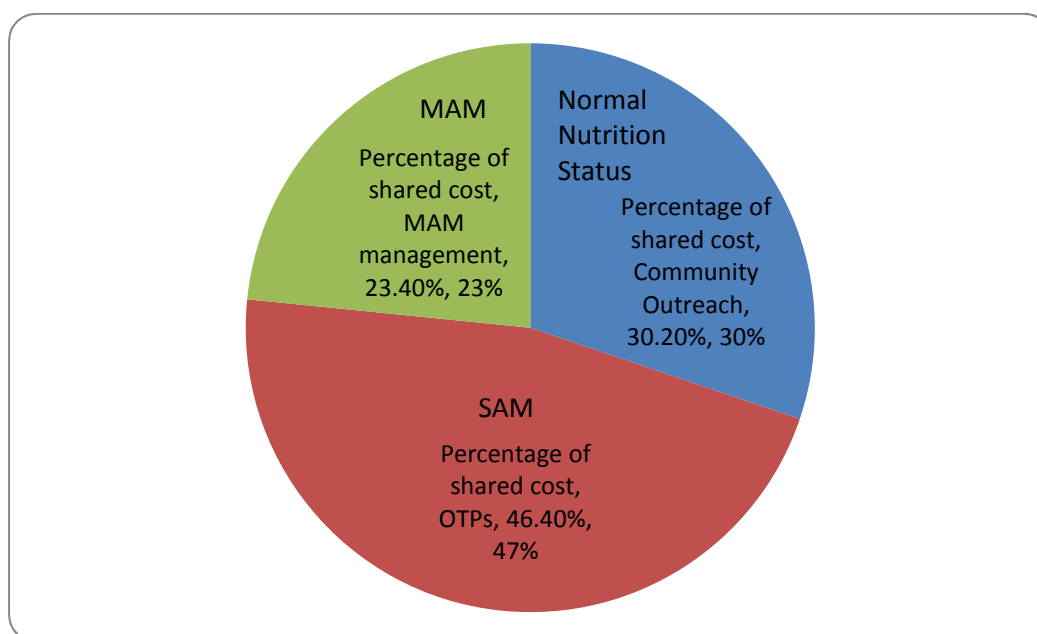


Figure 3: Percentage Share of Total Cost among CMAM Children.

⁷⁷ Out of total 174,226 screened children, the percentages of Normal, SAM and MAM were correspondingly 72.3, 4.3 and 23.4. Normal children are 3 times higher than that of MAM children.

⁷⁸ Out of total 57,191 screened children, the percentages of Normal, SAM and MAM were correspondingly 54.8, 3.4 and 41.8.

³ Out of total 51,611 screened children, the percentages of Normal, SAM and MAM were correspondingly 80.9, 4.6 and 14.5.

⁴ Out of total 8,914 screened children, the percentages of Normal, SAM and MAM were correspondingly 66.6, 10.3 and 23.1.

⁵ Out of total 16,949 screened children, the percentages of Normal, SAM and MAM were correspondingly 87.8, 3.2 and 9.0.

6.1.3 Cost per beneficiary

Globally there have been some calculations of cost per child performed in a few countries but the methods to calculate them vary greatly. Table 6.2 summarizes the cost per child by district. The cost per child is sensitive to many factors, including the numbers of children with SAM, MAM, and Normal Nutrition Status given that they are the denominators of the corresponding costs; the number of months the CMAM programme being operational, the set up cost (or capital cost) being high; the accessibility of the pilot district (the lesser the accessibility the higher the transportation cost); and interactions of these three factors. With this general background, the main findings are described below:

- The overall cost per child is highest in Mugu, followed by Achham, Jajarkot, Bardiya and Kanchanpur. This demonstrates that the cost per child increases from less to high remote district that is from the Terai to Hill and Mountain region.
- The cost per child decreases from high to less severity of cases that is from SAM to MAM status.
- The highest screening cost is observed in Mugu, most likely due to a high investment in capital cost due to remoteness.⁸⁰
- The cost for treating SAM and managing MAM is highest in Jajarkot, which may be due to its high capital cost and low number of children with SAM and MAM.⁸¹

Table 6.2: Comparison of Cost per Child in US \$ among Districts⁸²

	Screening of a child	SAM treatment in OTPs	MAM management	Total
Achcham	4.3	93.4	16.3	10.0
Bardiya	2.4	58.5	6.0	5.5
Mugu	7.9	106.5	22.1	21.3
Jajarkot	3.0	125.1	25.7	9.0
Kanchanpur	1.4	56.5	2.9	3.9
Total	3.0	76.8	7.2	7.2

Table 6.3 shows that the total average cost of RUTF consumed per child is \$38.6 where nearly 93 percent is the RUTF cost and seven percent is the in country transportation. Mugu district represents the highest consumed RUTF cost. The cost of RUTF per child and the average number of RUTF sachets consumed/child is highly correlated, the correlation between the variables being 0.91.

Table 6.3: Average Cost (\$) of RUTF per Child

	Average number of RUTF sachets consumed	Average cost of RUTF consumed per child
Achham	109	38.4
Bardiya	110	37.0
Mugu	122	44.9
Jajarkot	114	37.0
Kanchanpur	105	38.3
Total average	112	38.6

6.2 Sustainability and Scale Up

Sustainability is the long-term maintenance of wellbeing, which has environmental, economic, and social dimensions, and encompasses the concept of stewardship and the responsible management of resources. There are no global guidelines for sustainability of CMAM. The WHO/WFP/SCN/UNICEF Joint Statement on CMAM (March 2007) promotes: *Mobilizing resources; facilitating the local production or procurement of RUTF; supporting the development and evaluation of nutrition rehabilitation; building capacity for implementation of CMAM, and joint implementation of CMAM.* The CMAM pilots show strong potential for promoting sustainability in all of these aspects and their rippling effects have served to heighten awareness among stakeholders regarding nutrition and the need to promote nutrition knowledge.

- 1. Mobilizing resources.** The CMAM pilots have been supported financially primarily by the government, DFID, UNICEF, European Union (EU) and the Central Emergency Response Fund

⁸² It was not possible to include costs of SAM management in SCs due to data limitations, so this was excluded in the cost analysis of SCs. More specifically this is due to the difficulties in estimating cost of health workers involved in the SC, as well as lack of details on medicines use in treating SAM children with complications at the SCs. Government's resource is generally allocated to all in-patients, and very few number of children are admitted in the SCs.

(CERF). The commitment of the MoHP and donors is vital to CMAM sustainability and scale up given the additional funds that will be required. Greater investment by government should be advocated and the funding sources should be strengthened and diversified. At community level, effective awareness raising activities as demonstrated in Achham district should be replicated in order to sustainably strengthen community support to carry on the objectives of the programme after the exit of UNICEF.

Donors wish to be ensured of increasing efficiency through reduction of costs and stronger integration of programmes, thus additional efforts should be made in reinforcing the linkages between CMAM and other child survival and development activities such as IMCI and IYCF. Donors want to invest in successful approaches to solve the problem of malnutrition, thus fortifying data collection to provide evidence of programme outcomes and impact is essential, in particular, the approach to manage MAM should be based on evidence of success. Stronger linkages need to be made between the shorter term solutions presented by CMAM and the longer term perspectives of agricultural development, food security and related programmes such as water, sanitation and hygiene. For example, USAID's Feed the Future programme can be linked to malnutrition issues.

- 2. Facilitating the local production or procurement of RUTF.** Potential producers are willing to embark on the process of local production of alternatives for the RUTF and for addressing MAM through the production of local food supplements, but they need funding commitment from UNICEF and donors. The Nepal Planning Commission suggests that the Nepal Agricultural Research Council can be supported to work on this issue. Key informants emphasized the potential roles of private and public sector in the production of RUTF.

RUTF is a good product for SAM children. We can see spectacular results on children. But we need local production of this product. Peanuts are not commonly produced here, let's think about local alternatives. Quality control should be assured as well during this process. Private and public producers should meet and look at this issue; maybe we can start by conducting a feasibility study for local production of RUTF.

We have to build the capacity of national producers for locally made RUTF and RUSF. But this production should be supported by the public sector, not private, due to marketing risks from them. If the private sector is involved there should be in advance clear agreement between the funding agency, the Government and the private producers, to avoid spreading the product beyond its use. But in this country everyone is afraid to jump to this step. There are some local foods that can be used in this purpose; we do know its efficacy, but it is not used. We may test it and compared with CMAM areas, preferably as soon as possible.

- 3. Supporting development and evaluation of nutrition rehabilitation.** Significant capacity development for health workers has been undertaken and should be continually built through refresher training and training of newly appointed staff, given the frequent turnover of health facility staff. Moreover the importance of nutrition education should be highlighted at national level by incorporating it into the medical and nursing curricula of health schools. Some constraints to sustainability are the burdensome reporting which makes health workers see CMAM as a separate component. CMAM reporting and monitoring activity has to be systematic, with the purpose of informing successes and improvements needed for the programme. Regular meetings and standardized reporting formats will facilitate attention to monitoring.
- 4. Joint implementation of CMAM.** There is consensus among UN organizations, donor agencies and other stakeholders that joint efforts are needed to enhance the impact of malnutrition treatment and

management. Strengthening the health delivery system is a process that is best undertaken jointly among stakeholders.

6.2.1 Operational Models for CMAM

Acute malnutrition with and without complications is addressed through the government health system, with government staff in charge of treating children admitted with SAM and managing MAM; the supply of RUTF and counselling is delivered through the national health delivery system. The evaluation of the outputs of inpatient and outpatient SAM activities in the five pilot districts demonstrated good performance in regard to the Sphere indicators, whatever the operational approach. There is sufficient evidence that SAM treatment was feasible and successful in the five pilots. In this regard, three implementation modalities and fund allocation have been used by UNICEF:

1. **Providing funds to INGOs** that in turn support the DHO for implementing the activities in the districts. In this regard, UNICEF supported the INGO Concern Worldwide who provided technical as well financial assistance to the DHO for implementing CMAM in Bardiya district. This was done for one year before the GoN assumed responsibility and received direct financial, RUTF supply and technical support from UNICEF.
2. **Direct support to the GoN by UNICEF** which provides technical assistance to the D/PHOs. This is used in Mugu and Achham districts, and has been applied in Bardiya after Concern's departure. In this approach, UNICEF provides funds to the District Development Funds (DDF) and to the Child Health Division (CHD) who then allocates them to the D/PHOs for implementing CMAM activities in the districts. In addition the CHD uses part of the funds for CMAM related activities at national level.
3. **Providing funds to local NGOs for supporting the government** in implementing the programme. This modality has been implemented in Jajarkot and Kanchanpur districts. Once these NGOs have built the capacity of D/PHOs, UNICEF expects the government to implement the programme independently, with distance technical and monitoring support from UNICEF and the MoHP.

The evaluation found that the second model that involves direct government support by UNICEF is the most cost-efficient modality because of its relatively low cost and strong ownership of the government, leading to enhanced government's resource mobilization and effective community outreach. CMAM can be scaled-up in other districts taking recommendations into account during the scaling-up process.

The best options for management of MAM within the CMAM model are IYCF and care counselling throughout the areas. However, the intervention of a supplementary feeding (SF) programme is equally important to those children who are from food insecure, marginalized and vulnerable families. It was beyond the scope of the evaluation to calculate the costs of a large scale SF programme for managing MAM. Allocating more resources to IYCF and care counselling and community capacity building should be considered to better address the issues of MAM within CMAM approach as it is currently practiced. Data on MAM must be captured to confirm whether this approach is working; it is critical given the high prevalence of GAM and MAM in Nepal.⁸³

6.2.2 Issues and Options for Expansion

Key factors in the success of the pilots are the involvement of the government, continuous funding, and the participation of NGOs and civil society organizations. This should be replicated in future CMAM

⁸³ The national situation of GAM (13% nationwide) and more than 10% in more than 36 districts of Nepal, it is necessary to scale up CMAM in those districts considering WHO crisis threshold which is >10%.

districts. The task of strengthening the capacity of the health structure to absorb the programme prior to its expansion to other districts should be assessed.

The CMAM implementation has provided learning experiences for replication, including the following:

- To reduce staffing costs, one district level Nepali CMAM Expert should be provided throughout the implementation period.
- A logistics focal person should be assigned at the MoHP for RUTF distribution.
- The training manual needs to be updated and made more user-friendly to promote more efficient transfer of knowledge to staff.
- Production of RUTF locally or regular free supply of RUTF requires research and study on alternative formulas to the currently used RUTF, which would be cheaper and could be produced in Nepal or in neighbouring countries in order to decrease the costs of the RUTF purchase and distribution.
- Intensive training should be provided to FCHVs /HW/MCHW on identification and counselling.
- Integration of CMAM should progress to the Primary Health Care Outreach Clinic (PHC/ORC) so that the defaulter rate could be reduced as the mother /care taker will have easy access to the services.
- Health posts need to be adequately staffed due to limited local human resources or high rate of absenteeism among health staff or lack of motivation and sufficient drug supplies, which constrains integration of the CMAM within existing health structures. Turnover of health staff constrains the effectiveness of capacity building on prevention and treatment of severe acute malnutrition.
- Appropriate incentives for staff retention and motivation (e.g. an appreciation letter that could support a promotion) would be supportive to minimize the impact of staff absenteeism and staff turnover on project performance.

According to interviews, the key points below should be considered for expansion:

- The MoHP Nutrition section needs a dedicated person to address the comprehensive CMAM approach – strategic policy, guidelines and protocol development, planning, coordination, capacity development, monitoring quality assurance of services, and supply chain management.
- The capacity of the human resources within the government delivery system should be developed for proper delivery and storage of RUTF and other essential CMAM commodities.
- Assess the programme management capacity of MoHP staff at different levels and develop this capacity based the assessment findings.
- Consider building the capacity of NGOs and civil society organizations to address the issues of acute malnutrition in the country, given its constant prevalence in several districts of the country.
- Ensure periodic contingency plan at national and district level with regular updates.
- Strengthening community outreach by involving fathers in the management of acute malnutrition.
- The national scale up plan should be developed.
- Undertake feasibility studies to identify the most appropriate intervention for the management of moderate acute malnutrition – e.g. assess cost-effectiveness of strengthened IYCF counselling versus supplementary feeding with or without targeting versus voucher schemes, etc.

7. CONCLUSIONS AND RECOMMENDATIONS

This chapter draws conclusions and sets out recommendations.

7.1 Conclusions

As per the Nepal evaluation TOR (Annex 1), the performance of the pilots are assessed against the three assumptions outlined in the national CMAM pilot strategy for successful treatment of severe acute malnutrition in the pilot sites. This formative evaluation (Phase 1) presents the below conclusions, and further evidence will be available through the endline evaluation (Phase 2) by June of 2012.

Assumption 1. CMAM has reduced the barriers of access to treatment for acute malnutrition and therefore increased the percentage of severely malnourished children receiving treatment (coverage) from less than 1% to 50%.

As discussed in Chapter 3, the evaluation did not use a pre/post comparison design and, therefore, does not lend itself to attributing effects to the CMAM programme. Evidence on changes from the baseline is not conclusive as follow-up nutrition surveys have not been conducted in the pilot districts. Differences by pilot district such as accessibility of health facilities, management approaches, and durations of the projects (between nine to 25 months) all had an effect on programme outcomes. Despite these differences the overall programme target has been reached and the factors contributing to greater percentages of children receiving treatment (surpassing baseline estimates of children with SAM) include community-based mass screenings and referrals, increases in number of OTPs and SCs as part of routine health services, improvements in availability of supplies including medicines, home-based administration of RUTF, and community outreach to promote awareness of malnutrition and treatment activities.

However, the programme data that is routinely collected at health/CMAM sites as well as survey and assessment data needs to be disaggregated further in the future to examine if the most disadvantaged groups (landless poor families, single headed households and Dalits - lower caste groups, etc.) have been effectively reached by the programme and whether they have accessed programme services. This type of data was not available for the evaluation.

Assumption 2. CMAM can be sustained through integration in the regular health services with existing human resources and facilities.

This assumption is upheld by the evaluation as evidenced by the high quality of services available in OTPs and SCs in government designated health posts provided by health services staff. At the initial stage of the CMAM pilots, UNICEF temporarily supported CMAM nutritionists and monitors due to the high caseload of SAM. However, as CMAM service delivery has gradually strengthened and the SAM caseload at OTPs has been reduced, the district health staff has taken over the duties of the CMAM nutritionists and monitors, whose positions were phased out. Still, it is necessary to strengthen the integration with other existing child survival programmes, such as IMCI, ECD, INP, and CBCNP, for more efficient use of staff time and data collection systems and to reduce overlaps and duplications.

Assumption 3. CMAM can create effective treatment capacity for children suffering from severe acute malnutrition.

The evaluation analyses and findings have shown that the Sphere minimum standards on effective treatment for children admitted with SAM were achieved and surpassed in the pilot districts.

The following conclusions address other questions from the Nepal CMAM, Phase 1 - Formative, evaluation TOR organized under OECD/DAC criteria (Annex 1). The main conclusions are in italics and the corresponding recommendation(s) is mentioned in parentheses.

Relevance and Appropriateness

- a. How well have the overall CMAM pilots evolved and to what extent were the pilots designed according to the local context, needs and priorities?

The CMAM approach as implemented in five districts (2008-2011) is relevant and appropriate to address acute malnutrition, particularly as currently integrated within the health system. Previous facility-based treatment for MAM and SAM was not able to cover the number of malnourished children and posed hardships for caretakers and children who required long periods of time away from home to participate in the treatment. A more accessible, community-based system was therefore appropriate using the local health posts, community outreach and home administration of RUTF. An overall feasibility study and district level assessments/surveys effectively established baselines for the prevalence of SAM and MAM and set out programme objectives. ***However, there was insufficient information in assessments, and in later planning and monitoring, on challenges that could might affect (and likely did affect) programme outcomes such as group identities, the work burdens of women and health workers, seasonal migration and use of alternative health care.*** (Recommendations # 6 and 7)

- b. How was the model for community versus facility treatment of SAM proposed? Was this based on an understanding not just of SAM prevalence but of distribution and density and therefore feasibility of a community strategy?

Districts were appropriately targeted among those in greatest need and based on a strategy to pilot the programme in varying contexts, among different population densities and groups, and in the major types of geographical locations, terai, hill and mountain. As such, the design has provided numerous insights into challenges and advantages for expanding and scaling up the programme country wide. Prompted by global discussion on community based management and the Joint Statement on CMAM, the MoHP and UNICEF together with ACF and Concern Worldwide, experienced in the approach, undertook a timely feasibility study, followed by five district level assessment/surveys which focused on gathering baseline data and establishing an implementation framework. (Recommendation #6)

How appropriate and adequate is the global guidance on CMAM for national needs including aspects related to needs assessment, programme planning/design, management /quality assurance, monitoring and evaluation?

Global guidance provides a sound foundation for results based management of CMAM but the guidance was not always followed at national level. Assessments did not use a consistent approach across districts and earlier efforts were needed for results based planning with district and village actors. Regular reviews and adjustment of resources have considerably strengthened the programme since late 2010. The results based framework (Log Frame Analysis) was not updated throughout the program although the implementation mode changed. There is currently no effective global or national framework to guide integration of CMAM with the national health system. Sphere minimum standards are useful to measure programme performance for treatment of children admitted with SAM but they do not extend to

Community Outreach and MAM, in the case of Nepal where counselling is the major intervention, so are limited in terms of measuring overall CMAM effectiveness. (Recommendations #1 and 2)

- c. How adequate is UNICEF's technical and organisational support to the planning and implementation of CMAM?

UNICEF's support has effectively promoted success in meeting performance standards and expanding the programme. Critically and recently, through UNICEF's facilitation and advocacy district councils have endorsed the CMAM approach as part of the district development agenda to address acute malnutrition. UNICEF should place more emphasis in its coordination and advocacy role in bridging organizational, planning and funding gaps that are constraints to integration of CMAM with other sectors such as HIV, WASH, food security, social protection, and health, as well as programmes such as IYCF, IMCI and DACAW, among others; these occur both inside and outside the organization. (All Recommendations, particularly #4, 6, 14, 15, and 16)

Effectiveness and coverage

- d. Estimate the coverage of the pilots and the proportion of national need.

CMAM currently covers a very small proportion of national need in five of 75 districts; Geographic coverage in pilot districts has improved with increase in OTPs, but treatment coverage is difficult to estimate as there have not been any recent surveys. Scale up is urgently needed to address serious malnutrition country-wide (11% wasting affecting 385,000 children and 2.6% or 91,000 children suffering with SAM). Within the five pilot districts, geographic coverage was 39.5% for numbers of OTPs per health facility. Nearly 17% more severely malnourished children were admitted over baseline estimates which indicate that baselines were possibly underestimated, readmissions were not tracked, access increased for some groups, and/or that numbers of severely malnourished children increased over a four year period. (Recommendations #1, 8, 9, 13, and 14)

- e. Examine the effectiveness of treatment in the pilots based on recovery rates, average duration of rehabilitation, case fatality rate, default rate, and the relapse rate and compare with Global Sphere Standards.

Treatment for children admitted with SAM was very effective and surpassed the Sphere minimum standards for recovery (average of 86.1% compared to the standard of >75%), length of stay (49 days compared to <60 days), deaths (.07% compared to <10%), and default (9.0% compared to <15%). Relapse rates averaged 1.8%, which is a relatively low rate (there is no Sphere standard for relapse); some relapsed cases were re-admitted. Out of total admitted cases, 74% were discharged and 26% were under treatment at the time of this evaluation. The higher default rate in the terai districts (Bardiya 12.1%, Kanchanpur 10.1%) was partly attributable to migration of children out of the country and districts. High default rates in Jajarkot (12.3%), a relatively new program, may be due to underdeveloped coordination between health workers and CMAM monitors. The higher relapse rate in Bardiya (3.5%) may be caused by the high infection burden. The relapse rate is low compared to some countries (e.g. 6.1% in Kenya in eight districts⁸⁴). **Performance of the SCs also surpassed Sphere minimum standards;** out of 258 admissions, 95% were stabilized, 0.4% died, and 3% defaulted. Children who were discharged from SCs were not always tracked back to the OTP. (Recommendations # 1, 6, 8, 9, and 14)

- f. Examine the effectiveness of the different CMAM components (community outreach and mobilisation, screening/enrolment, treatment, information management and follow up) and the integration with

⁸⁴ UNICEF Evaluation of Integrated Management of Acute Malnutrition (IMAM), draft, March 2012 .

other community interventions such as the integrated management of childhood illness (IMCI) and infant and young child feeding (IYCF).

The Community Outreach and MAM management components require more outcome evidence as to their coverage, efficiency and effectiveness. Mass and community screening and sensitisation helped to boost admissions, however, data on referral follow-up and home visits for both SAM and MAM were not collected by the districts. Screening data analysis was inconclusive, although anecdotal evidence suggests the majority of children were screened either in mass or home-based screenings, however, case finding is not effective enough in areas with less population density and challenging access issues. No follow up surveys have been conducted in the pilot areas to assess the current prevalence of MAM and no indicators are tracked to assess performance, such as for recovery and relapse; there is no evidence on how many identified children with MAM slip into SAM. The Phase 2 evaluation should provide more insights into behaviour changes among community members from outreach efforts. (Recommendations # 1, 3, 6, 8, 9, and 17)

Not enough emphasis has been placed on addressing capacity for counselling and home visit follow-up to reduce the prevalence of MAM. MAM management involves counselling and home-based preparation of supplementary foods. Qualitative data suggest that home visits were not frequent enough and reporting is rarely carried out; individual approaches by FCHVs to counseling vary. Constraints experienced by FCHVs include overburdening by numerous programmes, access and transport problems, and inadequate incentives. The usage of mothers' groups for general information dissemination is seen to be effective; however, they are not a direct substitute for counselling at the household level where the individual circumstances are observed. (Recommendations #1, 3, 7, and 8)

Various alternative options to manage MAM need to be explored, such as nutritional support or the use of vouchers or cash to support mothers to obtain locally produced weaning foods. Effective MAM management needs to be urgently sought to prevent SAM both inside and outside emergencies, however, supplementary food distribution by external sources is likely to be unsustainable. (Recommendation #3)

For scale up, a nutrition information system is needed to provide a solid foundation for programming and address gaps in data collection. Information management for CMAM is not integrated into the HMIS because it is still in the pilot phase, however, plans should be made for doing this and in the meantime, numerous data gaps to judge program performance need to be addressed. These include (in addition to those mentioned elsewhere) qualitative data such as on effectiveness of community outreach activities, reasons for default and effectiveness of counselling, numbers of self-referrals, and numbers of deaths related to malnutrition outside the CMAM programme. ***Regular participatory reviews by health system and technical support staff after late 2010 contributed significantly to identifying strengths and constraints to programme effectiveness.*** (Recommendation #9)

Opportunities were missed to engage in joint planning and M&E for integrated scale up of child development programmes, which was an important lesson for scaling up CMAM. Progress has been made in integrating CMAM with IYCF and IMCI; however, weak integration of health and nutrition programmes at the national and district levels has led to duplication in resource allocation and overlap, particularly in capacity development, as well as overburdening staff. The current development of IMAMI offers an opportunity to integrate scale up, guidelines, monitoring systems and capacity building with other programmes. (Recommendations # 1, 6, and 15)

- g. Are there good practices and lessons regarding overall pilot effectiveness or the effectiveness of specific strategies, management modalities used?

The CMAM pilots offer numerous lessons; see Annexes 2 and 3 for ten key lessons and ten good practices.

Efficiency and quality of services

- h. How has the management of CMAM evolved over time? How well understood and implemented are the current management mechanisms including the roles and responsibilities of various staff and stakeholders?

The evolution from international NGO support in 2008-2010 to direct technical support in 2011 for District Health Offices' implementation (further supported in some districts by national NGOs) has been successful in maintaining and improving quality of services. Most roles are clearly defined in policies, protocols and training materials, but some are not always implemented in practice due to task overburdening, access and transportation issues. Community roles in CMAM were stressed through FCHVs, community mobilizers and key community members, reinforcing community responsibility toward its members, however, major influences on child health and growth such as poverty, food security and women's traditionally heavy work burdens require wider integrated strategies. (Recommendation # 2)

- i. How systematically have the funds been allocated and utilised across the pilot activities to meet the objectives?

Investments for equipment, protocol and capacity development have strengthened sustainable integration of CMAM into health system delivery, very good quality of services, especially in OTPs and SCs, and high rates of recovery from SAM. (Recommendations #1, 10, 11)

More investment is needed for development of locally produced RUTF, community outreach and MAM management. Some time is required for children to accept the taste of the imported RUTF; ensuring palatability through locally developed recipes may be pivotal to reducing costs of the product (e.g. fewer sachets per child) and promoting faster discharge from the programme. More resources are needed to support DHOs in their community outreach efforts; greater investments in some districts have paid off in increases in admissions. The funds used for MAM management are not proportional to the magnitude of the problem in Nepal and joint efforts are required to improve outcomes and sustainability. (Recommendations #3, 8 and 16)

- j. Examine to what extent the service delivery meets expected quality standards? What factors have contributed to meeting quality standards? Where quality standards are not met, what are the key constraints that need to be addressed in order to meet quality standards?

Quality of services at health facilities, including availability of equipment and supplies, trained staff and adherence to standards and guidance, was judged to be good to very good in all sampled OTPs and SCs. The high percentage of severely malnourished children identified by MUAC (78%) attests to the skills of the majority of health professionals and FCHVs who are able to effectively identify SAM and MAM through use of the MUAC and weight/height verification and refer them according to the protocols. Treatment for SAM with and without complications is largely carried out according to protocol. (Recommendation #10)

Quality of services at health facilities can be enhanced through improvements to some OTPs and SCs in terms of WASH, play space, and ensuring staff have time to devote to counseling. Some OTPs required upgrading in storage management and water and sanitation facilities, and time devoted to nutrition counseling overall was not adequate. Some SCs required more bed space, and in both OTPs and SCs, toys and play areas were needed to provide stimulation vital for the malnourished children. (Recommendation #10)

Key constraints to quality include weaknesses in the overall health delivery system, duplicative reporting for individual programmes, and user issues such as long distances to OTPs. RUTF and other services need to be placed closer to the users, through establishment of more OTPs at sub-health post or other distribution arrangements. The distance traveled and time needed to reach and wait at OTPs is borne almost completely by women and children and remains the main reasons for default and non-compliance with prescribed RUTF administration. Women are diverted to planting and harvesting; general strikes (bandhs) also interfere. Long distances also plague women community health workers (FCHVs). (Recommendations #9, and 13)

Key constraints to Community Outreach (sensitisation, screening, referral, home visits) outcomes are rooted in weak understanding of nutrition, societal status, language issues, and concentration of outreach activities closer to OTPs and densely populated areas. Men hold decision making power in families and communities and need greater sensitization regarding nutrition principles and their roles in supporting child feeding and care. (Recommendations #1, 7, 8, and 13)

k. Examine the effectiveness of capacity building efforts.

Cascade training at central and district levels, including TOTs, reached over 8,500 health staff and successfully prepared them to carry out their roles for CMAM. Results in improved efficiency and adherence to protocol were evident to all stakeholders. Challenges to application of training include understaffing at OTPs, effectively inculcating counseling skills for FCHVs, and making the training manual more user-friendly. A broader integrated approach is required to utilize the national pool of nutrition scientists and experienced national NGOs in training and to conduct joint training among other health and nutrition programmes on the CMAM approach. **Central MoHP nutrition management capacity is not adequate to cover increasing responsibilities for scale up of CMAM.** More guidance is desired by districts for tracking programme results, promoting integration into the national system, managing programme activities such as supply delivery and storage, and promoting solutions to nutrition issues. (Recommendations # 4, 11 and 12)

l. Collect cost information to estimate the cost and cost effectiveness of treating (including transport and procurement costs) a child with SAM as part of a CMAM intervention vis-à-vis facility costs in the different pilot sites.

Greater cost sharing is desirable with the GoN assuming more costs of supply, transport and capacity development. The GoN is supporting most of CMAM's recurrent costs in pilot districts but UNICEF's total share is still larger. The estimated annual cost of CMAM is US \$1.2 million; UNICEF's contribution is 53% compared to 47% borne by the government. The costs for treating a SAM case varied greatly by district (e.g. Jajarkot - \$125 and Kanchanpur - \$56). The overall cost per child increases from less to more remote districts because of scattered catchment areas and OTPs, high cost for training, supplies and monitoring. The estimated average RUTF cost per child treated is US \$38.6 including 7% in-country transportation. Of Mugu's cost per child of \$106, \$45 was used for RUTF purchase and transport. Approximately 30% of costs were devoted to community outreach, 46% to SAM treatment and 23% to

MAM management. Expanding the number of OTPs may increase efficiency and effectiveness but would require initial capital investments. (Recommendation #16)

Cross-cutting issues

- m. How effective is the coordination and involvement of various sectors in planning and implementing the CMAM pilots? To what extent is the technical support provided by various agencies well-coordinated and responds to needs?

Weak coordination has been typified by sectors and programmes operating in silos including CMAM but coordination for integration is now strengthening. CMAM has to be more comprehensive and multi-sectoral integrating Health (Diarrhoea and HIV control) WASH, early child care and stimulation, and social protection with CMAM. Several activities contribute to strengthening coordination and technical support on CMAM: a multi-agency reference group for this evaluation; the IASC nutrition cluster; interagency planning efforts, for example, for integration of CMAM in the UNDAF; better coordination between UNICEF and WFP in regard to its activities in food insecure areas and overlaps with CMAM. Coordination mechanisms are strong at district level but meetings and monitoring visits, particularly conducted jointly with other sectors, are not frequent enough. (Recommendations #1, 4, 5, and 15)

Stronger regional coordination with other countries and districts is needed to track migrant children. Migration across borders and to other districts affects active case finding, referrals and admissions and increases default and relapse rates requiring stronger coordination among monitors and health workers in different areas, an overall challenge for CMAM. (Recommendation #5)

- n. How adequate are the guidelines on CMAM programming? Assess progress in implementing national guidelines on CMAM or in integrating CMAM components into existing policies. What more needs to be done? What lessons can be drawn?

National guidance (the National Medical Protocol on CMAM and the Treatment Guidelines for Outpatient Treatment) covers two components, OTPs and SCs, in sufficient detail, however, guidance on Community Outreach and MAM management is very sparse. National guidance is modelled on “WHO Guidelines for Inpatient Treatment...” (2003) which covers admitted children with children. In regard to Community Outreach and MAM management, official national guidance is not unified with the training programme and does not adequately cover the roles and responsibilities of government staff and volunteers in these two components. Guidance needs to be more practical and clear regarding frequency of screening per child, definitions of and how to measure treatment and geographic coverage, standards for integration into health systems and with other child health and nutrition programmes, and monitoring and information systems, among others. (Recommendation #1, 2, and 3)

- o. How strong is the national and sub-national engagement and ownership? How systematically has the development of institutional capacity been embedded at all levels of the pilot? What more needs to be done? Examine the level of integration of the CMAM pilots in the health service delivery system, particularly with reference to logistics management.

There is currently no agreed framework with which to plan integration of CMAM into the national health delivery system and to judge the degree to which integration has taken place. While some stakeholders perceive that integration has taken place, the evaluation analysis indicates that it has only been partially achieved. Stronger GoN roles are needed in performance management, planning,

financing, procurement and supply management, human resources development, integration of CMAM indicators in the national system and tackling issues affecting demand for national health services. ***Streamlining CMAM into government logistics systems can be facilitated by the GoN taking a greater role in provision, transport and management of supplies.*** UNICEF procures RUTF, medicines and supplies; the Department of Health Services has improved timeliness of supply deliveries through advance ordering procedures. Stronger supply management is required centrally and in districts, e.g. to protect RUTF from rodents and other damages. (Recommendations #2, 6, 9, and 12)

- p. To what extent has gender been considered in the design and implementation of the CMAM pilots? What are the issues related to the equitable delivery of CMAM services? What measures could be proposed to improve pilot impact on gender and equity?

CMAM programme documents and evaluative reports do not devote needed attention to gender and equity issues. Assessments/surveys, and later planning and monitoring, did not provide a strategic foundation for including worse-off children, such as defining the most vulnerable groups and possible issues in their access to services; no follow-up gender and equity analyses were performed. Although the malnutrition rate is higher among boys, admissions to OTPs were higher among girls (57%). Some women may not present their children for services because of caste, education or access reasons or they use other health care practitioners. Evidence was insufficient to present explanations for these findings. (Recommendation #1, 7, 8, 9 and 15)

Sustainability and Scaling

- q. Assess what is the most feasible operational model for treating children with SAM. If CMAM is the preferred model what is the best way of scaling-up the CMAM pilots? Assess the issues and options related to the feasibility (i.e., administrative, institutional, technical, financial) for expansion? What plans exist for the scale up and exit strategy?

Direct technical support to the government through an integrated program with other child health and development strategies is the most feasible operational mode due to its relatively low costs, strong ownership of the government, human resource generation at local level, and community outreach potential. Planning for the expansion and scale up to other districts is underway. Capital costs and need for trained human resources are likely to be high in the initial stages to serve large numbers of SAM and MAM children. Well-designed assessments and surveys are critical and should be planned using global guidance and containing questions on gender and equity. Plans should be put in place at the onset for periodic treatment coverage surveys. (Recommendation # 16)

- r. Assess how feasible it is for the current pilots to be sustained without external technical and financial support? What factors will support or inhibit the expansion of the CMAM pilots?

Implementation of CMAM in the pilot districts relies on external funding for the majority of costs and is totally reliant on UNICEF for procurement of RUTF, which is not sustainable. The pivotal factors in expansion are capacity, coordination, and mobilisation of resources. The lessons learned in the pilot districts regarding capacity and coordination need to be systematically applied to the new CMAM districts. Donors want evidence of cost efficiency so savings achieved through, for example, collaboration on capacity development, integration and streamlined logistics, should be used to promote a greater diversification of funding sources. Cost savings may come from available technical support from previously trained staff which might be transferred to the new pilot districts. Investigation into local

production of RUTF has been initiated but requires stronger support from MoHP, UNICEF, WHO, WFP, ACF and other relevant agencies. (Recommendation #17)

7.2 Recommendations

The National Action Plan for Nutrition is couched within the framework of the National Health Sector Programme-Implementation Plan II (NHSP-IP2), which has clearly stated that “if the results of ongoing pilots prove promising, the programme will also support community-based management of severe acute malnutrition, using ready-to-use therapeutic foods. This is a potentially cost-effective alternative to rehabilitation of acutely malnourished children in rehabilitation centres. It will work in close cooperation with facility-based rehabilitation centres.”⁸⁵ The evaluation confirms the conclusions of many evaluations in different country contexts that CMAM has been successful and that good practices and lessons can be applied to a scale up as soon as possible, using direct support to government.

Recommendations	Management Roles and Responsibilities
Policy, Guidelines, Coordination and Advocacy	
<p>1. Unify the “National Medical Protocol for CMAM” and the “Treatment Guidelines for Outpatient Treatment for CMAM” to be one cohesive set of official guidelines, approved by the MoHP at central and district levels.⁸⁶</p> <ul style="list-style-type: none"> Expand the sections on Community Outreach and MAM management so that requirements for all four components are included; ensure that connections between the facility and community activities are well described. Clearly set out roles and responsibilities for staff and volunteers Include guidelines for infants once the IMAMI programme is developed⁸⁷ Ensure that current gaps in guidelines and practices are addressed, such as recording of repeat screenings, means to track children discharged from SCs back to the OTPs, etc. Describe central and district coordination mechanisms on nutrition programmes and staff roles in participation Include guidance on actions to be taken to ensure equity in programme implementation Elaborate the types of programme data to be collected and their usage, and staff roles for monitoring and reporting and participating in reviews; stipulate when follow-up treatment coverage and other surveys need to be conducted Include roles of staff in promoting integration in practice with other sectors, programmes and frameworks such as Health and Population, HIV/AIDS, WASH, ECD, Social Protection, Agriculture/Food Security, Local Development and Education 	<p><i>The MoHP should take the lead on national guideline revision with UNICEF support and involve other relevant partners such as WHO, ACF, and WFP</i></p>

⁸⁵ According to second National Health Strategic Plan, a community-based nutrition programme will be progressively introduced, starting from the wards with the highest incidence of malnutrition. The community-based approach will need piloting but, if the experience in the pilot districts is positive, the programme will be progressively scaled up to cover 45% of wards in the country by 2013 (see Nepal Health Sector Programme -Implementation Plan II(NHSP-II) 2010-2015 p.48).

⁸⁶ Within the coming months, UNICEF in close collaboration with ACF will support revision of the CMAM guidelines, protocol and training materials will be revised to integrate facility and community-based approaches and include children under 6 months of age (IMAMI) etc. in line with the evaluation recommendations.

⁸⁷ MoHP in 2012 has decided to scale up IMAMI, starting with 6 additional districts of Nepal in 2012 with the support of UNICEF (in 5 districts) and ACF and UNICEF (in one). At the same time, UNICEF will support MoHP to maintain and further strengthen the existing 5 pilot districts incorporating the specific evaluation recommendations.

<ul style="list-style-type: none"> • Include roles of staff in integrating CMAM with IYCF, IMCI, IMAMI and other child survival and development programmes • Include lessons and good practices from this evaluation and other sources • Regularly update the guidelines as new protocols and procedures are developed • Revise training materials to reflect the guidelines and update them along with the guidelines. 	
<p>2. Develop guidelines on integration of CMAM/IMAMI into the national health system which will be used to steer the results based planning process with objectives, inputs and outputs, indicators, and assumptions.</p> <p>Use the framework employed in this evaluation or similar to study the components of integration.</p>	<p><i>MoHP with other relevant ministries should take the lead; with UNICEF support; UNICEF should lead in developing guidelines globally with WHO</i></p>
<p>3. Study options for improving MAM management including strengthening counseling and home based preparation of local supplementary foods, as well as alternative options e.g. supplementary feeding programmes, voucher schemes, and child cash grants. Develop guidelines and protocols for setting programme objectives and performance indicators.</p>	<p><i>MoHP should take the lead; with UNICEF support and nutrition coordination groups centrally and in districts</i></p>
<p>4. Review the effectiveness of coordination in support of nutrition policies and programmes. These should include the GoN's Multi-sectoral Nutrition Plan (MSNP)⁸⁸ and the National Nutrition Policy and Strategy, as well as coordination on implementation of CMAM among FCHV's and other health and community workers.</p> <p>All organizations supporting nutrition-related programmes such as health and population, agriculture, education, WASH and local development, should be involved in discussions, utilizing current coordination mechanisms, such as interministerial groups, the IASC clusters, UNDAF and district coordination arrangements⁸⁹, on how to improve coordination on national policy and plans.</p>	<p><i>The MoHP should take the lead in coordination with the DHOs and DHPOs and with support of UNICEF and other assistance organisations, WHO, WFP, ACF, and SCF, among others</i></p>
<p>5. As central to the implementation of the MSNP, continue to work with or initiate work with local governance units (currently the District Development Offices - DDCs, and Village Development Committees - VDCs) to retain or include CMAM on local development agendas. The</p>	<p><i>MoHP and the Ministry of Local Development should co-lead</i></p>

⁸⁸ Under the leadership of the National Planning Commission (NPC), five key Ministries – Ministry of Health and Population (MoHP), Agriculture and Cooperative (MoAC), Education (MoE), Physical Planning and Works (MPPW), and Local Development (MoLD) have developed nutrition-related sectoral plans.

⁸⁹ The National Planning Commission has proposed nutrition and food security committees at the DDC and VDC levels

DHO should regularly update the DDCs and VDCs on CMAM development and nutrition issues as part of the planning processes.	<i>with support from the DHO and in coordination with the DDC and VDCs and other partners involved in CMAM and related programmes</i>
Programme Design, Planning, Monitoring and Reporting	
<p>6. Link CMAM (and IMAMI once it is developed with definitions, goals and indicators) through joint assessments and programme planning with government and assistance organizations working with infections control (especially for diarrhea, ARI and HIV), water and sanitation, Early Childhood Development, Social Protection, and food security programmes, utilizing available coordination mechanisms, such as inter-ministerial groups, the IASC clusters, UNDAF and district coordination arrangements. Conduct an advocacy, review and planning workshop on CMAM with stakeholders to help design integrated results-based approaches. Use global guidance for assessment and results planning for CMAM.</p>	<i>The MoHP should take the lead in joint integrated planning in collaboration with the DHOs and DHPOs and with support of UNICEF and other assistance organizations</i>
<p>7. Incorporate gender and equity in all CMAM surveys, assessments, programme planning documents, data collection, and evaluative reports.</p> <ul style="list-style-type: none"> • Include sets of questions regarding gender and socio-economic factors which may influence equity, access to and utilization of the programme • Define the most vulnerable groups (disaggregated by relevant criteria: female/male, class, ethnicity, religion, age, location, etc.) • Perform a bottleneck analysis to determine behaviour changes needed among the most vulnerable groups • Describe in project proposals and agreements how the programme will address gender and equity in design and how it will be culturally sensitive. • Discuss in project proposals how typical constraints will be addressed such as: Distance to the service, cost and availability of transport, and time constraints. • Disaggregate programme data as far as possible in view of the data collection capacity so gender and equity-related issues can be analysed 	<i>The MoHP should take the lead in incorporating gender and equity in CMAM, , in collaboration with the DHOs and with support from UNICEF, and other assistance organizations</i>
<p>8. Define a community outreach package supported by sufficient resources and guidelines for DHO implementation of outreach activities and setting objectives and indicators for judging performance. Link community outreach tightly with MAM management to increase impact of counseling and community support with alternative options to treat MAM (e.g. supplementary feeding, voucher schemes, child cash grants).</p> <ul style="list-style-type: none"> • Design screening activities so that children are tracked with regard to the number of screenings per year, and with a strategy and resources to reach children living in remote locations (including transport), migrant children, and vulnerable groups in order to achieve optimum treatment coverage. • Design referral activities so that referrals are followed up with admissions for 	<i>The MoHP has taken the lead in the nutrition communication strategy and should take the lead in defining the community outreach package with support from UNICEF and</i>

<p>SAM children, with counseling and reassessment for MAM children and reporting on home visits and return to normal status; tracking children discharged from the SC back to the OTP</p> <ul style="list-style-type: none"> • Design home visit follow-up and reporting activities in view of solutions to the challenges faced by the FCHVs including transport, work burdens and possible lack of incentives. • Design community sensitization activities whether through DHO/FCHV dialog, or through local media – FM/radio, local newspaper, poster and pamphlet etc. in view of the constraints identified including language barriers, lack of understanding of nutrition, difficulty reaching vulnerable and isolated groups, women's heavy work burdens, use of private practitioners, and long distances to the OTPs, and in line with the ongoing efforts by the MoHP to develop a comprehensive nutrition communication strategy and plan. 	<p><i>ACF and in coordination with other nutrition and child development programmes</i></p>
<p>9. Strengthen performance monitoring and trend analysis for screening of the under-five population, referral follow-through, self-referrals, re-admissions, reasons for default and relapse, and MAM management performance. Based on an in-depth review of the existing Nutrition Information System (NIS), integrate core IMAMI indicators into the HMIS.</p>	<p><i>The MoHP should take the lead with technical support from UNICEF and in coordination with DHOs</i></p>
<p>10. Design improvements in quality of services where needed in OTPs and SCs in terms of treatment, WASH, and play space, and ensuring staff time devoted to counseling.</p>	<p><i>The MoHP should take the lead with technical support from UNICEF and in coordination with DHOs</i></p>
<p>Implementation</p>	
<p>11. Strengthen the capacity of the MoHP staff to expand CMAM and launch IMAMI through capacity building linked with other child health and development programmes.</p> <ul style="list-style-type: none"> • Develop the needed national human resource capacity for ongoing management and scaling up of CMAM and development of IMAMI efficiently through joint planning among stakeholders • Strengthen central MoHP leadership for nutrition services and central and district supply management • Strengthen the role of FCHVs in community outreach through the provision of transport, capacity building and incentives. • Include refresher training, and training to improve counseling and advanced training for management of acute malnutrition 	<p><i>The MoHP should take the lead with technical support from UNICEF and relevant NGOs and in coordination with DHOs</i></p>
<p>12. Strengthen the logistics management centrally by placing staff directly responsible for CMAM in the DoHS and supply management at the DoHS by upgrading RUTF storage facilities and training and guiding staff to protect RUTF and other supplies from rodent and other damages.</p>	<p><i>MoHP takes the lead with DoHS and in collaboration with DHOs</i></p>

13. Increase the number of SCs and OTPs or facilities offering SAM treatment such as in sub-health posts, in the existing CMAM districts to place the RUTF and other services closer to the beneficiaries, considering population density and accessibility, replicate to the IMAMI districts.	<i>The MoHP and DHOs should take the lead</i>
14. Strengthen coordination among monitors and health workers across districts and national borders to track migrant children who have been admitted to the programme and to prevent default, relapses and readmissions.	<i>The MoHP should take the lead with relevant ministries in collaboration with DHOs. The GoN and UNICEF should seek regional solutions.</i>
Expansion and Scaling-up of CMAM	
15. Coordination. Scale up CMAM in the current pilot districts and in priority new districts using direct technical assistance and support to government, through joint assessment and planning which identifies multi-sectoral nutrition stakeholders, integrates scale up of CMAM with other child survival and development programmes, covers sensitisation to CMAM, and identifies the worst-off groups and their characteristics	<i>The MoHP with the MoHP should take the lead in collaboration with UNICEF and ACF and other nutrition stakeholders</i>
16. Resource mobilization. Ensure GoN commitment for increasing its share of funding and donors' commitment for funding and technical support to the scale up of IMAMI to six new districts and continuation of the existing CMAM programme in five districts. Programme funds to anticipate higher costs in hills and mountains; Reduce costs by involving multi-sectoral nutrition community members in screening and self-referrals.	<i>The MoHP takes the lead with support of donors and UNICEF</i>
17. Increasing efficiency and effectiveness. Support local production of RUTF for longer-term sustainability and cost-efficiency particularly during the scale up phase; Support improvement of Sarbttom pitho based on understanding of current complementary feeding practices and its promotion based on a carefully designed social marketing strategy.	<i>The MoHP should take the lead with technical support from UNICEF and WFP</i>

Annex 1: Terms of Reference Questions: Nepal Phase 1 (Formative) CMAM Evaluation

PURPOSE

The purpose of the evaluation is to assess the performance of three CMAM pilots in Achham, Mugu and Jajarkot in terms of the pilots' relevance and appropriateness, the effectiveness and coverage, the efficiency and quality and the sustainability and scalability. The performance of the pilots will also be assessed according to the three assumptions and indicators outlined in the national CMAM pilot strategy (ref) which include:

- CMAM will reduce the barriers of access to treatment for acute malnutrition, and therefore increase the percentage of children receiving treatment (coverage) from less than 1% to 50%;
- CMAM can be sustained through integration in the regular health services with existing human resources and facilities;
- CMAM can create effective treatment capacity for children suffering from severe acute malnutrition.

The evaluation of these two pilots will be as consistent as possible with the evaluation undertaken by Concern in February 2010 of the Bardiya CMAM pilot⁹⁰.

SCOPE OF EVALUATION

The primary outcome measurement of this evaluation will be the successful treatment of severe acute malnutrition in the pilot sites. The research design will rely on baseline, routine monitoring and endline surveys, alongside competency assessments, in-depth interviews and focus groups discussions, in pilot evaluation sites in order to answer the research questions posed. Data will not be collected in control sites, which although significantly weakens the research design, was considered prohibitively costly. This means that we will not be able to attribute any changes in trend data to the pilot itself but we will be able to provide a descriptive analysis of impact. Additional data collection will include endline surveys, competency questionnaires and in-depth and focus group discussions in the 3 sites.

A comprehensive research and analysis framework will be developed for both pilot sites at the start of the evaluation but it is expected to use the following data to answer some, but not limited to, the following the research questions:

Relevance and appropriateness

- Review existing literature and use in-depth interviews to determine how well has the overall CMAM pilots evolved and to what extent were the pilots designed according to the local context, needs and priorities?;
- Review existing literature and use in-depth interviews to determine how was the model for community versus facility treatment of SAM proposed? Was this based on an understanding not just of SAM prevalence but of distribution and density and therefore feasibility of a community strategy?

⁹⁰ Guerrero, S. (2010) 'Final Evaluation of Concern Worldwide/MoHP Community-based Management of Acute Malnutrition (CMAM) Pilot Programme, Bardiya District, Nepal' Feb 2010.

- Review existing literature and use in-depth interviews to determine how appropriate and adequate is the global guidance on CMAM for national needs including aspects related to needs assessment, programme planning/design, management /quality assurance, monitoring and evaluation?;
- Use in-depth interviews to determine how adequate is UNICEF's technical and organisational support to the planning and implementation of CMAM?

Effectiveness and coverage

- Use baseline and endline surveys and routine monitoring to estimate the coverage of the pilots and the proportion of national need;
- Use baseline and endline surveys to compare severe acute malnutrition, diarrhoea and/or sickness rates and infant and young child care and feeding practices of those children who participated in the CMAM pilots compared with non-participants;
- Use qualitative methods to assess the acceptability and any changes in care and feeding practices;
- Use routine monitoring to examine the effectiveness of treatment in the pilots based on recovery rates, average duration of rehabilitation, case fatality rate, default rate and the relapse rate and compare with Global Sphere Standards;
- Use routine monitoring and in-depth interviews to examine the effectiveness of the different CMAM components (community outreach and mobilisation, screening/enrolment, treatment, information management and follow up) and the integration with other community interventions such as the integrated management of childhood illness (IMCI) and infant and young child feeding (IYCF);
- Are there any good practices and lessons regarding overall pilot effectiveness or the effectiveness of specific strategies, management modalities used?

Efficiency and quality of services

- Use in-depth interviews to determine how the management of CMAM has evolved over time? How well understood and implemented are the current management mechanism including the roles and responsibilities of various staff and stakeholders?
- Use in-depth interviews and routine monitoring to determine how systematically have the funds been allocated and utilised across the pilot activities to meet the objectives? If there are delays in utilisation of funds, how were these justified and what are the implications for attaining the pilot's objectives? What lessons and recommendations can be drawn for the future?
- Use competency tests to assess health professionals and community workers involved in the pilot, ability to detect, classify and treat malnutrition according to existing protocols;
- Use qualitative methods to assess community capacity to identify and refer children for treatment;
- Examine the effectiveness of capacity building efforts;
- Examine to what extent does the service delivery meet expected quality standards? What factors have contributed to meeting quality standards? Where quality standards are not met, what are the key constraints that need to be addressed in order to meet quality standards?
- Collect cost information to estimate the cost and cost effectiveness of treating (including transport and procurement costs) a child with SAM as part of a CMAM intervention vis-à-vis facility costs in the different pilot sites (and if possible three – including the Bardiya pilot).

Sustainability and scaling

- Review qualitative and quantitative information to assess what is the most feasible operational model for treating children with SAM? If CMAM is the preferred model what is the best way of scaling-up the CMAM pilots?
- Using in-depth interviews examine the level of integration of the CMAM pilots in the health service delivery system, particularly with reference to logistics management;
- Using qualitative and quantitative information assess how feasible it is for the current pilots to be sustained without external technical and financial support? What factors will support or inhibit the expansion of the CMAM pilots?
- Using qualitative and quantitative information assess the issues and options related to the feasibility (administrative, institutional, technical, financial) for expansion? What plans exist for the scale up and exit strategy?

Cross-cutting issues

- How effective is the coordination and involvement of various sectors in planning and implementing the CMAM pilots? How strong is the national and sub-national engagement and ownership?
- Assess progress in implementing national guidelines on CMAM or in integrating CMAM components into existing policies. What more needs to be done? What lessons can be drawn?
- How systematically has the development of institutional capacity been embedded at all levels of the pilot? What more needs to be done?
- How adequate are the guidelines on CMAM programming? To what extent is the technical support provided by various agencies well-coordinated and responds to needs?
- To what extent has gender been considered in the design and implementation of the CMAM pilots? What are the issues related to the equitable delivery of CMAM services? What measures could be proposed to improve pilot impact on gender and equity?

Annex 2: Ten Highlighted Good Practices in Nepal CMAM

Good Practices are well documented and assessed programming practices that provide evidence of success/impact and which are valuable for replication, scaling up and further study. They are generally based on similar experiences from different countries and contexts.

1. As a critical step in identifying children with MAM and SAM, screening is very successful implemented side by side a well-publicized vaccination or Vitamin A campaign and by door to door visits by FCHVs or through mothers' group meetings.
2. Community sensitisation work carried out by DHOs through FCHVs was complemented by NGO partners who carried out district activities including the production of radio broadcast information, cooking demonstrations, nutrition days in local schools, CMAM orientations for faith healers and mothers' groups, and street drama performances.
3. Locally available weaning or supplementary food, such as Sarbattom pitho, can be made by mothers at home or by women who sell it on demand in local markets. The use of local food is promoted by guidance found in the National Medical Protocol for support for children with MAM and the production of the local mixture is supported by assistance organizations.
4. Current good practices include the management of MAM through counselling and follow-up by FCHVs, home based food preparation for children and management of MAM with complications at the SCs. The Health Worker Manual provides detailed guidelines for all levels of MAM management
5. The ordering well in advance and delivery of the RUTF through the national health logistics system contributes to strengthening the national capacity for RUTF management and shortages are largely prevented.
6. Peer to peer annual review workshops which include all pilot or CMAM districts serve to effectively share issues and solutions and promote development of recommendations from the system itself that can be acted upon to improve the programme more frequently than a formal evaluation process would permit. The workshops include visits by health workers from other districts to sample CMAM district(s) demonstrate lessons and good practices and to broaden awareness of the issues on a national basis.
7. CMAM under direct implementation of the District Health Offices generally promote coordination among their child development and other relevant programmes being implemented in the district. There is harmonization underway among CMAM, IMCI and IYCF protocols. While assessing the GAM case in the OTPs, health workers use IMCI assessment protocol. The diagnostic indicators of SAM defined by WHO/UNICEF jointly have been incorporated in IMCI protocol by IMCI technical committee. Similarly, the national IYCF protocol has been incorporated into CMAM
8. If data gathered for programme performance usage is not gender disaggregated or disaggregated to monitor the usage of the worst off groups, analysis of the gender related issues concerning programme performance may be limited. Scaling up will require changes from the pilot practices which did not track equity issues and data. Bodies of guidance and standards for CMAM should adequately integrate gender equality and equity, rather than assume they are implicit, and detail them in practice.
9. As the programme matures, the percentage share of total cost (capital + recurrent cost) of government increases depending upon the government initiatives for expanding or improving the quality of programme. This fact is clearly indicated by having highest share of government in Achham, Bardiya and Mugu, which are the mature programmes.
10. In management of the CMAM pilot programme, the involvement of LGUs (local governance units) such as District Development Committees and Village Development Committees is significant. The LGUs have played the vital role in planning, monitoring, reviewing, and endorsement of CMAM programme as local development agenda through DDC council fund allocation at community levels to

provide incentives for FCHVs including cost of transportation of RUTF inside the districts (e.g., Achham, Mugu and Bardiya districts).

Annex 3: Ten Key Lessons for the Nepal CMAM

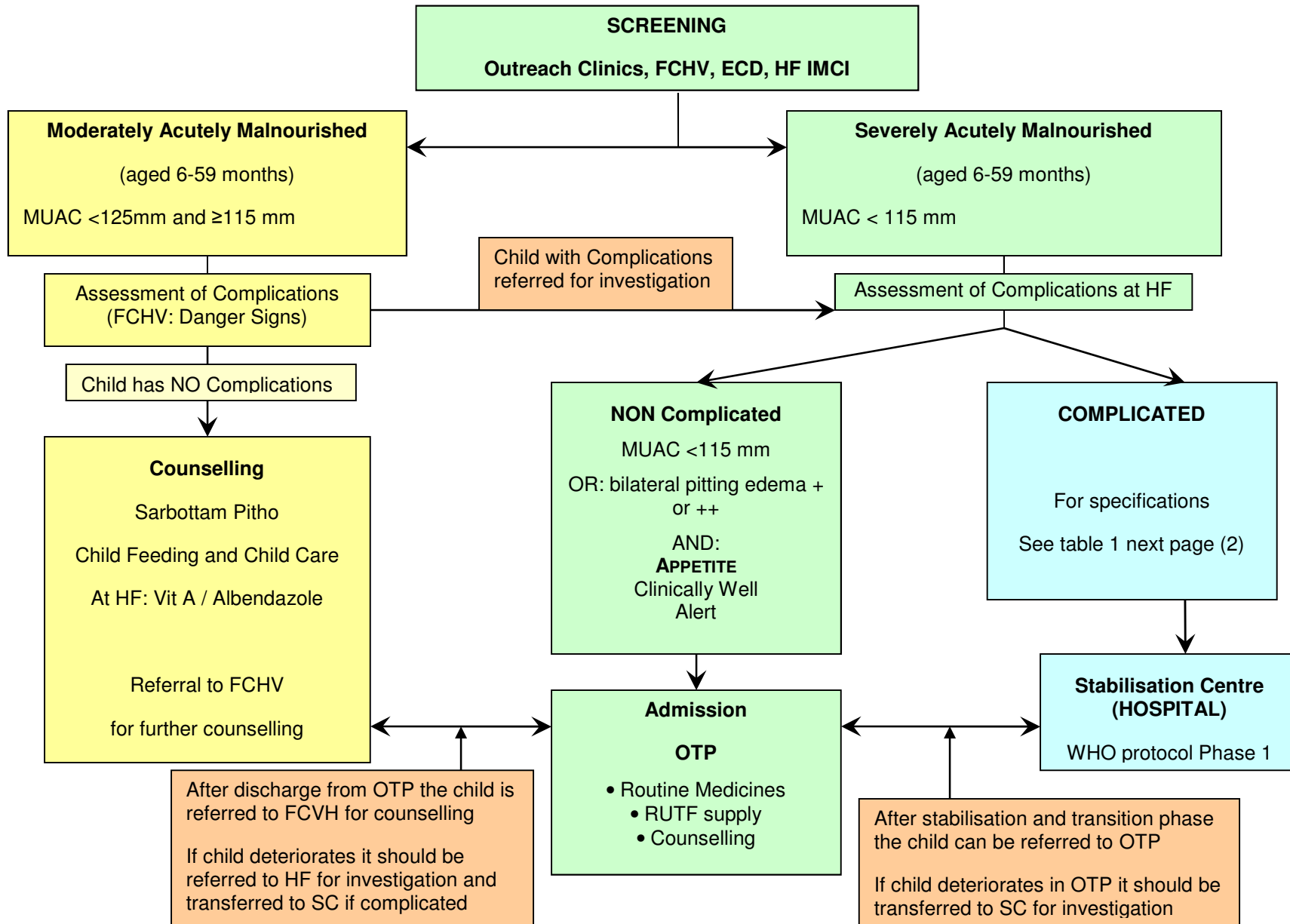
Lessons learned are more detailed reflections on a particular programme or operation and extraction of lessons learned through its implementation. These lessons may be positive (successes) or negative (failures). Lessons learned have undergone a wider review than innovations and have often been implemented over a longer time frame.

1. Although screening is successful in identifying MAM and SAM cases, accurate data collection on screenings is required to determine the areas and population groups who may be missed. Include the names of children in the screening data and the times and places that they are screened so that treatment coverage of the under-five screened population can be determined.
2. Strengthening communication between health workers, female community health volunteers (FCHVs) and caretakers is a means to prevent and reverse default, thus the role of the FCHVs in home visit follow ups is critical and should be supported by the health delivery system. The FCHVs role in disseminating behaviour change messages at women's monthly meetings may complement the home visits.
3. The requirement for ratio of OTPs/health posts is one to one in global guidance and may not be stipulated in national guidance. In Nepal, a greater number of OTPs correlates with higher admissions, however further evidence for increasing OTPs should include up-to-date targets for SAM, accurate screening data, other types of coverage such as partial services in non-OTPs and investigation into reasons for higher incidence of oedema at admission and high default rates.
4. Due to their heavy workloads, counselling for SAM caretakers is a low priority for health workers and yet it is a key requirement of the CMAM programme, thus this issue requires focus and possibly special approaches to improve the flow of support and advice to the caretakers.
5. Children with complications who are referred to SCs need to be followed up so that they are admitted in a timely manner. Those who do not appear may show up as 'absentees' in numbers of referrals compared to numbers of admissions and may face worsening morbidity.
6. Alternatives to manage MAM such as distribution of supplementary foods must be seen in the light of sustainability, cultural acceptability and feasibility.
7. The understanding that some time may be needed for children to get used to the taste of the RUTF is helpful for encouraging acceptance, however, this may require a longer time on the programme. This reality should be considered when planning cost efficiency and that a larger number of sachets per child will be needed during the acceptance period. Alternatives may include sources of RUTF which are more palatable and thus will require fewer sachets and less time to achieve the needed weight gain.
8. Joint assessments in various locations are more effective for planning purposes when they cover recommended topics in a similar manner; a synthesis report is also be helpful. Assessments done jointly with government partners may contribute to more effective integration in national health services. Planning at district level (or the closest to the community) needs to ensure that the supply and demand issues are assessed and assessment results are carried over to project activities. Follow-up data collection and analysis is important to track issues identified in assessments such as whether perceptions on use of the health system improves, private clinics and traditional healers are sensitized and make referrals to the CMAM programme, and marginalized groups are reached.
9. Gaps and duplications in data collected may constrain effective programme performance analysis, these may include lack of qualitative data, detection by type/place of screening, numbers of repeat screenings, reasons for default and effectiveness of counselling, possible gaps in referrals to SCs and subsequent admissions, performance data on children with MAM, and deaths related to malnutrition outside the CMAM programme. Quality of health care and data analysis may be

compromised if the recording of programme data competes with that of other programmes and is not integrated and streamlined in view of staffing workloads.

10. Integration models - Setting out clearly agreed definitions, goals and objectives of integration in all aspects of the health system delivery and on all levels with appropriate indicators included in programme planning will facilitate determination of achievement of the desired level of integration.

Annex 4: CMAM Logic Model



Annex 5: Persons Consulted

Government of Nepal

National Planning Commission

1. Atmaram Pandey, Joint Secretary, National Planning Commission Secretariat

Child Health Division of MoHP

2. Raj Kumar Pokharel, Chief, Nutrition Section, Child Health Division

District health officials/hospitals of CMAM districts:

3. Mr. Chakra Bista, Public Health Officer and CMAM district focal point, DHO Achham
4. Ms. Krishna Kadayat, CMAM Monitor, Achham
5. Tula Ram Giri, CMAM Monitor, Achham
6. Prakash Madu, CMAM Monitor, Achham
7. Mr. Ahute Lamichhane Senior Public Health Officer, DHO Bardiya
8. Ms. Gita Ghimire, Public Health Officer and CMAM district focal point, DHO , Bardiya
9. Mr. Parsuram Nepali, Public Health Inspector, DHO Mugu
10. Ms. Sarofa Ghimire, Staff Nurse, SC, DHO Mugu
11. Dr. Jhalak Sharma Gautam, DHO Jajarkot
12. Mr. Prachand Bahadur Karki, Senior AHW and CMAM district focal point, DHO
13. Bhavi Lal Khadka, CMAM Monitor, Jajarkot
14. Dr. Dipendra Raman Singh, Medical Superintendent, Mahakali Zonal Hospital, Kanchanpur
15. Mr. Shiva Datta Bhatta, CMAM Coordinator, Kanchanpur
16. Mr. Hazari Chand, Public Health Officer and CMAM district focal point, DPHO
17. Ms. Kishori Shrestha, SC Incharge, Mahakali Zonal Hospital, Kanchanpur
18. Ms. Indira Bhatta, Incharge, NRH, Mahakali Zonal Hospital, Kanchanpur

UNICEF

19. Sarita GC, CMAM Nutrition Consultant, Achham
20. Sher Singh Dahit, CMAM Nutrition Consultant, Mugu Saba Mebratu, Chief, Nutrition Section, Nepal
21. Pankaj Mehta, Chief of Health Section, Nepal
22. Saba Mebrahtu, Chief of Nutrition Section, Nepal
23. Will Parks, Deputy Representative, Nepal
24. Anirudra Sharma, Nutrition Specialist, Nutrition Section, Nepal
25. Nameste Lal Shrestha, Project Officer, WASH, Nepal
26. Misaki Akasaka Ueda, Chief, Monitoring and Evaluation, Nepal
27. Marc Vincent, Regional Chief of Programmes and Planning, Regional Office for South Asia

UN, Donors, and NGOs

28. Mark Arnoldy, Fulbright Researcher
29. Amit Bhandar, Health Advisor, DFID, Nepal
30. Ashok Bhurtyal, National Professional Officer, , WHO, Nepal
31. Karen Codling, Public Nutrition Solutions Limited, Advisor to the World Bank, Nepal
32. Elizabeth Drummond, Public Health Officer, Nepali Technical Assistance Group (NTAG)
33. Khursheed Durrani, DGM Supply Chain Management, Chaudhary Group
34. Robert Hamilton, Programme Manager, CIDA, Nepal
35. Maria Kalisky, Programme Officer Nutrition, World Food Programme, Nepal
36. Hari Koirala, Senior Nutrition Specialist, USAID, Nepal
37. Marion Krantz, Community Nutritionist, United Nations Mission
38. Ann P. McCauley, Senior Public Health Advisor, Office of Health and Family Planning, USAID Nepal
39. Marion Michaud, Programme Manager, European Union, Nepal
40. Luc Laviolette, Senior Nutrition Specialist: Health, Nutrition & Population, World Bank, Thailand

41. Kalpana Tiwari Pant, Nutrition Specialist, Nepali Technical Assistance Group (NTAG)
42. Pooja Pandey, Director of Programmes, Helen Keller International, Nepal
43. Latika Pradhan, Programme Manager, AusAID, Nepal
44. Gunawan Setiadi, Public Health Administrator, WHO, Nepal
45. Gaurav Sharma, Nutrition Advisor, DFID, Nepal
46. Nastu Sharma, Programme Manager, AusAID, Nepal
47. Preeti Subba, Monitoring and Evaluation Officer, Nepali Technical Assistance Group (NTAG)
48. Albertus Voetberg, Lead Health Specialist, World Bank, Nepal
49. Leela Raj Upadhyay, Programme Coordinator, World Food Programme, Nepal
50. Nina Khadka, Programme Implementation Director, Save the Children International, Nepal
51. Neera Sharma, Nutrition coordinator, Save the Children International, NepalMs. Manasha Bhattarai, Nutrition Coordinator, NYOF, Kathmandu
52. Mr. Prakash Joshi, Nepal Public Health and Education Group
53. Mr. Piush Ghimire, Youth for World Nepal, Kathmandu

Focus Group Discussions

Achham District:

Srikot: OTP team, Mother Caretakers Group of SAM under treatment and SAM graduates, FCHVs, Village Leaders, and health facility operation management committee members (HFOMC), CMAM monitor

Bayalpata Hospital (Community Health Workers, Director)

Jayagarh: Interaction with OTP Incharge and CMAM monitor, focus group discussions with FCHVs, caretakers of SAM under treatment, and graduated SAM

Achham District Health Office: Presentation and Discussion among District Health Management Committees, DACAW coordination Committee members, representatives of major political parties and concerned district based stakeholders; interaction with DHO, Nutrition focal point and CMAM monitor; focus group discussion with the caretakers of SAM under treatment and SAM graduates, FCHVs, ,

Bardiya District:

Bardiya District Health Office: Interaction with DHO, nutrition focal point, statistician and SC Incharge

Deudakala Health Post: Interaction with HP management team (OTP Incharge, HFOMC member, CMAM focal point); focus group discussion with, FCHVs, Mother Caretaker Groups of SAM under treatment, graduated SAM and MAM

Sorahawa Primary Health Care Centre (PHC): Interaction with PHC management team (OTP Incharge, CMAM focal point); focus group discussion with, FCHVs, Mother Caretaker Groups of SAM under treatment, graduated SAM and MAM

Mugu District:

Mugu District Health Office: Presentation and Discussion among District Health Management Committees, DACAW coordination Committee members, representatives of major political parties and concerned district based stakeholders; interaction with DHO, Nutrition focal point and CMAM monitor; focus group discussion with the caretakers of SAM under treatment and SAM graduates, FCHVs, including VDC secretary and fathers of SAM children

Srinagar VDC ward number 1, Chhatelbada: focus group discussion with FCHVs, Mothers Group members and caretakers of SAM and graduated SAM children

Srikot: Interaction with HP management team (OTP Incharge, HFOMC member, CMAM monitors); focus group discussion with, FCHVs, Mother Caretaker Groups of SAM under treatment, graduated SAM and MAM, Fathers of SAM and MAM Graduated Children;

Jajarkot District:

Kudu: Mother Caretaker Group, Health Post Team, FCHVs, VDC Team and health facility operation management committee members

Jajarkot District Health Office: Mother's Groups, District Health Staff, FCHVs, District Stakeholders including VDC Secretary, Interaction with all OTP In-charges of Jajarkot and monitors

Kanchanpur District:

Mahakali Zonal Hospital, Mahendranagar: OTP observation, interview with hospital superintendent, interview with SC nurse, OTP Incharge

District Public Health Office, Kanchanpur: CMAM Management Team (District Public Health Administrator and Nutrition Focal Point),

Pipladi Healthpost, Pipladi Kanchanpur: OTP Incharge, FCHVs, caretakers of SAM and MAM and graduate SAM, caretakers of defaulted SAM children

Nutrition Rehabilitation Home (NRH), Kanchanpur: Incharge of NRH and NRH observation

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Annex 7: Specific Objectives by Types of Verification, Source of Information and Instruments

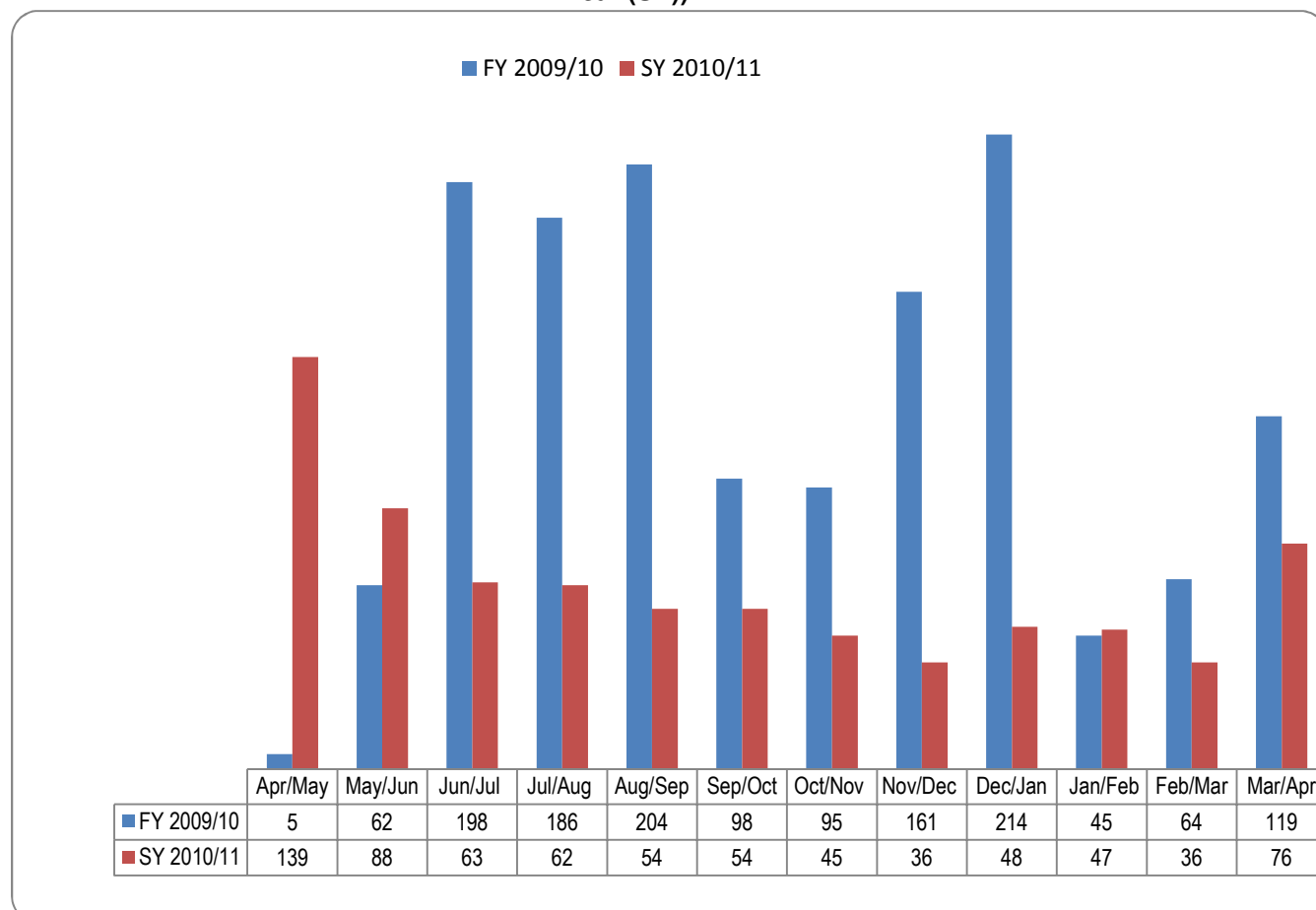
Method of Evaluation	Key issues to be addressed	Source of Information	Instruments
Pilot relevance and appropriateness	<ul style="list-style-type: none"> i. How well has the overall CMAM pilots evolved and to what extent were the pilots designed according to the local context, needs and priorities?; ii. How was the model for community versus facility treatment of SAM proposed? Was this based on an understanding not just of SAM prevalence but of distribution and density and therefore feasibility of a community strategy? iii. How appropriate and adequate is the global guidance on CMAM for national needs including aspects related to needs assessment, programme planning/design, management /quality assurance, monitoring and evaluation?; iv. How adequate is UNICEF's technical and organisational support to the planning and implementation of CMAM? 	Review of the project documents; proposal; baseline survey reports; annual reports; country strategic plan of UNICEF, and other documents; Consultation meeting with various stakeholders (e.g. UNICEF Offices: WHO, National Planning Commission etc.);	Critical review and analysis; Consultation meeting; Key informant interviews; Focus group discussion
Pilot effectiveness and coverage	<ul style="list-style-type: none"> i. Estimate the coverage of the pilots and the proportion of national need; ii. Compare severe acute malnutrition, diarrhoea and/or sickness rates and infant and young child care and feeding practices of those children who participated in the CMAM pilots compared with non-participants; iii. Assessing the acceptability and any changes in care and feeding practices; iv. Examining the effectiveness of treatment in the pilots based on recovery rates, average duration of rehabilitation, case fatality rate, default rate and the relapse rate and compare with Global Sphere Standards; v. Examining the effectiveness of the different CMAM components (community outreach and mobilization, screening/enrolment, treatment, information management and follow up) and the integration with other community interventions such as the integrated management of childhood illness (IMCI) and infant and young child feeding (IYCF); vi. Are there any good practices and lessons regarding overall pilot effectiveness or the effectiveness of specific strategies, management modalities used? 	Review of the project documents; Baseline surveys reports;	Critical review and analysis of project documents, Routine monitoring; Consultation meeting and key informant interviews; Focus group discussion; Structured interviews; Economic cost analysis; Case histories; Observations
Pilot efficiency and quality of services	<ul style="list-style-type: none"> i. How the management of CMAM has evolved over time? How well understood and implemented are the current management mechanism including the roles and responsibilities of various staff and stakeholders? ii. How systematically have the funds been allocated and utilised across the pilot activities to meet the objectives? If there are delays in utilisation of funds, how were these 	Project policy, programmes and annual reports	Critical review of the project documents, routine monitoring, consultation meeting/key informant

	<p>justified and what are the implications for attaining the pilot's objectives? What lessons and recommendations can be drawn for the future?</p> <p>iii. Assess health professionals and community workers involved in the pilot in regards to their ability to detect, classify and treat malnutrition according to existing protocols;</p> <p>iv. Assess community capacity to identify and refer children for treatment;</p> <p>v. Examine the effectiveness of capacity building efforts;</p> <p>vi. Examine to what extent does the service delivery meet expected quality standards? What factors have contributed to meeting quality standards? Where quality standards are not met, what are the key constraints that need to be addressed in order to meet quality standards?</p> <p>vii. Collect cost information ((including transport and procurement costs) to estimate the cost and cost effectiveness of treating a child with SAM as part of a CMAM intervention vis-à-vis facility costs in the different pilot sites (and if possible three – including the Bardiya pilot).</p>		interviews
Pilot sustainability and scaling	<p>i. Assess what is the most feasible operational model for treating children with SAM? If CMAM is the preferred model what is the best way of scaling-up the CMAM pilots?</p> <p>ii. Examine the level of integration of the CMAM pilots in the health service delivery system, particularly with reference to logistics management;</p> <p>iii. Assess how feasible it is for the current pilots to be sustained without external technical and financial support? What factors will support or inhibit the expansion of the CMAM pilots?</p> <p>iv. Assess the issues and options related to the feasibility (administrative, institutional, technical, and financial) for expansion? What plans exist for the scale up and exit strategy?</p>	Review of the project documents; baseline survey report;	<p>Critical review and analysis of project documents;</p> <p>Consultation meeting and key informant interviews;</p> <p>Focus group discussion;</p> <p>Structured interviews;</p>
Cross-cutting issues	<p>i. How effective is the coordination and involvement of various sectors in planning and implementing the CMAM pilots? How strong is the national and sub-national engagement and ownership?</p> <p>ii. Assess progress in implementing national guidelines on CMAM or in integrating CMAM components into existing policies. What more needs to be done? What lessons can be drawn?</p> <p>iii. How systematically has the development of institutional capacity been embedded at all levels of the pilot? What more needs to be done?</p> <p>iv. How adequate are the guidelines on CMAM programming? To what extent is the technical support provided by various agencies well-coordinated and responds to</p>	Review of the project documents: CMAM policy and programme, baseline survey reports, annual reports, country strategic plan of UNICEF, and other relevant documents.	<p>Critical review and analysis of project documents; Routine monitoring;</p> <p>Consultation meeting and key informant interviews;</p> <p>Focus group discussion</p>

	needs? v. To what extent has gender been considered in the design and implementation of the CMAM pilots? What are the issues related to the equitable delivery of CMAM services? What measures could be proposed to improve pilot impact on gender and equity?		
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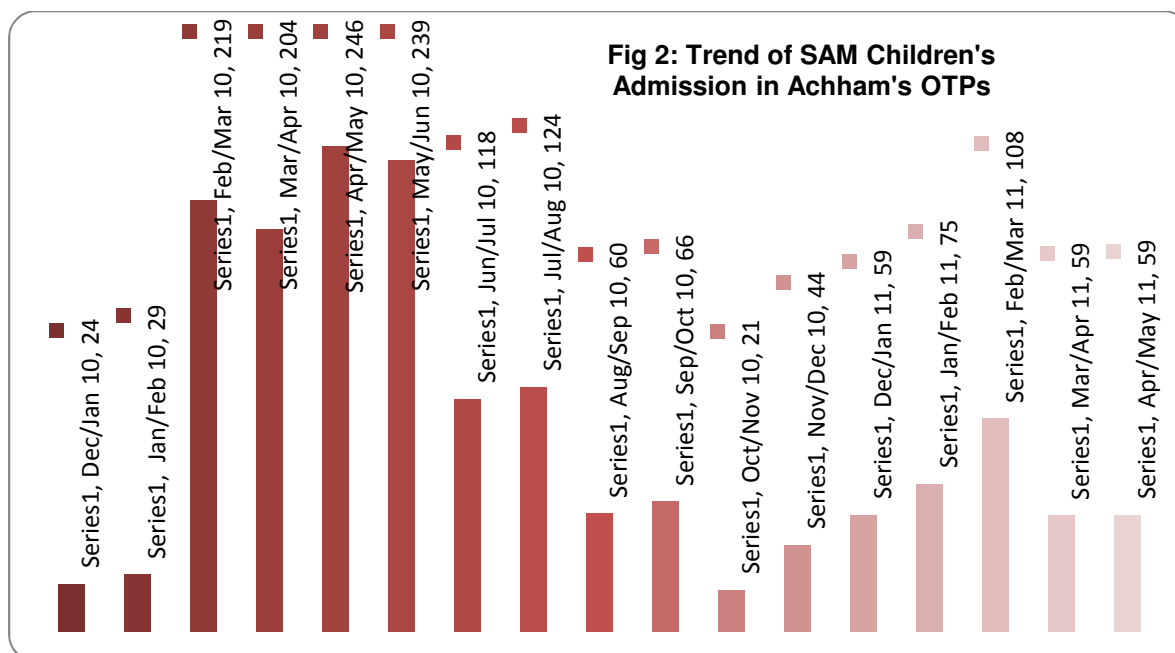
Annex 8: Monthly Trends of SAM Children's Admission, Capacity Building and Cost Analysis Data

Fig 1: Comparison of Admission Trends in Bardiya for the Two Years (First Year (FY) & Second Year (SY))



Some observations:

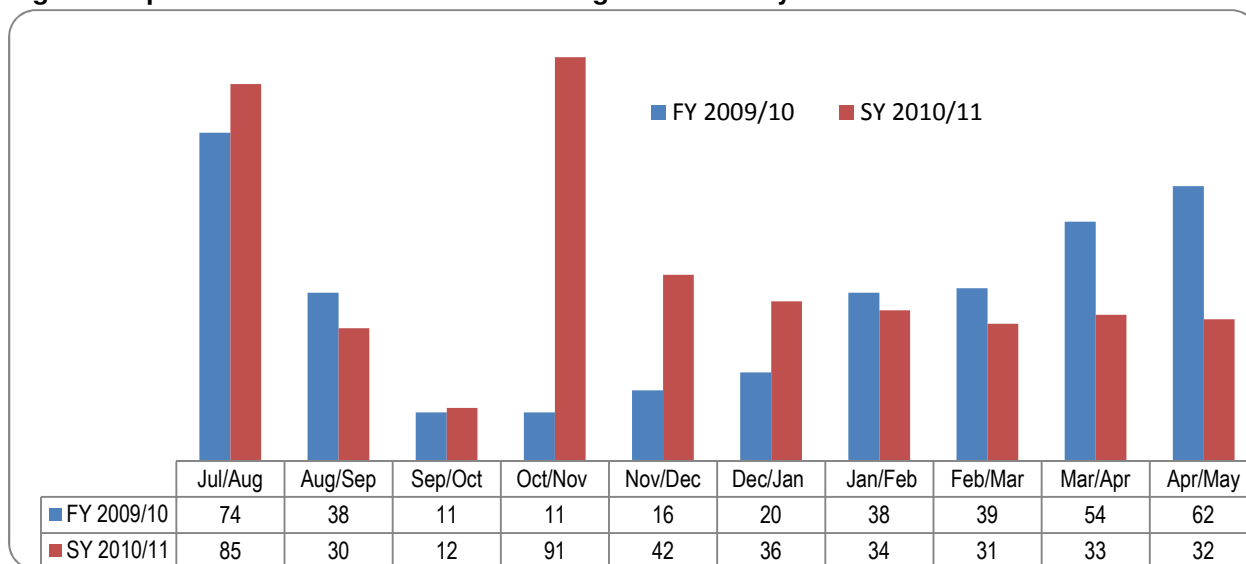
- In the first year, the number of monthly admission rises from April/May to August/September then sharply declines till October/November and suddenly rises till December/January and then drops very sharply and then rises.
- In the second year, the number of monthly admission decreases continuously from April/May till reaches to a minimum in November/December and then fluctuates with small amount till February/March, and then rises.
- Screening day seems to be tied up with the Vitamin A day programme, since the number of admission cases is relatively high in the month of April/May in 2010 (139 cases) and in the same month in 2011 (195 cases not shown in the Fig).



Some observations:

- The number of monthly admission series rise very rapidly in the beginning and after two months the series remain (> 200) level for four month and then declines and reaches to a minimum level in October/November and then slowly rises till February/March and then drops.

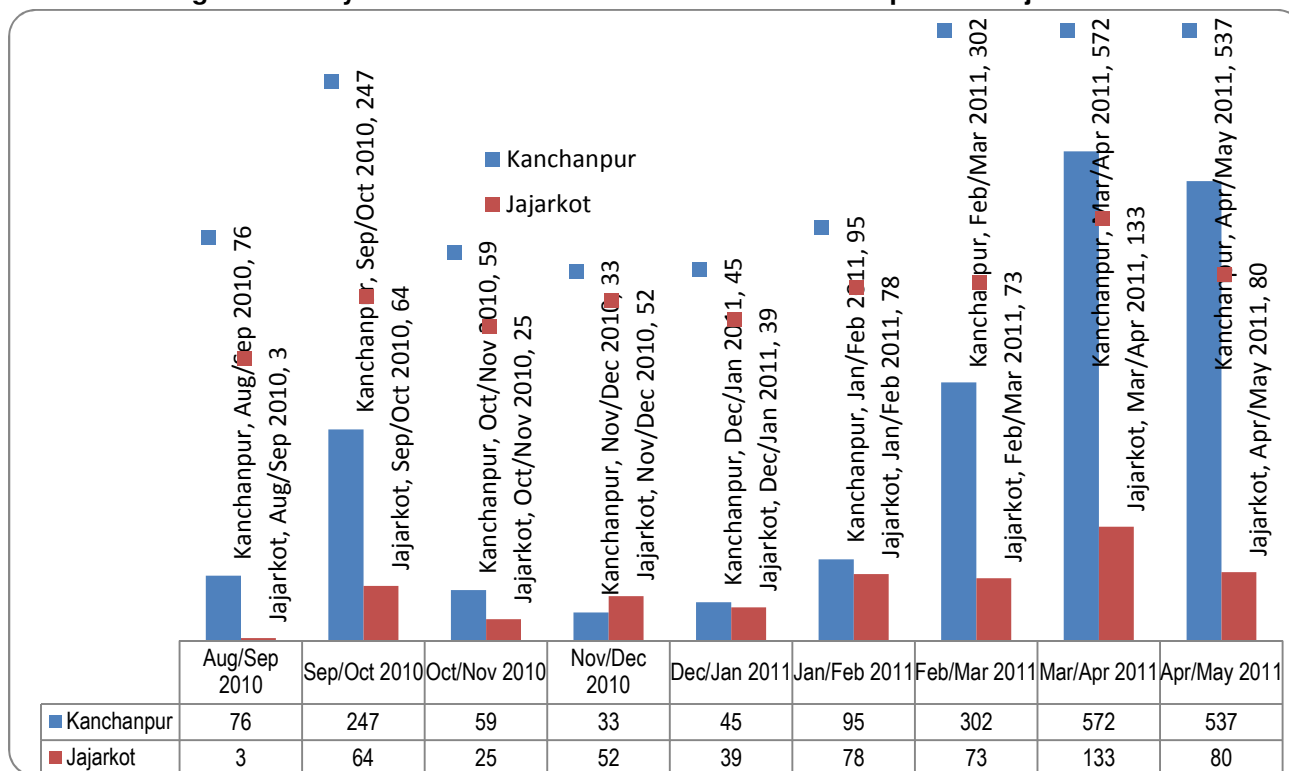
Fig 3: Comparison of Admission Trends in Mugu for the two years



Some Observations:

- In the first year, the number of monthly admission series first declines till October/November, 2009 then slowly rises (U-shaped).
- In the second year, the series first decreases and rises very sharply and then with small fluctuations tend to remain at low level.

Fig. 4: Monthly Trends of Admission in OTPs of Kanchanpur and Jajarkot



Some observations:

- As per discussion with UNICEF staff, during the last three months in Kanchanpur intensive community mobilization through monitors and FCHVs was carried out, since the progress was very low, and high number of admission is seen in the last three months.
- Increasing with alternatively swinging up and down trend is seen in Jajarkot.
- The total number of admission in Kanchanpur is 3.6 times higher than that in Jajarkot.

Aggregated Outpatient Data of the Reference Period							
Basic Variables	Gender	Bardiya	Achham	Mugu	Kanchanpur	Jajarkot	Total
Admission	Boys	952	737	441	873	227	3230
	Girls	1412	1017	476	1093	320	4318
	Total	2364	1754	917	1966	547	7548
Discharge	Boys	831	660	390	283	188	2352
	Girls	1241	895	415	432	274	3257
	Total	2072	1555	805	715	462	5609
Recover	Boys	699	573	343	248	161	2024
	Girls	1042	786	362	382	234	2806
	Total	1741	1359	705	630	395	4830
Death	Boys	5	3	8	0	3	19
	Girls	3	5	8	1	6	23
	Total	8	8	16	1	9	42
Default	Boys	94	37	24	28	24	207
	Girls	157	38	27	44	33	299
	Total	251	75	51	72	57	506
Non-recover	Boys	7	5	3	1	0	16
	Girls	12	8	4	0	0	24
	Total	19	13	7	1	0	40
Medical Transfer	Boys	1	1	3	0	0	5
	Girls	3	0	4	0	0	7
	Total	4	1	7	0	0	12
Transfer out to OTP	Boys	4	11	6	0	0	21
	Girls	3	17	3	0	0	23
	Total	7	28	9	0	0	44
Transfer out to SC	Boys	21	30	3	6	0	60
	Girls	21	41	7	5	1	75
	Total	42	71	10	11	1	135

Note

- Reference period is the date of start of the CMAM pilot programme to 12 May, 2011
- In order to avoid double counting in admission, total number of children admitted to SCs is not included in this table and they are analysed separately.
- The percentage of wrongly admitted children being less than 1%, they were dropped from both admission and discharge variable.

Source: Aggregated from the monthly data

Aggregated Inpatient Data of the Reference Period

Basic Variables	Gender	Bardiya	Achham	Mugu	Kanchanpur	Jajarkot	Total
Admission	Boys	10	85	6	10	16	127
	Girls	18	95	2	7	9	131
	Total	28	180	8	17	25	258
Recover	Boys	9	67	0	10	16	102
	Girls	7	77	0	7	7	98
	Total	16	144	0	17	23	200
Death	Boys	0	0	0	0	0	0
	Girls	0	0	0	0	1	1
	Total	0	0	0	0	1	1
Default	Boys	0	3	0	0	0	3
	Girls	0	4	0	0	0	4
	Total	0	7	0	0	0	7
Non-recover	Boys	0	0	0	0	0	0
	Girls	0	0	0	0	0	0
	Total	0	0	0	0	0	0
Medical transfer	Boys	0	2	0	0	0	2
	Girls	0	0	1	0	1	2
	Total	0	2	1	0	1	4
Transfer out to OTP	Boys	1	13	6	0	0	20
	Girls	11	14	1	0	0	26
	Total	12	27	7	0	0	46

Source: Aggregated from the monthly data

Participants in Capacity-building by Activities & Districts

Activities	Bardiya	Achham	Mugu	Kanch	Jajarkot	Kath	Total	%
District advocacy workshop	24	42	25	33	31	0	155	1.81
Master TOT	0	0	0	0	0	26	26	0.30
District TOT	23	25	29	25	22	0	124	1.44
Health worker training	96	94	22	102	68	0	382	4.45
Management of SCs training	18	12	9	22	11	0	72	0.84
VDC advocacy workshop	825	1875	345	525	750	0	4320	50.31
VHW/MCHW training	50	104	38	33	56	0	281	3.27
FCHV training	808	923	209	836	270	0	3046	35.48
Village Facilitator training	0	18	11	0	60	0	89	1.04
CMAM monitor training	11	17	9	5	5	0	47	0.55
IMAM and SMART training	0	0	0	0	0	44	44	0.51
Total	1855	3110	697	1581	1273	70	8586	100
%	21.60	36.22	8.12	18.41	14.83	0.82	100	

Source: UNICEF 2010, EMERGENCY NUTRITION RESPONSE IN THE MID- AND FAR WESTERN REGIONS

Economic Analysis

Comparison of Annualized Capital Cost

	Bardiya	Accham	Mugu	Kanchanpur	Jajarkot	Total
<u>US \$</u>						
Government	9160	21360	3306	3602	3485	40912
UNICEF	51737	76610	48852	25531	26552	229282
Total	60896	97970	52158	29133	30037	270195
<u>Percent</u>						
Government	15.0	21.8	6.3	12.4	11.6	15.1
UNICEF	85.0	78.2	93.7	87.6	88.4	84.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Comparison of Annualized Recurrent Cost

	Bardiya	Accham	Mugu	Kanchanpur	Jajarkot	Total
<u>US \$</u>						
Government	121275	180711	74195	119763	47734	543678
UNICEF with RUTF	103457	117202	63545	76495	74085	434784
Total	224732	297914	137740	196258	121819	978463
<u>Percent</u>						
Government	54.0	60.7	53.9	61.0	39.2	55.6
UNICEF with RUTF	46.0	39.3	46.1	39.0	60.8	44.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Comparison of Annualized Total (Capital + Recurrent) Cost

	Bardiya	Accham	Mugu	Kanchanpur	Jajarkot	Total
<u>US \$</u>						
Government	130435	202071	77501	123365	51219	584591
UNICEF with RUTF	155194	193812	112397	102027	100637	664066
Total	285629	395883	189898	225391	151856	1248657
<u>Percent</u>						
Government	45.7	51.0	40.8	54.7	33.7	46.8
UNICEF with RUTF	54.3	49.0	59.2	45.3	66.3	53.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Annualized Total Cost of CMAM by District and Child Type

	Normal	SAM	MAM	Total
Achcham	138,948	163,802	93,133	395,883
Bardiya	101,925	138,361	45,343	285,629
Mugu	46,762	97,652	45,484	189,898
Jajarkot	44,221	68,407	39,228	151,856
Kanchanpur	45,128	111,103	69,160	225,391
Total	376,983	579,325	292,348	1,248,657

Annualized% Distribution of Total Cost of CMAM Programme within District

	Normal	SAM	MAM	Total
Achcham	35.1	41.4	23.5	100.0
Bardiya	35.7	48.4	15.9	100.0
Mugu	24.6	51.4	24.0	100.0
Jajarkot	29.1	45.0	25.8	100.0
Kanchanpur	20.0	49.3	30.7	100.0
Total	30.2	46.4	23.4	100.0

