

# Study report

# Supply Chain Assessment of Nutrition Commodities – Uganda

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## **ABBREVIATIONS AND ACRONYMS**

ART	Anti-retroviral Therapy
BMI	Body Mass Index
CHAI	Clinton Health Access Initiative
CIP	Costed Implementation Plan
со	Country Office
CSB	Corn Soya Blend
DGHS	Director-General of Health Services
DHO	District Health Office
DNCC	District Nutrition Coordination Committee
EMHSL	Essential Medicines and Health Supplies List
ERP	Enterprise Resource Planning
FANTA	Food and Technical Assistance III Project
FP	Family Planning
FY	Fiscal Year
GAM	Global Acute Malnutrition
GDF	Global Drug Facility
GFATM	The Global Fund to fight AIDS, Tuberculosis and Malaria
GHI	Global Health Initiatives
GoU	Government of Uganda
HC	Health Centre
	Health Management Information System / District Health Information
	System 2
HSD	Health Sub District
HSDP	National Health Strategic Plan
ICCM	Integrated Community Case Management
IMAM	Integrated Management of Acute Malnutrition
ITC	Inpatient Therapeutic Care
LMIS	Logistics Management Information System
MAM	Moderate Acute Malnutrition
MAUL	Medical Access Uganda Limited
MNP	Micro-Nutrient Powders
МОН	Ministry of Health
MSTCC	Multi-Sectorial Technical Coordination Committee
MUAC	Mid-Upper Arm Circumference
NDA	National Drug Authority
NDP	National Development Plan
NHP	National Health Policy
NMP	National Medicines Policy
NPA	National Planning Authority
NPSSP	National Pharmaceutical Sector Strategic Plan
NTLCP	National TB and Leprosy Control Programme
OPM	Office of the Prime Minister
отс	Outpatient Therapeutic Care
PFP	Private For Profit
PIN	Production for Improved Nutrition
PLWH	People Living With HIV

PNFP	Private Not For Profit
PS	Permanent Secretary
PSM	Procurement and Supply Management
QPPU	Quantification, Procurement and Planning Unit
RUTF	Ready to Use Therapeutic Food
SAM	Severe Acute Malnutrition
SCM	Supply Chain Management
SD	Supply Division
SF	Supplementary Feeding
SFP	Supplementary Feeding Programmes
SLICE	Supply and Logistics Internal Control Evaluation
SPRING	Strengthening Partnerships, Results and Innovations Globally Project
SUN	Scale Up Nutrition
ТВ	Tuberculosis
ToR	Terms of Reference
UDHS	Uganda Demographic Health and Survey
UFNP	Uganda Food and Nutrition Policy
UHC	Universal Health Care
UHMG	Uganda Health Marketing Group
UNAP	Uganda Nutrition Action Planning Guidelines
UNFPA	United Nations World Population Fund
USAID	United States Agency for International Development
VHT	Village Health Team
WFP	World Food Programme
WHO	World Health Organization
WMIS	Warehouse Management Information System

## **EXECUTIVE SUMMARY**

The objectives of this study are to i) map the current (parallel) supply chains for nutrition commodities; ii) provide recommendations for a more harmonized, effective and efficient supply chain of nutrition commodities in Karamoja specifically; and iii) develop a national strategy for phased effective integration of nutrition commodities that have been managed separately from the mainstream supply chain.

Throughout this study, the consultant team used a conceptual framework based on the WHO building blocks of the health system, indicating where the supply chain (one of the building blocks) interacts with the other building blocks.

The study consisted of document review, data collection (through semi structured interviews, questionnaires, and review of databases of NMS, UNICEF and USAID/PIN/RECO), data analysis and reporting.

Besides meetings at the national level in Kampala and Entebbe, the consultant team visited four regions, nine districts and 27 health facilities where quantitative and qualitative data was collected. Data collection took place from 28 September to 20 October 2016.

All commodities required for treatment of Severe Acute Malnutrition (SAM) are considered in this study; i) selected medicines used for the treatment of SAM; ii) therapeutic formulas (Ready-to-Use Therapeutic Food (RUTF), therapeutic milks); iii) ReSoMal; and iv) anthropometric equipment. The focus however is on the key commodities that are not yet integrated in the national procurement and supply system as currently managed by the National Medical Stores (NMS).

**Karamoja** presents the highest prevalence of stunting in the country at 45%. Due to its fragile state, the region shows a high presence of partners implementing projects funded by various donors, among which many are related to food security and health. The continuous support seems to pay off with regards to management of nutrition commodities. Particularly the hands-on support from organizations like CUAMM and World Vision has contributed to improved management and technical knowledge at both DHO and health facility level. In general, in contrast to the initial expectations, the situation in terms of supply of nutrition commodities in Karamoja is better than in other regions visited by the consultant team. These regions were only slightly less affected by SAM, but much less supported by partners. The situation in Karamoja does therefore not require specific and immediate actions for improvement of the supply chain for nutrition commodities. There is also a relatively short implementation period for the integration strategy as presented in this report, which does not justify for intermediate interventions for Karamoja only.

The **anthropometric equipment** reaches the facilities through different ways (UNICEF, implementing partners, DHO) but it remained unclear how the supply systems work exactly. Most facilities are not aware of the procedures to obtain equipment. It was also noted that staff working at DHO and health facilities do generally not know where to go if equipment breaks down. It is recommended to agree on uniform technical specifications of the equipment in order to get alignment when partners procure equipment. Ideally, NMS should manage the equipment on behalf of the partners until there is a budget line allocated by the government for procurement of equipment.

Nutrition commodities to treat SAM are distributed through three different procurement and supply chains, namely: i) the supply chain managed by NMS for **medicines used for treatment of SAM** (e.g. Albendazole, Mebendazole, Vitamin A, and Folic Acid) to all public health facilities in the country; ii) the supply chain managed by UNICEF for **RUTF**, therapeutic milks F-75 and F-100, ReSoMal procured by UNICEF for selected districts and all Regional Referral Hospitals; and iii) the supply chain managed by USAID for selected health facilities.

**Medicines to treat SAM** are not uniquely used to treat SAM and as such they have not followed an integration process; they are by nature an integral part of the essential medicines that the NMS procures, stores and distributes. NMS is mandated to procure, store and distribute essential medicines for the public health sector. It estimates quantities to be procured by adding up the needs as expressed by health centers (HC)II and III (based on a tailor-made kit), and the needs expressed by HCIV and hospitals as per their annual procurement plans. Procurement is conducted by NMS and medicines are stored in the NMS central warehouse in Entebbe. On a bi-monthly basis, HCIV and hospitals send their orders to NMS. Quantities of medicines in the kits for HCII and III are predetermined and also follow a bi-monthly cycle. NMS packs and labels orders per HC, and they are then delivered and temporarily stored at the DHO store. The last-mile distribution, up the health facilities, is outsourced by NMS to local transport companies.

NMS staff is adequately trained and skilled in stock management for medicines and health commodities. At health facility level, stock management for medicines is generally adequate and consistent. Medicines are stored in specific medicine storerooms that are managed by staff with basic knowledge and sufficient skills on stock management.

It is crucial that all medicines required to treat SAM are always available in sufficient quantities at the facility level. For some medicines like Vitamin A, facilities primarily rely on the deliveries for the Child Days Plus, for which special supply arrangements are in place, mainly supported by partners. Limited funding available at HC level prevents these HC from requesting sufficient quantities through the regular channel. It is recommended to develop an estimation of needs for these particular commodities, and ensure sufficient funding to allow for full supply throughout the year. The consultant team developed a rough estimation of needs, recognizing that this quantification is a somewhat theoretical exercise because these medicines are not earmarked for SAM only.

UNICEF runs a parallel supply chain for nutrition commodities it procures (**RUTF**, therapeutic milks and **ReSoMal**), although to a certain extent, the national system is used (for last-mile delivery). UNICEF gathers estimated needs from the supported districts and hospitals, and decides on quantities to be procured, primarily based on the available budget. UNICEF Supply Division based in Copenhagen carries out procurement and the Country Office clears the commodities at customs. They are then stored in the UNICEF warehouse in Kampala from where DHOs and Regional Referral Hospitals are supplied on a quarterly basis, based on the (verified) needs expressed. At district level, DHO stores are used for storage. In theory, health facilities send monthly requisitions to the DHO, based on which the store releases the requested stock, and arranges transport up to the health facility. In practice, the supply chain as described above is often managed differently. Especially at the lower levels of the supply chain requisitioning and distribution is fragmented mainly due to management issues and challenges in terms of transport means.

USAID is procuring **RUTF** from a local manufacturer, PIN/RECO, which runs a parallel supply chain. USAID supports selected health facilities (including some Private Not For Profit (PNFP)) throughout the country by supplying RUTF. The funding for this support comes from HIV-funding (PEPFAR) and therefore the RUTF procured is primarily targeted at Anti-retroviral Therapy (ART) clinics in the selected health facilities. The facilities provide monthly reports to PIN/RECO with both programmatic and logistics data and send quarterly orders to PIN/RECO. Based on the consolidated orders, USAID prepares a purchase order for PIN/RECO for production and distribution of RUTF to the facilities. The production of RUTF takes place in the manufacturing plant in Kasese where there is also the central warehouse.

The Government of Uganda does not fund procurement of RUTF, therapeutic milks and ReSoMal, and NMS and the MOH Nutrition Division are currently not involved in the management of the supply chains run by UNICEF and USAID (PIN/RECO). Absence of long term commitment from development partners, in combination with limited funding from the government leads to challenges related to sustainability.

UNICEF and USAID had specific reporting requirements for programmatic and logistics data, but it is now agreed only HMIS/DHIS2 data will be collected. Still, UNICEF relies on additional (logistics) data in order to make re-supply decisions. USAID has a database in which both programmatic and logistics data are captured for supported facilities, but these data are not shared with MOH as a routine. There are initiatives for the development of a nationwide Logistics Management Information System (LMIS) but details on implementation and timing are not yet confirmed.

A national quantification for these commodities for the short to medium term does currently not exist. So far, the quantification is primarily based on availability of funding rather than on estimated needs. Successful integration requires an estimation of needs for the coming years. The consultant team provided a rough estimation of the need based on coverage of 100% of the needs:

	Commodity	2017	2018	2019
	RUTF (150 sachets)	180,973	186,402	191,995
Estimated needs in cartons	F-75 (120 sachets)	7,664	7,894	8,131
(quantities)	F-100 (90 sachets)	3,406	3,508	3,614
	ReSoMal (100 sachets)	1,533	1,579	1,626
	RUTF	\$9,602,439.99	\$9,890,513.19	\$10,187,228.58
	F-75	\$420,668.61	\$433,288.67	\$446,287.33
Price CIF Kampala, Uganda, by sea freight (USS)	F-100	\$171,602.07	\$176,750.13	\$182,052.64
	ReSoMal	\$36,357.29	\$37,448.01	\$38,571.45
	Total	\$10,231,067.96	\$10,538,000.00	\$10,854,140.00
In-country logistics		\$1,176572.82	\$1,211,870.00	\$1,248,226.10
Estimated total procurement costs	and supply	\$11,407,640.78	\$11,749,870.00	\$12,102,366.10

The assumptions used to develop this rough estimate need to be verified, further fine-tuned, and agreed upon.

Focusing on the key commodities that are not yet integrated into the national procurement and supply system managed by NMS, the ideal configuration of a fully integrated system would consist of the following elements:

- Management of the supply chain by NMS with involvement of the MOH Nutrition Division
- All nutrition commodities included in the Essential Medicines and Health Supplies List
- Nutrition commodities included in the basic kit for HCII and HCIII according to the level of health care provided in these HC, and included in the procurement plans of HCIV and hospitals, as well as in the plans of PNFP facilities
- Nutrition commodities in the Enterprise Resource Planning and Warehouse Management Information System of NMS
- Quantification of nutrition commodities by the Quantification, Procurement and Planning Unit of the MOH Pharmacy Division
- A government budget line item for procurement of nutrition commodities
- Funding for procurement, storage and distribution by NMS
- Registration of nutrition commodities by the National Drug Authority (NDA), or future National Drug and Food Authority (NDFA)
- Quality assurance according to the national regulations in conjunction with the NDA, or future NDFA
- Storage at central level by NMS
- Distribution by NMS up to health facility level (including PNFP)

- Storage at health facility level in the medicines storeroom, and under responsibility of the staff member responsible for the medicines storeroom
- Requisitions managed by health facilities either based on the basic kit or based on the procurement plan on a bi-monthly basis to NMS
- Reporting of programmatic data through HMIS/DHIS2
- Reporting of logistics data through the future national LMIS
- Analysis of programmatic data and logistics data by the MOH Nutrition Division for decisionmaking

Some key recommendations required to implement the integration strategy are:

- Develop (finalize) a 3-year quantification, supply plan and gap analysis for all nutrition commodities
- Develop a resource mobilization strategy
- Support implementation of national LMIS and improve HMIS/DHIS2 data collection and entry
- Estimate volumes of all nutrition commodities to be distributed to districts and health facilities and ensure sufficient funding

Timing for integration seems right. The national supply chain as managed by NMS is well established and capable of incorporating these nutrition commodities. The study demonstrated that integration is feasible, can be implemented at short to medium term (about 18 months), and with a relatively low investment. This makes additional short-term interventions superfluous.

Among the key challenges for the integration process is the financing component. The only way to ensure a resilient supply chain for the nutrition commodities is to fully integrate these into the national system. Full integration includes funding of commodities and their management by the government. A related challenge is procurement managed by the national system, which might only be possible when government funding becomes available. Nevertheless, these components can be integrated gradually.

For the implementation to be successful, involvement of high-level MOH staff, oversight and guidance by a steering committee, and probably most important, a dedicated project manager are crucial.

As an integral part of this report, an implementation plan for the integration strategy is provided. The plan follows the conceptual framework used for the study, lists key activities required to achieve integration, indicates organizations and institutions to be involved for each activity, suggests a responsible entity, and includes a rough budget required for implementation.

## **1** INTRODUCTION

This report describes the background, findings and recommendations of the study "Assessment of Nutrition Commodities Supply Chain Systems for strengthening and/or harmonization and integration into the National Medical Stores" that hera has carried out on behalf of UNICEF Uganda.

## **1.1 Objectives**

The objectives of this study are to:

- Map the current (parallel) supply chains for nutrition commodities with a specific focus on effectiveness and efficiency in terms of operations, reporting and monitoring;
- Provide recommendations for a more harmonized, effective and efficient supply chain of nutrition commodities in Karamoja specifically;
- Develop a national strategy for phased effective integration of nutrition commodities that have been managed separately from the mainstream supply chain.

While the study focused on the national supply chain of nutrition commodities, the Karamoja region received special attention given the particular focus of the UNICEF Nutrition programme on that region. At the same time, other regions were also subject of the study in order to enrich the development of the national strategy.

## 1.2 Methodology

Assessing procurement and supply chains cannot be done properly without taking into consideration the environment in which such chains operate: these chains do not operate in a vacuum, but interact frequently with most, if not all, other building blocks that, in line with WHO's definition, form a country's health system<sup>1</sup>.

The consultant team used the conceptual framework as presented in figure 1 as guidance tool during the study. The supply chain (based on building block 5) interacts with all other building blocks, but mainly with:

- leadership and governance for its role in overseeing and monitoring the supply system
- financing for its influence on the volumes flowing through the chain
- health workforce for its role in the operationalization of the supply system
- information and research for its role in data management, that influences management of the supply chain

<sup>&</sup>lt;sup>1</sup> Health systems are defined by WHO as 'all organizations, people and actions whose primary intent is to promote, restore or maintain health'. WHO specifies six building blocks that together form a country health system: 1) leadership and governance, 2) health care financing, 3) health workforce, 4) information and research, 5) medical products and technologies, and 6) service delivery.

#### Figure 1 - Conceptual framework



Source: UNICEF Nutritional Supply Chain Integration Study in Sub-Saharan Africa (2015)

The study consists of the following elements:

**Document review** A considerable number of policies, strategic plans, reports, and operational documents were reviewed. Documents were related to nutrition and to Procurement and SCM, both at national and international level. The key documents reviewed are listed in Chapter 12 *Bibliography*.

#### **►** Data collection:

- 1. Semi-structured interviews Relevant actors and stakeholders at all levels (national, regional, district, and health facility) were interviewed. Some of the stakeholders were initially interviewed during the inception visit and additional interviews took place during the data collection visit to further clarify and confirm certain findings. For interviews at the District Health Office (DHO) and health facility level, interview guides were developed. The list of interviewees can be found in Annex 1 *Programme and Persons Met, and* a copy of the interview guides in Annex 6.
- 2. Questionnaire Quantitative data were collected about availability of commodities, timeliness of supply, and use and accuracy of stock cards for a number of commodities at DHOs and health facilities. Copies of the questionnaires can be found in Annex 6.
- 3. NMS database The consultant team, through NMS, consulted the NMS database in order to obtain basic data on several general topics, such as volumes handled, and more specific such as quantities of medicines procured in the past.
- 4. UNICEF database The UNICEF database was used to obtain key data on procurement and distribution of RUTF, therapeutic milks, ReSoMal and medicines.

5. USAID- PIN/RECO data The consultant team also obtained some data regarding volumes of RUTF procured and distributed by USAID-PIN/RECO

**Data analysis and reporting** The consultant team carried out an in-depth data analysis and compiled background, findings, recommendations and way forward into a final report, and developed an implementation plan for the integration strategy.

## **1.3** Commodities and supply chains involved in the study

All commodities required for treatment of Severe Acute Malnutrition (SAM) are considered in this study:

- Selected medicines used for the treatment of SAM
- Therapeutic formulas (Ready-to-Use Therapeutic Food (RUTF), therapeutic milks)
- ReSoMal
- Anthropometric equipment

Table 1 shows the entities that are managing the procurement and supply chain for the different nutrition commodities.

Product category	Entity		
Medicines	NMS		
RUTF	UNICEF and USAID (PIN/RECO)		
Therapeutic milks	UNICEF		
ReSoMal	UNICEF		
Anthropometric	Several entities, mainly		
equipment	development partners		

#### Table 1 - Supply chains for nutrition commodities

One of the key objectives of this study is to 'develop a national strategy for effective integration of nutrition commodities that have been managed separately from the mainstream supply chain', and therefore the study focuses to a large extent on the therapeutic formulas. The supply chains of these commodities (managed by UNICEF and USAID) were therefore studied in detail.

The integration strategy for therapeutic formulas as proposed in this report focuses on integration of commodities procured by UNICEF, but is also applicable to integration of other nutrition commodities such as Micronutrient Powders (MNPs) or any other nutrition commodity that might be included in the national treatment guidelines and National Essential Medicines and Health Supplies List (NEMHSL) in the future.

There is also a limited number of other supply chains for nutrition commodities, mainly RUTF, managed by humanitarian agencies in emergency settings and in refugee camps. These supply chains were not considered in this study.

When referred to nutrition commodities, all commodities mentioned above are included, except for equipment. Often, a distinction is made between medicines and the therapeutic formulas (including ReSoMal) mainly due to the fact that the therapeutic formulas are not integrated in the national supply chain, whereas medicines are managed through the national supply chain.

## **1.4 Execution of the study**

The study took place between end of August and November 2016, and consisted of three phases, as demonstrated in the table below.

Phase	Main activities	Comments
1	Desk review of relevant documents	Review of national policies and strategies, relevant programme and Procurement and SCM related documentation
	Inception visit	Obtain a rough understanding of the Procurement and SCM, gathering additional documentation, having initial meetings with key stakeholders, clarify issues related to the scope of the
		Work
	Further elaboration of the methodology	Development of the data collection tools and planning
2	Data collection at control lovel and field visits	Accessment of the supply chain
2	Data collection at central level and field visits	Assessment of the supply chain
		Integration of the supply chain
	Proliminary data analysis and states of	Disease with law states a law a heart finding and strate and
	preliminary data analysis, presentation of preliminary findings and roadmap for integration strategy	Discussion with key stakeholders about findings and strategy
3	Data analysis and reporting	Development of the draft integration strategy and the draft study report
		Development of the final integration strategy and study report

#### Table 2 - Phases and activities of the study

The **inception phase** started at the end of August 2016, and ended mid September. The team leader visited Kampala, and was accompanied by the national nutrition and supply chain expert.

The **second phase** started at the end of September 2016. Some additional meetings were held in Kampala, and final preparations were done for the field visits. These visits took place between 2 and 12 October 2016. Two teams were formed; the hera team leader was accompanied by Mr. Emmanuel Ahimbisibwe from the MOH Nutrition Division, and the other hera international consultant was accompanied by the hera national nutrition and supply chain expert, and Ms Doreen Abwola from NMS.

In coordination between UNICEF, the Ministry of Health (MOH) Nutrition Division and the consultant team, the regions to be visited were selected, and the consultant team suggested districts and health facilities in those regions. The provinces and districts visited are presented in table 2 below.

Zones	Region	District	Health facility
1	Karamoja	Moroto	Moroto Regional Referral Hospital (RRH)
		(district supported by UNICEF)	DMO's Clinic HCII
			Kakingol HCIII
			Nadunget HCIII
		Kotido	Karamoja Diocese HCIII (Private Not For Profit - PNFP)
		(district supported by UNICEF)	Kotido HCIV
			Kachere HCIII
			Lokitelaebu HC II
2	South Western	Mbarara	Mbarara Regional Referral Hospital
		(not supported, only the RRH)	Bwizibwera HCIV
			Ndeije HCIII
			Kinoni HCIV
		Lwengo	Lwengo HCIV
		(not supported)	Kinoni HCIII
		Bushenyi	Ishaka Adventist Hospital (PNFP)
		(not supported)	Comboni Hospital (PNFP)
			Bushenyi HCIV
3	West Nile	Arua	Arua Regional Referral Hospital
		(district supported by UNICEF)	Kuluva Hospital (PNFP)
			Adumi HCIV
			Ayivuni HCIII
4	Central	Masaka	Masaka Regional Referral Hospital
		(not supported, only the RRH)	Kyannamukaaka HC IV

#### Table 3 - Regions, districts and health facilities visited

Zones	Region	District	Health facility
			Bukoto HC III
			Kitovu Mission Hospital (PNFP)
5	Central	Kalungu	Villa Maria Mission Hospital (PNFP)
		(not supported)	
	Central (National	Kampala	Mulago National Referral Hospital/Manamugimu Unit
	Level)		

During the field visits, the consultant team collected some quantitative data on a number of commodities in order to obtain a better understanding on the performance of the supply chain(s). A limited number of commodities were selected, namely:

- RUTF
- Therapeutic milk F-100
- Therapeutic milk F=75
- ReSoMal
- Vitamin A / Retinal 200,000IU
- Albendazole 400mg
- Folic Acid 5mg
- Anthropometric equipment (weighing scale, MUAC tape, height board)

Upon return in Kampala, meetings with key stakeholders were held to clarify outstanding issues, a first data analysis was conducted, and first options for integration were developed. A debriefing workshop to present the preliminary results and initial proposals for the way forward was held on 21 October 2016 at the UNICEF office in Kampala. Representatives from key stakeholders like MOH Nutrition Division, NMS, CUAMM, OPM, PIN/RECO, FANTA and UNICEF participated in the meeting.

During the **third phase**, the consultant team worked from their respective home offices to finalize the data analysis, and to develop a first draft of the report, taking into consideration the results of the discussion held during the debrief meeting. With the support from the national consultants, a number of key stakeholders were contacted to clarify remaining questions.

Comments received to the draft report allowed to finalize the report, and develop a proposal for the implementation of the integration strategy, which is part of this report.

Based on the findings, discussions with the key stakeholders and results of the discussions with participants of the debrief meeting, the main recommendations are incorporated in the integration strategy, which is developed in such a way that it can be implemented relatively quickly, and for the entire country. Implementation of the strategy will address the key identified issues in Karamoja, and therefore a separated action plan for this region is not required.

## **1.5** Study limitations and challenges

The support of UNICEF, the MOH Nutrition Division and NMS facilitated the organization and execution of the field trip and interviews with stakeholders and health workers at all the levels. The consultant team was well received everywhere, and local health staff facilitated the work to the extent possible. They responded openly to the questions and supported the review of documents when requested.

Some limitations and challenges were however identified during the study:

Limited availability of data Collecting quantitative data needed to assess the supply chains appeared to be a challenging task, in particular information related to orders and requisitions. In most facilities visited, stock cards were the only available source of data for supply chain management (SCM), and the card does not provide all information the consultant team intended to collect. Therefore, only limited additional information could be obtained from the exercise.

Consequently, results from the quantitative data should be interpreted with caution, and merely serve for illustrative purposes.

▶ Availability of staff Challenges were faced to meet with the involved staff at DHO and health facility level. Due to absenteeism, the consultant team could not obtain full access to information and data managed by absent staff. Data and information are fragmented at this level, and does not efficiently flow even within the facilities, limiting the possibilities to obtain information from colleagues present at the day of the visit.

Despite these challenges, the consultant team is confident that the data obtained provide sufficient information to assess the supply chains, and propose an integration strategy for the commodities that are not yet integrated into the NMS supply chain. Whenever possible, triangulation was used, and the presentation of the preliminary results for the main stakeholders was useful to validate key findings and obtain their view on the feasibility of the integration strategy.

The participation of staff members of MOH Nutrition Division and NMS in the field visits was very useful to provide more insights in the background and context, and facilitated the liaison with staff involved in nutrition and/or SCM in the districts and facilities visited.

## **2** BACKGROUND AND CONTEXT

Currently the therapeutic formulas are managed through parallel supply chains; one is managed by USAID (RUTF only), and the other is managed by UNICEF (RUTF, therapeutic milks and ReSoMal). Medicines, including those to treat SAM, flow through the national chain managed by NMS.

The fact that the therapeutic formulas are managed in parallel supply chain is not particular for the Ugandan context; it is the reality in the majority of sub-Saharan African countries.

UNICEF at the global level is committed to investing in nutrition, while recognizing that the **integration of essential nutrition commodities** into the national medicines supply chains is a step towards **stronger sustainability and resilience, reinforcing national authorities' autonomy and accountability** on supply chain and should be pursued, wherever possible

Source: Nutrition Supply Chain Practitioners' Forum held in Copenhagen from 21 until 23 June 2016

At global level, there is a growing interest to integrate nutrition commodities into national supply chains. A Nutrition Supply Chain Practitioners Forum held at UNICEF Supply Division in Copenhagen from 21 until 23 June 2016 confirms this trend<sup>2</sup>.

The trend to integrate parallel chains is not a new phenomenon. With the emergence of Global Health Initiatives (GHI) such as The Global Fund to Fight Aids, Tuberculosis and Malaria (GFATM), and PEPFAR in the early 2000s, parallel supply chains were set up to respond to the increasing volumes of medicines and health commodities that these GHIs made available to the countries in need. National supply chains were found not to be adequate to manage such large volumes, and could not comply with the requirements of most GHIs. After several years of health systems strengthening interventions, including initiatives to strengthen national supply chains, the tendency is now to integrate parallel chains into the national chains. Several examples exist of successful integration, from which lessons can be learned. After integration of HIV related commodities, Tuberculosis (TB) and Family Planning (FP) in particular, nutrition commodities seem the next category to be integrated.

In Uganda, UNICEF has launched discussions with the MOH, NMS and USAID about a potential integration of nutrition commodities. By commissioning this present study, both UNICEF and the government entities expressed their commitment to move forward with the integration process. UNICEF has in the past successfully worked together with the MOH and NMS to integrate vaccines and iCCM commodities into the national supply chain managed by NMS. Within USAID the line of thought also points into the direction of integration.

In retrospect, as per the Basic Cooperation Agreement in place between the Government of Uganda (GoU) and UNICEF, UNICEF is actually not supposed to carry out any in-country logistics tasks for the commodities that it procures. Usually, commodities are handed over to the GoU for storage and distribution. The fact that UNICEF is engaged in in-country logistics has historical reasons; in the past, before nutrition commodities were included in routine health service delivery, these commodities were mainly used in emergency settings for which UNICEF used to conduct all procurement and distribution. Similar situations are found in many other countries in sub-Saharan Africa, and several of these countries are currently in the process of integrating these nutrition commodities into the national supply chain.

<sup>&</sup>lt;sup>2</sup> A team from Uganda was supposed to be present at the meeting in Copenhagen, including MOH Nutrition Division and NMS, but could unfortunately not attend the meeting.

## **3** NUTRITIONAL LANDSCAPE IN UGANDA

Uganda was among the 15 fastest growing economies in the world in the 1990s and 2000. Despite the fact that economic growth slowed to an average of just above 5% since 2009, it is expected to stay on an upward trajectory into the medium term. Agriculture is the backbone of Uganda's economy and an important driver of economic development and poverty reduction, contributing to approximately 85% of Uganda's export earnings. The country continues however to face challenges in food security. Around 4 million of the 34 million Ugandans are food insecure<sup>3</sup> and malnutrition still represents serious challenges affecting both human and socio-economic development. Table 3 provides some key indicators and confirms the challenging situation in terms of malnutrition:

Indicator	Number	Source
Population	37.8 million	World Bank (WB) 2014
Population growth rate (average annual %)	3.3%	UNData 2010-2015
Human Development Index	163 out of 188	UNDP 2015
Life expectancy at birth (years)	58	WB 2014
Under-five mortality rate (per 1,000 live births)	66	UNICEF 2013
Chronically malnourished (stunted) (under 5 %)	33%	UDHS 2011
Underweight (under 5 %)	14%	UDHS 2011
Acutely malnourished (wasted) (under 5 %)	5%	UDHS 2011
Severe Acute Malnutrition (SAM) (under 5 %)	2%	UDHS 2011

#### Table 4 – Key indicators on nutrition

In terms of malnutrition, variations exist across the different regions of the country. The prevalence of stunting was highest in the Karamoja region (45%), followed by the Western region at 44%, South Western at 42% and West Nile at  $38\%^4$ .

The 2016 guidelines on Integrated Management of Acute Malnutrition (IMAM) indicate that 300,000 children (5% nationally) are estimated to be acutely malnourished and nearly 120,000 (2%) of them are severely malnourished. Out of these it is estimated that only 30% receive treatment annually. Treatment is provided in approximately 600 therapeutic centres across the country.

Addressing malnutrition is a key development objective that the GoU is committed to achieving as set out in the National Development Plan (NDP II). According to the NDP II, "the theme of *Growth, Employment, and Social Economic Transformation for Prosperity* cannot be achieved if the population is unhealthy and if children and women continue to face problems related to malnutrition".

Besides the NDP II, successive standards, policies and guidelines related to (mal-)nutrition were developed over the years such as the Uganda Food and Nutrition Policy (UFN, 2003), and the Uganda Nutrition Action Plan (UNAP, 2011).

In terms of management of acute malnutrition, Uganda adopted in 2006 the IMAM approach to increase coverage, accessibility and management of acute malnutrition with a keen focus on integration of the management of acute malnutrition into on-going routine health services at all levels of service provision. In 2010 the guidelines were updated to cater for treatment of malnourished adolescents, adults, pregnant and lactating women, focusing on appropriate preventive interventions, early identification and treatment of the severely malnourished.

Management of acutely malnourished clients takes place in the Inpatient Therapeutic Care (ITC) or in

<sup>&</sup>lt;sup>3</sup> FAO Report 2016

<sup>&</sup>lt;sup>4</sup> Uganda Demographic Health Survey 2011

the Outpatient Therapeutic Care (OTC) depending on presence or absence of complications<sup>5</sup>. Management of severe acute malnutrition (SAM) on outpatient basis takes into consideration clients that do not require hospitalization and can be successfully treated using RUTF at facilities where this commodity is available. The length of stay at ITC varies generally from 4 to 7 days depending on the severity of the complication and the time it takes to regain appetite. As per the IMAM guidelines, a key commodity used at the ITC is therapeutic milk F-75 and F-100. Moderate Acute Malnutrition (MAM) is mostly managed in the Supplementary Feeding (SF) centres.

In 2016, another update of the guidelines took place triggered by earlier releases of updates on the management of acute malnutrition by the World Health Organization (WHO), by revising admission criteria for pregnant women in SF centres, by increased availability and use of Mid-Upper Arm Circumference (MUAC) to assess wasting and by increased availability of imported and locally produced RUTF.

Apart from UNICEF, there are a number of other stakeholders involved in the direct or indirect management of SAM and MAM in Uganda:

**MOH Nutrition Division:** The division focuses on contributing to improvements of the nutritional status of the general population through intensified services. The MOH Nutrition Division directs and guides the implementation of Nutrition Programmes in the country, and coordinates all stakeholders and nutrition activities in the country through the Nutrition Cluster to ensure the health of the citizens is addressed. Within the hierarchy of the MOH nutrition was given more importance recently by upgrading the Nutrition Unit to a Nutrition Division.

▶ Office of the Prime Minister (OPM): The OPM is the convening body responsible for the coordination of the UNAP and hosts the Secretariat that supports coordination and monitoring of the UNAP. The OPM uses a multi-sectorial approach to improve nutrition status and contribute to development in the country.

**The Multi-Sectorial Technical Coordination Committee (MSTCC):** This is the main multi-sectorial platform in the country. It comprises eight implementing line Ministries including the National Planning Authority (NPA), development partners, civil society, academia and the private sector and is responsible for technical coordination of nutrition activities in the country.

**The District Nutrition Coordination Committee (DNCC):** At the decentralized level, the DNCC is composed of representatives from key departments in the district including health, administration, production, water, education, and agriculture and provides technical advice to the district technical planning committee and subsequently to the district council. The committee is responsible for monitoring and evaluation of nutrition activities, carrying out reviews and providing technical guidance to lower-local governments.

**The United States Agency for International development (USAID)** USAID is at the forefront in the fight against undernutrition. It is part of the Scale Up Nutrition (SUN) global movement encouraging increased political commitment and programmatic alignment to boost reduction in undernutrition and global hunger through the promotion of a 1000-day window of opportunity from pregnancy to a child's second birthday. USAID supports a number of country-owned programmes to address the root causes of undernutrition and improve future potential of millions of people. It focuses on prevention of under nutrition, management of MAM and SAM, provision of nutritional care and support for people living with HIV/AIDS.

<sup>&</sup>lt;sup>5</sup> IMAM Guidelines 2016, Ministry of Health, Uganda

▶ Production for Improved Nutrition (PIN)/RECO: The goal of the five-year USAID funded PIN project is to reduce the burden of under nutrition among children, pregnant and breastfeeding mothers and people living with HIV/AIDS. Uganda PIN Project supports the local manufacturer RECO Industries to produce therapeutic (RUTF) and supplementary foods using raw inputs sourced from smallholder Uganda farmers.

**USAID/Food and Technical Assistance III Project (FANTA):** The FANTA project works to strengthen nutrition programmes, strategies, polices and systems and builds capacity along the prevention to treatment continuum of malnutrition. Specifically FANTA aims at increasing awareness and commitment to addressing malnutrition, strengthening leadership and technical capacity to delivery integrated nutrition services and strengthening coordination, learning and information sharing among nutrition partners.

**USAID/Strengthening Partnerships, Results and Innovations Globally Project (SPRING):** The SPRING project supports national level activities and delivery of nutrition services aimed at improving the status of mothers and children in South Western and East central regions of Uganda.

**World Food Programme (WFP):** The WFP implements a number of programmes including reducing post-harvest losses by improving post-harvest techniques and storage facilities, building resilience in Karamoja, and enhancing government emergency preparedness. It also manages a country programme that addresses the underlying causes of hunger including agriculture and market support, strengthened nutrition services and school feeding in Karamoja. In addition, WFP provides nutritive supplements for the first 1000 days through a mother and child nutrition programme to prevent stunting.

## 4.1 The Ugandan health system

The public health system in Uganda is decentralized. At the central level, the MOH has among its main responsibilities the development of policies, coordination and planning. The districts, through DHOs are responsible for the coordination of health activities in the district, as well as the supervision of the activities in the districts.

The delivery of health services in Uganda is by both public and private health facilities with the GoU being the owner of most facilities. Public health services are delivered through Village Health Teams (VHT) s, approximately 1,700 Health Centre II (HCII), 950 HCIII, 175 HCIV, 50 General Hospitals, 14 Regional Referral Hospitals and 2 National Referral Hospitals. In addition, there are approximately 2,350 private health facilities, including Private-For-Profit (PFP) and Private-Not-For-Profit (PNFP) in Uganda. The majority of PNFP facilities are faith-based.

Facilities up to HCIV have inpatient, outpatient and theatre facilities. The HCIII is an outpatient department facility with delivery and inpatient facilities, while HCII is a day care facility. At the village level are the VHTs that are the link between the community and the health structure.

The national supply system set up does not follow the same structure. This is based on 2 levels only: the central level, and the health facilities. See for more information section 4.3 below.

There are a number of policies, action plans and standards related to pharmaceutical procurement and SCM. As such, in 2015 the MOH developed the National Medicines Policy (NMP) and the National Pharmaceutical Sector Strategic Plan III 2015-2020 (NPSSP), which was informed by the NHP and the Health Sector Strategic Plan (HSDP) 2015-2020. To facilitate medicines selection and quantification, as well as to guide procurement, training, supervision, and prescription, the Uganda clinical guidelines and EMHSL were updated in 2012.

#### 4.2 Stakeholders

The main stakeholders involved in the procurement and SCM of medicines and health commodities are listed below:

▶ Ministry of Health The MOH is responsible for the development of key policies, guidelines and frameworks that govern the health service provision, procurement and supplies, as they are outlined above. Within the MOH a number of Divisions and Units are involved in pharmaceutical procurement and supply chain management.

**MOH / Pharmacy Division** The Pharmacy Division is responsible for the overall coordination of the pharmaceutical sector, as well as providing oversight for the National Medicines Policy Implementation. In addition, it is responsible or for quantification of national requirements for pharmaceutical products (see below), harmonization of supply chain management systems and promotion of rational drug use in the country<sup>6</sup>.

**MOH / Quantification, Procurement and Planning Unit** The Quantification, Procurement and Planning Unit (QPPU) at the MOH Pharmacy Division guides and monitors supply of medicines and health products in the public health system, which also comprises the PNFP health facilities. The

<sup>&</sup>lt;sup>6</sup> NMP 2015

QPPU was set up in 2010 and coordinates quantification of needs at the national level. So far, it has mainly led quantification of medicines for vertical programmes like HIV, Malaria, and TB but it is envisioned that, in the near future the unit will lead quantification of all (essential) medicines and health commodities, including nutrition commodities.

**National Drug Authority** The National Drug Authority (NDA) is a government body established in 1993 that is responsible for regulation and quality assurance for all medicines and health commodities in the country. With a medicines control laboratory established by WHO in 2015, improvements have been seen in the quality of pharmaceutical products imported into the country.

National Medical Stores (NMS) NMS is a semi-autonomous government entity in charge of procuring, storage and distribution of (essential) medicines and health commodities for and to public health facilities. The public health facilities do not physically pay for the items, but use the budget that is provided by the MOH.

▶ Joint Medical Stores (JMS) JMS is a very similar entity as NMS providing almost the same services as NMS, but it targets primarily faith-based PNFP health facilities. Differently than the public health facilities, the PNFP facilities pay JMS for the commodities and physical financial transactions take place.

▶ Medical Access Uganda Limited Medical Access Uganda Limited (MAUL) was initially set up to manage the procurement and supply chain of critical HIV commodities in the late 90s. Currently it procures and distributes HIV commodities funded by USAID/Center for Disease Control (CDC). Furthermore, MAUL provides "last mile" distribution of reproductive health commodities and other pharmaceutical products through the private sector at subsidized prices as part of social marketing either indirectly through third parties or directly to health facilities.

▶ Management Sciences for Health (MSH) MSH is a USAID funded organization working globally. In Uganda, MSH runs a number of projects to support the health system, of which the Uganda Health Supply Chain. MSH supports QPPU with the monitoring a basket of 41 tracer medicines/health commodities, including RUTF and therapeutic milks. MSH is furthermore involved in the set-up of a Logistics Management Information System (LMIS) called RXSolution, which is primarily a stock management and ordering software.

**Clinton Health Access Initiative (CHAI)** CHAI is providing support to NMS in terms of automated supply planning for ARVs. CHAI was involved in the integration process of Integrated Community Case Management (iCCM) commodities into the national supply chain.

## 4.3 Configuration of the national supply chain

The supply chain as managed by NMS is considered as the national supply system, although other systems exist. For the purpose of this report, we focus on the NMS system.

NMS, based in Entebbe, is a an autonomous government corporation established in 1993, and is mandated to procure, store and distribute essential medicines, medical supplies and vaccines to all public health facilities in the country. The annual turnover is about 1 trillion Ugandan Shillings (approximately USD 290 million). With the available budget about 60% of the country's needs are covered.

NMS estimates quantities to be procured on an annual basis by adding up the needs as expressed by HCII and III (based on a tailor-made kit), and the needs expressed by HCIV and hospitals as per annual procurement plans of these facilities. Both the kits and the procurement plans are developed in collaboration with the HC/hospital, DHO and representatives of NMS.

Procurement is conducted by NMS, and is based on national procurement laws. Once delivered by the suppliers, medicines are stored in the NMS central warehouse in Entebbe. On a bi-monthly basis, HCIV and hospitals send their order to NMS. Quantities of medicines in the kits for HCII and III are pre-determined and also follow a bi-monthly cycle.

NMS packs and labels orders per HC. These orders are delivered at DHO, and temporarily stored in the DHO store. The last-mile distribution, up the health facilities, is outsourced by NMS to local transport companies. There are 6 pre-established distribution cycles per year.

![](_page_22_Figure_2.jpeg)

To resume, the national supply chain is represented in figure 3 below.

![](_page_22_Figure_4.jpeg)

![](_page_22_Figure_5.jpeg)

Source: developed by authors

The medicines to treat SAM are managed by NMS according to the system described above. More information on the functioning of the supply chain for these particular medicines can be found in chapter 7 of this report.

Joint Medical Stores (JMS) provides almost the same services as NMS, but targets primarily faithbased PNFP health facilities. The PNFP facilities pay JMS for the commodities. NMS and JMS work closely together to ensure a continuous supply of essential medicines to public and PNFP facilities throughout the country. JMS also does not manage nutrition commodities like RUTF and therapeutic milks.

## 4.4 Supply chains for nutrition commodities

Nutrition commodities to treat SAM are distributed through three different procurement and supply chains, namely:

- 1. The supply chain managed by NMS for **medicines** used for treatment of SAM (e.g. Albendazole, Mebendazole, Vitamin A, and Folic Acid)
- 2. The supply chain managed by UNICEF for **RUTF**, therapeutic milks **F-75** and **F-100**, **ReSoMal** procured by UNICEF
- 3. The supply chain managed by USAID for **RUTF** procured by USAID

The functioning of these supply chains is described in more detail in chapters 7 and 8 of this report.

As for the supply of anthropometric equipment required for the assessment of the nutritional status, no supply chain as such exists: equipment is not considered as a 'consumable'. More details on the supply of equipment can be found in chapter 6 of this report.

#### 5 **THE SITUATION IN KARAMOJA**

Karamoja sub-region, commonly known as Karamoja, is a region in the north east of Uganda, covers a total of 7 districts. Karamoja has about approximately 965,008<sup>7</sup> (UBOS; NPHC 2014) inhabitants.

According to UDHS 2011, eight in ten households are in the lowest wealth quintile. Overall, half of the population is food insecure, of which 12% is severely food insecure, yet there are considerable variances between the districts.

![](_page_24_Figure_3.jpeg)

Source: Food security & Nutrition Assessment Karamoja, Uganda, 2016, UNICEF/UNFPA

Global acute malnutrition (GAM) prevalence declined for the first time since 2012 but remains at serious levels. This decline is probably related to the fact that almost half the population in Karamoja receives food support<sup>8</sup>. According to the UDHS, Karamoja presents the highest prevalence of stunting in the country at 45%.

Indicator	Prevalence
GAM %	11%
MAM %	8.8%
SAM %	2.3%
Underweight %	22.4%
Stunting	28%

#### Table 5 - Prevalence of acute malnutrition in Karamoja

Source: Food security & Nutrition Assessment Karamoja, Uganda, 2016, UNICEF/UNFPA

Due to its fragile state, Karamoja shows a high presence of partners supporting the implementation of projects funded by various donors, among which many are related to food security and health. For UNICEF, Karamoja is a priority region, which is supported by funding from DFID. UNICEF has a

<sup>&</sup>lt;sup>7</sup> 2014 National Pouplation Housing and Census report by Uganda Bureau of Statistics

<sup>&</sup>lt;sup>8</sup> Food security & Nutrition Assessment Karamoja, Uganda, 2016, UNICEF/UNFPA

regional office based in Moroto. UNICEF supplies RUTF, F-75, F-100 and ReSoMal to all DHOs and to the Moroto Regional Referral Hospital. UNICEF collaborates closely with WFP and implementing partners in the treatment of malnutrition. A clear division of tasks has been made, avoiding gaps and duplication: WFP and its implementing partners primarily focus on treatment of MAM by supplying Corn Soya Blend (CSB) up to health facilities, while UNICEF and partners focus on treatment of SAM at ITC and OTC sites. The CSB provided by WFP is considered as a food supplement and not as an essential medicine as such. Therefore integration of CSB is not ranking high on the agenda of the MOH and neither on WFP's agenda.

The study team was requested to pay particular attention to the situation in Karamoja. The districts of Moroto and Kotido were visited, as well as the Regional Referral Hospital in Moroto, and a selection of HC II, III and IV. Below is a summary of key findings.

## 5.1 Findings

In general, the supply chain of nutrition commodities is well managed in Moroto: most facilities visited had the commodities in stock, used basic but appropriate tools for inventory management, including stock cards and requisitions, stored the commodities in rooms complying with minimum standards for storage of health commodities, and were well informed about the functioning of the supply system. Efforts are being made to implement the Health Management Information System / District Health Information System 2 (HMIS/DHIS2) and improve data management across the different levels. A key challenge noted is distribution from the district health store to the health facilities; distances are long, roads are in poor condition, and transport means are limited. Implementing partners play an important role in solving this problem by, among other things, providing funds, fuel and vehicles for distribution. The strong leadership of the DHO in Moroto, and support from the development and implementing partners in Karamoja seem to be paying off in this district for the supply chain of nutrition commodities.

Whereas there are systems in place, the situation in Kotido district was different, with striking stockouts of key commodities, irregular distribution, overall weak management, and staff generally not being well informed. Rather than relying on reports on the number of admissions and remaining stock of each individual facility, the DHO pushed out pre-determined quantities of nutrition commodities per each level of health facility (HCII, HCIII, HCIV). With the support of partners and stronger leadership, solving those challenges should, in theory, be possible within limited time.

The weakest aspect of the SCM of nutrition commodities in Karamoja is data management, both for programmatic and logistics data. Some data are available at the health facilities but do not reach the DHO. It is expected that the situation will improve in a relatively short term since nutrition indicators have now been incorporated in the HMIS/DHIS2. However, according to the implementing partners, data collected through HMIS/DHIS2 do not include information on the number of patients cured, deceased, and defaulters, which is useful information to measure the performance of the different programmes, as well as supply planning. Although the implementing partners would in general require more data than what is currently reported in HMIS/DHIS2; including decision-making on resupply of commodities, it has been agreed that implementing partners will only use the HMIS/ DHIS2 data in order to standardize reporting and avoid additional reporting burden on health workers. In addition, there is lack of consolidated data, making it challenging to get an overview of the situation in the entire district or region.

Karamoja continues to benefit from considerable support of development and implementing partners, which seem to pay off with regards to management of nutrition commodities. Particularly the hands-on support from organizations such as CUAMM and World Vision has in the recent years contributed to improved management and technical knowledge at both DHO and health facility level. These organizations are also deeply involved in all aspects of data management for nutrition commodities (e.g., quality, timeliness of reports, completeness of reports).

The benefits/support from these implementing partners may at the same time represent some risks considering the fact that a lot of the technical work to be carried out by the DHO is currently carried out by staff from implementing partner organizations seconded to the DHO. During the field visit (October 2016) for example, a number of technical questions directed to the DHO were referred to CUAMM staff. At the time of the visit, the CUAMM staff was in between contracts, causing challenges for continuity of the support and actual work since the contract between UNICEF and CUAMM had come to an end. Discussions were underway regarding renewal of the contract. The consultant team was informed that the new contract will have a stronger component of coaching and mentorship, which will enable greater transfer of skills and expertise to DHO and facility staff for the long term.

Data collected on availability of stocks of RUTF in the health facilities visited showed that most of the facilities in Karamoja had stock, which was not the case in facilities visited in other parts of the country. Data available did not allow for estimating whether the quantities, of mainly RUTF, made available to Karamoja are sufficient to cover the existing needs. When full and reliable programmatic data become available through HMIS/DHIS2, it will be feasible to better estimate the needs based on the number of admissions and average consumption per admission. Data on coverage remain unknown, however, so only detected cases can be considered.

In general, in contrast to the initial expectations, the situation in terms of SCM of nutrition commodities in Karamoja is better than in other regions visited by the consultant team. These regions were only slightly less affected by SAM, but much less supported by development and implementing partners.

We tend to conclude that the considerable technical and financial support from development and implementing partners resulted in a stronger local health system in the Karamoja region, with appropriate overall management. The limited number of districts and facilities visited does not allow for generalization of conclusions. More importantly, such statements can actually only be confirmed once the support phases out.

#### 5.2 Recommendations

Commonly, the situation in Karamoja does not require specific and immediate actions for improvement of the SCM for nutrition commodities. There is also a relatively short implementation period (approximately 18 months) for the integration strategy as presented in this report, which does not justify for intermediate interventions for Karamoja only. The interventions required are in line with the interventions foreseen in the integration strategy that will be implemented on a national scale, and will address some of the identified weaknesses such as distribution up to the health facilities. The implementation of the strategy focuses on institutionalization of the SCM for nutrition commodities, ensuring resilient systems becoming less dependent on the external support.

## **6** THE STATUS OF ANTHROPOMETRIC EQUIPMENT

The consultant team analyzed the availability of equipment needed to assess the nutritional status of clients, in particular weighing scales, measuring boards and MUAC tapes. The equipment cannot be really captured in a "supply chain" context similar to the other commodities that are covered in this report. Equipment is not considered as a 'consumable', and therefore there is no need to set up a continuous supply of equipment. It is however important that equipment is available at all the levels of health service delivery to allow for adequate diagnosis and treatment; it therefore impacts the procurement and SCM cycle in building block 5 as per the conceptual framework (e.g. rational use of commodities).

## 6.1 Findings

The quantitative data analysis shows that health facilities had the necessary anthropometric equipment available at the day of the visit (22 out of 22). The figures on availability however, give a somewhat distorted picture: several facilities mentioned break down of equipment, lack of necessary batteries (for the weighing scales) and insufficient knowledge on the functioning of the equipment. With regards to MUAC tapes, some facilities only had tapes for particular age groups (e.g. only for adolescents while the majority of screening was targeted at children under-five).

During the field visits, differences were noted between districts and health facilities supported by UNICEF or other development partners, and districts without such support. Generally, for example, health facilities in Karamoja have sufficient and functional equipment. In comparison, health facilities in the Central and Western region struggle to have sufficient functional equipment.

Further to the different kind of support that health facilities receive from development partners, in some health facilities only one weighing scale was available, and was "belonging to the ART clinic". In districts and health facilities where UNICEF is not providing support, the majority of the equipment, including MUAC tapes, were received from USAID funded projects, mainly through projects with earmarked funding for HIV.

The equipment reaches the facilities through different ways (UNICEF, implementing partners, DHO) and it remained unclear (to the focal points of the facilities and therefore also to the consultant team) how the supply systems work. Most facilities are not aware of the procedures to obtain equipment. Some facilities would request from the DHO, but the ones supported by implementing partners would most likely contact these partners directly. It was also noted that staff working at DHO and health facilities do generally not know where to go if equipment breaks down. Nevertheless, each region has an Equipment Maintenance and Repair Centre under the management of the MOH Health Infrastructure Division but the division faces challenges in providing the needed support and services. The consultant team could not get the particular reasons confirmed for the particular challenges that Division faces, but anecdotal evidence points towards financial constraints. This is something that should be addressed in the broader context of the health system, and goes beyond anthropometric equipment. The repair of the equipment used for the screening of SAM is generally not considered as expensive.

The consultant team understood that the MOH Nutrition Division and the development partners are aware of the precarious situation in terms of availability and functionality of equipment. In August 2016, UNICEF organized a meeting in Jinja, bringing together Regional Referral Hospital nutritionists, implementing partners, and nutrition focal points, to discuss, amongst other things, availability and functionality of equipment. From that meeting it was agreed that inventories would be made based upon which (re-) distribution of equipment would be organized. As a matter of fact, during the field visits it was noted that Regional Referral Hospitals had received recently consignments of equipment

from UNICEF. While it did not become fully clear whether the mapping was indeed carried out and whether the hospitals had requested the equipment, the fact that equipment was supplied to regions where there is not a lot of support was noted and appreciated. The fact that the equipment was supplied to Regional Referral Hospitals for further distribution to health facilities rather than to DHOs did not seem to be fully in line with the flow of authority, products and data as per the health system. The specific case for the anthropometric equipment being delivered to these hospitals is in the context of a mentorship programme whereby nutritionists and/or nutrition focal points of Regional Referral Hospitals provide support to lower level health facilities in the region. This mentorship and supportive supervision programme is supported by UNICEF to all RRHs.

At the same time, the fact that UNICEF supplied the equipment to all Regional Referral Hospitals is in line with the recent decision of UNICEF to also supply RUTF and therapeutic milks to all these hospitals with the objective to have a more equitable geographical coverage of those commodities, which is an encouraging development.

For the recently arrived equipment in the hospitals from UNICEF no distribution plans were developed yet, and staff at the lower level health facilities did not seem be aware that equipment was available at the hospital. Also in some districts, a considerable number of equipment was stored at the DHO while facilities in the district did not have any functional equipment.

## 6.2 Recommendations

Further to the August 2016 meeting, the mapping of equipment should be completed to facilitate redistribution.

There should be an exercise to jointly agree on technical specifications of weighing scales and measuring boards in order to standardize the equipment, also in order to get alignment when development partners procure equipment. The standardization can also be done per level of health care.

NMS should manage the equipment that is procured by development partners, until there is a budget line allocated by the government for procurement of equipment. This is in line with the integration strategy as elaborated in chapter 9 of this report.

It is worth to investigate the roles and responsibilities of the Regional Equipment Maintenance and Repair Centres with regards to anthropometric equipment, and explore options to involve these Centres for maintenance and repair of anthropometric equipment. Maintenance and repair of anthropometric equipment should be rather straightforward.

## 7 MEDICINES TO TREAT SAM

Medicines needed to treat SAM flow through the national medicines supply chain managed by NMS. This chapter provides an overview of the configuration of the NMS supply chain, and the key findings with regards to medicines used for the treatment of SAM.

## 7.1 Findings

According to the 2016 IMAM guidelines, a considerable number of medicines is used for the treatment of SAM. As agreed during the inception phase of this study, some focus medicines were selected; namely Vitamin A, Albendazole, and Folic Acid.

Needs for medicines to treat SAM are estimated as per the NMS quantification process, namely based on a compilation of needs expressed of HCII and III basic kits, and annual procurement plans of HCIV and hospitals. Quantification is primarily based on the available funds, and less on estimated needs of the catchment population. Both the MOH Nutrition Division and the MOH Pharmacy Division/QPPU are not involved in the quantification exercise for these commodities.

Medicines to treat SAM are not uniquely used to treat SAM and as such they have not followed an integration process; they are by nature an integral part of the essential medicines that the NMS procures, stores and distributes. There is no separate quantification carried out for these medicines only for treatment of SAM. UNICEF, however, estimates national needs for treatment of SAM for children under five, based on a globally used quantification sheet for selected medicines. It is obvious that the needs for these medicines as calculated by the UNICEF quantification sheet for treatment of SAM only are considerably lower than the sum of the quantities procured and distributed by NMS and UNICEF. Indeed, as fully integrated medicines the distinction is not made between quantities used to treat SAM and quantities used to treat and prevent other conditions.

Several of the medicines required to treat SAM are included in the packages for the Child Days Plus. The Child Days Plus strategy is a means of accelerated delivery of an integrated lifesaving package for child health survival interventions to reduce child mortality and morbidity, including vitamin A supplementation and deworming tablets. The supply chain as described above does not cover the medicines and other health commodities used for the Child Days Plus, which are held twice a year (usually in May and October). For this event, special supply arrangements are in place, whereby medicines and other health commodities are mainly provided by development partners, among which also UNICEF.

The consultant team visited 10 HCII and III that receive stocks through the tailor-made kits. Eight out of 10 HCs had Vitamin A and Folic Acid available on the day of the visit. Albendazole was available in only 5 health facilities. More than half of the facilities reported stock out in 2016 of Folic Acid. Stock outs of Vitamin A and Albendazole were reported in exceptional cases. Stock cards were in use and up to date for Albendazole and Folic Acid at all facilities, but remarkably, not for Vitamin A (2 out of 6). No expiries were reported.

Eight out of 9 HCIV and hospitals visited had Vitamin A and Folic Acid available from stock, but only 1 out of 9 had Albendazole in stock. This product is classified as necessary (as per the VEN<sup>9</sup> classification), and therefore one of the first to be canceled in case of limited budget. Also, this

<sup>&</sup>lt;sup>9</sup> The VEN classification is a classification used to set priorities for the selection of products. V stands for Vital, E for Essential, and N for Necessary

product is delivered to all facilities for the Child Days Plus. Facilities rely on the remaining quantities for dispensing to patients during routine health service provision. Given the fact that only 1 out of 9 HCIV/hospitals had Albendazole in stock however, implies there is limited stock remaining from Child Days Plus. Most facilities reported stock outs in 2016 for the three tracer medicines, expiries were not reported and the majority of the facilities visited use stock cards for all medicines.

All facilities ordered these key medicines in 2016, and reported to have submitted their orders in time. However, not all received the quantities requested, particularly for Albendazole (NMS experienced supply problems for Albendazole earlier in the year). Limited analyzable data were available but from data collected, it seems justifiable to conclude that the order fill rate is reasonable at about 75%, and the timeliness is 100%.

It is interesting to note that the availability of Albendazole is better at HCII and III through the provision of the basic kits as compared to HCIV and hospitals who can order according to needs (and budget).

NMS storage facilities at central level comply with international standards for storage of medicines (and for storage of RUTF and therapeutic milks), but NMS faces serious space constraints currently. New premises are being built, and expected to be ready in 2018. Future storage space is estimated to be 3 times the current storage space, which should be sufficient to cater the needs for the coming decades. On average NMS receives and dispatches approximately six 40ft containers per day, which equals with over 300m3. NMS does not have regional warehouses; emergency supplies are usually delivered from the central warehouse considering the fact that all facilities can be reached within one day, and it is therefore not cost effective and justifiable to have regional warehouses. The Enterprise Resource Planning (ERP) and Warehouse Management Information System (WMIS) software currently used by NMS for the warehouse operations is likely to be replaced in the near future. The new software will be in line with the national LMIS configuration that is developed by the MOH Pharmacy Division and its partners. The current management information systems allows for batch tracking up to health facility level.

NMS staff is adequately trained and skilled in stock management for medicines and health commodities.

At health facility level, stock management for medicines is generally adequate and consistent. Medicines are stored in specific medicine storerooms that are managed by staff with basic knowledge and sufficient skills on stock management.

## 7.2 Recommendations

Our recommendations focus on the medicines that are used for the treatment of SAM.

For adequate SAM treatment, it is crucial that all medicines required are always available at the facility level. This means that facilities cannot only rely on the deliveries for the Child Days Plus. Facilities are aware of the need for a stable supply of these medicines, yet the main issue seems to be limited funding, as well limited stocks at central level at times (the case of Albendazole). It is recommended to develop an estimation of needs for these particular commodities, and ensure sufficient funding to allow for full supply. The consultant team developed actually a rough estimation of needs that can serve as a first basis for estimation, though some elaboration is still required for it to be a reliable quantification. The product list should in particular be reviewed based on the 2016 IMAM guidelines. QPPU together with MOH Nutrition Division should be in charge of this task, with technical support from development partners if required.

The estimation developed by the consultant team was based on the UNICEF quantification sheet 2016, the IMAM Guidelines, Census 2014, DHS 2011, and the UNICEF database on procurement and

distribution. Nevertheless, not all data required to develop a reliable quantification were available, and hence many assumptions had to be made. A full list of assumptions used can be found in Annex IV.

The quantification was based on the following principles:

- Needs for the entire country
- A prevalence rate of 1.6% among children under 5 (UDHS 2011), and a prevalence rate of 0.6% among adults. This is the prevalence rate among women aged 15-49 years according the UDHS 2011. No other figures were available.
- 79% of the total number of persons suffering from SAM are admitted in the OTC, and 21% in the ITC (UNICEF Quantification sheet)
- Average consumption data per admission are based on both the UNICEF Quantification sheet and the IMAM Guidelines 2016
- Specifications and average consumption as per the UNICEF Quantification sheet is considered, as this sheet clearly indicates the average consumption per admission and the same information cannot be filtered easily from the IMAM guidelines.
- The UNICEF Quantification sheet does not include all medicines to treat SAM as per the IMAM guidelines
- A 10% buffer stock is included for all products, which is in line with the recommendations mentioned in the IMAM guidelines
- Full coverage is considered

The following table shows estimated needs for medicines to treat SAM as per the UNICEF quantification sheet for 2017, 2018 and 2019.

Commodity	2017	2018	2019
Vitamin A 100,000IU (500 cap)	475	490	504
Vitamin A 200,000IJ (500 cap)	475	490	504
Amoxicillin powder/oral suspension 125mg/5ml (100 ml bottle)	375,538	386,804	398,408
Mebendazole 500mg (100 tab)	3,755	3,868	3,984
Folic Acid 5mg (1,000 tab)	50	51	53

#### Table 6 - Estimated needs in cartons – 2017, 2018 and 2019

The consultant team realizes that quantification of medicines for SAM is a somewhat theoretical exercise because currently these medicines are not earmarked for SAM and therefore the quantities as forecasted above actually fall into the broader estimation of needs for those medicines at the national level. The consultant team intended, however, to present the estimated needs for all commodities for treatment of SAM.

As an illustration of the supply of these medicines beyond treatment of SAM, the data provided by NMS demonstrated that the quantity of Vitamin A 200,000IU distributed by NMS in financial year 2015/2016 is approximately 68 times higher than the need for this commodity for treatment of SAM as per the quantification above. Prophylactic Vitamin A supplementation is administered to all children (6-59 months) every 4 to 6 months.

## 8 RUTF, F-75, F-100 AND RESOMAL

This chapter describes the parallel supply chains of commodities that are not integrated into the national medicines supply chain managed by NMS. In order to provide an introduction to the integration strategy, the current configurations are described and an analysis of the supply chains is provided following the conceptual framework that the consultant team used to guide the study.

Anthropometric equipment and medicines are not concerned in this chapter, and different supply systems are in place for these product categories. These are described and analyzed in the chapters 6 and 7 above.

## 8.1 Supply chain configuration for RUTF, F-75, F-100 and ReSoMal procured by UNICEF

UNICEF runs a parallel system for the SCM of nutrition commodities it procures, although to a certain extent, the national system is used.

The UNICEF Regional Offices in Uganda gather estimated needs from the districts and hospitals supported by UNICEF, and actual quantities to be procured are decided at the level of the Country Office primarily based on the available budget. Procurement is carried out by UNICEF Supply Division based in Copenhagen, which is also to a large extent responsible for the quality assurance. UNICEF Supply Division has framework contracts in place with a number of international suppliers (manufacturers), and orders are consolidated for the different UNICEF Country Offices.

Once the commodities arrive in Uganda, they are cleared at customs by UNICEF and stored in the UNICEF warehouse in Kampala. In theory, DHOs and hospitals send their needs to UNICEF on a quarterly basis. Based on the (verified) needs expressed and on the available stocks, UNICEF then develops a distribution plan for the nutrition commodities, and arranges for transport up to the DHOs and Regional Referral Hospitals. DHO stores are used for storage and stock management of these commodities. In theory, health facilities send requisitions for the nutrition commodities to the DHO on monthly basis, based on which DHO store releases the requested stock, and arranges transport up to the health facility.

It is worth noting that in practice, the supply chain as described above is often managed differently. Especially at the lower levels of the supply chain requisitioning and distribution is fragmented mainly due to management issues and challenges in terms of transport means. Actors in the chain usually find pragmatic or opportunistic solutions for these challenges.

NMS and the MOH Nutrition Division are currently not involved in the management of (any component of) this supply chain.

The supply chain for RUTF, F-75, F-100 and ReSoMal managed by UNICEF is represented in the following figure:

![](_page_33_Figure_0.jpeg)

![](_page_33_Figure_1.jpeg)

Source: developed by the authors

## 8.2 Supply chain configuration for RUTF procured by USAID

USAID is procuring RUTF from a local manufacturer that was set up with support of USAID through the PIN/RECO Project. PIN is the coordinating Project and RECO Industries is the manufacturer. PIN/RECO runs a parallel supply chain for the RUTF it procures.

USAID supports a number of selected health facilities throughout the country by supplying RUTF, including some PNFP facilities. The funding for this support comes from earmarked HIV-funding (PEPFAR) and therefore the RUTF procured is primarily targeted at Anti-retroviral Therapy (ART) clinics in the selected health facilities. The facilities provide monthly reports to PIN/RECO with both programmatic (admissions) and logistics (consumption and stocks) data and send quarterly orders to PIN/RECO. Based on the consolidated orders, supported with logistics and programmatic data, USAID prepares a purchase order for PIN/RECO for production and/or distribution of RUTF to the facilities.

The production of RUTF takes place in the manufacturing plant in Kasese where there is also the central warehouse. PIN/RECO has two regional warehouses in Mbale and Masindi that are used for buffer stock positioning. PIN/RECO is also responsible for quarterly distribution of RUTF up to the targeted health facilities, for which it uses transport companies.

NMS, the MOH Nutrition Division and DHOs are currently not involved in the management of (any component of) this supply chain.

To resume, the supply chain for RUTF managed by PIN/RECO is represented in the following figure:

![](_page_34_Figure_0.jpeg)

![](_page_34_Figure_1.jpeg)

Source: developed by the authors

## 8.3 Analysis of the supply chains for RUTF, F-75, F-100 and ReSoMal - key findings

In this section the key findings for the SCM of nutrition commodities not integrated into the NMS supply chain are described following the conceptual framework. In this chapter, when used the term 'commodities', we refer to these non-integrated commodities only. While the study focuses primarily on SCM for nutrition commodities, whenever programmatic elements influence SCM, these elements are also mentioned.

#### ע Quantitative data collected on RUTF, therapeutic milks and ReSoMal

For illustrative purposes we describe in this section some results of the quantitative data collection on the supply chains of RUTF, therapeutic milks and ReSoMal managed by UNICEF and USAID.

In general, only health facilities supported by USAID receive RUTF, and districts and health facilities supported by UNICEF receive RUTF, F-75, F-100 and ReSoMal. UNICEF supports districts, and in these districts, all facilities receive stock. In addition, UNICEF recently started supplying all Regional Referral Hospitals in the country. USAID supports individual health facilities and it is possible that within a district, some facilities receive stock and others do not. In a few exceptional cases, facilities receive stocks through hospitals, and in a few exceptional cases facilities, mainly Regional Referral Hospitals, receive RUTF from both UNICEF and USAID.

The consultant team collected and analyzed data on availability of RUTF in HCII and HCIII in districts supported by UNICEF. Five out of 7 had stock on the day of the visit. One of the two DHOs under which the two HCs without stock of RUTF fall, was also out of stock of RUTF. Three out of 6 HCs reported stock out in 2016, of which one reported not to have had stocks since the beginning of the year. One HC did not use stock cards. No expiries were reported in 2016.

Also data on availability of RUTF in HCIV and hospitals were collected and analyzed at facilities supported by UNICEF, by USAID. Nine out of 12 HCIV and hospitals had stock on the day of the visit; the HCIV that had stock-outs while the hospitals had stock. Half of the facilities visited reported stock out in 2016, with a rough average of 40 days. Expired products were not reported. All facilities use stock cards, and all received stocks this year.

F-75, F-100 and ReSoMal are only distributed by UNICEF to districts supported by UNICEF and to all Regional Referral Hospitals. F-75, F-100 and ReSoMal are used for in-patient care. According to the IMAM guidelines it can be provided in a specialized unit in a health facility or in a children's ward at a health facility with 24-hour care. Facilities up to HCIV have inpatient, outpatient and theatre facilities. The HCIII is an outpatient department facility with delivery and inpatient facilities while HCII is a day care facility. In practice, however, in-patient care is mainly provided in hospitals and HCIV.

Four out of the 6 facilities had the therapeutic milks available at the moment of the visit, and 5 out of 6 had ReSoMal in stock. One of the facilities without stock of therapeutic milks was in a supported district (Arua) where stocks existed at the DHO level. The other facility was a Regional Referral Hospital (Masaka). Stock outs were reported for the milks by 1 facility, none of the facilities reported stock out of ReSoMal in 2016. A common remark from storekeepers was that ReSoMal is hardly prescribed and used by the health workers. Another remark that was made referred to the fact that some health workers do not seem to have knowledge about the characteristics of the commodity. Expiries on the shelf were reported for both F-75 and F-100 by 1 facility. Stock cards for these products are used in less than half of the facilities visited.

Analyzable information on the completeness of the order (order fill rate) and timeliness of the order could not be collected for any of the above-mentioned commodities (RUTF, F-75, F-100 and ReSoMal). Although the systems put in place by UNICEF and USAID allowed for tracking of distribution data, only very limited and fragmented data could be obtained on the quantities requested and the frequency of the requisitions from DHOs and health facilities. Based on the data collected, conclusions cannot be drawn on the performance of both the supply chains set up by UNICEF and USAID.

The MOH Pharmacy Division is monitoring the availability of a basket of 41 tracer medicines at the health facility level based on data reported through HMIS. Recently RUTF, F-100 and F-75 were added to the basket. The following data on these commodities was reported for the period July-September 2016:

- 55% of facilities had stock-outs of RUTF
- 88% and 89% of facilities had stock-outs of F-100 and F-75 respectively
- Both F-100 and F-75 were expected to be at Hospitals, but it was also found to be available at lower levels

While the data seems striking, additional explanation will be needed to have a full understanding of the situation. It is assumed that the data refer to all health facilities, irrespective of whether they are supported by UNICEF and/or USAID.

#### 8.3.1 Building block 1 – Leadership and governance

Leadership and governance involve ensuring strategic direction, plans and policies, effective oversight, partnerships, regulation, system design and accountability. Coordination and planning, aspects that are particularly important to ensure performance of supply systems with multiple development partners involved, are also included

#### *Leadership and governance – key findings* SCM

- There is increased awareness and commitment from the MOH Nutrition Division to SCM of key nutrition commodities

- Leadership on the supply chain is fragmented; there is no leadership over the entire supply chain
- Commodities are considered as "development partner commodities" rather than MOH commodities, which impacts accountability (quote from DHO: 'UNICEF is in the driver's seat for nutrition commodities')
- The supply chain is not institutionalized, as it is primarily managed through parallel systems executed by development/implementing partners
- Roles and responsibilities between the stakeholders involved in procurement and SCM are not sufficiently clear, which leads to questions around ownership and sustainability
- Challenging coordination of development partner initiatives (by government) at all levels (e.g. supply of RUTF from 2 development partners to selected districts and hospitals, while other districts and hospitals lack those commodities)
- Weak leadership at DHO level

#### Programmatic

- Sufficient and up to date guidelines exist
- Fragmented data management system, although harmonization is taking place with the HMIS/DHIS2, but data capture from the health facilities through the HMIS/DHIS system remains a challenge and incomplete.

## 8.3.2 Building block 2 – Health care financing

Health care financing consists of defining and setting up mechanisms to pay for health care. Important aspects are mobilization and allocation of funds. Health care financing is critical for reaching Universal Health Coverage (UHC), whereby the following nuances are important to consider:

- Reducing financial barriers to access to health care
- Allocating or using funds in a way that promotes efficiency and equity

In order to get an understanding of the funding involved for those commodities, the consultant team made an estimation of the values that the development partners invested the last few years.

Commodity	2014	2015	2016 (to date)
RUTF (USAID)	\$1,317,687	\$1,503,401	\$1,835,034
RUTF (UNICEF)	\$2,263,609	\$1,684,633	\$988,143
Total RUTF	\$3,581,296	\$3,188,034	\$2,823,177
F-75 (UNICEF)	\$138,590	\$127,231	\$36,438
F-100 (UNICEF)	\$142,689	\$126,252	\$12,817
ReSoMal (UNICEF)	\$4,672	\$4,476	\$0
Total	\$3,867,247	\$3,445,993	\$2,872,432

#### Table 7 - Investment in nutrition commodities by development partners

Source: database UNICEF and USAID-PIN/RECO

The values as demonstrated in table 7 are for the procurement of the commodities only. In-country logistics are not included in these values.

To put these figures in perspective, the annual turnover of NMS during financial year 2015/2016 was about 290 million USD (1 trillion Ugandan Shillings).

Health care financing – key findings	
SCM	

- At DHO level, management, storage and distribution of commodities procured by UNICEF is (mainly) funded by government
- Commodities are procured with funding from development partners (USAID and UNICEF); government does not fund procurement of these commodities
- Funding of commodities is fragmented

#### Health care financing – key findings

SCM

- MOH does not have a clear view on funding streams for commodities
- Funding needs for procurement and SCM of commodities for the short and medium term are not known (no forecast available that allows for estimation of funding needs), and no coordination mechanism exists that facilitates this process
- As per the Basic Cooperation Agreement between the GoU and UNICEF, the GoU is responsible for (funding of) in-country logistics, but this is often a challenge given the resource constraints, also at the DHO level
- Absence of long term commitment from development partners, in combination with limited funding from GoU for procurement and SCM leads to challenges related to sustainability
- Funding from development partners does not cover all the needs and has a tendency to be earmarked for target groups (e.g., under fives, People Living with HIV), as well as for geographical areas (including some overlap while other areas lack support), not necessarily aligned with government priorities and guidelines

#### 8.3.3 Building block 3 – Health workforce

The health workforce is to organizations what health is to the body – the smooth functioning of all its parts. It highlights priorities, adapts services to needs and changing situations, makes the most of limited resources, improves the standard and quality of services, and maintains high staff morale.

#### *Health workforce – key findings*

SCM				
,	A/h:la	CONA	£	

- While SCM for medicines to treat SAM is done by trained and skilled staff of NMS and responsible staff for the medicines storerooms in the health facilities, important elements of SCM for nutrition commodities, particularly at central level are carried out by staff of development partners (UNICEF and PIN/RECO)
- For UNICEF procured commodities, DHO staff is required to be actively involved in stock management and distribution, and may not be fully skilled to do so (DHO staff is not involved in stock management and distribution of essential medicines and medicines to treat SAM)
- At the health facilities, medicines are managed by responsible staff for medicines storerooms that is generally knowledgeable and has appropriate skills in SCM. However, nutrition commodities are often managed by programmatic staff that is often not skilled in supply chain management. Roles and responsibilities of programmatic and SCM staff with regards to SCM of nutrition commodities are not fully clear

#### Programmatic

- Shortage of critical nutrition staff, for example only one nutritionist expected to support the entire Karamoja region (staff of implementing partners is engaged in implementation of activities, including activities related to SCM)
- Despite availability of appropriate IMAM guidelines, application of the guidelines is not always implemented correctly (e.g. weighing, measuring, MUAC, Body Mass Index (BMI) not done as a routine), which may lead to over- and/or under-prescription of commodities, impacting negatively on rational use

#### 8.3.4 Building block 4 - Information and research (data management)

Information management concerns a cycle of organizational activity: the acquisition of information from one or more sources, the custodianship and the distribution of that information to those who need it. The cycle involves a variety of stakeholders: for example those responsible for quality assurance, accessibility and utilization of the acquired information, and those who need it for decision-making.

#### Information and research – key findings

#### SCM and programmatic

- Strong programmatic data tools in place (HMIS/DHIS2), but use of it for nutrition is still limited

#### Information and research – key findings

#### SCM and programmatic

due to the recent inclusion of nutrition indicators: availability and reliability of data are still weak

- Data collected through HMIS/DHIS2 captures information on the number of patients cured and deceased, but no data on defaulters is captured, which is useful information to measure the performance of the programme
- Through HMIS/DHIS2 data on availability of tracer medicines at the health facility is collected and nutrition commodities were recently added to the basket of tracer medicines by the MOH Pharmacy Division
- Available data are not compiled: little information on the national scale is available
- There is no uniform nation-wide LMIS in place yet, though some initiatives exist (RX, ELMIS, etc.) and a vision about implementation of a national LMIS was developed by the MOH Pharmacy Division
- The current ERP and WMIS software at NMS is likely to be replaced in the near future, which will be part of, or feed into the national LMIS
- Development partners involved in SCM of commodities had specific reporting requirements in which programmatic and logistics data were combined; it is now agreed only HMIS/DHIS2 data will be collected
  - UNICEF requests DHO's to report through HMIS/DHIS2 but also still relies on additional (logistics) data in order to make re-supply decisions
  - USAID has a comprehensive database in which both programmatic and logistics data are captured for supported facilities, but these data are not shared with MOH as a routine
- Available data are not sufficiently used for decision making on forecasting/quantification, resupply, planning and budgeting
- Availability and quality of data depend to a considerable extent on presence of implementing partners

#### 8.3.5 Building block 5 – Medical products and technologies

> Product selection Product selection is the process of selecting a - limited - number of medicines and health commodities for a programme or project. The use of a limited list of carefully selected medicines and health commodities is regarded as one of the most cost-effective actions that can be taken to ensure a stable and reliable supply.

**Product selection – key findings** 

- Existence of IMAM guidelines facilitates product selection
- Risks involved as key commodities selected for treatment of SAM are currently only supported by development partners
- These commodities are not commonly known among health workers, which is likely due to limited availability of these products, particularly in districts that are not supported development partners
- All nutrition commodities are included in the current EMHSL, but classification of some of the key products (RUTF and therapeutic milks) with the regulatory authorities remains unclear (see for more information section on Quality Assurance below)

Table 6 below provides some of the key characteristics of the nutrition commodities that are currently being managed outside the national supply chain:

Product	Unit	Weight	Volume	Shelf life (months)	Storage conditions	Programme
		(kg)	(m3)			
Ready To Use Therapeutic Food (RUTF), sachets of 92g	Carton with 150 sachets	14.7	0.023	24	Dry, < 30ºC	Inpatient & Outpatient

#### Table 8 - Key characteristics of therapeutic formulas

Product	Unit	Weight	Volume	Shelf life (months)	Storage conditions	Programme
		(kg)	(m3)			
Therapeutic milk, Formula 100 (F-100), sachet of 114g	Carton with 90 sachets	13.4	0.036	24	Dry, < 30ºC	Inpatient
Therapeutic milk, Formula 75 (F-75), sachet of 102,5 g	Carton with 120 sachets	11.2	0.029	24	Dry, < 30ºC	Inpatient
ReSoMal, sachet of 42g	Carton with 100 sachets	6.3	0.029	36	Dry, < 30ºC	Inpatient

▶ Quantification In this report, quantification is used for both forecasting and quantification; covering both the process to determine how much of a product is required for the purpose of estimating the resources needed for a project or programme for a specified period of time (forecasting), and the process to determine how much of a product is required for the purpose of procurement (quantification).

An often-used indicator for supply chain management is the forecast or quantification accuracy. This indicator measures the difference between forecasts previously made for a year and the actual consumption or issues data for that year. The consultant team intended to analyze the forecast accuracy but it became clear that this indicator is not representative for the case of Uganda; indeed, quantification of nutrition commodities is based on available funding more than on the actual needs. Nevertheless, UNICEF makes an estimation of the national needs for treatment of children under five years. The example of 2016 is illustrative, as showed in the table 7 below.

#### Table 9 – RUTF estimated needs and quantities procured in 2016

Indicator	2016
Country needs as per UNICEF Quantification sheet	145,288
Quantity procured UNICEF	20,727
Quantity procured USAID	28,231
% of needs covered	34%

Source: database UNICEF and USAID-PIN/RECO

#### Notes:

- Data available cover the period January to September 2016
- Data on procured quantities in 2016 do not take into consideration the quantities that were procured in 2015 but distributed in 2016. As such, up to September 2016, UNICEF had distributed more than 25,000 cartons of RUTF.
- Needs as per the UNICEF Quantification sheet are based on the needs of the entire country, whereas UNICEF focuses on the supported districts and all Regional Referral Hospitals, and USAID on selected health facilities only.
- UNICEF and USAID procure based on available funding, rather than on the expressed needs these needs highly exceed the available funding.
- USAID data is from financial year 2015/2016

#### **Quantification - key findings**

- Lack of national quantification for commodities for the short to medium term
- Quantification is based on availability of funding, rather than on real needs
- MOH Nutrition Division, MOH Pharmacy Division and NMS are not involved in quantification of commodities procured by development partners
- QPPU at the MOH Pharmacy Division will be conducting national quantification for all essential medicines in the near future (and all nutrition commodities are considered as essential medicines)
- Limited availability and reliability of both programmatic and logistics data required for adequate

#### **Quantification - key findings**

#### quantification

- Discrepancies between programmatic and logistics data (which leads to questions around correct application of guidelines and rational use)
- Data cannot be not cross-checked (admissions and consumption)
- Does not allow for appropriate decision-making
- Yearly procurement plans developed by HCIV and hospitals, in collaboration with DHO and NMS, serve as quantification at this level of health care provision; these commodities are however not included
- At HCIII and HCII, tailor made basic kits serve as quantification at this level; these commodities are not included
- Basis for quantification (requisitioning) of RUTF at the health facility remains unclear

**Procurement** is the process of acquiring supplies from an external source. Financially, procurement is the most delicate component of the supply system

#### **Procurement – key findings**

- In the past, NMS has, to a limited extent, carried out procurement on behalf of donors for other commodities, but prefers to procure only on behalf of MOH
  - USAID procures only RUTF for selected districts and health facilities
    - Procurement from local manufacturer RECO
    - Procurement includes also distribution up to the health facility level
- UNICEF procures RUTF, F-75, F-100, ReSoMal for selected hospitals and districts
  - Procurement carried out by UNICEF's Supply Division in Copenhagen
  - Procurement from international manufacturers (France, Kenya, Madagascar, Sudan)
  - For Uganda, UNICEF is in the process of approving RECO as one of the suppliers for RUTF
- GoU is not involved in procurement of these commodities
- Quantities of RUTF procured roughly cover 30 to 40% of the estimated total needs in Uganda (source UNICEF)
- Although on the EMHSL, RUTF and therapeutic milks are not considered as medicines by the NDA but as food supplements, and for importation these commodities are taxed as such while medicines are not taxed<sup>10</sup>.
- Both UNICEF and USAID have very specific requirements for providing funds to government entities for procurement of health commodities

**Quality Assurance** Quality assurance involves all activities required to ensure that the product that reaches the patient is safe, effective, and acceptable to the patient.

#### *Quality assurance – key findings*

- International standards for food are found in the Codex Alimentarius, but the Codex does not include all ingredients of RUTF. For these commodities UNICEF and MSF developed recommendations in terms of guality and specifications, but these are not standards as such
- In Uganda, RUTF and therapeutic milks are considered as food supplements by the NDA, but the consequences in taxation remains unclear to stakeholders: commodities are considered as food supplements and taxed as such, while the commodities are on the EMHSL and essential medicines are exempted from import duties and VAT.
- There also seems to be a grey area in terms of responsibilities of the corresponding regulatory body: the Uganda Bureau of Standards is the responsible body for manufacturing processes and

<sup>&</sup>lt;sup>10</sup> UNICEF, being a UN-organization, is exempted from taxes. USAID procures locally and pays currently the standard Value Added Tax

#### **Quality assurance – key findings**

quality assurance of food (supplements) while NDA is responsible for quality assurance and testing of medicines, and is currently in the process of transformation into the National Food and Drug Authority (NFDA). PIN/RECO and other partners have had extensive discussions with NDA to resolve the quality assurance, regulatory authority and taxation issues, but this has remained unsuccessful

- For food supplements, currently no registration is required
  - No in-country quality testing for these commodities is conducted
    - Samples are taken from every consignment from UNICEF, but the NDA confirmed these samples are not used for testing
    - UNICEF and PIN/RECO apply own standards for quality assurance, which include quality testing in foreign laboratories
  - Once the NFDA is established, food supplements will be under responsibility of the new entity

#### **↘** Inventory management

Inventory management is the process of overseeing storage, ensuring that commodities are available when needed and in the right volumes, and keeping track of inventory. Storage refers to the actual space where commodities are stored (warehouses, storerooms) and the way they are stored, while stock management refers to keeping track of the stored commodities.

#### *Inventory management – key findings*

#### Storage

#### **Central level:**

- RUTF procured by USAID is stored at the RECO warehouse (Kasese manufacturing plant at central level), and buffer stock is stored in two regional warehouses (Mbale and Masindi).
- Commodities procured by UNICEF are stored at the UNICEF warehouse in Kampala; the warehouse complies with standards for storage of these commodities
- It is not likely volumes of these commodities were taken into consideration during design of the new NMS warehouse, although according to NMS volumes of these commodities are not substantial compared to volumes NMS currently manages

#### **District level:**

- Commodities procured by UNICEF are stored at DHO stores, and managed by the District Stores Assistant
- Storage conditions vary across the board, and not all stores visited were found neat and tidy; rodent control is challenging and temperature control is weak

#### Health facility level:

- Most health facilities have 2 stores: one for medicines, and one for other supplies (e.g. furniture, equipment, and sometimes medical supplies)
- Commodities are at times stored in the medicines stores, and at times at the store for other supplies
- In most of the USAID supported sites, RUTF is stored at the ART clinic (mainly due to the fact that it is funded through earmarked HIV funding)
- Storerooms for medicines are generally in good condition; conditions of storerooms for other supplies vary considerably
- Storage space is usually limited, particularly in the smaller health facilities, but ultimately all facilities manage to find creative solutions for space constraints
- Rodent control is challenging and temperature control is weak

- Not all stores visited were found neat and tidy, particularly the stores for other supplies

## Stock management

#### Central level:

- UNICEF uses its own stock management system
- USAID/RECO uses its own stock management system
- There is currently no national LMIS in place

#### **District level:**

#### *Inventory management – key findings*

- Stock management practices vary considerably among the districts (visited)
- Mainly manual systems are used for logistics data management
- Often only stock cards are available (usually as part of HMIS); some districts keep waybills from UNICEF and issue vouchers from health facilities
- Staff at the DHO is in general not trained and skilled in stock management of health commodities
- Available data on logistics are only used to a limited extent

#### Health facility level:

- Stock management practices vary considerably among the health facilities (visited)
- Mainly manual systems are used for logistics data management
- Only stock cards are available (usually as part of HMIS), and sometimes separate stock cards are used for commodities procured by USAID and by UNICEF
- Health facilities have a tendency to only requisition when stock levels are (too) low there is no standard requisition frequency
- While HCII and HCIII are involved in the process of constituting the basic kits per district, with which they are supplied on a bi-monthly base, they are not familiar with requisitioning individual medicines and health commodities
- Current stock management systems in place for these commodities do not allow (batch) tracking throughout the supply chain, and particularly not from DHO level onwards to health facility level
- Issue vouchers are generally used (although not all DHOs keep records)
- Both logistics and programmatic data are separately recorded by some implementing partners, but data are not always shared with the MOH Nutrition Division
- The MOH requested implementing partners to only use HMIS forms to feed into HMIS/DHIS2, nevertheless some implementing partners continue to request additional reporting, especially on logistics data

**Distribution** A requisition is a request for a product, especially a formal written request on a preprinted or online form. Distribution is the process of moving medicines and health commodities from the central warehouse through a distribution channel to the health facility.

A *push system* is a system whereby a central authority (e.g., NMS, MOH Nutrition Division, DHO, UNICEF) determines the quantities to be supplied to the lower levels in the supply chain (e.g., DHO or health facilities). A *pull system* is a system whereby lower levels order products from a warehouse (NMS, DHO) based on needs as determined by the ordering entities (health facilities).

#### Distribution – key findings

#### Requisitioning

- Commodities are being requisitioned through different systems, and between different levels.
  - Health facility level to central level –commodities procured by UNICEF:
    - All Regional Referral Hospitals requisition directly from UNICEF, usually by e-mail supported by reports on programmatic data (admissions) and logistics data (consumption and stock)
    - Requisitioning is, in theory, on a quarterly basis
    - Health facility level to central level RUTF procured by USAID:
      - Targeted health facilities requisition directly at PIN/RECO on a quarterly basis
      - A tailor-made requisitioning system is set up
      - The health facilities receiving RUTF from PIN/RECO report on a monthly basis on programmatic (admissions) and logistics (consumption and stock) data
  - District level to central level commodities procured by UNICEF:
    - DHO's tend to send requisitions when stocks are getting low
    - Although UNICEF prefers to only receive data on nutrition through HMIS/DHIS2, it still requires additional data in order to decide on re-supply; the forms used for requisitioning capture both programmatic (admissions) and logistics (consumption and stock) data

Distribution – key findings
<ul> <li>In theory, a pull system is applied, but due to limited stocks, UNICEF applies a combined system in order to equitably distribute the available stocks</li> <li>Health facility level to DHO - procured by UNICEF:         <ul> <li>Frequency is not well determined (often on an as needed basis)</li> <li>Basis for determination of quantities remains unclear</li> </ul> </li> <li>Involvement of MOH Nutrition Division is limited</li> </ul>
hospitals decide on requisitioning from either USAID or UNICEF (some mentioned that they just call the other if one cannot supply)
Distribution
<ul> <li>Commodities are being distributed through different systems, and between different levels.</li> <li>Central level to DHO and Regional Referral Hospitals – commodities procured by UNICEF:         <ul> <li>UNICEF delivers up to DHO and RRH, on a quarterly basis (in theory)</li> <li>Off loading is challenging due to limited man power and funds at DHO (mainly for large deliveries)</li> <li>UNICEF only delivers to targeted districts, and all RRH</li> </ul> </li> <li>Central level health facilities – RUTF procured by USAID:         <ul> <li>RECO/PIN delivers directly to USAID supported facilities, on a quarterly basis</li> <li>DHO level to health facility level – commodities procured by UNICEF:</li> <li>DHO is responsible for transport from UNICEF is provided</li> <li>Implementing partners try to support distribution (mainly physically) as much as possible</li> <li>Irregular distribution                 <ul> <li>No pre-established order frequency</li> <li>Challenges with planning at facility level (requests only when stock levels are low or zero)</li> <li>Limited availability of transport means</li> <li>Loading is challenging due to limited manpower and funds at DHO (mainly</li> </ul> </li> </ul> </li> </ul>
<ul> <li>Some hospitals receive RUTF from both UNICEF and USAID through RECO/PIN</li> </ul>
- Re-distribution between DHO and health facilities was observed
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▶ Rational use The rational use of medicines and health commodities requires that patients receive products appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community.

#### Rational use – key findings

- Commodities procured by development partners are targeted at:
  - a specific age group (< 5) for commodities procured by UNICEF (although UNICEF Country Office confirms it aligns with IMAM guidelines (no age restrictions) but it seems that instructions to health workers and perceptions of health workers vary from district to district)
  - people living with HIV (PLWH) were initially targeted for commodities procured by USAID, although prescription is now available to the entire population in need (but among some of the health workers and among the population there is still a perception that these commodities are targeted at PLWH)
- IMAM guidelines do not limit prescription to a specific target or age group
- Quick analysis of data collected shows that RUTF is most likely not prescribed conform the guidelines (e.g. over-prescription: commodities used for non-SAM patients, and under-prescription: SAM patients do not receive sufficiently to finalize treatment)
- Stock-outs of commodities occurred especially at the lower level health facilities, which has led to challenges related to rational use of commodities

## 9 INTEGRATED SUPPLY CHAIN – WHAT DOES IT LOOK LIKE?

This chapter is based on the findings as presented in chapter 8 above. The focus of this chapter is on the integration of products that are currently managed outside the national supply chain managed by NMS; medicines required for treatment of SAM are not discussed as these are already integrated.

The results of the discussions held with the key stakeholders during a validation and debriefing workshop on 21 October 2016 at the UNICEF office in Kampala were also taken into consideration when developing the integration strategy.

### 9.1 Estimation of future needs

Successful integration requires an estimation of needs for all nutrition commodities for the coming years. Such estimation should not only cover the quantities of each individual commodity that are needed at national level, but should also serve to understand the financial investments needed to procure, store and distribute. In this regard, it is also important to estimate the volumes of the commodities. From our assessment it was understood that an estimation of the needs is currently not available, and the consultant team therefore made a proposal for quantification for the period 2017 to 2019.

Needs of nutrition commodities were estimated based on the same principle and assumptions as used for medicines, and explained in chapter 7.

The preferred method for quantifying needs for nutrition commodities would be the consumption method<sup>11</sup>. Historic consumption data are the most reliable predictor of future consumption. However, Uganda is not in a position to cater for full supply due to limited funding, and as such consumption data are not representative of the needs. At the same time, availability and reliability of programmatic data (mainly the number of admissions) are yet too low to be used for estimating needs. We therefore used primarily demographic data.

Out of 8 sub-Saharan countries that participated in the UNICEF Nutritional Supply Chain Integration Study (2015), only one (Ethiopia) uses the consumption method. All other countries involved in the study use demographic data (or also called the morbidity method).

The table below shows a summary of the needs estimated for nutrition commodities for 2017, 2018 and 2018. The quantified needs for 2017, 2018 and 2019 also include an estimation of the costs associated with procurement and supply chain management of nutrition commodities in the estimated quantities. Prices of the commodities are based on prices shared by UNICEF Supply Division, including an additional USD 2.50 per pack size for transport by sea freight as per UNICEFs recommendation. Costs for management of the different components of the supply chain are based on the Memorandum of Understanding between NMS and the MOH. The last rows of the table below show the estimated weight and volume.

## Table 10 – Summary of needs estimated for nutrition commodities including costs for SCM – 2017,2018 and 2019

	Commodity	2017	2018	2019
Estimated needs in cartons	RUTF (150	180,973	186,402	191,995

<sup>11</sup> This method s based on records of past consumption, adjusted for stock-outs and project changes (e.g. changes in guidelines)

	Commodity	2017	2018	2019
(quantities)	sachets)			
	F-75 (120 sachets)	7,664	7,894	8,131
	F-100 (90 sachets)	3,406	3,508	3,614
	ReSoMal (100 sachets)	1,533	1,579	1,626
	RUTF	\$9,602,439.99	\$9,890,513.19	\$10,187,228.58
	F-75	\$420,668.61	\$433,288.67	\$446,287.33
Price CIF Kampala, Uganda, by sea freight (US\$)	F-100	\$171,602.07	\$176,750.13	\$182,052.64
	ReSoMal	\$36,357.29	\$37,448.01	\$38,571.45
	Total	\$10,231,067.96	\$10,538,000.00	\$10,854,140.00
Customs clearance - (1% of p	roduct value)	\$102,310.68	\$105,380.00	\$108,541.40
NDA verification fees - (2% of	product value)	\$204,621.36	\$210,760.00	\$217,082.80
Storage central level (NMS) - value)	(4% of product	\$409,242.72	\$421,520.00	\$434,165.60
Distribution costs up to DHO product value)	level - (3% of	\$306,932.04	\$316,140.00	\$325,624.20
Last mile delivery to health facilities – (1.5% of product value)		\$153,466.02	\$158,070.00	\$162,812.10
Estimated total procurement and supply costs		\$11,407,640.78	\$11,749,870.00	\$12,102,366.10
Total estimated weight (kg)		2,810,487	2,894,802	2,981,646
Total estimated volume (m3)		4,582	4,719	4,861

We realize this quantification exercise resulted in a rough estimation of the future needs of nutrition commodities, and cannot be considered final. Reliable data on prevalence among adults could not be found, as well as data on average consumption per admission for all commodities.

As also mentioned in the medicines section, the assumptions used to develop this rough estimate need to be verified, further fine-tuned, and agreed upon. Adaptions related to coverage also have to be made according to the objectives of the nutrition programme, since the quantification above is based on coverage of 100% of the needs.

The quantification presented is made in excel, and any necessary change can easily be made. The excel sheet will be made available to UNICEF for further sharing and use by the MOH Nutrition Division, MOH Pharmacy Division QPPU and other interested parties.

## 9.2 Facilitators for integration

This section describes the particular elements in place that facilitate the integration of the nutrition commodities that are managed outside the national medicines supply chain. The consultant team has used the conceptual framework as a guidance to analyze the enabling environment for integration.

The following elements that are crucial when embarking on an integration process according to the UNICEF Nutritional Supply Chain Integration Study in Sub-Saharan Africa (2015), are in place, and provide a solid basis for a successful integration process:

- A functional management organization in charge of regular SCM that is able and willing to take over one or more elements of the parallel supply chain
- A shared vision on topics related to SCM among the main stakeholders
- Participation of all actors involved in SCM of nutrition commodities in the process
- A functional coordination mechanism in which all organizations involved in nutrition and/or SCM are represented

- Access to dedicated technical assistance, if considered necessary

Two other elements mentioned in the same study, the leadership by MOH and a champion, require some attention. In Uganda the MOH is already involved in the discussions around integration, and takes more and more leadership. The transformation of the Nutrition Unit into a Division will further support and facilitate its leadership. It provides especially opportunities for increased staffing levels within the Division, amongst others to coordinate and oversee the integration process. UNICEF is one of the main promoters of integration, and could therefore be considered as the current champion.

Apart from the general elements mentioned above, the following technical elements are important facilitators for integration:

- Inclusion of all nutrition commodities on the EMHSL. This facilitates the execution of the different components of the supply chain, e.g. quantification, procurement, storage and distribution. The inclusion confirms that nutrition commodities are considered essential medicines, although some challenges remain with regards to classification and taxation aspects at the level of the regulatory authorities.
- The government is already providing funds for procurement and SCM of key commodities to treat SAM. In addition, it is also providing funds for SCM activities for commodities procured by development partners (e.g. storage, management and distribution of RUTF, F-75, F-100 and ReSoMal at the DHO and health facility level).
- Clear guidelines for treatment of SAM exist, and these guidelines contain some (very) basic instructions on (integrated) SCM of nutrition commodities.
- Within the MOH Pharmacy Division a specific unit is tasked with carrying out national quantification of health commodities: QPPU. This unit, with technical support from implementing partners or others if needed, has the capacity and mandate to quantify needs for nutrition commodities.
- Several other health commodities, or categories of commodities, have gone through a similar integration process from a parallel supply chain into the national supply chain managed by NMS. A few examples are iCCM commodities, vaccines, and TB commodities. In this regard, some of those commodities were initially fully funded by development partners while these are now also partly funded by the government.
- NMS is building new premises that will considerably expand the storage capacity in the future. At the same time, NMS has proven to be creative in finding solutions for its current limited storage capacity.
- A good relationship and collaboration between NMS, UNICEF and USAID exists, which will facilitate the integration process.
- Medicines storerooms at health facility level generally comply with the minimum standards for storage of medicines and health commodities. Nutrition commodities can be stored in these rooms, as required storage conditions are generally the same for all health commodities. These commodities are actually often already stored at the medicines storeroom.
- Staff with sufficient knowledge of the basics of stock management is available in the health facilities, and can also manage nutrition commodities, as the principles are the same for all health commodities.
- A clear vision for implementation of a national LMIS is available, and nutrition commodities are included. Timelines for implementation are however not yet known.
- Nutrition data are included in the HMIS/DHIS2.

Some obstacles for implementation are also noted: the limited interest of NMS to conduct procurement with external funding being an important obstacle for full integration until the GoU allocates sufficient funding for the procurement of these commodities.

The current transformation of the National Drug Authority (NDA) into a National Food and Drug Authority (NFDA) is at the same time a facilitator and an obstacle – after the transformation, all nutrition commodities will fall under the responsibility of the NFDA, but before completion of this

process, it remains unclear which entity is leading the quality assurance of those nutrition commodities that are not classified as medicines.

## 9.3 Configuration

The general long-term objective of the GoU and UNICEF is that the procurement and SCM of all nutrition commodities is fully integrated into the regular national health procurement and supply chain, executed by NMS. Full integration is important because it would ensure a wider coverage for the treatment of the glaring problem of SAM in Uganda, and because characteristics of the commodities needed to treat SAM do not require a different handling and management than other essential medicines.

The ideal configuration of a fully integrated procurement and supply chain of nutrition commodities would consist of the following elements:

- Management of the supply chain by NMS with involvement of the MOH Nutrition Division
- All nutrition commodities included in the EMHSL
- Nutrition commodities included in the basic kit for HCII and HCIII according to the level of health care provided in these HC
- Nutrition commodities in the procurement plans of HCIV and hospitals, as well as in the plans of PNFP facilities
- Nutrition commodities in the ERP and WMIS of NMS
- Quantification of nutrition commodities by the QPPU of the MOH Pharmacy Division
- A government budget line item for procurement of nutrition commodities
- Funding for procurement, storage and distribution by NMS
- Registration of nutrition commodities by the NDA, or future NDFA
- Quality assurance according to the national regulations in conjunction with the NDA, or future NDFA
- Storage at central level by NMS
- Distribution by NMS up to health facility level (including PNFP)
- Storage at health facility level in the medicines storeroom, and under responsibility of the staff member responsible for the medicines storeroom
- Requisitions managed by health facilities either based on the basic kit or based on the procurement plan on a bi-monthly basis to NMS
- Reporting of programmatic data through HMIS/DHIS2
- Reporting of logistics data through the future national LMIS
- Analysis of programmatic data and logistics data by the MOH Nutrition Division for decisionmaking

To resume, the integrated supply chain for nutrition commodities is represented in the following figure:

![](_page_48_Figure_0.jpeg)

Figure 7 - Integrated supply chain for nutrition commodities

Source: developed by the authors

The nutrition commodities can, with relatively low investments, be integrated in the national medicines supply chain managed by NMS because the basis and well-established systems of the supply chain are in place.

We will provide recommendations on how to implement the integration strategy in chapter 10. We will use the conceptual framework as the basis, by separating the recommendations per building block of the health system. An estimation of financial investments required to implement the recommendations will be included in the implementation plan.

#### 9.4 Key requirements

The facilitators as described above are conditions or situations that facilitate the integration. Below we will list additional requirements that have to be in place for integration to be realized in a timely and adequate manner.

- Full commitment to support the integration process from all the key stakeholders and players involved in the integration. This also includes commitment to, among other things, sharing of information and data (on prices, quantities, planning, suppliers, etc.), to providing technical assistance if required, and to applying changes necessary. The following stakeholders and players are mainly concerned:
  - o OPM
  - o MOH
    - Permanent Secretary (PS)
    - Office of the Director General of Health Services (DGHS)
    - Nutrition Division
    - Pharmacy Division / QPPU
    - Planning and Finance Department
  - o NMS
  - DHO staff

- Health facility staff
- o UNICEF
- o USAID
- Implementing partners (those supporting nutrition interventions and those supporting SCM and LMIS)
- o JMS
- In-depth expertise on all components of SCM, including on the additional building blocks (e.g., lobby and advocacy, finance, quantification and others)
- Continuous support / technical assistance from technical partners if required
- Sufficient funding for management of the supply chain of nutrition commodities, covering all components of the chain: product selection, quantification, procurement, quality assurance, inventory management, distribution and rational use
- Sufficient additional funding to support the integration process: recruitment of focal point or project manager to lead the process, additional meetings of the working groups, additional field visits, etc.
- Involvement, and a certain commitment of the office of the Director General of Health Services and the MSTCC under leadership of OPM
- Involvement in the process of key actors at the lower levels to ensure that local context and challenges are taken into consideration sufficiently
- Clear communication with all stakeholders and key actors (executors) throughout the process
- Availability of IMAM guidelines at all health facilities and hospitals
- Budget for additional training on the new configuration for key staff involved in SCM of nutrition commodities, if required
- Full implementation plan, including budget and clear milestones

A national LMIS will improve the overall performance of the supply chain, but it is not only related to the supply chain of nutrition commodities.

A focal point or project manager to lead the integration process is crucial, and should be appointed as soon as the implementation plan is approved. A steering committee that oversees progress and provides general oversight is also desirable. See for more information chapter 10 below.

#### 9.5 Time line

An integration process usually consists of different phases covering different aspects of the process: preparation, situation analysis, implementation planning, implementation, and evaluation.

The present study covers the preparation and situation analysis (steps 1 and 2), and a first basis for the implementation planning (step 3) in the form of an action or implementation plan.

The integration process actually already began when first discussions around the topic emerged, followed by the commissioning of the present study. Important steps were taken during the study, when discussions with key stakeholder were held, and results shared in the debriefing meeting.

Further steps were to be taken immediately after the debriefing meeting: the MOH Nutrition Division took the initiative to set up a working group. Further action can be taken immediately after the present report, including the proposal for an implementation plan, is approved.

Based on the situation as described in this report, we estimate that integration (except the funding by GoU) as per our recommendations will take approximately one to one and half year to be completed. We estimate that most time (9 to 12 months) is needed for preparation for the integration to happen (e.g., appoint project manager or focal point, NMS to identify a suitable option for adequate storage space, quantify needs of products and funding, and inclusion of the nutrition commodities in the kits for HCII and HCIII, and in the procurement plan for HCIV and hospitals). Once

commodities are included in the NMS supply chain, we foresee that 2 or 3 NMS supply cycles are needed to further adjust the system and solve unforeseen problems. A NMS supply cycle usually takes 2 months.

In this chapter we elaborate on the specific recommendations that need to be implemented in order to realize the configuration for an integrated supply chain as presented in chapter 9 above. It concerns the commodities that are not yet integrated: RUTF, therapeutic milks, and ReSoMal, but the configuration is developed in such a way that other (nutrition) commodities managed through a parallel system, or new commodities, can be integrated using the same system and process.

The recommendations follow the conceptual framework based on the building blocks of the health system, and indicate organizations and institutions that need to be involved, and suggest a responsible entity. This chapter serves as the basis for the implementation plan (Annex IV)

According to the Terms of Reference (ToR) of this study, there was initially the intention to prepare for a phased integration process. During the study, however, it became increasingly clear that in the context of Uganda a phased approach is not to best approach; all components of the supply chain are to a very large extent interlinked that it is not worth tackling only one. This approach was also discussed and agreed upon with the key stakeholders during the validation and debriefing meeting. Indeed, the chain is as strong as the weakest link. We therefore recommend that the full integration happen at once, evidently with the necessary preparation. A pilot project is, for similar reasons, also not recommended. Indeed, the entire system needs to be put in place to be able to run a pilot. In addition, recent integration of iCCM commodities managed by UNICEF in the NMS supply chain proved full integration is feasible.

The implementation plan of the integration strategy will include key milestones that will need to be achieved in order to move to a full integration. The reports about availability of tracer commodities at the health facilities that the MOH Pharmacy Division is currently monitoring could be used as a way to measure improved availability of the nutrition commodities at the health facilities after approximately a year after finalization of the integration process.

Other practical and useful tips, suggestions and recommendations can be found in Volume 2 (Guidelines) of the UNICEF Nutritional Supply Chain Integration Study in Sub-Saharan Africa<sup>12</sup> that was carried out in 2015. The study was commissioned by UNICEF's Eastern and Southern Africa Regional Office and Western and Central Africa Regional Office with the objective to consolidate key findings from nine UNICEF-commissioned country studies and other experiences on SCM for nutrition commodities.

While this study focuses primarily on the integration of commodities procured by UNICEF, the commodities procured by USAID are also included. The consultant team has had a number of interactions with USAID and PIN/RECO to understand the parallel supply chain it manages for RUTF, and to discuss views on integration. USAID confirmed its interest in the integration process, and emphasized the importance in terms of ownership and sustainability by integrating into the national supply chain.

At this point in time, USAID's commitment towards integration requires further discussion considering the fact that:

- USAID is currently engaged in an in-depth assessment of GoU's capacities of inventory

<sup>&</sup>lt;sup>12</sup>http://supplychainsforchildren.org/~/media/files/scc/nutritional%20supply%20chain%20integration%20study%20volume %201%20%20analysis.ashx

management and accountability for a broad range of health commodities. The assessment, the so called Supply and Logistics Internal Control Evaluation (SLICE), is a key requirement to be satisfactorily accomplished before USAID can start with any integration process of commodities into the national supply chain.

Specifically for nutrition commodities another element comes into play: a number of projects related to nutrition funded by USAID are about to phase out or close down in the coming year or year and a half. Besides the general support projects like FANTA and SPRING, possibly the PIN/RECO project also closes down. This project is important in terms of nutrition commodities since it supports procurement, local manufacturing and distribution of RUTF to a considerable number of selected health facilities, both public and PNFP.

USAID is already actively involved in the current discussions about integration, and the study team strongly recommends that USAID engages in the process, and takes part in all discussions and activities related to integration of the nutrition commodities into the national supply chain.

## **10.1** Building block 1: Leadership and Governance

## Appoint a permanent focal point from the MOH Nutrition Division for coordination of SCM activities

Regardless of the integration process, it is important that the MOH Nutrition Division gets more actively involved in SCM activities to ensure better understanding of the challenges related to SCM at the Division, but also to ensure leadership and ownership of the SCM of nutrition commodities. As such, the focal point should be engaging with all MOH stakeholders involved in SCM (e.g., Pharmacy Division, NMS, Resource Center) on the different components of SCM, as well as with the key development partners involved (e.g. UNICEF, USAID) about important aspects of SCM for nutrition commodities (e.g. working towards a more even geographical coverage, and addressing the challenges of the different target groups, harmonization of data).

Ideally, the focal point should have basic knowledge on SCM. Good coordination and communication skills are indispensable, as well as good relations with the different stakeholders.

#### Responsible entity: MOH Nutrition Division Entities involved: Not applicable

## Appoint a steering committee for the integration process, with appropriate representation of all key stakeholders.

A steering committee should be appointed to 1) ensure that there is appropriate oversight and monitoring of the integration process, and 2) enable provision or guidance in case of challenges or bottlenecks emerging during the process. The steering committee should have a broad participation to ensure multi-sectorial and political involvement.

It could be considered whether the existing Nutrition Technical Working Group or the MSTCC led by OPM can take on this role so that additional burden is avoided. Engagement of MOH higher-level staff like the PS and the DGHS may facilitate implementation of the integration plan and decisions taken by the steering committee, so it could be considered to request membership (e.g. chairmanship) of these higher-level officials of the steering committee.

Clear ToRs should be developed for the steering committee to function efficiently, and ideally ToRs also exist for each individual member of the committee.

#### Responsible entity: MOH Nutrition Division

Entities involved: Pharmacy Division, NMS, OPM, MOH DGHS, UNICEF, USAID, and others

#### ▶ Appoint project manager (or focal point) to accompany the integration process

A dedicated project manager or focal point for the duration of the integration process should be appointed to lead the integration process and manage the day-to-day activities. The project manager should furthermore ensure continuity of the process, and liaise with the steering committee. The focal point could be a staff member from NMS, MOH Nutrition Division, or a seconded staff member of UNICEF or USAID to either the MOH Nutrition Division or NMS may be considered. It is important that the focal point has sufficient knowledge of SCM and good communication skills to liaise with all key players involved.

The project manager should be available at a full time basis for the entire duration of the integration process.

#### *Responsible entity: Nutrition Technical Working Group Entities involved: Not applicable*

#### ▶ Appoint an operational working group for the integration process

The operational working group will discuss and coordinate the practicalities of the integration process. It will function under the leadership of the project manager (see above) and it is crucial that all key players are represented in the working group: MOH Nutrition Division, MOH Pharmacy Division, NMS, UNICEF and USAID. It is recommended that the team members of the operational working group are identified from the steering committee to ensure continuity of discussions and at the same time facilitate feedback to the committee and the operational working group.

During the debriefing meeting at the end of the in-country presence of the consultant team for this study, a staff member of the MOH Nutrition Division launched the initiative for a follow-up meeting and creation of a working group to facilitate the process of integration.

This working group should not be confused with the Nutrition Technical Working Group or the MSTCC, which are permanent working groups. The operational working group for the integration process will be a temporary working group for the duration of the integration process only.

#### *Responsible entity: Nutrition Technical Working Group Entities involved: Pharmacy Division, NMS, OPM, MOH DGHS, UNICEF, USAID, and others*

#### **u** Involve the district level staff (DHO / Health Sub District) in the integration process

Currently, the DHO and the Health Sub District (HSD) are, to a considerable extent, involved in SCM of nutrition commodities, in particular for the commodities procured by UNICEF. After integration the DHO and the HSD will have less operational involvement in SCM activities for those commodities; their involvement will be reduced to the (co-) development of procurement plans and the basic kits, similar as for essential medicines and other health commodities.

The DHO and HSD should therefore be involved and consulted in the integration process. A selected group of DHOs could be appointed as member of the steering committee, or the operational working group. Through the field visits of the study team, some DHOs are informed about the upcoming integration of nutrition commodities, so those DHOs could be considered to be more actively involved in the process. The focal point of the operational working group should ensure involvement and information sharing with all DHOs and HSDs.

#### Responsible entity: operational working group

Entities involved: MOH Nutrition Division, DHO, HSD, NMS and others

## **10.2** Building block 2: Health care financing

#### Develop a 3-year quantification, supply plan and gap analysis for all nutrition commodities

At the moment of developing this report, November 2016, details on funding needs for nutrition commodities for the (near) future are unknown. Nevertheless, this information is essential for planning and budgeting purposes. A 3-year quantification, including supply plan and gap analysis, will provide a clear understanding of the uncovered (financial) needs in terms of nutrition commodities. To develop such quantification it is indispensible to have access to reliable data on (estimated) number of admissions, consumption, and committed funding (from government and development partners).

In order to cost the estimated needs, prices for products, as well as involved costs for procurement of these commodities, quality assurance, storage, inventory management and distribution are required. UNICEF and USAID can provide product prices, and NMS can provide valuable inputs with regards to the costs of the management activities.

The QPPU at the MOH Pharmacy Division should be leading this exercise, while the MOH Nutrition Division, NMS, UNICEF and USAID should provide inputs and other required technical backup. Other key stakeholders could support if necessary.

It is recommended that the quantification, supply plan and gap analysis is developed for all nutrition commodities (those currently funded (and procured) by development partners, as well as those funded by the GoU).

#### Responsible entity: MOH Pharmacy Division QPPU Involved entities: MOH Nutrition Division, NMS, UNICEF, USAID

In **Mozambique**, the Working Group on Medicines as established under the Section Wide Approach established subgroups for quantification for each commodity category. Each group consists of staff from the respective public health program, the Central Medical Stores, and partners working in the respective area and/or disease.

Each subgroup works on a yearly quantification of the respective products, as well as on a procurement plan. The quantification and the procurement plan are supposed to be reviewed quarterly. The procurement plan is used to develop a gap analysis, including financial information enabling the Mozambican MOH programs to understand what quantities and financial resources are (still) required and when in order to avoid stock-outs. The nutrition commodities are included in the subgroup of essential medicines, and are as such thus integrated in the national supply chain.

Source: Supply Chain Assessment of Nutrition Products In Mozambique, 2015

#### **❑** Develop a resource mobilization strategy

One of the key objectives of the integration strategy is to increase allocation of GoU funding for the procurement and SCM of nutrition commodities. This is the most challenging and long-term intervention of the integration process, and it is therefore recommended that a resource mobilization strategy is developed in order to streamline activities of the different entities involved. The process of increasing allocation of GoU funding for the procurement and SCM of nutrition commodities will have to be continued after the present integration strategy is implemented.

Below we list the main aspects to be covered in the mobilization strategy.

1. Co-funding arrangements between development partners and the GoU for other commodities Co-funding arrangements between development partners and the GoU should be analyzed and documented in order to evaluate possibilities for the co-funding of nutrition commodities. Some arrangements of co-funding are briefly described in this section to serve as an example for funding of nutrition commodities. The examples should be further explored.

#### TB medicines

In Uganda, TB medicines have been consistently funded from external sources like GFATM and the Global Drug Facility (GDF). The quantification is done in close coordination between several development partners and the National TB and Leprosy Control Programme (NTLCP), MOH, NMS and others, and it has lead to increased awareness of the national commodity needs. Quantification of needs involves the use of routine bi-monthly consumption data reported to NMS and caseload data reported in the HMIS/DHIS2, which is monitored by the NTLCP and MOH. Once the commodity needs are ascertained and costed, the supporting development partners then procure the required commodities. Government's funding was initially restricted to the emergency procurement but with better budget planning, there has been an increased commitment. At this point in time the GoU provides 4% of the total funding needs of TB medicines<sup>13</sup>.

In terms of procurement the development partners rely on their own external procurement agents. Similarly to what is happening in the area of nutrition, the MOH and development partners increased coordination and harmonization of supply planning whereby the role of NMS increased. NMS is currently procuring the share of TB medicines funded by the GoU, and stores and distributes all TB medicines nationally, including to PNFP facilities.

#### **FP commodities**

The SCM of FP commodities has improved considerably due to better coordination between the MOH and the supporting development partners at national and local levels. At the national level, there is a strategic plan and the quantification is done in a harmonized way utilizing data from HMIS/DHIS2, health facility procurement plans and consumption data from NMS. At the MOH there is a Reproductive Health Working Group and a Reproductive Health Commodity Security Coordinator who spearheads the multi-stakeholder supply tracking mechanism, summarizes commitments from the various financing sources for a two-year period, and takes note of stock status and related concerns for key subsidized commodities in the public and private sector. The quantification process is demonstrated in the figure below:

#### Figure 8 - Quantification process of FP commodities

![](_page_55_Figure_6.jpeg)

The GoU finances these commodities through a complex combination of mechanisms that includes funds from general tax revenues, World Bank credits, donor budget support, and in-kind contributions from USAID, UNFPA, GFATM and other development partners. From fiscal years 2010/11 to 2014/15 the commitments to the costed implementation plan (CIP) have always been above 90% of the requirements. Public share of

<sup>&</sup>lt;sup>13</sup> Uganda Tuberculosis Profile <u>www.who.int/tb/data</u>

spending for contraceptives has ranged from 3% -14% in the same years. The financing from the GoU is done through Vote 116<sup>14</sup> and in the annual budgeting process FP commodities are included since there is always a CIP.

Funding is provided and NMS carries out most of the national procurement of commodities and distributes some of the third party procurements. The commodities needed for PNFP and private sector are procured and distributed mainly by the Uganda Health Marketing Group (UHMG)<sup>15</sup>.

Furthermore, there is a budgeting framework that allows commodities to be added on the requirements when undertaking supply planning for facilities. If well sensitized about the need, facilities can include the products in the annual supply plan.

#### GAVI

GAVI co-funding policy is an interesting case study for nutrition commodities. Through accelerated advocacy it would facilitate inclusion of these commodities in the government annual funding cycle. As a general policy GAVI requires the government to contribute a flat \$0.20 for any GAVI supported vaccine that is included in routine immunization<sup>16</sup>.

Although Uganda is currently meeting its co-funding obligations by co-procuring agreed amounts, it has experienced delays in co-funding commitments. There are intermittent disruptions, which are caused partly by a lack of synchrony with the government funding cycle and the processes of the Ministry of Finance Planning and Economic Development. The GoU has however demonstrated that it can finance its programmes through such commitments. The share of co-funding from the GoU increased from 1.4% in 2013 to 5.5% in 2016. This could serve as an example for nutrition commodities and should be further explored and discussed by the MSTCC coordinated by the OPM.

#### Private sector

The PNFP network is an important channel PNFP is an improtant channel that compliments efforts of the public sector by improving coverage and availability of nutrition commodities. Nutrition commodities are to a limited extent available in some of the PNFPs either directly supplied by PIN/RECO (RUTF only) or through DHOs supported by UNICEF. Generally, health commodities in PNFP are sold either as part of the package for treatment or as individual items, although specific commodities (e.g. HIV, TB, vaccines) are provided free of charge. Most facilities access their supplies from JMS, which charges a markup of 10-15% while facilities also add a mark up to recover admin costs. Besides the medicines to treat SAM (Albendazole, Mebendazole, Vitamin A, Folic Acid, etc.) JMS does not offer nutrition commodities like RUTF and therapeutic milks.

While the recommendation in this study is geared towards a similar system as for TB medicines (procurement and distribution by NMS, even to PNFP facilities), for the longer term establishment of a seed grant or revolving fund for nutrition commodities after a thorough analysis of the costs and benefits with JMS could be explored to increase access and ensure sustained funding for the private sector. Since JMS already supplies facilities at a cost recoverable after sales, mechanisms are already in place.

#### 2. Lobby and advocacy for increased funding for nutrition commodities

The examples on co-funding above provide guidance for (co-)funding modalities for nutrition commodities. The key objective is allocation of funds for procurement of these commodities by the GoU. Although the lobby and advocacy efforts for increased funding for nutrition commodities should be primarily targeted at the GoU, it should not exclude the development partners. The lobby and advocacy for funding should be a joint effort of all stakeholders.

<sup>&</sup>lt;sup>14</sup> The introduction of Vote 116 introduced centralised procurement of essential medicines by National Medical Stores

<sup>&</sup>lt;sup>15</sup> Rosen, James E., Suzy Sacher, Albert Kalangwa, and Betty Kyaddondo. 2013. Uganda: Financial Tracking of Reproductive Health Commodities. Arlington, Va.: USAID | DELIVER PROJECT, Task Order 4.

<sup>&</sup>lt;sup>16</sup> General Guidelines for Applications for all types of Gavi support – New and underused Vaccines Support (NVS) and Health System Strengthening (HSS)

The funding needs resulting from the quantification exercise of the study team (see Chapter 9) gives a first rough indication on funding needs for the coming 3 years. The MSTCC coordinated by the OPM seems well-positioned for efficient engagement with high-level government officials, as well as with multi- and bilateral development partners for this purpose. Engagement with the Prime Minister and with Members of Parliament could be considered.

Compared with the annual turnover of NMS (approx. 290 million USD) the funding requirements for these commodities are not substantial. Given the competing priorities in terms of funding for public health, it is however not likely the GoU will be able to fully fund the entire needs for the country. Considering the investments of the development partners for the past few years, the possibility should be explored that the GoU starts funding some of the priority commodities needed for Inpatient Therapeutic Care, such as the therapeutic milks and ReSoMal. UNICEF has spent less than 300,000 USD per year on those commodities for the last few years. As per the quantification provided, the investment to cover the full needs ranges from 625,000 USD to 665,000 USD for the next three years and scenarios for a phased increase of coverage can be elaborated.

#### 3. Feasibility and modalities of providing external funds to NMS for in-country logistics

It is unlikely that the GoU will allocate sufficient funding for the procurement of all nutrition commodities in the near future given the budgetary allocation to the health sector in the recent years, and yet options and modalities should be evaluated for development partners to provide funds to NMS for SCM activities like quality assurance, storage, inventory management and distribution of nutrition commodities that are procured by development partners.

#### 4. Diversification of funding

Currently the procurement and SCM of these key nutrition commodities depends fully on two development partners only. Due to budgetary constraints these partners only manage to cover approximately 30 to 40% of the total needs of the country and geographically there is some overlap in the districts and health facilities they support. Moreover, the USAID funded project PIN/RECO is in its final stage of the project and at this point in time it is not yet clear whether there will be an extension and for how long, or whether these tasks will be performed by another USAID project. The MOH Nutrition Division should therefore further discuss funding commitments with the development partners and at the same time explore and advocate for a more diverse range of funding sources to support procurement and SCM of nutrition commodities.

Responsible entity: MOH Nutrition Division Involved entities: OPM, NMS, UNICEF, USAID

## **10.3 Building block 3: Health workforce**

#### Clarify new configuration of nutrition commodities for all staff involved at the different levels د

The new configuration of the integrated supply chain for nutrition commodities, once ready for implementation, should be explained to all health staff involved at the different levels of health service delivery. Furthermore, information on the commodities (specifications), particularities on storage conditions, and roles and responsibilities of staff involved should be explained. Ideally one basic document is prepared covering all the aspects that can be adapted according to the purpose. Existing documents such as the product specifications from UNICEF can be used to facilitate the task.

Dissemination of this document can be done through different ways:

- As an amendment of the 2016 IMAM guidelines. This is the key document used by the technical staff involved in training, and includes some information on the commodities and storage and

stock management. However, this information is presented in a fragmented way, and does not cover all aspects.

- Through a specific information package on configuration of SCM for nutrition commodities.
- Through training; at facility level such training can be combined with on-going training on IMAM guidelines, or through Continuous Medical Education or quarterly health facility in charges meetings, and at NMS a short information session can be organized to brief responsible staff on the specificities of nutrition commodities.
- During regular supervision visits.

#### Responsible entity: MOH Nutrition Division

Entities involved: MOH Pharmacy Division, DGHS, DHO, District Medicines Management Supervisor, NMS, UNICEF, USAID, implementing partners

## 10.4 Building block 4: Information and research (data management)

#### **Support implementation of national LMIS. ■**

A national LMIS covering all medicines and health commodities (including nutrition commodities) is the only approach for a sustainable flow of reliable logistics data usable for decision-making. The MOH Pharmacy Division, in collaboration with its partners, has developed a clear vision for the development and roll out of a national LMIS.

Despite the existence of some fragmented initiatives, it is recommended that all stakeholders join forces, efforts and funding, and fully support the implementation of the national LMIS as foreseen by the MOH Pharmacy Division. In the long term, a strong national LMIS will improve SCM for all medicines and health commodities, including those used for treatment of SAM.

Therefore, setting up separate, parallel reporting systems for logistics data on nutrition commodities only should be avoided, and the current existing parallel reporting systems should be harmonized with the national LMIS.

Responsible entity: MOH Pharmacy Division Entities involved: All stakeholders

#### ש Improve HMIS/DHIS2 data collection and entry for nutrition

As of recently, key nutrition data, both programmatic and logistics, flow through the HMIS/DHIS2 system. Data collection and entry is however still weak and needs to be strengthened. The USAID funded project FANTA assisted MOH to develop a HMIS training manual for nutrition and it supports the related trainings of health workers. The training will contribute to improve reporting on nutrition in HMIS/DHIS2. The MOH Nutrition Division should lobby for support from other nutrition development and implementing partners to ensure national coverage for these trainings, which is necessary to improve data collection and entry of nutrition in the HMIS/DHIS2.

Data collection and entry should also be a key component of supervision visits at all levels in order to ensure continuous monitoring.

Conducting data quality checks and audits can also be considered to support strengthening of the data collection and entry. During data quality checks attention is paid to whether data entered match the indicator definition, are recorded correctly and completely, and reliability of data is also verified. We expect development partners working at the district level to support this activity since they are also extracting data for their indicators, and some implement interventions to strengthen the data collection systems (focusing on availability and reliability of data). This recommendation goes beyond the nutrition area and ideally this activity is an integrated activity, under the mandate of MOH Information Division (Resource Center), the responsible entity for HMIS/DHIS2 within the MOH.

#### Responsible entity: MOH Resource Center

Entities involved: MOH Nutrition Division, DHO, HSD, UNICEF, USAID/FANTA, other implementing partners

#### Lensure available data is used for decision making

Data is not consistently used for decision-making. At the DHO level for example, decisions about resupply of nutrition commodities to health facilities are often not based on reported caseloads, consumption and remaining stocks, but pre-established quantities per level of health facility are provided as a standard. This practice leads to under- and overstocking and may impact the rational use of commodities.

Staff involved in nutrition should therefore ensure that the data is indeed used for decision-making. This recommendation is particularly important for the period previous to integration, but remains valid afterwards. Consumption, and needs for nutrition commodities (particularly RUTF) can be easily determined, namely by multiplying the number of (expected) admissions with the average consumption per admission. This easy and quick calculation provides a strong control mechanism on the requisitions of the health facilities. Since RUTF is a commodity sensitive to leakages, it is strongly recommended to conduct this quick control consistently.

#### Responsible entity: MOH Nutrition Division Entities involved: DHO, HSD

#### 10.5 Building block 5: Medical products and technologies

#### **∨** Clarify taxation of nutrition commodities

Despite the classification of RUTF and therapeutic milks as food supplements by the authorities, related payment of taxes on these commodities remains unclear. Medicines for the public and PNFP sector are exempted from tax, but food supplements are not. For procurement purposes however, especially when the GoU (gradually or partially) takes over procurement of the commodities from the development partners (currently UNICEF and USAID), clarification of the taxation issue is needed.

UNICEF is exempted from paying any taxes because of its status as a United Nations agency. USAID pays regular VAT as it procures locally produced RUTF. If NMS will start procuring from international suppliers, import taxes are likely to be charged, and VAT might have to be paid when commodities are procured locally.

**ReSoMal is a pharmaceutical product**, and is therefore subject to the international and national legislation and regulations for medicines. **RUTF, F100 and F75 are food products**. Currently, there are no regulated international standards for the three products RUTF, F75 and F100. The absence of such standards makes it difficult for national governments to decide which agency is responsible for the regulation and how to regulate the nutrition products.

UNICEF Supply Division is moving forward the international discussions on this topic via WHO (for inclusion in the Essential Medicines List) and via Codex Alimentarius (for developing commodity standards). However, it will take at least until 2017 before the WHO Essential Medicines List will be updated, and up to 2019 before internationally accepted technical specifications will exist.

Until then, national regulatory authorities can use the following information as a basis for regulation:

- The European Union defined RUTF, F75 and F100 as 'food for medical purposes',
- Existing Codex Alimentarius standard for Infant Formula (to be applied for F-75 and F-100)
- Existing Codex Alimentarius standards for ingredients (peanuts, milk powder, sugar, oil etc.)
- Existing EU standards for 'food for medical purposes'
- ReSoMal is defined as a medicine, existing standards for ORS (to be applied for ReSoMal)

Source: UNICEF Nutritional Supply Chain Integration Study in Sub-Saharan Africa (2015)

#### Responsible entity: NMS

Entities involved: NDA, Uganda National Bureau of Standards, NMS, UNICEF, USAID

#### ▶ Include all nutrition commodities in the kits for HCIII and HCII

All nutrition commodities should be integrated into the basic kits used at HCII and HCIII. The kit system for these levels of health care provision is not a full push system as kit supply usually is, but a modified pull system. In each district, DHO and health facilities jointly determine the content of the kit based on the particular needs in the district, and the available resources in the financial year. NMS is providing support for this exercise.

Discussions with the MOH are ongoing about the possibility to constitute a kit per health facility rather than per district. The fact that the kits are tailor-made provides additional opportunities for integration of RUTF. The kit development process is a yearly process, and starts around December / January.

#### Responsible entity: NMS

Entities involved: MOH Nutrition Division, MOH Pharmacy Division, DGHS, UNICEF, USAID, DHO, facility in-charges

#### **u** Include all nutrition commodities in the yearly procurement plans for HC IV and hospitals

All nutrition commodities should be integrated into the yearly procurement plans. According to NMS, it should be possible to have these commodities included in the procurement plans even when development partners are conducting procurement. In this case, it would mean that HCIV and hospitals can order the commodities from NMS through the bi-monthly cycle, but no budget is allocated. It can also be considered to allocate a virtual budget line per facility.

The procurement plans for the health facilities are being developed per financial year and the process starts each year around December / January. The process is similar to the kit development process: DHOs and facility in-charges develop the procurement plan based on consumption, quantified needs and availability of financial resources. The procurement plans can be amended any time during the financial year if supported by adequate justification and formal communication with NMS.

Should there be a situation whereby the nutrition commodities cannot be included yet into the procurement plans (e.g. because a budget line from the MOH needs to be allocated), an alternative option can be considered. In this case it is recommended to follow the set-up of TB medicines. These medicines are supported by external funds, but stored and distributed by NMS through the standard bi-monthly cycle. The TB medicines are not included in the procurement plans: health facilities offering TB services use a specific TB order form that is submitted to NMS alongside the routine order. While within the broader context of parallel reporting and ordering systems this is not a recommendable solution for the long term, it could be considered for integration in the short- to medium term until those commodities can indeed be included in the procurement plans of the facilities.

#### Responsible entity: NMS

Entities involved: MOH Nutrition Division, MOH Pharmacy Division, DGHS, UNICEF, USAID, DHO, facility in-charges

#### **▶** Develop requisition and distribution system to serve PNFP facilities

The set-up of the TB medicines as described above is recommended to serve PNFP facilities offering treatment of SAM. These facilities procure medicines and health commodities at JMS, but will receive nutrition commodities through NMS as per the arrangements for TB medicines, thus using a specific order form. In terms of distribution, since the last-mile distribution up to the health facility is only ensured by NMS for public facilities, the majority of PNFP facilities receiving TB medicines pick up the commodities at the DHO, where they arrive jointly with the NMS order, already pre-packed and pre-labeled per health facility.

#### Responsible entity: NMS

Entities involved: MOH Nutrition Division, MOH Pharmacy Division, DGHS, UNICEF, USAID, DHO, PNFP facilities

#### ▶ NMS, UNICEF and USAID continue procurement as per the current arrangements

Current procurement arrangements have to be maintained until the GoU allocates sufficient funding for procurement of these commodities, and procurement can be conducted by NMS. The fact that future commitments from the GoU remain unclear for now should not hamper the integration process. As long as development partners commit to procuring those commodities, these can be integrated into the national supply chain managed by NMS.

The ultimate objective however, is that procurement of all nutrition commodities is managed by NMS. Within the context of integration, it would actually be recommendable that NMS starts procurement of nutrition commodities on behalf of the development partners, thus utilizing funds made available by the development partners. The consultant team has however understood that NMS is not in favor of this option because of the specific and demanding requirements of development partners when providing funds for procurement. Given these requirements, procurement with external funding by NMS may indeed not be the most practical solution. We therefore recommend to proceed with the current procurement arrangements until government funding becomes available allowing NMS to procure.

#### Responsible entity: UNICEF and USAID

Entities involved: MOH Nutrition Division, MOH Pharmacy Division, NMS

#### ▶ Investigate whether it is feasible to conduct in-country testing of RUTF and therapeutic milks

Currently nutrition commodities are not tested in-country. It is recommended to evaluate whether it is a feasible and cost-effective option to invest in laboratory testing equipment for these commodities, or whether funding should be allocated for testing of (random) batches in qualified laboratories abroad. USAID and UNICEF can provide support to NDA for sourcing of a qualified laboratory.

NDA should also be requested not to take any samples anymore as long as these are not being tested.

Policies and guidelines should be developed for quality testing of nutrition commodities, in line with international recommendations for testing of nutrition commodities, which is considerably different than the testing for medicines. UNICEF Supply Division is well placed to provide technical support to the government due to its long-standing experience with procurement of nutrition commodities including quality assurance.

#### Responsible entity: NDA Entities involved: MOH Nutrition Division, MOH Pharmacy Division, Uganda National Bureau of Standards UNICEF

## Evaluate a number of options for central level storage of commodities that are currently procured by development partners

Currently storage capacity at NMS is limited, but it is not recommended, neither necessary, to wait until the new NMS premises are ready to start physical integration of nutrition commodities. A number of options for (temporary) storage of those commodities are provided:

Nr.	Option	Advantages / Disadvantages
1	Cross docking with supplier	Advantages: Storage at supplier reduces storage space needs at NMS Limited physical handling of commodities
		<b>Disadvantages:</b> Requires high level of coordination Only possible with local suppliers
2	In existing transit warehouse under management of NMS	Advantages: Transit warehouse exist and is managed by NMS Provides flexibility for management by NMS Disadvantages:
		Commodities are not "in transit" so transit warehouse becomes stock-holding point
3	In rented warehouse under management of NMS	Commodities are not "in transit" so transit warehouse becomes stock-holding point Advantages: Provides flexibility for management by NMS Dedicated stock location for nutrition commodities (until new warehouse is ready) Disadvantages: Adds another warehouse for NMS to manages, scattered around Denting adds additional parts to the SCM encention

Table 11 - Options	for storage of	f nutrition	commodities at	central level
Table 11 Options				

The first option, cross docking with a supplier, would be a feasible option if and when the commodities are procured locally (eventually possible for RUTF in the longer term) but it requires a high level of coordination. It would be feasible because NMS is implementing this option for other bulky items that are locally procured. Given the fact that usually large consignments are received from international suppliers this is however not a preferred option.

The 2<sup>nd</sup> and 3<sup>rd</sup> option will have to be studied in more detail. The consultant team has provided with the 3-year forecast also details about expected volumes and weight for these commodities. This is currently based on a 100% coverage of needs in the country. Based on a more realistic scenario in terms of coverage, the calculations can be used to estimate the storage space required and to decide on an ideal throughput scenario, which should be flexible. Coordination should take place between NMS and UNICEF (and eventually USAID) about the frequency and volume of calling off stocks from suppliers.

The consultant team also considered the option for storage of the commodities in the UNICEF warehouse under NMS management, which provided some advantages for the short term without a considerable financial investment, but this is not a feasible option for UNICEF. Different entities controlling stocks in one warehouse is likely to lead to confusion and may cater for mistakes. For the temporary storage of NMS syringes in the UNICEF warehouse, UNICEF's Supply Division already advised to use a separate warehouse

Even when a coverage of 100% of the needs of the country is considered, volumes of nutrition commodities as estimated are not substantial (4,500 – 5,000 m3 per year) if compared to the current NMS handling capacity of six incoming 40ft containers and also six outgoing 40ft containers daily. Furthermore, different deliveries at central level can be negotiated in order to decrease the required storage space. If UNICEF will approve RECO as a supplier, management of deliveries at NMS will be further facilitated.

As for the RUTF currently procured by USAID, the options provided above are practically the same, but specific discussions about the practical arrangements for integration of this particular commodity should take place between the key stakeholders. RUTF procured by USAID is currently stored at the manufacturing plant of PIN/RECO in Kasese, and in two regional warehouses in Mbale and Masindi, which does provide an opportunity for a cross-docking operation between PIN/RECO and NMS, or for more flexibility in terms of staggered deliveries in case NMS faces serious space constraints.

Responsible entity: NMS Entities involved: UNICEF, USAID, RECO

## Lestimate volumes of all nutrition commodities to be distributed to districts and health facilities and ensure sufficient funding

In order for NMS to plan its distribution capacity, including the capacity of the contracted transport companies for the last-mile distribution, it is important to estimate the volumes of nutrition commodities to be distributed to DHOs and health facilities.

UNICEF and USAID have information on distribution to the DHO and health facilities (quantities and destinations), and should share this with NMS for NMS to prepare for integration. As UNICEF currently delivers up to the DHO level only, no information is available on volumes of deliveries up to the health facility level. It is however assumed that at this level as well, volumes of nutrition commodities are likely to be limited compared to the total volume of medicines and health commodities distributed by NMS, and that the transport companies will be able to handle these additional volumes.

In case more details are required, DHOs in districts supported by UNICEF can be requested for information on distributed quantities/volumes to the health facilities in their district.

#### Responsible entity: NMS

Entities involved: UNICEF, USAID, PIN/RECO, DHO

#### **\** Re-allocation of funds for distribution to NMS

In the current configuration, UNICEF and USAID manage and fund most of the distribution of commodities they procure. Depending on when NMS takes over distribution, UNICEF and USAID might consider allocating funding budgeted for distribution under own management to NMS. The same consideration might be applicable for funding allocated to DHOs for distribution to health facilities, although values are likely to be limited.

Responsible entity: NMS Entities involved: UNICEF, USAID, PIN/RECO, DHO

#### Storage of all nutrition commodities in the medicines storeroom at health facility level

Although many facilities, including district and Regional Referral Hospitals are faced with space constraints, these problems are usually solved at individual facility level. Some health facilities however face serious space constraints, for which solutions need to be found in the short term.

When health facilities are being supplied through a reliable, effective and efficient supply chain, the need to keep high quantities of (buffer) stocks is reduced; the deliveries are indeed stable.

At the same time however, space constraints at the health facility level present a serious challenge in Uganda, and the challenge goes beyond the area of nutrition. With a rapidly increasing population and the commitment to strive for UHC, current facilities, including storage capacity, should be upgraded and extended.

#### Responsible entity: Facility in-charges Entities involved: MOH Pharmacy Division, DGHS, NMS, DHO, HSD

#### ש Improve rodent control and temperature monitoring

Rodent control and temperature monitoring present serious challenges at all levels of the supply chain. Rodent control is particularly important for nutrition commodities because the particular ingredients of commodities like RUTF and therapeutic milks attract rodents.

Even when DHO storerooms are used as cross docking only, attention should be paid to improving rodent control.

*Responsible entity: all staff at stock keeping entities at all levels of the supply chain Entities involved: MOH Pharmacy Division, DHO, facility in-charges* 

## □ DHO's and health facilities requisitioning commodities from UNICEF and USAID should be motivated to use a bi-monthly requisitioning cycle

Until nutrition commodities are managed by NMS, it is recommended to motivate health facilities (and the DHOs that currently order from UNICEF) to apply the regular NMS ordering cycle for nutrition commodities. UNICEF and USAID should also align their distribution frequency with the distribution cycle of NMS. For practical reasons, however, it should be avoided that the NMS truck arrives at the DHO and/or health facility on the same day as the UNICEF/USAID truck.

Responsible entity: facility in-charge Entities involved: DHO, UNICEF, USAID

#### ▶ Ensure correct application of the new IMAM guidelines

Correct application of IMAM guidelines is crucial for adequate management of SAM. Needs should be estimated based on the IMAM guidelines. When the IMAM guidelines are not well applied, there is a substantial risk of inadequate supply, which impacts the supply chain. We therefore want to emphasize the importance of training on the application of the 2016 IMAM guidelines.

*Responsible entity: MOH Nutrition Division Entities involved: implementing partners, DHO, facility in-charge* 

## **11 CONCLUSION**

While through the implementation of the IMAM guidelines the management of malnutrition is fully integrated in the health system, the integration of the commodities needed to treat SAM lags behind. Most other sub-Saharan African countries show similar situations. The integration of the (parallel) supply chain for nutrition commodities follow the integration of the IMAM programme, but the implementation has taken more time. A similar process was noticed with the HIV programmes and the relevant supply chains.

In Uganda, the two (semi-) parallel supply chains that have been set up by development partners present several challenges and weaknesses. Through separate management of the supply chain, among other things, these commodities are often seen as 'external' products, which led to limited accountability and lack of institutionalization. Compared to the supply chain of essential medicines, the current systems in place for the development partner supply chains do not allow for (batch) tracking throughout the supply chain, including the last mile<sup>17</sup>. In practice it means that there are no control mechanisms with regards to incoming and outgoing stocks. An associated risk is leakage of commodities. There are only limited data available at the level of health service provision mainly due to limited availability and use of tools for adequate stock management. Consequently, data sharing between the different levels of the health system becomes challenging. Until more and better data become available, and systems use the same supply configuration or set up, it will be hard to assess the efficiency of supply chains.

Timing for integration seems right. Globally, many of the supply chains set up in parallel of the national supply chain, including the chains for nutrition commodities have been or are in the process of being integrated. In Uganda, some key facilitators for integration exist. The national supply chain as managed by NMS is well established and capable of incorporating the nutrition commodities that are not yet integrated. Medicines to treat SAM have always been managed by NMS being regular essential medicines. Key players and stakeholders are committed to move forward with the integration process.

The study demonstrated that integration of the nutrition commodities into the NMS managed system is feasible, can be implemented at short to medium term, and with a relatively low investment. This makes additional short-term interventions superfluous.

Among the key challenges for the integration process is the financing component. The only way to ensure a resilient supply chain for the nutrition commodities is to fully integrate these into the national system. Full integration includes funding of commodities and their management by the GoU. A related challenge is procurement managed by the national system, which might only be possible when government funding becomes available. Nevertheless, these components can be integrated gradually and the report present options for a phased implementation.

For the implementation to be successful, involvement of high-level MOH staff, oversight and guidance by a steering committee, and probably most important, a dedicated project manager (integration manager) are crucial.

In order to build further on the principles that were discussed at the Nutrition Supply Chain Practitioners Forum in Copenhagen in June 2016, awareness may be created among other development partners to support reinforcing national authorities' autonomy and accountability by

<sup>&</sup>lt;sup>17</sup> While in UNICEFs ERP system batch tracking is secured, tracking only takes places up to the DHO level.

investing in sustainable and resilience national supply chains. The Forum Development Partners is one of the existing structures that can be used for this purpose.

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## **13 LIST OF ANNEXES**

- Annex I Terms of Reference
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