

Ready-to-Use Therapeutic Food: Current Outlook

UNICEF Supply Division

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This update provides information for the period 2015-2017 on ready-to-use therapeutic food (RUTF) supply and increased supplier diversity. It highlights UNICEF's procurement approach to meet programme country requirements, as well as developments in microbiological standards for RUTF.

1. Summary

- The note primarily covers the “Paste” form of ready-to-use therapeutic food (RUTF), although UNICEF also procures small quantities of the biscuit form. UNICEF procured 35,000 metric tons (MT) of RUTF paste in 2015 and 33,000 MT in 2016, suitable to treat 2.5 million children each year.¹ It represents a four-fold increase in procurement volume since 2009, following generic and local RUTF market supplier entrants.
- UNICEF anticipates procuring 36,000 MT of peanut-based RUTF in 2017. However, demand for non-peanut-based RUTF may increase from Asian countries, where peanuts are not a staple food in local diets.
- Production capacity for RUTF currently exceeds global demand. Capacity is available to respond to increase coverage of treatment of severe acute malnutrition (SAM).
- RUTF supplier base diversity has increased substantially over the last ten years. UNICEF now procures RUTF from 23 different suppliers, of which 18 are located in countries with high levels of malnutrition.
- The weighted average price (WAP) for RUTF continues to decrease due to increased procurement volume, competition, and supplier diversity. Since 2008, the RUTF WAP procured for export for use in programme countries decreased from US\$ 57.00 per carton to reach US\$ 44.00 in 2016, representing a decrease of 23% over eight years. Locally produced product remains higher priced than imported RUTF, as local manufacturers have to import raw materials, and complex mineral and vitamin ingredients from international suppliers.
- RUTF's peanut ingredient is susceptible to microbiological contamination. Safety risks are therefore a concern and a review of microbiological specifications, rigorous process control, and raw material source sampling and testing, is still ongoing to mitigate the risk.
- UNICEF concluded its 2016 tender and awarded 18 suppliers long-term arrangements (LTAs) through 2017. UNICEF may award LTAs to four additional suppliers pending technical and production site approval. UNICEF will continue to monitor new suppliers based particularly in countries with a high burden of malnutrition to establish further bases of local production.
- In 2015 and 2016, UNICEF received 10,000 MT RUTF in-kind from the United States Agency for International Development's (USAID) Office of Food for Peace (FFP) in addition to support for some local procurement. It contributed to the therapeutic feeding needs of 21 countries in Africa, in addition to Afghanistan, Pakistan, and Yemen, accounting for 12.8% of UNICEF's annual RUTF volume.

¹ One MT contains 72 cartons of RUTF. One carton (92gr. x 150 sachets) treats one child (10-15 kg RUTF over 6-8 weeks).

2. Brief Background and Procurement History

An estimated 50 million children under-five suffer from acute malnutrition (wasting) globally.² About 16 million children suffer from its extreme form, severe acute malnutrition (SAM), and require specialised therapeutic feeding care, of which an estimated one million children die annually as a consequence of acute malnutrition.³ Severe infectious diseases, such as tuberculosis, diarrhoea and measles, as well as sudden onset food insecurity, are among the leading causes of SAM.⁴ The development of RUTF, combined with the adoption of community-based management and treatment of acute malnutrition, has greatly increased the effectiveness and efficiency of therapeutic feeding care. It also enabled increased beneficiary access and beneficiary caseload coverage. UNICEF procures RUTF for country programmes and partners in two forms:

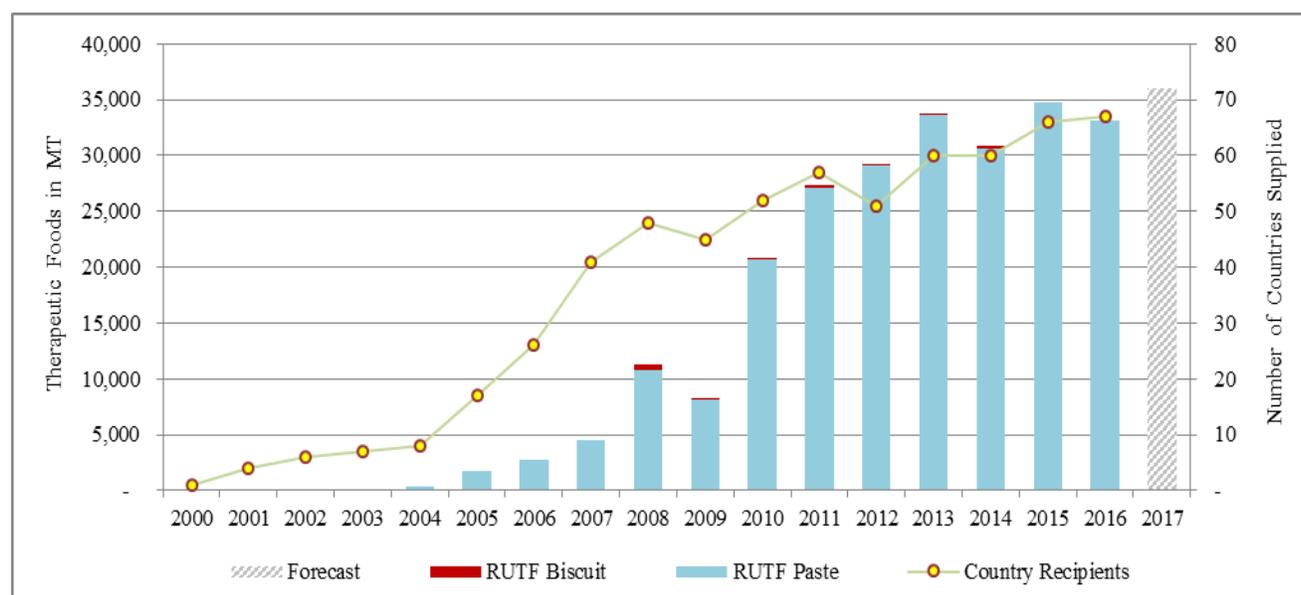
- RUTF paste: An energy dense, micronutrient paste, based on a mixture of peanuts (or alternatives i.e. chickpeas, lentils, rice...), sugar, oil, and milk powder, suitable for children 6-24 months.
- RUTF biscuits: An energy dense, nutrient-fortified wheat and oat bar suitable for older children.

UNICEF also procures other therapeutic feeding products including [therapeutic milk](#) (F-75, F-100),⁵ and complex of minerals and vitamins (CMV), which are not described in this note.

3. Current Market Situation

3.1. Demand

Figure 1 UNICEF RUTF Procurement, Forecast, and Number of Countries Supplied 2000-2017*



Source: UNICEF Supply Division

Note*: 2016 data shows RUTF procurement for 2016 through Q3.

² UNICEF, World Health Organization, and the World Bank, [Joint Child Malnutrition Estimates UNICEF/WHO/World Bank](#), the World Bank, Washington, 2014.

³ UNICEF, UNSSCN, WFP, WHO, [Community-Based Management of Severe Acute Malnutrition - A Joint Statement by the WHO, WFP, UNSSCN, UNICEF](#), UNICEF, New York, May 2007, p. 2.

⁴ Action Against Hunger, [Underlying Causes of Malnutrition](#), Action Against Hunger, Toronto, 2016.

⁵ UNICEF, [Therapeutic Milk Market Supply & Outlook](#), UNICEF, Copenhagen, October 2015.

UNICEF has procured RUTF since 2000. The growing number of pilot programmes and the subsequent endorsement of a community-based management of acute malnutrition (CMAM) in 2007 by the World Health Organization (WHO), the World Food Programme (WFP), UNICEF and the United Nations System Standing Committee on Nutrition (UNSSCN), resulted in the demand for RUTF through UNICEF to increase to 35,000 MT in 2015 (Figure 1). Current procurement levels correspond to the treatment of approximately 2.6 million children in 63 countries,⁶ driven by recent emergencies and greater programmatic acceptance. Nevertheless, current UNICEF supply only covers 15% of the global estimated SAM caseload. RUTF supplies from other sources, notably from USAID, Médecins Sans Frontières (MSF), and Action Contre La Faim (ACF), correspond to an additional 5% of the global estimated SAM caseload. In other words, most SAM cases globally remain untreated.

UNICEF anticipates RUTF demand for 2016 and 2017 to reach 35,000 MT per year, similar levels to 2015. It may increase further due to greater demand from higher coverage rates, an improved management approach to acute malnutrition, and a growing focus on hunger and malnutrition to meet the Sustainable Development Goals (SDGs). The SDGs, adopted recently by the UN General Assembly in September 2015, seek to end all forms of malnutrition by 2030, including achieving the World Health Assembly targets to bring childhood wasting below 5% and reducing stunting by 40%, by 2025. It will require a rapid expansion in the reach and coverage of targeted feeding programmes, notably CMAM and use of RUTF. The World Bank estimates nutrition interventions could save 3.7 million child lives and 65 million fewer stunted children, compared to a 2015 baseline, should programmes reach their targets by 2025.⁷

RUTF is a product used for emergencies and country demand forecasts are at times subject to inaccuracy and uncertainty. In 2013, UNICEF and partners established the Nutrition Dashboard (NutriDash) to help address these challenges.⁸ NutriDash is a web-based database with access limited to key partners, used to collect and strengthen nutrition programme information. The dashboard information is used to support programme management, advocacy, and mobilize resources, as well as to improve country demand forecasting. It assists countries to project supply requirements and ensure timely delivery.

3.2. Supplier Base

From 2000-2007, the RUTF market had a single qualified international supplier that produces RUTF for export from which UNICEF sole-sourced supply to meet demand. In response to growing country programme demand, programme preference for locally produced RUTF for in-country use (for economic development and supply chain reasons), the sole-source supplier established local franchises in programme countries. This coincided with increased demand from a growing number of countries. Local franchises increased local supply availability, and supported broader economic and development goals by providing employment, as well as transfer of technical, production and supply chain knowledge and expertise, in addition to increasing global production capacity. UNICEF also sought to diversify the supply base beyond local franchises, and encouraged independent quality suppliers, particularly in programme countries to enter the market. To measure progress, UNICEF adopted a supply outcome target to source 50% of RUTF procurement from suppliers located in programme countries by 2016.

⁶ One MT contains 72 cartons of RUTF. One carton (92gr. x 150 sachets) treats one child (10-15 kg RUTF over 6-8 weeks).

⁷ The World Bank, [Investing in Nutrition, the Foundation for Development](#), the World Bank, Washington, 2016.

⁸ UNICEF, [NutriDash Global Report 2014](#), UNICEF, New York, 2015.

To facilitate these efforts, UNICEF developed manufacturing and product standards as well as a strong quality assurance system to help mitigate risks of microbiological contamination associated with peanut-based products (i.e. Salmonella, Enterobacteriaceae). UNICEF also strengthened country demand forecasts and used competitive bidding in tenders to improve market efficiency and leverage competition. UNICEF apportioned total forecasted quantities among suppliers with production facilities that meet UNICEF’s technical requirements and product specifications, while balancing evaluation criteria between quality, pricing, and the capacity to respond to demand to maintain a healthy market. As a result, the number of UNICEF RUTF suppliers increased from one supplier in 2007 to reach 23 suppliers as of September 2016, of which 18 (78%) are suppliers based in countries with high concentrations of malnutrition (Table 1).

Table 1 UNICEF Supply Arrangements for RUTF in 2016-2017[†]

	Supplier	Type of supply	Start	End	Product
1	Compact AS, Norway	International	21.07.14	20.07.17	RUTF Biscuit
2	Compact Pvt. Ltd, India	International	01.04.16	31.12.17	RUTF Paste
3	Diva Nutritional Products (Pty) Ltd, RSA	International	01.04.16	31.12.17	RUTF Paste
4	Edesia, USA	International	01.04.16	31.12.17	RUTF Paste
5	GC Rieber Compact South Africa (Pty), RSA	International	01.04.16	31.12.17	RUTF Paste
6	Hilina, Ethiopia	Local	13.04.16	31.12.17	RUTF Paste
7	InnoFaso, Burkina Faso	Local	13.04.16	31.12.17	RUTF Paste
8	Insta Products Ltd, Kenya	International	13.04.16	31.12.17	RUTF Paste
9	Ismail Industries, Pakistan*	International	tbd	31.12.17	RUTF Paste
10	Kaira District Cooperative, India	International	15.08.16	31.12.17	RUTF Paste
11	Mana Nutritive Aid Products Inc., USA	International	10.05.16	31.12.17	RUTF Paste
12	Meds & Food for Kids, Haiti	International/Local	01.04.16	31.12.17	RUTF Paste
13	Nuflower Foods and Nutrition Pvt., India	International	15.08.16	31.12.17	RUTF Paste
14	Nutriset SAS, France	International	01.04.16	31.12.17	RUTF Paste
15	NutriVita Foods Pvt. Ltd, India	International	01.04.16	31.12.17	RUTF Paste
16	Project Peanut Butter, Ghana*	Local	tbd	31.12.17	RUTF Paste
17	Project Peanut Butter, Malawi	Local	01.10.16	31.12.17	RUTF Paste
18	Project Peanut Butter, Sierra Leone*	Local	tbd	31.12.17	RUTF Paste
19	Samil Industry, Sudan	International/Local	01.05.16	31.12.17	RUTF Paste
20	Société JB, Madagascar	International/Local	01.04.16	31.12.17	RUTF Paste
21	Société de Transformation Alimentaire, Niger	Local	01.08.16	31.12.17	RUTF Paste
22	Tabatchnick Fine Foods Inc., USA*	International	tbd	31.12.17	RUTF Paste
23	Valid Nutrition, Malawi	Local	01.06.16	31.12.17	RUTF Paste

Source: UNICEF Supply Division

Note[†]: With the exception of UNICEF supply arrangement for RUTF biscuits, which cover 2014-2017.

Note*: LTA issuance pending technical approval.

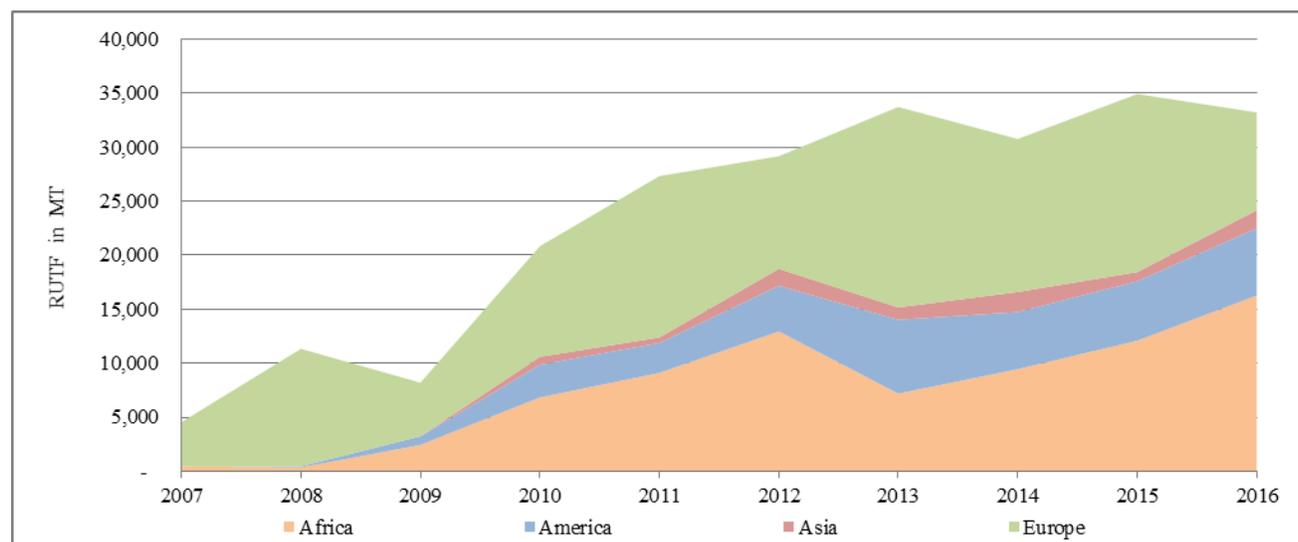
UNICEF concluded its 2016-2017 tender for peanut-based RUTF products and invited suppliers to propose options with alternative ingredients. UNICEF anticipates the use of alternative and less expensive locally produced ingredients and formulations could reduce the price of RUTF. UNICEF has yet to issue four suppliers with LTAs pending technical and production site approval.

Beyond production location, UNICEF’s RUTF procurement seeks to maintain a buffer capacity. UNICEF requires a diversified supply base to ensure sufficient RUTF supply capacity to respond to sudden increases in demand but also to mitigate any disruptions to supply.

The share of UNICEF’s RUTF procurement from suppliers based in programme countries is steadily increasing. Despite a decrease from 50% in 2012 to 25% in 2013, on account of more stringent quality control requirements for finished products, procurement from suppliers based in programme countries has recently gradually increased to reach 37% in 2015 (Figure 2). UNICEF achieved its outcome target to source at least 50% of RUTF from suppliers located in programme countries by the end of 2016.

Competitive quality product suppliers already exist in India, Kenya, South Africa, and other countries. In addition, other well-established food processing companies have signalled an interest to set up factories in Indonesia and Nigeria, which together with India, are countries with an exceptionally high SAM burden and governments with a capacity to invest in CMAM programmes benefitting their populations, and become self-sufficient, should affordable local production be made available.

Figure 2 UNICEF RUTF Procurement by Production Region of Origin 2007-2016



Source: UNICEF Supply Division

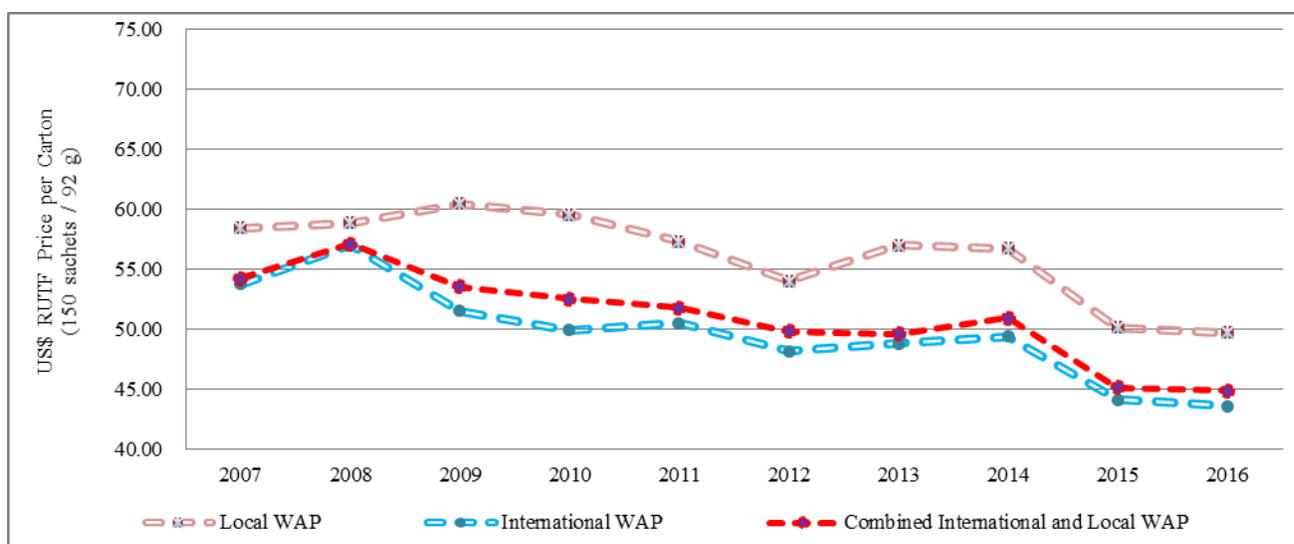
UNICEF partnered with USAID in 2011 for an in-kind RUTF donation to four countries. The partnership has since expanded to reach 21 countries (including Niger, Burkina Faso, and Malawi, which received cash for local procurement) in 2016. The RUTF in-kind donated volume increased from 527 MT in 2011 to reach 10,000 MT in 2015 and 2016. The USAID grants come with significant contributions for SAM programming, in-country logistics, and supply chain strengthening. USAID is also increasingly providing cash for local procurement instead of in-kind donations to support local production in programme countries and healthy market objectives.

3.3. Pricing

The WAP for internationally procured RUTF for export has steadily decreased since 2008, from US\$ 57.00 per carton to reach US\$ 44.00 in 2016, representing a decrease of 23% over eight years. WAP fluctuations in 2013 and 2014 compared to previous years reflect product safety and quality requirements. Many suppliers had to make improvements to production facilities and production processes to prevent stock rejection, which increased production costs. In the long term, UNICEF does not anticipate stricter quality standards to affect RUTF costs. The sharp decrease noted in 2015 was due to a global oversupply of dry skimmed milk and exchange rate gains between the US\$ and Euro (Figure 3).

RUTF procurement costs from local suppliers (both franchisees and generic suppliers) that produce RUTF for in-country use are comparatively 12-14% higher than from international suppliers (Figure 3). Local production requires the importation of most packaging materials and ingredients such as milk, peanuts, and the vitamin-mineral mix from international suppliers. In many cases, import duties on ingredients and materials contribute to higher pricing, rendering the landed cost of imported RUTF less expensive than locally produced varieties, whereas the importation of finished RUTF products are tax exempted given their programmatic purpose. Many local producers also have difficulty to attract investment capital to expand and increase production. They also face challenges with high interest rates on capital loans, long cash conversion cycles, and less convenient access to quality testing labs. The trend in WAP follows a similar trend to offshore procurement. It decreased from US\$ 60.00 per carton in 2009 to fall below US\$ 50.00 in 2016, representing a decrease of 16% over seven years. UNICEF publishes a [retrospective list of RUTF prices](#) for each supplier that holds an LTA with the organization. Published prices include discounts and scale pricing offered to UNICEF by suppliers.⁹

Figure 3 UNICEF WAP for International and Local RUTF Procurement 2007-2016 ‡, §



Source: UNICEF Supply Division

Note‡: UNICEF bases international WAP on Free Carrier-(named place) (FCA) export prices. Euro-based FCA export WAP is recalculated on an aggregate of US\$ value procurement.

Note§: UNICEF bases local WAP on ex-works (EXW) local production prices.

Increased local availability and acceptability, government endorsement, supply chain management cost efficiency, and reduced lead-times for delivery, are key advantages programmes can have from local increased production capacity.

4. Issues and Challenges

- Since 2007, the number of new international and local supplier entrants in the market has decreased RUTF WAP. However, UNICEF still considers the cost of RUTF too high to mainstream the

⁹ UNICEF, [Ready-to-Use Therapeutic Food Price Data](#), UNICEF, Copenhagen, September 22016.

products into existing national health programmes.¹⁰ The RUTF WAP for locally produced RUTF also remains particularly high compared to RUTF produced in industrialized countries.

- Even though UNICEF RUTF procurement volume has increased and is sufficient to cover the needs of 2.5 million children,¹¹ programmes must scale-up coverage further to meet the unmet needs of an estimated 13 million children that are severely malnourished. This would generate significant potential increases in future demand for RUTF. UNICEF estimates the current global production capacity of RUTF to be approximately 185,000 MT and more than adequate to meet increasing demand needs.
- Ensuring RUTF product quality assurance is critical to UNICEF. The possible presence of microbiological contaminants in peanut-based foods poses potential hazards given the nature and health status of the beneficiary target groups.¹² Current microbiological standards follow the latest advice in consultation with the United Nations Food and Agriculture Organization (FAO) and WHO on the microbial safety of lipid-based ready-to-use foods for the management of moderate acute malnutrition (MAM) and SAM. Codex Alimentarius issued the *Code of Hygienic Practice for Low-Moisture Foods* in 2015.¹³ Maintaining good hygienic practices, hygienic design of equipment, proactive maintenance programmes, as well as the control of incoming materials, and the physical separation of ingredient materials within the low-moisture food establishment based on specific hygiene requirements, will help prevent the contamination of low-moisture foods with pathogens in production of RUTF.
- In order to mitigate the risk of delays in timely RUTF delivery, notably from sudden surges in demand in response to emergencies, UNICEF encourages suppliers to hold a buffer stock of UNICEF's Quality Assurance Centre tested and approved product. RUTF consignment delivery schedules have substantially improved from 2012 and on-time delivery increased from 65% to reach 85% in 2015.
- NutriDash issues yearly RUTF country demand forecasts during 1Q of each year. UNICEF will continue to improve forecast accuracy and timing through NutriDash and other related efforts. UNICEF anticipates further improvements in forecast accuracy based on country feedback and collaboration, following repetitive forecasting exercises, as well as the encouragement of all procuring countries to participate.

5. Steps Forward

- UNICEF will continue to ensure ongoing technical support to local suppliers to assist in product development and increase RUTF procurement from programme countries. UNICEF expects continuous product improvement from suppliers to achieve higher quality products, and will focus on the quality assurance and traceability of raw materials, and process control during production.
- UNICEF will continue to work with suppliers to address affordability through increases in local procurement and forecasting improvements. UNICEF will continue to issue a yearly RUTF forecast and anticipates to release the 2017 RUTF forecast to suppliers during 1Q 2017.

¹⁰ UNICEF, [Evaluation of Community Management of Acute Malnutrition \(CMAM\), Global Synthesis Report](#), UNICEF, New York, May 2013, p. xvi.

¹¹ UNICEF, [Global SAM Management Update: Summary of Findings](#), UNICEF, New York, 2013, p. 13.

¹² The World Health Organization and Food and Agriculture Organization, [Microbial Safety of Ready-to-Use Lipid Based Therapeutic and Supplementary Foods: Conclusions and Recommendations of an FAO/WHO Technical Meeting](#), UNICEF, New York, March 2013.

¹³ Food and Agriculture Organization, World Health Organization, [Code of Hygienic Practice for Low-Moisture Foods](#), FAO, Rome, 2015.

- UNICEF is in discussions with potential financing partners for the creation of a dedicated nutrition financing facility, and financing solutions to improve availability of capital for suppliers in programme countries to address production quality and capacity constraints.
- UNICEF will continue to refine its procurement strategy to support and increase RUTF product availability as more countries adopt and scale-up SAM treatment. UNICEF anticipates awarding LTAs to an additional two new suppliers during the current tender period (ending Dec 2017).
- UNICEF will continue to strengthen the national capacity to manage increased RUTF volumes including storage and secondary distribution through supply chain optimization in order to reduce programme costs and prevent product wastage, and through peer-to-peer exchange such as the [Nutrition Supply Chain Practitioners Forum](#), held in June 2016 in Copenhagen.¹⁴
- UNICEF will continue to advocate that countries add RUTF and other essential nutrition commodities to their National Essential Medicines List (EML) or other applicable essential health commodity lists. Furthermore, UNICEF will continue to advocate that countries fully integrate these products into their health system's supply chain.
- In collaboration with country governments, other procurement agencies, and RUTF suppliers, UNICEF will continue to support the development of a Codex guideline for RUTF, which will provide a framework for governments to regulate in-country RUTF products, and facilitate its proper use. UNICEF anticipates guideline finalization by 2020 at the latest. The time taken to finalize the guide is due to the process managed by member states, which is similar to developing legislation.
- In line with UNICEF's food safety policy, UNICEF, together with partners including FAO, MSF, USAID, WFP, WHO, will continue to engage in reviewing product specifications, and work on appropriate testing sampling plans and strategies to monitor and control the presence of Salmonella and Enterobacteriaceae in ingredients, production processes, production environment, and finished products.
- UNICEF is also working with suppliers in the development and testing of alternative formulations of RUTF that are appropriate for particular countries.

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Other UNICEF information notes can be found at: http://www.unicef.org/supply/index_54214.html.

¹⁴ UNICEF, [Nutrition Supply Chain Practitioners Forum](#), UNICEF, Copenhagen, June 2016