Evaluation of UNICEF Supply Division’s Emergency Supply Response

Final report
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EXECUTIVE SUMMARY

THE OBJECTIVES. The Global Emergency Group conducted a comprehensive evaluation of UNICEF Supply Division (SD) Emergency Response and Preparedness.¹ The evaluation includes key findings, conclusions and recommendations that address two main purposes. Firstly, the evaluation should inform the refinement of the Emergency Supply Response Strategy (ESRS) and related activities within SD based on an assessment of past performance. Secondly, the findings should feed into SD’s contribution to UNICEF’s Strengthening Humanitarian Action initiative. More specifically, the four objectives of this evaluation are:

- Take stock of past changes since the 2007 Supply Function Evaluation, map emergency response systems, processes and capabilities in place in the supply chain as it pertains to emergency response.
- Assess past Supply Division performance of emergency preparedness and response, particularly examining effectiveness, efficiency, and relevance of Supply Division’s support to humanitarian action.
- Provide recommendations for Supply Division to strengthen current investments and systems in emergency and give guidance to revising its strategy, internal processes and organization, and specific tools.
- Distil generalizable lessons that can be used in future emergencies and influence direction for UNICEF’s engagement in humanitarian action.

METHODOLOGY. The evaluation was divided into three phases over a six-month period. Phase I (Planning & Secondary Data Collection) consisted of secondary data research of existing materials related to the UNICEF supply chain and the detailed planning and methodological design of the evaluation. Phase II (Primary Data Collection) involved primary data collection, including key informant interviews, an online survey of the global UNICEF supply community and the emergency community, in-depth quantitative data analysis, and six case studies.² In total, more than 130 stakeholders were involved in this evaluation (60 key informants, 72 survey respondents), including one stakeholder validation workshop with 15 SD participants. The primary data collection built upon the secondary data collection process. Phase III (Analysis & Final Report) included the analysis of secondary and primary data (both quantitative and qualitative) that served as the basis for the key findings, conclusions, and recommendations.

FINDINGS & ANALYSIS. The main findings and analysis presented follow the three main criteria identified in this evaluation (Relevance, Effectiveness and Efficiency).

RELEVANCE: How Appropriate is SD Emergency Response & Preparedness to UNICEF Global Contextual Requirements? SD plays a critical role in UNICEF’s organizational response to emergencies. SD’s services and supplies support the functionality and delivery of UNICEF programming throughout the world. Since 2007, SD has taken steps aimed at ensuring that SD emergency response and preparedness can better meet UNICEF global contextual requirements including:

- Development of the Emergency Supply Response Strategy (implementation started in 2009).
- Establishment of a rapid response preparedness level for 250,000 people, as agreed by the Core Commitments for Children (CCCs) review steering group.
- Delineation of a three-phased response, split into time windows of 72 hours, 2 weeks and 2 months.
- Creation of Supply Manual, Divisional Procedures and Simplified Standard Operating Procedures (SSOPs) relevant to SD emergency response.

¹ The evaluation took place from June to November 2014.
• Creation of the Emergency Supply List (ESL).³
• Development of the Emergency Supply Calculator.⁴
• Creation of a roster of human resources for SD emergency deployments.
• Pre-positioning of supplies at regional warehousing hubs, and ensuring availability of current and online inventory information regarding stock levels held in different SD warehouses and hubs.
• Implementation of the VISION/SAP system in 2012 aimed at integrating SD and Country Office (CO) systems and increasing the visibility of the UNICEF supply chain. Creation of Excel-based dashboards, using data from VISION.
• Establishment of KPI#1 as the main performance indicator for SD in emergency response.
• Establishment of the Emergency Coordination Unit (ECU) in SD.

However, when assessing UNICEF supply and logistics global requirements⁵ at multiple organizational levels (community, national, regional and international), it is necessary to consider the entire supply chain system involved (from the global supply level to the last mile of delivery). The evaluation found that there is a clear delineation and separation in the existing global set-up between the elements of the supply chain managed by SD (upstream⁶ international emergency supply and some ad hoc country level preparedness support) and those elements of the global supply chain that are managed by the COs (downstream⁷ national level from port-of-entry until the last mile of delivery). Symptomatic of the upstream/downstream approach is a disconnected system of performance measurement that does not monitor beyond the port-of-entry, despite the CCCs benchmark that states that “all commodities are delivered to point-of-use or partner.” Further, there is no systematic feedback loop utilized⁸ that provides information to SD regarding how UNICEF supplies are being received by beneficiaries, UNICEF partners or UNICEF CO staff.

To What Extent Are SD’s Emergency Activities and Partnerships Aligned to Organizational Priorities, and Supporting the Fulfilment of the CCCs? The SD emergency supply response is well aligned with UNICEF organizational priorities. On an annual basis SD facilitates the transfer of an average of $90 million in emergency supplies (between $47 million and $166 million) with delivery to an average of 70 countries per year. Secondary data points and the responses from key informants emphasize the importance of UNICEF emergency response as a key component of fulfilling the CCCs. Data collected shows evidence of SD’s continual focus on meeting the CCCs. Further, SD KPI benchmarks are aligned to the CCCs Commitment 1, Benchmark 1.

Are the Existing SD Processes & Systems Sufficiently Tailored, Adaptive, and Responsive to Meet Emergency Supply Preparedness & Response Requirements? Data collected from secondary sources, key informants and the case studies support the finding that SD staff take pride in their ability to problem solve and adjust to meet operational requirements. Making changes to the supply chain and goods appear to be ingrained as a daily responsibility of SD staff in order to provide an effective emergency response.

Of particular interest to this evaluation is the utility of the ESRS to meet emergency supply preparedness and response requirements. The current iteration of the ESRS is adequate for internal ECU purposes and has served as a useful framework. However, the current ESRS is mostly an internal ECU document not linked to a budget and does not have any clear linkages to wider UNICEF emergency strategies.

³ Maintenance of the ESL is now one of SD’s core functions ensuring that the ESL covers specified quantities of relief items required for an appropriate UNICEF emergency response.
⁴ The Emergency Supply Calculator is intended to assist COs in the determining supply requirements based on the UNICEF programmatic response to an affected population.
⁵ Requirements include elements such as planning, forecasting, ordering, sourcing, warehousing and transportation.
⁶ Upstream: All activities between orders released from the CO and point of entry into the country, managed by SD.
⁷ Downstream: All activities between point of entry and delivery to beneficiary, managed by UNICEF CO.
⁸ A complaint mechanism exists but it was reported during evaluation interviews to have low rates of utilization for emergency supplies.
EFFECTIVENESS:

How Effective is SD in Delivering the Needed Supplies in Support of the COs On Time, In the Right Quantity & Quality? SD is widely perceived within UNICEF as being effective in emergency response. There is generally high regard and appreciation of the emergency response provided by SD. At the same time, quantitative data analysis suggests that average lead times fall short of consistently meeting UNICEF targets and commitments established in the CCCs. Specifically in analysis of data from January 2012 thru March 2013, average Rapid Response orders have a total average lead time of 11 days and Other Emergency Orders have a total average lead time of 49 days. It is noted that warehouse orders are processed and delivered faster than international purchase orders in both Rapid Response and Other Emergency situations.

Regarding the quality of the items and supplies provided during emergency responses, there were no reports of significant quality issues. Though used infrequently for emergency supplies, there is an existing SD quality assurance complaints mechanism and any complaints are analyzed at SD (using root cause analysis), addressed and tracked on a regular basis.

How Well is SD Responding to CO Requests for Support? The dedication of emergency response staff and responsiveness of SD to CO requests for emergency support were cited by CO and RO staff as a strength of SD. When asked to rate the overall performance, accessibility and communications of SD emergency response support to COs, 74% of all survey respondents stated that it is Very Effective or Extremely Effective, with no respondents stating that it is Not Effective at all or Minimally Effective. With respect to SD preparedness support to COs, the evaluation found that overall this was relatively less effective than emergency response support.

How Effective is SD at Improving the Capacity of COs and ROs to Respond to Emergencies? Preparedness is a key factor in establishing linkages and capacity prior to an emergency so that rapid responses are even more effective. SD emergency support to COs and ROs consists of a range of activities including training, guidelines, tools and plans to help a CO plan for emergency responses, while also advising and supporting CO’s with logistics and supply chain decision-making. However, due to SD resource constraints, particularly when there are multiple concurrent emergencies, there is less time available for SD staff to focus on establishing systematic linkages through processes and procedures within the emergency supply chain (at either the upstream or downstream levels), and then training staff accordingly. This issue (of competing preparedness priorities and limited resources) is exacerbated by the variable and reportedly weak levels of emergency preparedness in some COs. For example, in the case of the Philippines Typhoon Haiyan response, the CO was found to have little supply chain and logistics preparedness and capacity in country, while in Somalia the ability of the CO to conduct preparedness initiatives was continually challenging due to the security and staffing constraints.

How Effective is SD’s Internal Structure, Organization and Resourcing (Staffing Capacity) for Emergency Response? ECU in SD is the entity responsible for coordinating and leading SD emergency

9 When asked how you would rate on a scale of 1 to 10 (1 = low performance; 10 = highest possible performance) the overall performance of the UNICEF supply emergency response, interviewees rated SD emergency response 7.23 out of 10 on average.
10 All six case studies mentioned SD effectiveness in emergency response.
11 Lead 0 Order is Elaborated and Released by CO. From creation of the SO to its release.
Lead 1 Order is Received and Processed by SD. From the release of the SO to the creation of the stock transfer order to the warehouse – or the creation of the PO for international orders.
Lead 2 Preparation. From the creation of the stock transfer order to the warehouse or the creation of the PO (for international orders) to the actual sailed date.
Lead 3 Shipping. From the actual sailed date to the shipment end date.
12 It is important to note that there are key differences between how this evaluation calculated average lead times and how SD calculates KPIs. For UNICEF, timeliness performance is measured considering a period that starts at Emergency Approval Date (Not Latest Release of SO Date) and finishes at handling unit date (Not Actual Shipment Start Date). The evaluation specifically designed average lead times for this evaluation so as to be able to compare warehouse orders vs. international orders and based on data available for direct comparison. More details are provided in Annex H.
supply response and preparedness. SD utilizes a matrix management approach for its internal structure and organization with ECU responsible for the coordination of the various SD technical centres’ inputs to emergency response and emergency preparedness activities.

The proactive approach taken by SD senior management during emergencies, including rapidly deploying<sup>13</sup> to the countries as needed, is recognized as a key component of SD operational emergency response success. However, the combined human resources within SD and the deployment roster is stressed with high levels of demand<sup>14</sup> over long periods of time. The evaluation notes mixed results from stakeholders regarding the effectiveness of internal SD communications and coordination. Further, secondary data (specifically SD divisional procedures) and qualitative data analysis revealed that limited processes and systems are in place for sustainability beyond the few key individuals in ECU.

**How Effective is SD Deployment of Emergency Response Personnel?** Since 2012, when SD Division Procedure (DP) 076 was first established and the Human Resources Emergency Roster was created, there is evidence of SD increasing its capacity and structuring its processes related to the deployment of emergency response personnel. DP 076 established how sourcing for the emergency roster and deployments would be handled, specialist areas were identified within the roster and ToRs for emergency response positions were established. There is evidence that the support from surge staff is highly appreciated by COs. More SD staff are now available for emergency deployments as compared to 2007. However, the evaluation team could not identify any evidence of systematic emergency response skills development of roster members. When roster members are deployed they use their existing experience and expertise without receiving specific emergency supply and logistics training or skills development.

**How Effective is the SD Design, Use and Sourcing of the Emergency Supply List (ESL)?** The ESL is well known and established within UNICEF. The existing items on the ESL are considered by survey respondents to be relevant, though more items may be required. The ESL is currently updated on an ad hoc basis without any formal process of determining what items should be added or removed, and how stock levels should be adjusted accordingly. On average ESL items arrive five days faster than non-ESL items. The fixed nature of the quantities of ESL items maintained in stock does not respond effectively to the variable nature of emergencies and response requirements. Further, the use of an estimated population target of 250,000 to determine fixed quantities underestimates global needs for UNICEF emergency response, and reserve quantities are noted as insufficient for particular items within the ESL.

**How Effective Are SD Emergency Response Monitoring, Evaluation & Learning Systems?** Qualitative data provided insight into SD’s commitment to learning within each SD centre as each individual entity strives to improve its emergency response. Indeed, this evaluation and the establishment of an evaluation strategy as part of SD Office Management Plan are evidence of that commitment. However, there is limited evidence of learning taking place where a cycle of learning is incorporated systematically into improved emergency programming and management, i.e. collecting lessons learned or conducting After Action Reviews after all major emergencies.

SD has made a productive shift to the presentation of real-time data via dashboards, which has led to improved visibility and understanding of the emergency supply chain. The dashboards are currently not system generated and require many person hours by a few specialized staff to develop on a regular basis. There is limited automated visibility of the SD emergency response supply chain despite the capabilities of VISION/SAP.

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<sup>13</sup> The Evaluation Case Studies from Somalia (2011 Horn of Africa Food Crisis) and Philippines (Typhoon Haiyan) in particular highlighted the success of these efforts by senior management.

<sup>14</sup> Demand for SD human resources were high at the time of this evaluation given that SD was managing four L3 emergencies the majority of which (Syria, South Sudan and CAR) were protracted emergencies.
SD measures emergency response performance by monitoring the percentage of rapid response orders shipped within 48 hours of sales order emergency approval (KPI #1). The evaluation team observed inconsistencies in the definition of KPI #1, as stated in the MTSP and internal monitoring reports, which may lead to confusion in both internal and external communications. The KPI #1 timeline is fixed at 48 hours to assure fulfillment of the CCCs, which state that commodities have to be at the port-of-entry within 72 hours. Therefore, the assumption behind this 48 hour benchmark is that the time that passes since the date supplies are ready for pick-up by the freight forwarder until items arrive at port-of-entry, over which the SD has no influence, is 24 hours. This is rarely the case. The data analysis conducted by the evaluation concludes that this assumption is not very realistic compared to average lead times of the supply chain:

- The time that goes by from the date ready for pick-up until items are actually picked up by the freight forwarder is 3.6 days on average for warehouse handled rapid response orders.
- The time that goes by since items are picked up by the freight forwarder until they arrive at port-of-entry is 2.2 days on average for warehouse handled rapid response orders.

As a consequence of having assumed an overly optimistic benchmark, timelines for arrival at port-of-entry for warehouse handled rapid response orders are rarely met given that only 2% of warehouse rapid response item order shipments met the 72 hour target in 2012, and 6% in 2013.

**EFFICIENCY:**

How Efficient is SD Organization, Processes, Systems & Sourcing Needed to Deliver UNICEF Emergency Response Supplies? Lead time analysis of Rapid Response Orders shows that Lead 2 (Preparation) processing time varies the most of all Leads, from 0 to 37 days, with an average value of 6.0 days and a standard deviation of 6.12 days. Control of the processing for Lead 2 is variable and a key driver in determining the overall lead time.\(^{16}\)

With respect to emergency stock levels, the evaluation team found that certain warehouse items are often below the ESL level. For Other Emergency Orders, data analysis revealed a high correlation between stock levels being under reserve level and lengthy lead times, resulting in a decrease in timeliness.\(^ {17}\) For ten ESL items, stock levels are below the ESL reserve level 40% to 78% of days in the analysis period.\(^ {18}\) The stock of the following five items is below the ESL reserve level 50% of days or more: the thermal fleece Blanket, the Nutrition Kit (inpatient, module-equipment), the Diarrhoeal Disease Set Packing, the Plastic Mat and the rectangular light weight Tent (42m²).

Additionally, gains have been made in providing information to meet management requirements as evidenced in the development of the supply dashboards. Real-time data and improved supply chain visibility are noted as enabling more informed decision-making and management.

To What Extent Are the SD Shipment Hubs Enabling Cost-Efficient Emergency Responses? SD maintains a warehouse in Copenhagen, and regional shipment hubs in Dubai, Panama, and Shanghai. Based on the evaluation team’s direct observation, the Copenhagen warehouse is excellent by humanitarian standards. It maintains nearly 95% of all global stocks for emergency response. There is limited utilization of SD regional shipment hubs despite the potential efficiencies to be gained in

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\(^{15}\) As defined in the Supply Division scorecard. KPI #1 is the first of a set of 10 indicators that constitute the Supply Division scorecard. KPIs are regularly monitoring and reviewed on a quarterly basis.

\(^{16}\) Also supported by qualitative data from Solomon Islands Case study.

\(^{17}\) *Supply Function Evaluation Final.pdf, February 2007, UNICEF Evaluation Office, Page 64:* There are inappropriate levels of stock held in the Copenhagen warehouse and at suppliers to respond quickly to Emergencies; this is clearly illustrated by the Emergency response times and the Supply Division scorecard which shows months of stock outs of for some supplies.

maintaining pre-positioned emergency supplies for more rapid mobilisation to regional emergencies.\textsuperscript{19} Qualitative data suggest that there are likely cost efficiencies from having donated warehousing in regional hubs.\textsuperscript{20,21} However, there appears to be a lack of daily management understanding and oversight of UNICEF supplies in the regional shipment hubs.

RECOMMENDATIONS. Two different types of supply chain recommendations are proposed for UNICEF consideration and use: \textit{Strategic} and \textit{Tactical}. The most significant and challenging recommendations related to long-term supply chain optimisation and performance enhancement are the \textit{Strategic} recommendations. The \textit{Tactical} recommendations are meant to address many of the improvements to the supply chain that would require lower levels of resourcing and capacity while still offering improvements on UNICEF supply chain performance.

**STRATEGIC RECOMMENDATIONS**

\textbf{Strategic Recommendation #1: Connect Upstream and Downstream for an Integrated Emergency Supply Chain.} In order to have an integrated UNICEF global emergency supply chain, SD has a critical role to play in better connecting the upstream and downstream emergency supply chain components. SD technical capacity should be mobilized to an even greater extent to support downstream or CO emergency supply chain and logistics during emergencies while also providing substantive preparedness support (see \textit{Strategic Recommendation #2}). This recommendation also includes monitoring the global supply chain (measurement of Leads 0-3, from creation of SO to shipment end date, see \textit{Tactical Recommendation #2}).

\textbf{Strategic Recommendation #2: Dedicate Additional Effort, Processes and Support to Supply Chain \& Logistics Preparedness.} Linked to \textit{Strategic Recommendation #1} is the need for SD emergency response to focus to a greater extent on supporting downstream emergency response preparedness. Doing so will enable SD to better meet CCC Benchmark 1 specifying that “all commodities are delivered to point-of-use or partner.” SD emergency preparedness should include global emergency supply and logistics mapping, assessment and forecasting based on trend data that also projects anticipated emergency supply chain utilization.

\textbf{Strategic Recommendation #3: Create a Dynamic Emergency Stock Level System for Adaptability and More Responsiveness.} SD should shift to a dynamic emergency stock level management system in which actual emergency stock levels for each item are adapted to match current or anticipated global requirements every six months. UNICEF should establish more systematic ways of determining the optimal stock level for each particular emergency supply item based on key criteria, including demand and lead times.

\textbf{Strategic Recommendation #4: Further Optimize SD Emergency Response Systems and Processes.} SD should shift from an emergency response that relies heavily on individuals in ECU to one that is built on consistent systems and processes. An emergency management team should be established in SD that is mobilized for each L3 emergency with defined activation procedures, roles and responsibilities of team members. Each management team would consist of staff from across SD (particularly Emergency Focal Points) and led by ECU. SD should also consider identifying a SD emergency operations center (EOC) with all of the required equipment and space needed to manage three simultaneous global L3 emergency responses. Emergency management teams would work from the SD EOC ensuring a consistent and dedicated space for SD and emergency supply and logistics coordination.

\textsuperscript{19} The Haiti Case Study cited that the first aircraft arrived from Panama within 12 to 24 hours after the earthquake struck. Solomon Islands Case Study highlighted the utility of in-country pre-positioned supplies for immediate emergency response which was particularly important given the significant logistical distances involved with supplying the Solomon Islands.

\textsuperscript{20} “(The Panama hub) was vital to the emergency response in Haiti” Supply Annual Report 2010.

\textsuperscript{21} “80% of education kits now packed in Shanghai, saving of over $500,000 per annum, including for Democratic Republic of Congo, Sudan, Pakistan and hub replenishment.” Supply Annual Report 2010.
Strategic Recommendation #5: Continued Investment in Strengthening Emergency Human Resources. It is essential that UNICEF continue tapping into the UNICEF global supply community as a basis for strengthening the capacity of emergency human resources. SD would also benefit from developing tiers in the emergency response roster to differentiate positions and skill levels, and setting a basis for skills development. Further, an on-call roster of deployable staff delineated by likely required positions for supply emergency response teams should be developed. This will allow for some consistency in terms of having staff available for deployment that understand what their roles are.

Strategic Recommendation #6: Strengthen Information Management Systems (VISION/SAP) for Emergency Response. SD should increase its focus on enabling data and information to improve emergency response and preparedness. This would include the preparation of real-time data for distribution throughout UNICEF (other HQ divisions, CO and RO levels) and publicly, as appropriate. The data tools should consider multiple audiences and contexts for application in emergency responses enabling real-time access and visibility throughout the UNICEF supply chain.

TACTICAL RECOMMENDATIONS
Tactical Recommendation #1: Update, Enhance and Link the Emergency Strategy on a Regular Basis. SD should ensure that the ESRS is more comprehensive (adding sections related to target audience, a clear goal, objectives, activities linked to objectives) and connected to measurable indicators (beyond the KPI and related benchmarks) for annual performance review. Further, the ESRS should have a budget (particularly for preparedness work) so that it is clearer as to how the strategy will be implemented on an annual basis and with what resourcing. The ESRS should be linked to other broader strategies where relevant (wider SD and EMOPS).

Tactical Recommendation #2: Strengthen Emergency Learning & Measurement. To further demonstrate SD’s commitment to learning and constant improvement, SD should standardize an After Action Review process for SD that would collect lessons learned and assign responsibility for required action following each L3 emergency response. Regarding the measurement of the KPI #1, the KPI should be adjusted to account for Lead 0, Leads 1-3 and a summative lead (Leads 0-3). The responsibility and accountability for Lead 0 would remain with the CO while SD maintains responsibility and accountability for Leads 1-3.

Tactical Recommendation #3: Focus on Lead 2 (Preparation) Enhancements. Enhancements and optimization related to Lead 2 (Preparation) can improve total emergency response lead times and should be prioritized. Thus, Lead 2 enhancements should be a priority for SD. More specifically, warehousing should address the time required until items are shipped from the warehouse departure area to transport carrier (3.6 days on average). Warehousing can involve shipping as early as possible and specifically work with shipping partners to identify those collaborative steps that can be taken by both parties (SD and the shipping partners) to bring about enhancements that reduce Lead 2 lead times.

Tactical Recommendation #4: Focus on Addressing Emergency Supply Lead Time Challenges by Sector. For materials supplied through international purchase orders, SD should review LTAs to ensure that an emergency response clause is included in all of them and monitor supplier performance related to the following sectors and items: Nutrition: Therapeutic food; Pharmaceuticals: Antimalarials (Artem + Lumef); WASH: Latrines, Other pumps, Diesel generators, Portable test equipment. SD should ensure that all ESL items maintain a minimum of three active suppliers with emergency stock available for Rapid Response. LTAs should be established for all ESL items with suppliers that can maintain a mandatory safety stock.

Tactical Recommendation #5: Regularly Update the ESL. It is essential that SD continue maintaining its comprehensive ESL and ESL-related processes. However, the ESL should be enhanced by standardizing annual and ad-hoc processes for making adjustments to the ESL. An ESL Review Committee should
ensure that the ESL is adjusted based on analysis and discussion of data collected from all centres. The Committee should also determine, document and approve appropriate stock levels (maximum stock levels, safety stock, and replenishment times).

**Tactical Recommendation #6: Conduct a Comprehensive Review to Guide Global Warehousing Adjustments.** SD should conduct a comprehensive review to guide its global warehousing arrangements, specifically covering the location of supply hubs in existing and prospective regional hub locations to maximize utilization. Specific supply hub location criteria could be developed as a part of this process.

**Tactical Recommendation #7: Strengthen Quality Control Feedback.** For future emergency responses, and particularly for those that involve local procurement, SD should work with COs: 1) to obtain end-user feedback in real-time (to the extent possible), and, 2) to engage in third party, in-country quality inspection to spot check specific emergency commodities. End-user feedback, coordinated with the CO and Programme Division, should be solicited as a standard protocol so that adjustments can be made as needed to ensure that the supplies provided are suitable to end-user requirements. Third parties should be utilized to help ensure that quality inspections of UNICEF emergency supplies are conducted.

**Tactical Recommendation #8: Help Meet UNICEF Global Demand for Logistics Support.** SD should support the on-going UNICEF organizational efforts aimed at creating a standardized package of staff equipment, facilities and logistical operational equipment in support of UNICEF staff. Thus, an array of essential emergency equipment could be sourced, positioned and deployed by SD in support of UNICEF operations.
1. INTRODUCTION

1.1. RATIONALE FOR THE EVALUATION

According to the Terms of Reference (ToR) and based upon the scoping mission the evaluation team conducted in June 2014, the rationale for this evaluation was linked to the need for a timely Supply Division (SD) emergency response while building upon the last supply function evaluation conducted in 2007. Given UNICEF’s accountability in emergency situations, this independent evaluation was deemed to be timely and intended to help gauge UNICEF supply response and preparedness progress since 2009 (when the SD Emergency Response Strategy was first implemented) while also determining if the existing SD work is relevant, effective and efficient for supply response to emergencies.

The evaluation served two main purposes. First, the evaluation should inform the refinement of the SD Emergency Strategy and activities within SD based on an assessment of past performance. Secondly, the preliminary findings should feed into SD’s contribution to UNICEF’s Strengthening Humanitarian Action initiative (SHA, Martigny 3), an organization-wide consultation and self-reflection on the way forward for strengthening UNICEF’s humanitarian action. Thus, this work (and specifically the preliminary findings) served to inform the SHA consultation meeting that took place in Turkey on August 21st, 2014.

1.2. EVALUATION OBJECTIVES

Based on the ToR, the four main objectives of this evaluation are to:

- **Objective 1**: Take stock of past changes since the 2007 Supply Function Evaluation, map systems, processes, capabilities in place in the supply chain as it pertains to emergency response.

- **Objective 2**: Assess past SD performance of emergency preparedness and response, particularly examining the effectiveness, efficiency, and relevance of SD’s support to humanitarian action.

- **Objective 3**: Provide recommendations for SD to strengthen current investments and systems in emergency and give guidance to revising its strategy, internal processes and organization, and specific tools.

- **Objective 4**: Distil generalizable lessons that can be used in future emergencies and influence direction for UNICEF’s engagement in humanitarian action.

Based on these four objectives, the Global Emergency Group (GEG) conducted a comprehensive evaluation that further elaborated upon the objectives identified above and the questions suggested in the ToR (see Annex A). That elaboration is specifically described in the Evaluation Matrix (see Annex B) where the questions from the UNICEF ToR are broken into three major criteria areas: Relevance, Effectiveness and Efficiency. These areas were identified as the most relevant criteria areas and follow evaluation best practice. For this final report, the findings presented respond specifically to the Evaluation Matrix questions (though some questions were combined to avoid duplication).

1.3. UNICEF SUPPLY EMERGENCY RESPONSE CONTEXT

UNICEF is a leading advocate for children affected by crisis around the world. As described in the ToR, UNICEF responds to emergencies to ensure the rights of children affected by humanitarian crises are protected. This commitment is elaborated in the organization’s foundational Core Commitments to Children in Humanitarian Action (CCCs). The CCCs call for essential commodities for girls, boys, and women to be available at global, national and point-of-use levels. To achieve this strategic result, two UNICEF benchmarks guide UNICEF supply and logistics:

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22 In 2007, UNICEF conducted a comprehensive supply function evaluation of which supply emergency response was one of many other components evaluated.

23 Standard OECD DAC evaluation criteria include areas such as Relevance, Effectiveness, Efficiency, Sustainability and Impact. For this evaluation, Relevance, Effectiveness and Efficiency were deemed to be the key criteria to address.
To fulfill the CCCs, UNICEF maintains a decentralized structure with presence in 190 countries globally and is a critical part of the United Nations system for emergency response. A global network of Country Offices (CO) carries out UNICEF’s mission in cooperation with host governments. Regional Offices (RO) guide the work of the COs and provide technical assistance as needed. Overall administration and management of UNICEF takes place at UNICEF headquarters in New York, USA. A specialized office, Supply Division (SD) in Copenhagen, Denmark, supplies essential life-saving commodities. In 2013, UNICEF responded to 289 emergencies in 83 countries, including three Level 3 emergencies. A total of 533 emergency orders were flagged as rapid response or emergency orders by SD, reaching a value of $126.81 million in 34 countries and territories.

SD plays a critical role in UNICEF’s organizational response to emergencies. SD services and supplies support the functionality and delivery of UNICEF programming throughout the world. In addition, SD works to support and provide technical assistance to COs affected by emergencies related to commodity procurement and delivery with the aim of meeting the CCC benchmarks described above. After the 2005 Humanitarian Reform agenda was adopted, 2006 was an important year for UNICEF and SD, as two important exercises of capitalization of institutional knowledge and experience took place. One was the SD meeting with participation from Programme Division (PD), the Office of Emergency Programmes (EMOPS) and Regional and Country Office representatives, in which the increase of global needs was discussed and the decision was made that the Emergency Supply Response Strategy (ESRS) would be designed to ensure the necessary response. SD elaborated the ESRS with input from PD, EMOPS and Regional and Country Office levels. It was operationalized in April 2009. The strategy guides SD’s emergency supply function aimed at contributing to the fulfilment of the CCCs during emergency response situations.

As a second key capitalization and learning exercise, an exhaustive evaluation of the UNICEF supply function was carried out and published in February 2007. This evaluation set the basis for a series of changes in structure and strategies of SD that have been implemented through the biennial Office Management Plans (OMPs).

One of these changes was the creation of the Global Supply Community that could also be accessed during emergency responses. Another was the establishment of the Emergency Coordination Unit (ECU). ECU is the entity responsible for coordinating and leading SD emergency supply response and preparedness. ECU outlines its activities, alongside its operating tools, within SD’s ESRS. ECU currently consists of a team of five full-time staff members. ECU coordinates with and is supported by emergency focal points in SD’s functional Centres (International Shipping, Logistics, Health and Nutrition, Health and Technology, Water, Sanitation, and Education, and, Contracting). Other Centres at SD also have some interaction with ECU during emergencies. For additional context and information related to ECU please reference Section 2.1 Finding and Analysis.

Results monitoring and performance measurement through the Key Performance Indicators (KPIs) were comprised within the biennial OMPs 2008-2009 and onwards. VISION/SAP, functional since January 2012, was designed to record and manage sales orders while integrating SD and CO
systems and increasing the visibility of the UNICEF supply chain. Performance measurement is conducted according to the CCCs’ benchmarks through one KPI: the percentage of rapid response orders shipped within 48 hours of sales order release.

1.4. EVALUATION METHODOLOGY AND APPROACH

This evaluation was separated into three phases including: Planning & Secondary Data Collection; Primary Data Collection; Analysis and Final Report, completed June – November 2014. Initial discussions began with UNICEF in Copenhagen and a documentation review was completed during Phase I of the project (June 2014). Primary data collection took place during July-August 2014, with preliminary findings and analysis distributed on August 11th given the need to have substantive preliminary findings available to inform key UNICEF meetings in August 2014. Data collection and analysis continued until September 11th when a workshop was held in Copenhagen with SD staff. Additional detail on the Phased Approach can be found in Annex J.

This evaluation sought to analyse UNICEF supply operations between 2007 and 2014 with a particular focus on the more recent emergency responses and SD developments since the emergency strategy was implemented in 2009. This evaluation was utilization-focused30 that included descriptive and normative questions: what SD has achieved (since 2009 and the SD emergency strategy implementation), how the SD emergency strategy is being implemented, how SD emergency response is perceived and valued, whether expected results are occurring and other key questions related to SD emergency management. There was no identified theory of change, results framework, baseline or counter-factual that could be used as the basis for an outcome based evaluation or impact evaluation. Information was triangulated through qualitative and quantitative data collection methods.

This evaluation intentionally did not address any issues related to human rights, gender or equity. The UNICEF ToR did not call for any specific lines of inquiry related to these areas and during the planning phase the evaluation team concurred that the subject matter did not necessitate these topics be included. While these topics were not explicitly included within the evaluation it is also important to note that there were no specific responses from any respondent suggesting that there are human rights, gender or equity issues related to the SD supply emergency response and preparedness.

A utilization-focused performance evaluation approach ensured that the findings, analysis and recommendations from the evaluation would be participatory and focused on the main users (SD) utilization of the work. Throughout the evaluation, the evaluation team encouraged and solicited feedback and comments from stakeholders to both inform the evaluation, and also to build consensus for the eventual findings and recommendations.

1.4.1 Data Collection Methods

This evaluation utilized a mixed methods approach incorporating data collected from one-on-one semi-structured interviews, an online survey, focus groups,31 and case studies. The evaluation team used tools and matrices to gather, vet, clean, and transform data from its rough form into a useful information product for analysis. Quantitative data was analysed and qualitative data coded using methods that promoted transparency and replication ensuring validity and confidence in the results.

This evaluation was primarily a desk-based evaluation. Interviews were conducted by phone and Skype. The following specific data collection methods were employed in the evaluation:

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30 Utilization-Focused Evaluation (UFE) is an approach based on the principle that an evaluation should be judged on its usefulness to its intended users. Therefore evaluations should be planned and conducted in ways that enhance the likely utilization of both the findings and of the process itself to inform decisions and improve performance.

31 Focus group discussions were primarily with SD centre teams.
<table>
<thead>
<tr>
<th>Method</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary Data Collection</td>
<td>Desk review guided by the evaluation matrix, including data from:</td>
</tr>
<tr>
<td></td>
<td>• Strategies and Work Plans (SD and other related UNICEF entities)</td>
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<td></td>
<td>• Organizational charts and job descriptions for key SD staff</td>
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<td></td>
<td>• Divisonal procedures</td>
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<td></td>
<td>• Emergency Supplies List (actual and past)</td>
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<tr>
<td></td>
<td>• Supply chain ERP information (such as sales order origin and dates, lead times, delivery at port-of-entry, type of transport, cost for transport)</td>
</tr>
<tr>
<td></td>
<td>• Entries and exit of supply stocks</td>
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<tr>
<td></td>
<td>• Other supply information data from outside the ERP system (such as supply hubs, UNHRD and suppliers)</td>
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<tr>
<td></td>
<td>• Any related evaluations, reviews or reports</td>
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<tr>
<td></td>
<td>• Relevant Meeting Minutes</td>
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<td></td>
<td>See Annex H for details on statistical analysis.</td>
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<tr>
<td>Key Informant Interviews</td>
<td>60 individual interviews completed based on a stakeholder mapping conducted during the inception phase. See Annex C for the Interview Guide and Annex D for stakeholder listing.</td>
</tr>
<tr>
<td>Focus Group Discussions</td>
<td>Group discussions were facilitated with some SD Centres to solicit input from groups of key informants with similar knowledge bases. As needed, focus groups were followed up with one-on-one interviews.</td>
</tr>
<tr>
<td>Workshop</td>
<td>The half-day workshop was a participatory exercise aimed at testing the preliminary findings and developing guidance to strengthen the recommendations. 15 key participants attended. Workshop Summary can be found in Annex I.</td>
</tr>
<tr>
<td>Online Survey</td>
<td>An online survey was designed and implemented to gather information and impressions specifically from CO staff (particularly from members of the emergency and supply chain community). The survey captured quantitative and qualitative data using a mixture of open-ended questions and relative ranking techniques (see Annex G for survey results). The survey collected data from 119 respondents having emergency experience located in 48 different countries and 2 regional offices. 72 of them provided responses to all questions and substantial comments</td>
</tr>
</tbody>
</table>

1.4.2 Quantitative Data Analysis

Statistical analysis of secondary data aimed to answer the following question areas: To what extent are UNICEF supply activities supporting the fulfillment of the CCCs, particularly in terms of supply timeliness, supply quantity and quality? This evaluation was particularly focused on timeliness and quantity.

The period of analysis includes data from January 2012 to March 2014. An analysis of the average processing times was conducted based on the sales order and shipment databases. Average lead times were determined for each step of the supply chain. This included the creation and release of a sales order, creation and release of a purchase order or a sales transfer order (if the supply is in the SD warehouse), preparation (picking and kit preparation) and handling of supply to freight forwarder and shipping to agreed location. The evaluation team created a map (see Annex H) of the leads to consider in the statistical analysis. This map was based on information from the dashboards, elaborated by the Market Analysis Unit and the Supply Pipeline Report database as extracted from the ERP SAP/VISION. Data from the warehouse ERP system was also useful in gaining insight into processing times for items that come from the SD warehouse. A consensus on four leads to be analyzed was reached:
- **Lead 0** = Order is Elaborated and Released by CO. From creation of the Sales Order (SO) to its release.
- **Lead 1** = Order is Received and Processed by SD. From the release of the SO to the creation of the stock transfer order to the warehouse – or the creation of the PO for international orders.
- **Lead 2** = Preparation. From the creation of the stock transfer order to the warehouse or the creation of the PO (for international orders) to the actual sailed date. Note: please see below for sub-lead 2 description.
- **Lead 3** = Shipping. From the actual sailed date to the shipment end date.

For warehouse orders, lead times for the following sub-leads of Lead 2 (Preparation) were also analyzed:
- **Lead 2.1** = Packing in the Warehouse. From the date that the stock transfer order arrives to the warehouse until the items are ready for pick-up (handling unit date).
- **Lead 2.2** = Shipment Mobilization from Warehouse to Shipping. From the date in which the items are ready for pick-up until they are actually shipped.

It is important to note that there are key differences between how this evaluation calculated average lead times and how SD calculates KPIs. First, SD does not use Lead 0. For UNICEF, the period of performance assessment through the KPI starts at Emergency Approval Date (not the Latest Release of SO Date) and, for warehouse items, finishes at handling unit date (Not Actual Shipment Start Date, which is the date delimiting Lead 2 (Preparation) for the evaluation team). Differences between both approaches are represented in the below figure. The evaluation specifically designed average lead times for this evaluation so as to be able to compare warehouse orders vs. international purchase orders and based on data available for direct comparison.

**Figure 1: Comparison of Approaches for Lead Time Measurement**

![Comparison of Approaches for Lead Time Measurement](image)

Note: Emergency Approval date is usually after SO latest release date, though sometimes before, as observed when merging data from files “14_02_26 KPI report emergency 2013” and Supply Pipeline Report.

Second, stock levels, stock entries, reservations, stock orders, and restocking times per hub were processed and the evaluation team examined the warehousing cycle. This assisted in determining whether the reserved quantities estimated in the Emergency Supply List (ESL) were actually respected and whether they were optimal to respond to potential orders. The team focused on life saving items of the ESL only. In order to have a clearer idea as to the scale of potential orders, the evaluation team explored:

- The evolution of actual orders in the recent past on a daily basis and the extent to which those orders are satisfied in a timely manner by the SD (as a percentage of satisfied orders per ESL life-saving item and per week).
- The evolution of global humanitarian needs in relation to UNICEF target populations.

The evaluation team requested that all data used for the statistical analysis be shared by UNICEF in its raw format. The evaluation team provided SD data management staff with a preliminary statistical

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32 See Annex H for a listing of the ESL items included in this evaluation.
analysis for their input which helped to ensure correct interpretation of data. Full details regarding the Quantitative Analysis can be found in Annex H.

1.4.3 Limitations
The evaluation team identified several key evaluation challenges throughout the duration of the evaluation.

### Table 2: Major Evaluation Challenges and Measures to Address

<table>
<thead>
<tr>
<th>Evaluation Challenges</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpretation of UNICEF SAP data. A lot of raw data available via SD systems but that data is interpreted differently by different users.</td>
<td>Sharing of preliminary data analysis with UNICEF data managers to test for interpretation. Creation of specific language and parameters (e.g. Leads 0-3) that establish a clearer way to manage and interpret the data for this specific evaluation.</td>
</tr>
<tr>
<td>Lack of a theory of change, logic model or result chain to measure progress against.</td>
<td>Measurement according to the evaluation matrix supported by quantitative data analysis.</td>
</tr>
<tr>
<td>Limited number of key informants (less than 50) who truly understand how SD emergency response and preparedness functions.</td>
<td>Maximized to the extent possible data collection with all stakeholders who had a direct or indirect connection SD.</td>
</tr>
<tr>
<td>Some of the case studies took place in the past (as far back as 2008) and thus challenging to identify. Memory bias is also a component of this challenge.</td>
<td>This bias was taken into consideration and significant efforts were made to identify and track down for interviews those with applicable knowledge.</td>
</tr>
<tr>
<td>Difficulties to assess real demand or real humanitarian needs at the global level. Demand as recorded in the Supply Pipeline Report is the result of discussions between Country Offices and SD, who come to an agreement taking into account availability of supplies. Therefore, records do not necessarily reflect real demand from the field.</td>
<td>A number of peaks of demand exceeding Emergency Supply List reserve levels have been identified. The evaluation team is aware that there could have been more peaks that are not recorded. GEG has also incorporated estimates of global humanitarian needs as described in external sources (CRED-EMDATA, OCHA dashboards and snapshots), in order to integrate a global view of the state of the situation beyond demand from COs.</td>
</tr>
<tr>
<td>Limited availability of the more technical SD staff dealing with order and stock records, due to the number of L3s that the SD is currently responding to.</td>
<td>GEG and the Evaluation Manager agreed that communications with SD technical staff would be streamlined as much possible. The Evaluation Manager played an active facilitating role in communications, assuring mutual understanding. Data analysis has been documented and results have been shared with technical staff in advance.</td>
</tr>
</tbody>
</table>

1.5. STRUCTURE OF THE REPORT

*Section 1* introduces the objectives and deliverables while outlining the evaluation approach including organization and methodology.

*Section 2* presents and analyses findings based on the primary and secondary data collection process.

*Section 3* summarizes the findings into conclusions to address each of the four objectives of the evaluation (including a presentation of lessons learned).

*Section 4* proposes recommendations aimed at specifically addressing the issues identified in the data collection and analysis process.

*Annexes A-L* include terms of reference, evaluation matrix, interview guides, stakeholder listing, acronyms used, case studies, relevant survey information, details regarding the quantitative data analysis, survey results, workshop summary, additional details regarding the evaluation management, an estimate of global needs, and an example of calculation of dynamic stock levels (included in a separate document).
2. FINDINGS & ANALYSIS

The findings and analysis follow the evaluation matrix (see Annex B) established during the inception phase of this work. Each of the questions in the evaluation matrix are listed according to the criteria areas (Relevance, Effectiveness and Efficiency) identified for this evaluation with the findings, data and analysis described below.

2.1. RELEVANCE FINDINGS & ANALYSIS

How Appropriate is SD Emergency Response & Preparedness to UNICEF Global Contextual Requirements?

Since 2007, SD has taken many steps aimed at ensuring that SD emergency response and preparedness can better meet UNICEF global contextual requirements. Specifically, following a June 2006 SD meeting with participation from Programme Division (PD), the Office of Emergency Programmes (EMOPS) and Regional and Country Office representatives, SD created the ESRS that was subsequently designed with UNICEF organizational input (from PD, EMOPS, Regional Office and Country Office levels). Then SD elaborated and operationalized the ESRS in April 2009. The strategy aims to guide SD’s emergency function aimed at contributing to the fulfilment of the Core Commitments for Children (CCCs) during emergency response situations.

The key elements of the ESRS and many of the steps taken by UNICEF to increase its emergency response capacity since 2007 are as follows:

- Development of the ESRS (implementation started in 2009).
- Establishment of a rapid response preparedness level for 250,000 people, as agreed by the CCC review steering group.
- Delineation of a three-phased response, split into time windows of 72 hours, 2 weeks and 2 months.
- Creation of Supply Manual Divisional Procedures and Simplified Standard Operating Procedures (SSOPs) relevant to SD emergency supply response.
- Creation of the Emergency Supply List.
- Creation of the Emergency Supply Calculator (ESC).
- Creation of a roster of emergency human resources for SD emergency deployments.
- Pre-positioning of supplies at regional warehousing hubs and ensuring availability of current and online inventory information regarding the stock levels held in different SD warehouses and hubs.
- Implementation of the VISION/SAP system in 2012 aimed at integrating SD and CO systems and increasing the visibility of the UNICEF supply chain. Creation of excel-based dashboards based on data from VISION/SAP.
- The establishment of KPI#1 as the main performance indicator for SD.
- Establishment of the Emergency Coordination Unit (ECU) as a functional coordination unit at SD.

None of the activities listed above were established until after 2007 and most were implemented after the ESRS was first implemented in 2009. In October 2011, the ESRS was reviewed again and a

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33 Some evaluation matrix questions were combined in the final report to avoid duplication and assist with the flow of the report. Specific questions are identified as combined in footnotes throughout this report.
34 Note that this document was originally referenced as the Emergency Supply Strategy (ESS). More recent iterations of this document reference the Emergency Supply Response Strategy.
35 UNICEF SD Strategy Launch Paper – SD’s Support to the CCCs in Humanitarian Action.
36 Endorsed in 2012, the SSOPs includes measures intended to streamline and simplify operations to quickly and effectively respond to emergencies for Level 2 and 3 emergencies. As part of Level 3 emergencies, the SSOPs include a provision of "no-regrets" to enable UNICEF to take measured risk-taking approach to the response.
37 Maintenance of the ESL is now one of SD’s core functions ensuring that the ESL covers specified quantities of relief items required for an appropriate UNICEF emergency response.
38 The ESC is intended to assist COs in the determining supply requirements based on the UNICEF programmatic response to an affected population.
revised version was created in September 2012. This revised ESRS incorporated the concepts of Level 2 (L2) and Level 3 (L3) emergencies to correspond to the emergency classification systems adopted by UNICEF, and other UN emergency response agencies. Many of the elements which now are accepted as foundational aspects of SD emergency response and preparedness, such as establishing an ESL stock level for 250,000 people, phasing the response and measurement into time windows of 72 hours, 2 weeks and 2 months, and tools such as the ESL and the ESC, were created during this period (from 2007 until 2012). From 2008-2009 SD also created the Global Supply Community that could also be accessed during emergency responses. This strategy and related tools were all a part of SD efforts to better meet UNICEF global humanitarian needs that were increasingly viewed by SD as being more complex and demanding of UNICEF resources.

All of these elements identified above combined to make the SD emergency response and preparedness even more appropriate and relevant to meeting global contextual requirements related to the CCCs and providing critical humanitarian services to those affected by emergencies. The key developments identified above and additional information (regarding ESL revisions, MTSP extensions, warehouse hub locations opening etc.) are summarised in the timeline Figure 2 below.

Figure 2: Timeline of Key Developments in the Emergency Supply Response Strategy

The survey data revealed that CO and RO UNICEF staff perceive improved progress in SD emergency response capacity since 2007. For example, when survey respondents were asked to rate the overall improvement of SD emergency response since 2009, 87% stated that there had been Good Improvement or Significant Improvement. A negligible percentage of all respondents to this same question answered that there had been No Improvement or Minimal Improvement. As compared to 2007, additional tools (ESRS, ESL, ESC), emergency human resources (the emergency roster and Centre emergency focal points) and processes (SSOPs) now exist and are contributing to SD emergency responses; whereas none of these components existed previously.

39 Implementation of the ESRS started in 2009.
40 Since 2010, all emergencies are categorized into three distinct groups based on scale, urgency, complexity, capacity and reputational risk of the emergency. L1 emergencies are handled by the CO, L2s receive support from the Regional Office while L3s involve both Regional Offices and Headquarters in the response, as they are considered an institutional priority.
41 During this same period UNICEF also established the SSOPs for CEAP in L3 and L2 emergencies.
42 OMP SD Mid-Term Review Synopsis 2010-2011.
43 Respondents who joined UNICEF in 2010 and after and those who have no experience in L2s or L3s have been excluded in this breakdown.
However, when assessing UNICEF supply and logistics global requirements at multiple organizational levels (community, national, regional and international) for the delivery of emergency humanitarian supplies, it is necessary to consider the entire supply chain system involved (from the global supply level to the last mile of delivery of items to partners for distribution or application). The SD supply chain is designed based primarily on a pull system with Sales Orders being created at the downstream CO level. While SD now has more latitude in emergency responses to initiate Sales Orders from Copenhagen in the past several years, particularly with the introduction of the UNICEF ‘No Regrets Policy’, the intent remains for the pull to come from the CO level.

Despite the pull relationship between UNICEF COs and SD, the UNICEF global supply chain is separated at the upstream and downstream levels instead of connecting the supply chain in a cohesive supply chain loop. Key stakeholders and case study information collected as a part of this evaluation identified the lack of an integrated and unified supply chain that systematically connects the upstream and downstream components. When examining the functionality of the global emergency supply and conducting a mapping of the global emergency supply institutional roles, the evaluation found that there is a clear delineation and separation in the existing global set-up between those elements of the supply chain managed by SD (upstream international emergency supply and some ad hoc country level preparedness support) and those elements of the global supply chain that are managed by the COs (downstream national level from port-of-entry until the last mile of delivery). Symptomatic of a disconnected global supply chain is a UNICEF supply system of performance measurement that does not track emergency supply chain performance beyond the port-of-entry despite the fact that UNICEF’s CCCs Supply and Logistics Strategic Result Benchmark 1 requires that “all commodities are delivered to point-of-use or partner”. Within the existing supply chain structure, once the supplies arrive at the port-of-entry, COs (not SD) are then responsible for ensuring delivery to the end user. Further illustrating the disconnect between the upstream and downstream components of UNICEF supply emergency response is the fact that there is no systematic feedback mechanism utilized that provides information regarding how the UNICEF supplies are being received by beneficiaries, UNICEF partners or UNICEF CO staff. Thus, there is no mechanism that is used on a consistent basis where constructive feedback, comments or suggestions regarding emergency supplies are exchanged between the upstream and downstream supply managers. This is instead currently handled in an ad hoc manner though the evaluation team understands that new technology is under development that may help to bridge this feedback gap. Some of the complexity and challenge of this particular issue is related to the decentralized organizational structure of

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44 Requirements include elements such as planning, forecasting, ordering, sourcing, warehousing and transportation.
45 Upstream: All activities between orders released from the CO and point of entry into the country, managed by SD.
46 Downstream: All activities between point of entry and delivery to beneficiary, managed by UNICEF CO.
47 Somalia case study and Somalia Supply Chain Assessment, Global Emergency Group 2013 which identified a well-functioning upstream capacity (essential for response) with a weaker downstream emergency supply capacity at the RO and CO levels.
48 A complaint mechanism exists but it was reported during evaluation interviews to have low rates of utilization for emergency supplies.
UNICEF that entrusts the COs with the responsibility for management of the downstream component of the supply chain (thus reducing the responsibility, access and accountability of SD to downstream supply chain functionality).

Thus, there remains a separation between the upstream and downstream components of the UNICEF supply chain. While this evaluation is focused on the upstream component of UNICEF supply (indeed there is a clear delineation between the upstream and downstream components of the UNICEF supply chain in the ToR for this work), given the critical role that COs play in response timing related to the placement of Purchase Orders, it is critical that the linkages between the upstream and downstream components of the supply chain also be considered within the scope of global humanitarian requirements.

<table>
<thead>
<tr>
<th>Table 1: Evolution of the SD Emergency Response</th>
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<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Number of countries to which off-shore emergency supplies were delivered</td>
</tr>
<tr>
<td>Total value of off-shore emergency supplies were delivered (US$ Million)</td>
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</tbody>
</table>

Source: UNICEF Supply Annual Reports

Despite emergency supply only representing 5-6% of the total throughput of SD supply, there is still a high level of dedication and appreciation throughout SD as to the importance of emergency response to the UNICEF mission and priorities. As a result, the emergency team has both a great deal of latitude and input into procedures and processes ensuring that the emergency response capacity of SD is a consistent priority within the scope of the wider SD supply portfolio.

Those interviewed outside of SD uniformly stated their respect and admiration for the work that SD does. There is recognition within UNICEF as to the importance of SD. SD is perceived internally and

49 SD also acknowledged this disconnect in the OMP SD Mid-Term Review 2010-2011: SD still “need more focus on the ability to manage end-to-end supply performance.”

50 This question from the evaluation matrix was combined with the question “To What Extent are UNICEF Supply Activities Supporting the fulfillment of the CCCs.”

51 67% of all interviews conducted supported this finding.

52 Particularly SD OMP from 2007-2014.
externally to have a significant emergency response capacity that consistently delivers as expected. As a result, there is the expectation that UNICEF can and should do even more for UNICEF as an organization during emergency response operations. Logistics (warehousing, transport, etc.) components of SD response are key UNICEF operational requirements. The demand for key logistics functions increase when multiple L3 emergencies are on-going for significant periods of time. Interviews with UNICEF Headquarters staff outside of SD identified UNICEF organizational challenges related to UNICEF provision of emergency response equipment\(^{53}\) for deploying UNICEF emergency personnel. While this is not currently an area of accountability for SD, requirements for logistics support regarding UNICEF emergency staffing set-up (e.g., staff accommodations) are perceived as inadequate though this requirement may be addressed through current and future UNICEF organizational initiatives.

### Are the Existing SD Processes & Systems Sufficiently Tailored, Adaptive\(^{54}\) and Responsive to Meet Emergency Supply Preparedness & Response Requirements?

Data collected from secondary\(^{55}\) sources, key informants and the case studies\(^{56}\) support the finding that SD staff takes pride in their ability to problem solve and adjust to meet operational requirements. Making consistent changes to the supply chain and goods appears to be ingrained as a daily responsibility of SD staff. An illustrative example of this comes from the Somalia case\(^{57}\) that highlights the extent to which UNICEF can tailor a supply response to meet CO emergency response requirements.

Of particular interest to this evaluation is the utility of the ESRS to meet emergency supply preparedness and response requirements. Based on a review of the ESRS and interviews with SD staff, the current iteration of the ESRS is adequate for internal ECU purposes and has served a useful purpose in establishing how SD emergency response will be focused while covering most of the major activities areas related to SD emergency response. However, the current ESRS is mostly an internal ECU document not linked to a budget\(^{58}\) making it difficult to understand which strategy components have wider UNICEF buy-in or not. Further, the strategy does not have any clear linkages to wider UNICEF emergency strategies (e.g., explicitly linking with EMOPS) while the emergency preparedness component of the strategy is minimal and shows no direct linkages with the ROs or COs.

2.2. **EFFECTIVENESS FINDINGS & ANALYSIS**

### How Effective is SD in Delivering the Needed Supplies in Support of the COs On Time, In the Right Quantity & Quality?

SD is widely perceived within the UNICEF organization as being effective in emergency response. There is generally a high regard and appreciation within UNICEF as an organization for the emergency response function provided by SD.\(^{59,60}\) This finding is supported by the qualitative data collection and the survey where 72% of all respondents rated the overall performance of the SD

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53. Could include personal equipment (such as personal first aid kit, sleeping bag, mosquito dome, cell phone, satellite phone, headlamp/flashlight, food for 7 days, water bottle, emergency blanket etc.) or facility equipment (tent cooking facilities, tent office, tables, chairs, desks, utensils, plates, cups, glasses, coffee machine etc.).

54. This question from the evaluation matrix was combined with the question “To What Extent are the Emergency Supply Activities Adaptive and Responsive to emerging types of emergencies and emergency responses?”.

55. SHA-B3 - summary of key issues emerging from Senior Leaders’ Interview series.docx

56. Somalia and Jordan Case Studies.

57. In the Somalia case, SD went well beyond its normal traditional operating modalities when it assumed responsibility from WFP, as required given WFP being non-operational due to Al-Shabaab restrictions, for large-scale food supply in Somalia. This was a significant departure from SD normal operating modalities that stretched the organization and caused significant operational challenges but that demonstrated SD adaptability to meet operational requirements and ability to adapt to the circumstances.

58. Supply Function Evaluation Final.pdf, February 2007, UNICEF Evaluation Office, Page 63; SD has no specific budget to pre-position inventory around the UNICEF network and replenish consumed inventory back to the safety stock levels.

59. When asked how would you rate on a scale of 1 to 10 (1 = low performance; 10 = highest possible performance) the overall performance of the UNICEF supply emergency response, interviewees rated SD emergency response 7.23 out of 10 on average.

60. All six case studies mentioned SD effectiveness in emergency response.
emergency response as being Extremely Effective or Very Effective. This was further validated by all six case study interviews.

Chart 2: Survey Question - How would you rate the overall performance of the UNICEF Supply Division emergency response?

While the qualitative data shows a generally positive perception of SD emergency supply response, the quantitative analysis lead times tests the level of fulfilment of UNICEF’s commitments. This quantitative analysis suggests that the SD average lead times face challenges in meeting the UNICEF targets established. Specifically, as illustrated in Chart 3 below, on average Rapid Response orders have a total average lead time of 11.2 days and that Other Emergency Orders have a total average lead time of 49 days.

Chart 3: Average Number of Days Per Lead, Type of Order and Level of Priority (January 2012-March 2014)

While there is evidence of improvement in timeliness from 2012 to 2013 (total time from order creation to end of shipment decreased from 19 days in 2012 to 11.7 in 2013), SD emergency response is still below the thresholds established by the CCCs and SD KPI#1. Table 4 and 5 below illustrate this key point.

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61 **Lead 0** = Order is Elaborated and Released by CO. From creation of the SO to its release.

**Lead 1** = Order is Received and Processed by the SD. From the release of the SO to the creation of the stock transfer order to the warehouse – or the creation of the PO for international orders.

**Lead 2** = Preparation. From the creation of the stock transfer order to the warehouse or the creation of the PO (for international orders) to the actual sailed date.

**Lead 3** = Shipping. From the actual sailed date to the shipment end date.

62 It is important to note that there are key differences between how this evaluation calculated average lead times and how SD calculates KPIs. For UNICEF, timeliness performance is measured considering a period that starts at Emergency Approval Date (Not Latest Release of SO Date) and finishes at handling unit date (Not Actual Shipment Start Date). The evaluation specifically designed average lead times for this evaluation so as to be able to compare warehouse orders vs. international orders and based on data available for direct comparison. More details are provided in Annex H.
Table 4: Percentage of Item Order Shipments that are Picked Up On Time (Threshold Fixed at 48 hours for Rapid Response orders and 10 days for Other Emergency Orders)

<table>
<thead>
<tr>
<th>Type of Emergency Order</th>
<th>Type of Order</th>
<th>2012</th>
<th>2013</th>
<th>2014 (1st Q)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Average</td>
<td></td>
<td>11%</td>
<td>18%</td>
<td>16%</td>
</tr>
<tr>
<td>Rapid Response orders</td>
<td></td>
<td>13%</td>
<td>21%</td>
<td>71%</td>
</tr>
<tr>
<td>International Purchase Orders</td>
<td></td>
<td>5%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Warehouse Orders</td>
<td></td>
<td>14%</td>
<td>26%</td>
<td>77%</td>
</tr>
<tr>
<td>Other Emergency Orders</td>
<td></td>
<td>11%</td>
<td>18%</td>
<td>13%</td>
</tr>
<tr>
<td>International Purchase Orders</td>
<td></td>
<td>9%</td>
<td>6%</td>
<td>13%</td>
</tr>
<tr>
<td>Warehouse Orders</td>
<td></td>
<td>12%</td>
<td>26%</td>
<td>13%</td>
</tr>
</tbody>
</table>

Table 5: Percentage of Item Order Shipments that Arrive at Port-of-Entry on Time (Threshold of 72 hours for Rapid Response orders and 14 days for Other Emergency Orders)

<table>
<thead>
<tr>
<th>Type of Emergency Order</th>
<th>Type of Order</th>
<th>2012</th>
<th>2013</th>
<th>2014 (1st Q)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Average</td>
<td></td>
<td>9%</td>
<td>13%</td>
<td>30%</td>
</tr>
<tr>
<td>Rapid Response orders</td>
<td></td>
<td>2%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>International Purchase Orders</td>
<td></td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Warehouse Orders</td>
<td></td>
<td>2%</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>Other Emergencies Orders</td>
<td></td>
<td>10%</td>
<td>14%</td>
<td>32%</td>
</tr>
<tr>
<td>International Purchase Orders</td>
<td></td>
<td>9%</td>
<td>8%</td>
<td>12%</td>
</tr>
<tr>
<td>Warehouse Orders</td>
<td></td>
<td>11%</td>
<td>19%</td>
<td>42%</td>
</tr>
</tbody>
</table>

As a general basic result of the analysis, Rapid Response orders are processed and delivered in 14.8 days on average, while Other Emergency orders are processed and delivered in 57.3 days. If we exclude Lead 0 from this calculation, for it is the period in which the CO places the order, from its creation to its final release, and therefore can be considered out of the SD function, then Rapid Response orders take 11.2 days to be fulfilled, while Other Emergency orders take 49.0 days, on average.

As shown in Table 4 and Table 5 above, warehouse orders are processed and delivered faster than international purchase orders (POs) in both Rapid Response and Other Emergency situations. The overall average time for Leads 1 through 3 is nearly halved when doing warehouse orders instead of POs in Rapid Response situations (from 19.3 days for POs to 9.5 days for warehouse orders) and reduced by 32% for Other Emergency situations (from 60.9 days for POs to 41.7 days for warehouse orders). While Lead 1 is slightly increased for warehouse orders (2.9 days, against 2.0 days for POs) in Rapid Response situations, all other leads are substantially decreased through warehouse orders instead of POs with that Lead 2 (Preparation) reduced the most (66%, 4.4 days for warehouse orders while 13.2 days for POs).

Regarding the quality of the items and supplies provided during emergency responses, there were no reports of significant quality issues for emergency response items. There is an existing SD formal quality assurance complaints mechanism (that has a usage rate of on average 100 complaints annually for all of SD supplies but only a very small percentage of those complaints are related to emergency items), any complaints are analyzed at SD (using a roots cause analysis), addressed and tracked on a regular basis. The main concern related to this topic is that the UNICEF quality control system was reported by key stakeholders to be primarily focused on non-emergency contexts and on the upstream supply chain procurement and not downstream local procurement.
How Well is SD Responding to CO Requests for Support?

The dedication of staff and responsiveness of SD to CO requests for support during emergencies was continually cited as a strength of SD. When asked to rate the overall performance, accessibility and communications of SD emergency response support to COs, on average 74% of all survey respondents stated that it is Very Effective or Extremely Effective. Further, there were zero responses stating that SD support to CO was Not Effective at all or Minimally Effective. The additional survey data collected, Chart 5 and 6 illustrate the level of CO general satisfaction and appreciation for SD accessibility and communications during emergencies. The case studies, particularly Jordan and Somalia, also illustrated this point with specific examples provided of ways in which SD staff were available when needed at the outset of the response and throughout the operation.

Chart 4: Survey Question - How would you rate the performance of UNICEF Supply Division emergency response support to your Country Office?

Chart 5: Survey Question - How effective would you rate accessibility to the Supply Division as well as their availability during emergencies?

63 The evaluation Jordan Case Study in particular cited the importance of SD and RO support and particularly responsiveness to questions (including those that were sent to the SD general email address).

64 When asked how they would rate on a scale of 1 to 10 (1 = low performance; 10 = highest possible performance) the performance of SD emergency response and preparedness support to CO’s, interviewee rated SD emergency response and preparedness support to COs 6.91 out of 10 which is considered a relatively high rating by this evaluation.
With respect to SD preparedness support to COs, the evaluation found that overall preparedness support was relatively less effective than for support to emergency responses. This data corresponds to qualitative data collected which found that the focus of ECU and SD with respect to emergency activities is focused on managing the myriad of tasks associated with emergency response coordination and emergency support to COs, leaving a minimal amount of time available for preparedness support.

Preparedness is a key factor in establishing linkages and capacity prior to an emergency so that rapid responses are even more effective. SD emergency preparedness support to COs and ROs consists of a range of activities including training, guidelines, tools and plans to help a CO plan for emergency responses while also advising and supporting CO’s with logistics and supply chain decision-making.

It is likely that due to SD staff time constraints, particularly when there are multiple emergencies such as in 2014, that there is less time available for SD staff to focus on establishing systematic linkages.

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65 The high percentage of “Don’t Knows” in the questionnaire responses related to this particular question (18.52%) raises additional doubt as to the performance of SD in terms of preparedness. For all other survey questions “Don’t Knows” remain at around 10%.

66 Evaluation Philippines Case Study identified lesson learned that supply chain and logistics preparedness vulnerabilities need to be addressed in advance of the emergency response.

67 Examples of tools and guidelines proved are related to warehouse management, transportation networks, monitoring, alert levels and emergency flagged order management.


69 As cited it the qualitative interviews.
through processes and procedures within the emergency supply chain (at either the upstream or downstream levels) and then training staff accordingly. For example, survey results indicate that 82% of all respondents (many who are UNICEF supply community staff from COs) have never participated in a SD emergency response and preparedness training provided by SD.

Exacerbating this issue is the finding that CO preparedness levels are variable and reportedly weak in some countries. For example, in the case of the Philippines Typhoon Haiyan response, the CO was found to have little supply chain and logistics preparedness and capacity in country, while in Somalia the ability of the CO to conduct preparedness initiatives was continually challenging due to the security and staffing constraints. In the Myanmar Case Study the CO was found to have minimal emergency response capacity and experience. Thus, identification of the best ways to support preparedness is challenging particularly given the lack of a UNICEF specific LCA (Logistics Capacity Assessment) type of assessment for particularly disaster-prone COs.

Additional evidence of the variability of preparedness levels and capacity of COs can be found in the quantitative data analysis. As shown in the table below, Lead 0 (Elaboration of Order by CO) takes significantly different amounts of time depending on the CO. Data analysis from the Philippines Haiyan UNICEF response suggests positive results as a high number of item shipments (159) were ordered taking an average order elaboration time of 1.7 days. Lead 0 is also short for countries like Lebanon, Jordan and Iraq, though this increased efficiency could be a result of COs adapting to supply chain systems given the significant length of time that those COs have been operating as an L3 emergency. However, Lead 0 times in other countries (such as Sao Tome & Principe, Mauritania, Sierra Leone, Mali and the DRC) suggest the highly variable nature of CO capacity and preparedness for supply chain management.

Table 6: Average Lead Times By Destination Country for Rapid Response orders

<table>
<thead>
<tr>
<th>Destination country</th>
<th>#</th>
<th>LEAD 0</th>
<th>LEAD 1</th>
<th>LEAD 2</th>
<th>LEAD 3</th>
<th>SUBTOTAL (Leads 1 through 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.Tome&amp;Principe</td>
<td>8</td>
<td>13.3</td>
<td>7.2</td>
<td>8.0</td>
<td>3.0</td>
<td>31.5</td>
</tr>
<tr>
<td>Mauritania</td>
<td>24</td>
<td>12.4</td>
<td>2.4</td>
<td>11.5</td>
<td>3.1</td>
<td>29.4</td>
</tr>
<tr>
<td>Guinea-Bissau</td>
<td>1</td>
<td>9.0</td>
<td>2.0</td>
<td>4.0</td>
<td>11.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Mali</td>
<td>27</td>
<td>6.9</td>
<td>4.2</td>
<td>6.9</td>
<td>2.8</td>
<td>20.7</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>8</td>
<td>7.8</td>
<td>5.3</td>
<td>5.0</td>
<td>1.4</td>
<td>19.4</td>
</tr>
<tr>
<td>Congo, Dem. Rep</td>
<td>55</td>
<td>5.3</td>
<td>3.5</td>
<td>6.4</td>
<td>3.1</td>
<td>18.5</td>
</tr>
<tr>
<td>Fiji</td>
<td>1</td>
<td>3.0</td>
<td>0.0</td>
<td>9.0</td>
<td>2.0</td>
<td>14.0</td>
</tr>
<tr>
<td>Philippines</td>
<td>159</td>
<td>1.7</td>
<td>3.0</td>
<td>6.2</td>
<td>2.5</td>
<td>13.3</td>
</tr>
<tr>
<td>Central Afr.Rep</td>
<td>35</td>
<td>3.0</td>
<td>2.7</td>
<td>5.9</td>
<td>0.7</td>
<td>12.3</td>
</tr>
<tr>
<td>Lebanon</td>
<td>12</td>
<td>1.3</td>
<td>3.8</td>
<td>1.6</td>
<td>3.6</td>
<td>10.3</td>
</tr>
<tr>
<td>South Sudan</td>
<td>17</td>
<td>5.0</td>
<td>0.0</td>
<td>1.0</td>
<td>4.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Iraq</td>
<td>42</td>
<td>1.0</td>
<td>1.0</td>
<td>7.0</td>
<td>0.9</td>
<td>10.0</td>
</tr>
<tr>
<td>Jordan</td>
<td>23</td>
<td>1.0</td>
<td>1.0</td>
<td>3.5</td>
<td>3.9</td>
<td>9.4</td>
</tr>
<tr>
<td>Comoros</td>
<td>12</td>
<td>2.1</td>
<td>1.4</td>
<td>2.3</td>
<td>1.7</td>
<td>7.0</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1</td>
<td>0.0</td>
<td>0.0</td>
<td>2.0</td>
<td>5.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Guinea</td>
<td>4</td>
<td>0.5</td>
<td>0.5</td>
<td>0.0</td>
<td>5.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

How Effective is SD’s Internal Structure, Organization and Resourcing (Staffing Capacity) for Emergency Response?

The Emergency Coordination Unit at SD is the entity responsible for coordinating and leading SD emergency supply response and preparedness. ECU outlines its activities, alongside its operating tools, within SD’s ESRS. ECU currently consists of a team of five full-time staff members with three of those positions (Senior Emergency Manager, Emergency Logistics Manager and Administrative Assistant) actively filled with full-time staff at the time of this evaluation.

70 SD OMP 2014-2017 acknowledges that the "weaknesses of local supply chains are becoming more apparent and the need for optimizing systems to prevent stock-outs, reduce transport costs and ensure timely delivery is evident."

71 Lead 0 presents particularly higher standard deviations for Mauritania and Mali. This was the consequence of significantly longer lead times for lead zero for Nutrition and Pharmaceutical items, in the case of Mauritania, and WASH items, in the case of Mali. More explicitly, 4 WASH item shipments took 31 days to go through Lead 0 for Mauritania, while, in Mali, a pharmaceutical item shipment took 17 days and 5 other pharmaceutical and nutritional item shipments took 27 days. As none of the previous shipments were considered as outliers in the outlier identification phase, they are kept for the calculations on the average, although the reasons for those longer lead times could be further investigated in future analyses.
SD utilizes a matrix management\textsuperscript{72} approach for its internal structure and organization of emergency responses. ECU is responsible for the coordination of the various SD technical Centres\textsuperscript{73} inputs to emergency response and emergency preparedness activities while also integrating the input of other\textsuperscript{74} key SD functions. Some Centres that have frequent emergency response responsibilities maintain an Emergency Focal Point who can be the reference point for emergency response and preparedness. Other Centres at SD also have peripheral interaction with ECU during emergencies.

The internal SD reporting structure directly involves senior management in key decision-making function. The proactive actions taken by senior management during emergencies, including rapidly deploying\textsuperscript{75} to the field CO locations as needed, is recognized as being a key component of SD operational emergency response success. Further, UNICEF global structure was recently adjusted so that EMOPS and SD now report to the same global UNICEF management function which should enhance emergency response collaboration.

The creation of ECU was a part of the outputs of the restructuring of the SD that took place in January 2006.\textsuperscript{76} In November of that year, the Divisional Procedure 10, “Processing emergency requests (overview)”, was updated to be adapted to the new structure. In the SD Office Management Plan (OMP) 2008-2009, it was announced that ECU (also previously known as Emergency and Logistics Unit) would be moved to the warehouse and logistics centre and contribute to its functions.\textsuperscript{77} The most recent OMP explicitly identifies the emergency function within SD reporting to the Deputy Director Supply Chain.

The organizational structure of SD with ECU as the emergency response and preparedness lead unit can effectively bring together the internal resources available from other Centres and other SD units without requiring the creation of an even larger (e.g. more than 5 persons) permanent SD

\textsuperscript{72} Matrix management is when staff are pooled together for specific work assignments resulting in more than one manager.

\textsuperscript{73} SD Centres for emergency response include: Logistics Centre, Water, Sanitation & Education Centre, Medicines & Health Centre, Health Technology Centre, Vaccine Centre, Human Resources Centre and Quality Assurance Centre.

\textsuperscript{74} In addition to coordination with the Centres, ECU has key support and interaction during emergency responses with the Director’s Office, Contracting, International Transportation Unit, Financial Management and Administration, Market Finance & Strategic Data, Knowledge Sharing and Solutions and Supply Chain Systems Strengthening.

\textsuperscript{75} The Evaluation Case Studies from Somalia (2011 Horn of Africa Food Crisis) and Philippines (Typhoon Haiyan) in particular highlighted the success of these efforts by senior management.


\textsuperscript{77} “The Logistics Centre: (Operational Centre) Re-organised to have a global focus and to provide a holistic and integrated approach to warehousing and logistics. Continued focus on finding effective and efficient warehousing locations. Ensure and coordinate emergency preparedness, ensure timely emergency response and coordination between all-centres in Division, Field Offices and EMOPS.” OFFICE MANAGEMENT PLAN, 2008-2009 SD. Page 6.
Copenhagen emergency team. There are staffing efficiencies in this approach as staff in other Centers are leveraged for emergency response while also being available to support other regular SD operational needs (e.g. for UNICEF development programming supply requirements). SD leveraging of SD internal human resources for emergency response (particularly in the 1st wave of an emergency response) serves as a human resources foundation that enables the emergency response and provides career development opportunities for staff.

However, SD human resources and roster are stressed with high levels of demand over long periods of time. There is also an opportunity cost to SD’s reliance on internal staff deployments given that regular duties, responsibilities, and work are either left unattended during a response deployment or other staff are forced to backfill roles. As with many humanitarian response organizations, the requirements for second and third waves of SD emergency personnel are generally more difficult to meet. Given the critical role that ECU has in the coordination of emergency response and preparedness, it is essential that the team be staffed by highly dedicated and committed individuals. Indeed, this evaluation found that the few individuals from ECU are a key driver of SD emergency responses. Most respondents involved in this evaluation expressed their appreciation for the work of ECU and felt that ECU enhanced the SD emergency response performance.

Chart 8: Survey Question - How would you rate the overall performance of the UNICEF Supply Division Emergency Coordination Unit?

However, the evaluation notes mixed results from stakeholders regarding the effectiveness of internal SD communications and coordination. Further secondary data (specifically a review of UNICEF divisional procedures) and qualitative data revealed that limited processes and systems are in place for sustainability beyond the few key individuals in ECU. While regular coordination meetings take place within SD for day-to-day business and the number of meetings increase during emergencies, there are no current communication divisional procedures or protocols in place that establish triggers for when emergency coordination is or is not required and what may be expected in terms of information, decision making or SD emergency response team composition (either at headquarters or field levels). While it may be clear as to the function of ECU in SD coordination, other SD Centre and staff are not always clear as to their roles and responsibilities during response.

SD does not actively use an Emergency Operations Centre where all of the involved SD Centres, Emergency Focal Points, ECU and other involved staff can physically come together during an emergency. Instead, respective staff work from their normal desks which may or may not be optimal

78 Demand for SD human resources were high at the time of this evaluation given that SD was managing four L3 emergencies the majority of which (Syria, South Sudan and CAR) were protracted emergencies.
79 UNICEF’s Response to the Emergency in the Horn of Africa, 2011-2012: Lesson-Learning Exercise, June 2012, UNICEF Evaluation Office: Supply and logistics personnel (surge, TA, SBP) were seen by COs as competent. (For Somalia, there were 24 such personnel, amounting to 4,200 days of support; Kenya, 6; Ethiopia, 2; and ESARO, 1.)
80 The high percentage of “Don’t know / Non Applicable” responses to this question is due to the fact that only a reduced number of people in each CO has direct communications with ECU staff (who were only 3 people until this summer). The revision of responses to the open ended question “Justify your rating” confirms the satisfaction of those who have worked directly with ECU regarding their communication and coordination efforts.
81 Per the OMP 2014-2017 the UNICEF SD management team “meets on a weekly basis to discuss operational aspects, take key decisions and exchange information. Each Centre also holds such weekly meetings. The Division meets as a whole on a quarterly basis. In order to help the matrix structure be effective, regular functional meetings are convened, such as Contracting, Technical, Transport, etc.”
82 Reported by many stakeholders during interviews.
83 A designated space for emergency operations coordination may be available at SD but this space is not currently used by SD staff during emergencies.
for emergency coordination purposes depending on their physical location at SD. As such, the international emergency coordination is functioning with a clear lead (via ECU, which is critical) but without as much clarity in terms of procedures, processes and responsibilities of other (non-ECU) SD staff. Given the SD use of a matrix organizational structure in Copenhagen, it is critical that those involved in an emergency response understand their roles and responsibilities both at SD and during field response operations. Lastly, one area of inconsistency is related to the role of the Regional Office (RO) and SD during an emergency. The RO role vis-à-vis the SD ECU is not always clear in some (but not all) regions.

### How Effective is the SD Deployment of Emergency Response Personnel?

Since 2012, when a SD Division Procedure (DP 076) was first established and the creation of the Human Resources Emergency Roster, there is evidence of SD increasing its capacity and processes related to the deployment of emergency response personnel. DP 076 established that sourcing for emergency deployments would done primarily through the Global Web Roster and the processes through which staff can apply to the roster, are selected for the roster, join the roster, be identified and deployed for emergency response assignments in support of a CO. Specific specialist areas included within the roster are health supply chain management, cold chain, pharmaceutical, vaccines, specialized food supply and data management. Further, ToRs for emergency response positions (Supply & Logistics Manager, Logistics Manager, Planning and Information Manager, Supply Specialist, Logistics Assistant, Supply Assistant and Warehouse Manager) were established. A component of the revised ESRS strategy is activities in support of human resources capacity development for emergency response. SD has created guidelines to help COs plan the human resource component and responsibilities during supply chain operations in an emergency (organigrams and job descriptions). Within the global UNICEF emergency response personnel context, SD also contributes to and participates in the UNICEF Immediate Response Team (IRT) and related simulation exercises in advance of emergencies.

Thus advances in SD rapid response personnel capacity should be considered a relative strength of SD specifically when compared to UNICEF roster capacity in 2007 given that prior to 2012 a SD emergency human resources roster did not exist. In particular, the first wave of emergency response personnel are generally found by the evaluation to be rapid, helpful and sufficient. Most people (76.3% of survey respondents) are aware that a UNICEF emergency roster exists and there are existing procedures in place to determine both how one becomes a part of the roster and how one is deployed from the roster on emergency missions.

The deployment of SD staff connects SD with a core component of the UNICEF mission in a tangible manner, builds esprit de corps and supports career development. Maintaining an internal response capacity allows UNICEF to deploy staff from within SD as opposed to relying on external non-UNICEF staff who may not necessarily understand the UNICEF culture, organization and people as well as those who work with UNICEF on a daily basis. It was reported on multiple occasions that the ratio of internal staff on emergency deployments has increased with fewer external experts required for response, though this could not be confirmed with quantitative data by the evaluation team.

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84 Division Procedure was established due to “SD and Centres receiving increasing numbers of requests for deployments” and the need for “streamlining of identification and selection of individuals for deployment.”

85 Divisional Procedure 076: Deployments for capacity development, community support and technical assistance including emergencies.

86 The Human Resources Emergency Roster is a single candidate database consolidating the information on available human resources for short term requirements and deployments.

87 A total of 836 applications for the roster were originally received. 250 were eliminated by an initial HR screening and 586 were technically assessed. A member from ECU participated on the four-person Roster Assessment Panel.

88 UNICEF deploys an IRT in response to a L3 emergency.

89 100% of those interviewed supported this finding.

90 The Evaluation Case Studies (Philippines) cited the important role that SD emergency personnel played in the emergency response. In the case of the Philippines, SD first wave of supply chain and logistics human resources were cited as a strength in the response (particularly as related to the data analyst and supply human resources positions).
Once deployed on mission there is evidence that the support from surge staff is highly appreciative. This statement is supported both through the survey results below as well as through the case studies (particularly Philippines, Somalia) and key informant interviews.

Chart 9: Survey Question - How would you rate the support received from the Supply Roster deployed surge staff?

While more SD staff are now available for emergency deployments as compared to 2007, the evaluation could not identify any evidence of systematic emergency response skills development of roster members. When roster members are deployed they use their existing experience and expertise in an emergency situation without receiving emergency supply and logistics specific training or skills development. Some SD roster positions (e.g. data analysis) would benefit from a greater depth of human resources.

How Effective is the SD Design, Use and Sourcing (Including Pre-Positioning and Replenishment) of the Emergency Supply List?

The ESL\textsuperscript{92} is a key SD tool for emergency response and serves as a foundational element of UNICEF for preparedness and response.\textsuperscript{93} The ESL provides UNICEF with the basis for a standardized and rapid response as there is a set listing of items that are prepositioned for immediate deployment to meet the needs of 250,000 persons. ESL items are classified by sector (material group) and type (material sub-group). Each Centre is in charge of the procurement of all items within their sector. An ESL reserve level is fixed per item ensuring that there is a minimum quantity of stock that is always available to respond in the event of an L3 emergency (and for some L2 emergencies too) through orders flagged as Rapid Response. As stated in the initial internal Emergency Response Strategy (2009), ESL levels per item were fixed to respond to the needs of 250,000 people affected by a disaster or conflict, taking into consideration the global percentages of men, women, girls and boys in a population group. ESL levels have been further revised and readjusted based on off-take quantities, according to the revised ESRS strategy (2012).\textsuperscript{94} Indeed, ESL reserve quantities have been the object of revision in three occasions, namely, May 2011, August 2012 and May 2013 (See Figure 2).

ESL items are added or removed on an ad hoc basis. Since its first publication and per Table 7 below, the number of ESL items has been reduced from 161 to 129. The most important reduction was regarding IT items, which have all been eliminated from the ESL.

\textsuperscript{90} Maintenance of the ESL is now one of SD's core functions ensuring that the ESL covers specified quantities of relief items required for an appropriate UNICEF emergency response.

\textsuperscript{93} 43% of all those interviewed supported this finding.

Table 7: ESL items per ESL version, by type of item

<table>
<thead>
<tr>
<th>Type of items</th>
<th>ESL as of April, 2009</th>
<th>ESL as of July, 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>45</td>
<td>39</td>
</tr>
<tr>
<td>Nutrition</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>WASH</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Education</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>IT</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>Cross-Sector</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Staff support</td>
<td>35</td>
<td>36</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>161</strong></td>
<td><strong>129</strong></td>
</tr>
</tbody>
</table>

Source: ESL Review by the Evaluation Team

Almost 95% of all survey respondents are aware of the ESL and 73% of all respondents believe that the items in the ESL are Extremely Relevant or Very Relevant.

Chart 10: Survey Question - Are you aware of the UNICEF Emergency Supply List?

![Chart 10](image)

Chart 11: Survey Question - What do you think of the relevance of the items in the Emergency Supply List?

![Chart 11](image)

Per Table 8 below, the use of the ESL in Rapid Response situations increased significantly from 2012 (54% of Rapid Response item order shipments) to 201396 (72%).

---

95 Answered only by those aware of the Emergency Supply List

96 Supply Pipeline Report data does enable quantifying ESL use in 2014 in a comparable manner, as only data for the first quarter is available.
<table>
<thead>
<tr>
<th>Emergency type/year</th>
<th>ESL item</th>
<th>Not in the ESL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid Response</td>
<td>65%</td>
<td>35%</td>
<td>100%</td>
</tr>
<tr>
<td>2012</td>
<td>54%</td>
<td>46%</td>
<td>100%</td>
</tr>
<tr>
<td>2013</td>
<td>72%</td>
<td>28%</td>
<td>100%</td>
</tr>
<tr>
<td>2014 (1st Q)</td>
<td>58%</td>
<td>42%</td>
<td>100%</td>
</tr>
<tr>
<td>Other Emergencies</td>
<td>54%</td>
<td>46%</td>
<td>100%</td>
</tr>
<tr>
<td>2012</td>
<td>53%</td>
<td>47%</td>
<td>100%</td>
</tr>
<tr>
<td>2013</td>
<td>52%</td>
<td>48%</td>
<td>100%</td>
</tr>
<tr>
<td>2014 (1st Q)</td>
<td>62%</td>
<td>38%</td>
<td>100%</td>
</tr>
</tbody>
</table>

The ESL contributes to the timeliness of the SD response as ESL items take, on average, 13 days to arrive to the port-of-entry once their order is first created by the Country Office (i.e. including Lead 0 in the calculations), while it takes 18 days for non-ESL items. Data analysis shows that the contribution of the ESL has an impact on Leads 0 and 2, translating into an average saving of two days in each. The ESL therefore facilitates the elaboration of orders by the CO and the preparation of the items.

Most within the UNICEF supply community believe that the items included in the ESL are relevant. While 17.91% of survey respondents noted there are a few items that need to be removed from the ESL, 52.94% of respondents believed there are additional supplies that should be added to the ESL.

When considering the design, use and sourcing of the ESL, it is critical to understand the characteristics of Rapid Response orders that appear to speed up or slow down the processing of leads of the supply chain. Based on the Principal Components Analysis (PCA) conducted by this evaluation, these characteristics are identified and presented in section 2.30 on Efficiency of the SD Organization, Processes, Systems & Sourcing Needed to Deliver UNICEF Emergency Response Supplies. It is important to note here that ESL items are delivered faster, and in particular, that they go faster through Leads 0 and 2 than non-ESL items. Emergency items beyond the ESL usually move more slowly through the UNICEF emergency response supply chain.

Further, the evaluation identified two areas of relative weakness regarding the ESL. First, that the ESL’s use of a static 250,000 population target underestimates global needs for UNICEF emergency response. Second, that that the reserve quantities are insufficient for particular items within the ESL. Each of these key points are analysed below.

**A. Comparison of the 250,000 Population Target to Global Needs**

The median value for the number of people under 18 affected by natural disasters in low or lower middle income countries during the period 1990-2012 on a weekly basis is 512,242 (as represented in Figure 4 below). This does not include those affected by conflict. The average population of concern for UNHCR of ages 18 and under and living in low or lower middle income countries since the year 2000 is 130,000 people on a weekly basis. An additional analysis, focusing on more recent years (January 2010 to June 2014, the latter not included), and including all the population that is estimated to be affected by the L2s and L3s declared, shows that the 250,000 persons reserve line is below the amount of people in humanitarian need during these types of emergencies, which is at least 2 million (see Figure 5 below). So in comparison to actual needs the 250,000 population target is likely too low to satisfy global UNICEF requirements. For further details on how calculations were done please see Annex K.

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97 Only 18% of respondents suggested that items need to be removed from the ESL with 53% suggesting that items do indeed need to be added to the ESL.

98 The median is a better indicator than the average value in this case as it is less sensitive to outliers.

99 UNHCR data was identified as one of the most comparable population data sets.
B. Comparison of ESL Reserve Stock Quantities (Initially Designed for a Target Population of 250,000 people) to Past Demand of Emergency Supplies From COs

Another way to consider the effectiveness hypothetically assured by the 250,000 ESL population target is in regards to demand as recorded in the Supply Pipeline Report extracted from the SAP/VISION system. The evaluation team has calculated and analysed the number of times that Rapid Response order quantities exceeded the ESL level per item in the period January 2012 to March 2014. The methodology used has some limitations\(^\text{100}\), for further detail on the methodology and constraints please refer to Annex K. However, based on this data it was concluded that for the majority of ESL items, CO Rapid Response sales order quantities do not exceed ESL reserve levels. However, there is a set of items for which there are records of demand exceeding the ESL levels. According to the Supply Pipeline Report, these items include different types of Amoxicilin, Retinol and health kits. Also the Soda lactic component injection, the Chlorine/pH Pool Tester Kit, the

\(^{100}\) The main limitation being the fact that SAP/VISION records do not include initial CO demands but only those CO demands that are agreed with SD.
centrifugal and diesel driven pump, the Portable Bacteriological Field test kit and the Diarrhoeal Disease Set Packing. It is important to note that, with the exception of the Amoxicilin, all mentioned items take longer to go through Leads 1 and 2 (from SO latest release order to Handling Unit Date) as compared to other ESL items.

Table 9: Items for Which Rapid Response order Quantities Exceeded the ESL Level

| Code      | Material description                                      | Number of times
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RR Order quantities exceeded the ESL level</td>
<td>Average % of exceeding (Average ratio Rapid Response order quantities/ESL level, in %)</td>
</tr>
<tr>
<td>Period Aug</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1505046</td>
<td>Amoxici.pdr/oral sus 125mg/5ml/BOT-100ml</td>
<td>2</td>
</tr>
<tr>
<td>S1583000</td>
<td>Retinol 200,000IU soft gel,caps/PAC-500</td>
<td>2</td>
</tr>
<tr>
<td>S1505060</td>
<td>Amoxicillin 250mg tabs/PAC-1000</td>
<td>1</td>
</tr>
<tr>
<td>S1560812</td>
<td>Sod.lact.comp.inj 1000ml w/g.set/BOX-10</td>
<td>1</td>
</tr>
<tr>
<td>S5006051</td>
<td>Chlorine/pH, Pool Tester Kit for 250 tst</td>
<td>1</td>
</tr>
<tr>
<td>S5006061</td>
<td>Pump,2”/50mm,centrifugal,diesel driven</td>
<td>1</td>
</tr>
<tr>
<td>S5006116</td>
<td>Portable Bacteriological Field tst kit 1</td>
<td>1</td>
</tr>
<tr>
<td>S9906622</td>
<td>IEHK2006.kit.basic unit.malaria</td>
<td>1</td>
</tr>
<tr>
<td>S9906730</td>
<td>Diarrhoeal Disease Set Packing</td>
<td>1</td>
</tr>
<tr>
<td>Period May</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S0145555</td>
<td>Scale,infant,springtype,25kg x 100g</td>
<td>3</td>
</tr>
<tr>
<td>S1583015</td>
<td>Retinol 100,000IU soft gel,caps/PAC-500</td>
<td>1</td>
</tr>
<tr>
<td>S9906621</td>
<td>IEHK2006.kit.basic unit</td>
<td>1</td>
</tr>
<tr>
<td>S9906623</td>
<td>IEHK2006.kit.suppl.1-drugs</td>
<td>1</td>
</tr>
<tr>
<td>S9906624</td>
<td>IEHK2006.kit.suppl.1a-drugs</td>
<td>1</td>
</tr>
<tr>
<td>S9906626</td>
<td>IEHK2006.kit.suppl.2-equipment</td>
<td>1</td>
</tr>
<tr>
<td>S9906627</td>
<td>IEHK2006.kit.suppl.3-renewable</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 6: Example of item for which Rapid Response order Quantities Exceeded the ESL Level. Malaria Health Kit

Thus, for certain products a one-size-fits-all (all products in the ESL for 250,000 population) principle does not necessarily work. For example, the nutrition unit is often requested to provide supplies that target numbers beyond 250,000 people based on their specific supply requirements (regardless of SD

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101 An important number of these times, the demand came from CO to respond to the Typhoon Haiyan in November 2013.
102 S9906622. IEHK2006.kit.basic unit, malaria
stock levels or recommended target beneficiaries calculated through the ESC). There exists no process to determine stock items reserve quantities according to fluctuating needs and response patterns. Adjustments to stock levels are currently handled on ad hoc basis by the planning unit in the warehouse department without being adjusted based on a documented systematic or inclusive process of analysis. There exist no clear linkages between the stock levels and forecasting based on anticipated needs and early warning information or adapted to fluctuations.103

Related to this, it is important to note the result of Chart 12 below reveals potential availability problems given that half of all the respondents gave a midpoint score (3). These problems are confirmed by the evaluation team’s stock analysis in which 10 selected items in the ESL are below the reserve levels at least 40% of days in the analysis period. Additionally, there are 20 ESL items for which at least the stock level is below reserve between 10 and 40% of days in the analysis period (See Section 2.3 for more details).

Chart 12: Survey Question - From your experience how would you rate the availability of Emergency Supply List Items when needed?

- 1.1 Never available
- 2.2 Rarely available
- 3.3 Regularly available
- 4.4 Always available
- 5. I don’t have experience in dealing with supply quantities

How Effective is SD Management of In-Kind Contributions During Emergency Responses?

UNICEF benefit from in-kind contributions related to the transportation or storage of emergency supplies.104 Cost savings are reported as a result of some of the key in-kind contributions that UNICEF received from carriers such as DHL, Kuehne & Nagel105 and ScanGlobal. However, in-kind contributions beyond transport are difficult to match with UNICEF supply needs (particularly related to medical supplies and pharmaceutical supplies) and often it is more effective to maintain a standard policy of declining in-kind offers of supplies rather than going through the complicated process of trying to get in-kind contributions to match UNICEF specifications.

The survey106 supports the general qualitative data collected suggesting that the management of in-kind contributions is not a major concern for UNICEF. As compared to other topical areas of interest for SD, in-kind contribution management during emergencies was not raised during the evaluation as a significant challenge or obstacle to supply chain effectiveness.


105 The Philippines case cited the deployment of Kuehne Nagel staff in response to Typhoon Haiyan as being an enabling factor in support of the UNICEF response.

106 It is likely that few survey respondents deal with in-kind contributions which could explain why the Don’t Know response rate is so high (39.73%). However, it is also worth noting that note that 25% think in-kind contributions are Minimally or Somewhat Effective, which is a relatively high percentage of negative responses.
Chart 13: Survey Question - From your experience, how is Supply Division’s handling of the in-kind contributions allocated to your country?

How Effective is SD Engagement with Partners (Inter-Agency, Cluster, Commercial)?

SD takes the required steps, such as global cluster meeting attendance and input or support to the clusters at the country level during emergencies, to actively participate at the global cluster level (particularly with the Logistics Cluster) and with key UN partners (specifically WFP and UNHCR). UNICEF also maintains positive working relationships with third party supply chain contractors. Based on interviews with UNICEF EMOPS, CO and RO staff, it was repeatedly emphasized that ECU maintains good working relationships with other parts of UNICEF (particularly at the EMOPs and certain CO levels). Per Table 10 below, certain Freight forwarders (particularly Scan Global Logistics A/S) are able to exhibit faster lead times as compared to others. Other Freight Forwarder partnerships, particularly with Kuehne and Nagel, were highlighted in the case studies (Philippines and Somalia) as being effectively leveraged for increased supply chain effectiveness.

Table 10: Average Lead Time By Freight Forwarder

However, all of the freight forwarders involved in this evaluation as key stakeholders stated significant challenges related to inconsistent weights and volumes provided by UNICEF for emergency shipments. This is a significant challenge for UNICEF emergency freight forwarders as they seek to effectively and efficiently support UNICEF emergency response.

How Effective Are SD Emergency Response Monitoring, Evaluation & Learning Systems?

Qualitative data collected provided insight into UNICEF’s commitment to learning within each Centre and Unit at SD as each individual entity strives to improve SD emergency response. Indeed, this

107 Evaluation Case Study Myanmar: Seconding a UNICEF staff to the log-cluster did apparently help in supporting UNICEF CO with the logistics capacity of the Logistics Cluster.

108 Evaluation Case Study Haiti: Logistics Cluster can be an asset support with improving UNICEF in-country logistics.

109 Interviews conducted with WFP and UNHCR substantiate this point. SD OMP 2012-2013 highlight the range of SD partners including WFP and UNHCR.

110 It is noted that Scan Global Logistics mainly works from Copenhagen while Kuehne and Nagel works from less effective countries and infrastructure, that may explain such difference between companies performances.
evaluation, other evaluations from the past\textsuperscript{111} and also those evaluations planned for the near future, are evidence of that commitment. However, there is limited evidence of systematic learning taking place where a cycle of learning is incorporated consistently into programming and management. Also, given the separation between the upstream and downstream components of the supply chain, it is a continuous challenge to diffuse and integrate learning from SD to other components of the supply chain.

Regarding SD emergency response performance measurement, which is a key component of monitoring and evaluation, a great deal of importance and weight is placed on KPI #1 or the percentage of rapid response orders shipped within 48 hours of sales order emergency approval.\textsuperscript{112} The three delivery timeline benchmarks below guide SD in the measurement of its performance relative to Key Performance Indicator (KPI#1) and ensure alignment with the CCOs\textsuperscript{113}:

- ‘Rapid Response Emergency’ - Ready for pick up 48 hours and arrival at Entry Point of receiving country 72 hours by air;
- ‘Emergency’ - Ready for pick up 10 days and arrival at Entry Point of receiving country 14 days by air;
- ‘Other Emergency’ - Ready for pick up 10 days and arrival at Entry Point of receiving country 60 days by sea.

The calculation of these timeline benchmarks is completed monthly and based solely on orders of supplies procured through SD’s warehouse in Copenhagen and supply hubs in Dubai, Panama or Shanghai.

KPI#1 target is fixed at the highest possible value - 100%. As it can be observed in Table 11 below, it is only in 2008 that SD has been close to meeting this target, as 94% of warehouse items were delivered on time for Rapid Response orders. For other years, the KPI#1 value varies between 85% and 90%, except for 2010 and 2011 in which the KPI value was much lower. The massive workload to respond to the earthquake in Haiti in 2010\textsuperscript{114} could be the reason KPI#1 is only 50% that year.\textsuperscript{115}

| Table 11: Annual Evolution of KPI#1 (period 2006-2013) |
|----------------|---------|---------|---------|---------|---------|---------|---------|
| KPI 1          | 2006    | 2007    | 2008    | 2009    | 2010    | 2011    | 2012    | 2013    |
| % rapid response orders shipped within 48 hours of sales order release | 86%     | 86%     | 94%     | 90%     | 50%     | 71%     | 90%     | 85%     |

Source: Evaluation Terms of Reference.

The evaluation identified two important findings related to how SD measures its performance: A) there are inconsistencies in the way that SD defines KPI#1; and, B) the 48 Hour Benchmark Is Overly Optimistic and May Not Be Realistic. Each of these findings is analysed below.

A. There are inconsistencies in the way that SD defines KPI#1
Data points used in SD’s monitoring Excel files differ from those stated in the strategic documents. As a result, a reduced activity of ECU is monitored by KPI#1 compared to what could be expected. The evaluation team has observed certain inconsistencies in the definition of the KPI#1 which may lead to confusion in both internal and external communications. Different definitions as stated in the MTSPs\textsuperscript{116} and the internal monitoring reports are presented in the table below.

\textsuperscript{111} The 2007 Evaluation of UNICEF’s Supply Function was a key reference point for this evaluation, was used to guide SD optimization since 2007 and is still referenced in current strategic planning documentation (e.g. SD OMP 2014-2017).

\textsuperscript{112} As defined in the SD scorecard. KPI#1 is the first of a set of 10 indicators that constitute the SD scorecard. Definitions in other strategic documents differ from the one presented here. This issue will be further developed in the paragraphs below.

\textsuperscript{113} Note that this evaluation is focused on the ‘Rapid Response Emergency’ and ‘Emergency’ benchmark designations. Due to the coding used in the DPs and the SAP/Vision system, we use the term “Other emergencies” to refer to “Emergency” timelines in this report.

\textsuperscript{114} In his Master Thesis, Mathias Kruft says that 2010 is the first time the KPI is measured, as it was created as part of the strategy “During the first year after the implementation, the percentages of KPI #1 did not meet the organization’s goal completely. Especially the large scale emergency in Haiti in January 2010, but also several other smaller disasters have showed that processes within SD and within its suppliers of emergency items have to be improved.”


Table 12: KPI#1 Definitions Across Different Strategic Documents

<table>
<thead>
<tr>
<th>Document / Source</th>
<th>Definition</th>
<th>Target</th>
<th>Other Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>The UNICEF medium-term strategic plan, 2006-2009</td>
<td>% rapid response orders shipped within 48 hours of sales order release</td>
<td>80%</td>
<td>To be set in 2006</td>
</tr>
<tr>
<td>The UNICEF Strategic Plan, 2014-2017</td>
<td>DE:23 Percentage of Supply Division-handled rapid response orders of supplies ready to be delivered within 48 hours of sales order release</td>
<td>100%</td>
<td>Baseline at 90% in 2012</td>
</tr>
<tr>
<td>SD KPI Scorecard (2013)</td>
<td>% rapid response orders shipped within 48 hours of sales order emergency approval</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

**Source**: Compilation elaborated by the evaluation team.

The KPI#1 timeline, as it was first defined and calculated in documentation provided by SD and subsequently reviewed by the evaluation team, commence with the sales order release date. However, in more recent Excel files, such as the SD KPI Scorecard (2013), the starting date is that of approval of the emergency sales order. The ending point of the timeline is said to be shipment in some documents. The UNICEF Strategic Plan (2014-2017) uses the expression “supplies ready to be delivered” to describe that data point. This is more accurate as the date considered in the monitoring Excel files is the Handling Unit Date, in which packed supplies are ready to be picked up from SD’s warehouse or hubs by the Freight Forwarder.

The UNICEF Strategic Plan (2014-2017) is also more explicit regarding which rapid response orders, stating that KPI#1 refers to “Supply Division-handled rapid response orders.” Indeed, it is important to note that KPI#1 takes into consideration orders procured through the warehouse only, which excludes between 13% and 22% of Rapid Response orders (see table below). Data analysis results show that Rapid Response orders not procured through the warehouse (International Purchase orders) take twice as long.\(^\text{117}\) Also, orders flagged as “Other Emergencies” are excluded in the performance measurement, as no KPI focuses on them. As it can be observed in Table 13 below, Other Emergencies orders, which are to be ready for pick-up within 10 days, are extremely more frequent than Rapid Response Emergencies (1,309 item order shipments against 155 in 2012, and 1,507 against 250 in 2013).\(^\text{118}\) This shows that the percentage of Other Emergency orders that meet their timeline is less than that of Rapid Response orders (11 against 13% in 2012, and 18 against 21% in 2013). This suggests a negative impact on the second wave of the UNICEF supply response.

Table 13: Percentage of Orders\(^\text{119}\) Compared Against International Orders vs Warehouse Orders and Rapid Response Emergencies As Compared Against Other Emergencies

<table>
<thead>
<tr>
<th>Year / Type of emergency</th>
<th>International Purchase orders</th>
<th>Warehouse orders</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>36%</td>
<td>64%</td>
<td>100% (1464)</td>
</tr>
<tr>
<td>Other Emergencies</td>
<td>39%</td>
<td>61%</td>
<td>100% (1309)</td>
</tr>
<tr>
<td>Rapid Response Emergencies</td>
<td>13%</td>
<td>87%</td>
<td>100% (155)</td>
</tr>
<tr>
<td>2013</td>
<td>36%</td>
<td>64%</td>
<td>100% (1757)</td>
</tr>
<tr>
<td>Other Emergencies</td>
<td>38%</td>
<td>62%</td>
<td>100% (1507)</td>
</tr>
<tr>
<td>Rapid Response Emergencies</td>
<td>22%</td>
<td>78%</td>
<td>100% (250)</td>
</tr>
<tr>
<td>2014 (1st quarter)</td>
<td>33%</td>
<td>67%</td>
<td>100% (468)</td>
</tr>
<tr>
<td>Other Emergencies</td>
<td>34%</td>
<td>66%</td>
<td>100% (444)</td>
</tr>
<tr>
<td>Rapid Response Emergencies</td>
<td>8%</td>
<td>92%</td>
<td>100% (24)</td>
</tr>
</tbody>
</table>

Thus, KPI#1 excludes International Purchase orders and Other Emergency orders. In terms of timeframe, the SD assessed period does not include the time from when the supplies are ready for pick up in the warehouse to when they are actually picked up. Also, considering the Emergency approval date instead of the Sales Order release date reduces the timeframe of assessment.\(^\text{120}\)

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\(^\text{117}\) See Graph #1: Average Number of Days Per Lead, Type of Order and Level of Priority

\(^\text{118}\) Refer to Table 4: Percentage of Item Order Shipments that are Picked Up On Time (Threshold Fixed at 48 hours for Rapid Response orders and 10 days for Other Emergency Orders).

\(^\text{119}\) As through the entire report, the unit of comparison is the item order shipment. See section on Annex H for further detail.

\(^\text{120}\) Emergency Approval date is usually after Sales Order latest release date, though in a few cases before, as observed when merging data from files “14_02_26 KPI report emergency 2013” and Supply Pipeline Report. See Figure 1: Comparison of Approaches for Lead Time Measurement
B. The 48 Hour Benchmark Overly Optimistic and May Not Be Realistic

As explained above, the timeline measured in KPI#1 does not end when warehouse supplies are shipped, but when they are ready to be picked up by the freight forwarder (or the Handling Unit Date - HUD). According to Division Procedure 10, ECU has no influence beyond the HUD. Also, KPI#1 timeline is fixed at 48 hours to ensure fulfillment of the CCCs, which state that commodities have to be at the port-of-entry within 72 hours. Therefore, the assumption behind this 48 hour benchmark is that the time that passes from HUD to arrival at port-of-entry (over which the SD has no influence), is 24 hours. This is rarely the case. The data analysis conducted by the evaluation concludes that this assumption is not realistic compared to average lead times of the supply chain:

- From HUD to supply picked up by the freight forwarder is **3.6 days on average** for warehouse handled rapid response orders.\(^ {121}\)
- From items picked up by the freight forwarder to arrival at port-of-entry is **2.2 days on average** for warehouse handled rapid response orders.\(^ {122}\)

As a consequence of having assumed an overly optimistic benchmark, timelines for arrival at port-of-entry for warehouse handled rapid response orders are hardly ever met. As showed in Table 4: Percentage of Item Order Shipments that are Picked Up On Time (Threshold Fixed at 48 hours for Rapid Response orders and 10 days for Other Emergency Orders), only 2% of warehouse rapid response item order shipments met the 72 hour target in 2012, and 6% in 2013.

The survey specifically addressed KPI measurements by asking respondents if they felt that the benchmarks developed for Rapid Response and Emergency Orders are appropriate. The results are below

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid response emergency orders are to be delivered to point of entry within 72 hours. Do you think this commitment is appropriate?</td>
<td>84.21%</td>
<td>15.79%</td>
</tr>
<tr>
<td>Emergency orders are to be delivered to point of entry within 14 days. Do you think this commitment is appropriate?</td>
<td>78.95%</td>
<td>21.05%</td>
</tr>
<tr>
<td>Emergency orders classified under type “Other emergency” are to be delivered to point of entry within 60 days. Do you think this commitment is appropriate?</td>
<td>55.41%</td>
<td>44.59%</td>
</tr>
</tbody>
</table>

The KPI is currently designed to assess timeliness of the process in general terms, not to identify problems in specific leads of the supply chain. While UNICEF should aspire to reach stretch goals and many staff agree with the targets established, it may not be realistic for UNICEF to meet these overly optimistic thresholds for all items and in all emergency contexts.

How Aware are UNICEF Staff (Country, Regional and Copenhagen Office Staff) of SD Emergency-Related Strategies, Tools & Procedures?

The ESRS specifically states that the “strategy and related tools will be communicated throughout UNICEF.”\(^ {123}\) Survey results found that 67.07% of respondents were aware of the strategy. Of those, more than 67% deemed it to be Very Appropriate or Extremely Appropriate to their CO in contributing to the fulfillment of the CCCs.

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\(^ {121}\) Period of analysis Jan 2012 to end of March 2014, standard deviation is 3.6
\(^ {122}\) Period of analysis Jan 2012 to end of March 2014, standard deviation is 2.0.
\(^ {123}\) SD Emergency Supply Response Strategy 2012.
However, during the qualitative data collection, contradictory evidence was identified through the key informant interviews. Many stakeholders within SD Copenhagen and outside SD were unaware of the ESRS. This contradiction in data suggests mixed results related to ESRS awareness with a segment of the UNICEF supply community that are unaware of the ESRS. Further, at the CO level there is a desire to have a better understanding of the procurement and supply processes during emergency responses.\textsuperscript{125}

In March 2012, a set of Simplified Standard Operating Procedures (SSOPs) were elaborated to help ensure timely and effective responses to identified needs during L3s and major L2s, upon their declaration by the UNICEF Executive Director and the subsequent activation Corporate Emergency Activation Procedure (CEAP). The SSOPs were fully applied to respond to the Typhoon Haiyan in Philippines in December 2013 for the first time. They were generally agreed to have proved their worth, particularly in terms of speed of staff deployment, recruitment and procurement.\textsuperscript{126} For the Simplified Standard Operation Procedures (SSOPs) for supply and logistics during L2 and L3 emergencies, 67.09\% of all survey respondents were aware of the SSOPs. Stakeholders found that the SSOPs were an enabling element of the SD emergency response. Most survey respondents and many of those involved in the qualitative data collection cited the positive role that the SSOPs have had in the functioning of SD response.

Chart 15: Survey Question - From your past experience, have the SSOPs made a difference in the function of Supply Division response?\textsuperscript{127}

\textsuperscript{124} Answered only by those aware of the CCCs.
\textsuperscript{125} Evaluation Solomon Islands Case Study.
\textsuperscript{127} Answered only by those aware of the SSOPs.
The ESC does appear to provide a good basis for more efficiently determining procurements, weights and volumes and entering into important supply planning discussions with UNICEF Programme colleagues. For those who are aware and have used the ESC, it was found to be generally considered useful and helpful. Based on the survey, those who did use the ESC (only 47% of respondents had used the ESC), over 70% of respondents found the ESC to be Very Useful or Extremely Useful. However, the ESC assumes that the percentage of children is 12% everywhere in the world which can be far from accurate in some cases.

Chart 16: Survey Question - How useful did you find the Emergency Supply Calculator? Answered only by those aware of the Emergency Supply Calculator.

Regarding the regular emergency supply pipeline reports or dashboards that SD provides to the field, there was widespread recognition in the qualitative data collection process that that the pipeline reports are widely felt to be very useful (please reference Chart 17 below). Yet, the evaluation notes that the reports are still generated manually (albeit with data that is collected through VISION).

Chart 17: Survey Question - How useful do you find these weekly emergency supply pipeline reports? Answered only by those aware of the emergency supply pipeline reports.

Further, UNICEF’s strategic decision to implement a "No Regrets Policy" during L3 emergencies was cited at multiple points in the data collection process as being a recent important tool for enabling SD emergency response. The UNICEF "No Regrets" policy, particularly during major L3 emergencies, was cited as enabling more rapid mobilization of emergency supplies as COs have an ability to ‘pull’ faster without the risk of retribution.

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128 The evaluation Jordan and Somalia Case Studies also cited the ESC as being useful in calculating supply requirements.
129 Answered only by those aware of the Emergency Supply Calculator.
130 Answered only by those aware of the emergency supply pipeline reports.
2.3. EFFICIENCY FINDINGS & ANALYSIS

How Efficient is the SD Organization, Processes, Systems & Sourcing Needed to Deliver UNICEF Emergency Response Supplies?

The evaluation identified the following critical efficiency components of UNICEF organization, processes, systems and sourcing:

a) The Emergency Stock Levels  
b) Bottlenecks in the Supply Chain and Lead 2  
c) Information Management & VISION/SAP  
d) Long-Term Agreements

Each of these key elements related to UNICEF supply efficiency is analysed below.

A. Emergency Stock Levels

According to qualitative data collected, there are three stock levels fixed depending on the type of order that stored supplies are reserved for: one for ordinary programme orders, one for orders flagged as “Other Emergencies” (safety stock level) and one for Rapid Response orders (ESL level thus satisfying the needs of 250,000 people). The safety stock level is said to be the reordering point for supplies, as the system triggers a requisition order once the safety stock level is hit. However, the evaluation team found that certain warehouse items are often below the ESL level and this has an impact in the timeliness of other emergency orders (see Table 15 below).

The Warehouse Unit within SD is primarily responsible for assuring respect for these three stock levels. It works “with Procurement Centres and Emergency Unit to ensure optimal stock levels including by managing the forecast and replenishment process”\(^\text{132}\). Every Friday the Material Requirements Planning (MRP) is run to produce a list of stock levels for every item. An assistant from the planning unit placed at each Procurement Centre revises the list carefully for items every week and purchase orders for replenishment are done accordingly. This assistant role was created a year ago and Procurement Centres consider it very useful.

The analysis of warehouse stock levels\(^\text{133}\) conducted by the evaluation team revealed that for a number of ESL items, reserve levels were not respected. For ten ESL items, stock levels are below ESL reserve level 40% to 78% of days in the analysis period.\(^\text{134}\) Further, qualitative data collected\(^\text{135}\) identified instances where there may be a lack of respect for ESL levels when sometimes orders are flagged as emergency orders (rapid response or other emergency orders) due more to a lack of planning than to an actual unpredictable disaster or rapid onset emergency. While it is not clear from the data collected how frequently this takes place, some anecdotal examples of this are from the Syria long-standing L3 crisis, pre-elections period in DRC in the second half of 2012 (which included an important order of pharmaceutical items), and the anti-malaria campaign in Nigeria at the end of 2013. When this happens, ESL reserve levels are tapped for supplies. Data analysis shows that these practices have an impact on lead times of other emergency orders. Indeed, data analysis shows a high correlation between stock levels being under the reserve level and lead times of Other Emergency Orders.

\(^\text{131}\) Supply Function Evaluation Final.pdf, February 2007, UNICEF Evaluation Office. Page 64: There are inappropriate levels of stock held in the Copenhagen warehouse and at suppliers to respond quickly to Emergencies; this is clearly illustrated by the Emergency response times and the SD scorecard which shows months of stock outs of for some supplies.


\(^\text{133}\) As of July 17th 2014. The analysis was done by merging the stock quantities Excel files with the Historical records of stock movements (period December 31st, 2011 to July 17th, 2014), all provided by the Warehouse Unit.


\(^\text{135}\) Specific qualitative data was collected on this point following the evaluation workshop. Identification of example when malaria kits being shipped to Nigeria in October 2013 by air, many of them flagged as Rapid Response orders, although this was not classified as a rapid response emergency.
The stock of the following five items is below the ESL reserve level 50% of days or more: the thermal fleece Blanket, the Nutrition Kit (inpatient, module-equipment), the Diarrhoeal Disease Set Packing, the Plastic Mat and the rectangular light weight Tent (42m²). For all these items, deliveries take particularly long to go through Lead 1 and Lead 2.1. For example, the rectangular lightweight Tent (42m²) - equipment), the Diarrhoeal Disease Set Packing, the rectangular lightweight Tent (42m²) took 4.7 days to go through both leads (Lead 1 and Lead 2.1) and the Diarrhoeal Disease Set Packing took 4.2 days. In both cases lead times were at least double the KPI#1 threshold. The Nutrition Kit (inpatient, module-equipment) for an “Other Emergency” order took 33.9 days to go through Lead 1 and Lead 2.1. Also, shipments of the Diarrhoeal Disease Set Packing, the rectangular Tent and the Plastic Mat were classified as outliers in the lead time analysis as they took more than 63 days to be delivered. The thermal fleece Blanket appears not to be as slow moving as the other items mentioned though this may be due to the fact that thermal fleece blanket was provided via the warehouse only 47% of the time. In addition to the above mentioned, other nutrition kits, health kits, folic acid and family water kits for 10 families present both stock levels below reserve and 20% of days or more. The stock of the following five items is below the ESL reserve level 50% of days or more: the thermal fleece Blanket, the Nutrition Kit (inpatient, module-equipment), the Diarrhoeal Disease Set Packing, the Plastic Mat and the rectangular light weight Tent (42m²). For all these items, deliveries take particularly long to go through Lead 1 and Lead 2.1. For example, the rectangular lightweight Tent took 4.7 days to go through both leads (Lead 1 and Lead 2.1) and the Diarrhoeal Disease Set Packing took 4.2 days. In both cases lead times were at least double the KPI#1 threshold. The Nutrition Kit (inpatient, module-equipment) for an “Other Emergency” order took 33.9 days to go through Lead 1 and Lead 2.1. Also, shipments of the Diarrhoeal Disease Set Packing, the rectangular Tent and the Plastic Mat were classified as outliers in the lead time analysis as they took more than 63 days to be delivered. The thermal fleece Blanket appears not to be as slow moving as the other items mentioned though this may be due to the fact that thermal fleece blanket was provided via the warehouse only 47% of the time. In addition to the above mentioned, other nutrition kits, health kits, folic acid and family water kits for 10 families present both stock levels below reserve and longer lead

Table 15: Percentages of Days in Which Stock Level is Below Reserve Per Item. Lead times for Leads 1 and 2 (Period August 13th, 2012 to July 17th, 2014). Items for Which Stock Level Has Been Below the Reserve Level Only (Highlighted in Red).

<table>
<thead>
<tr>
<th>Item code</th>
<th>Item description</th>
<th>Sector</th>
<th>PERCENTAGE OF DAYS IN WHICH STOCK IS BELOW RESERVE LEVEL</th>
<th>% deliveries from WH against PO</th>
<th>Leads 1 + 2a</th>
</tr>
</thead>
<tbody>
<tr>
<td>S5003517</td>
<td>Blanket, fleece, medium, thermal, 150 x 200 cm</td>
<td>SHELTER/FIELD EQUIP.</td>
<td>78%</td>
<td>47%</td>
<td>4.9</td>
</tr>
<tr>
<td>S0114502</td>
<td>Nut. Kit, inpatient, module-equipment</td>
<td>NUTRITION</td>
<td>64%</td>
<td>100%</td>
<td>33.9</td>
</tr>
<tr>
<td>S9906730</td>
<td>Diarrhoeal Disease Set Packing</td>
<td>MEDICAL KITS</td>
<td>57%</td>
<td>100%</td>
<td>4.2</td>
</tr>
<tr>
<td>S9906400</td>
<td>Plastic Mat w/o logo, 1.8 x 0.9 m/BALE-25</td>
<td>SHELTER/FIELD EQUIP.</td>
<td>56%</td>
<td>83%</td>
<td>8.7</td>
</tr>
<tr>
<td>S0088015</td>
<td>Tent, light weight, rectangular, 42 m²</td>
<td>SHELTER/FIELD EQUIP.</td>
<td>50%</td>
<td>59%</td>
<td>4.7</td>
</tr>
<tr>
<td>S0114053</td>
<td>Nut. Kit, inpatient, module-med. supplies</td>
<td>NUTRITION</td>
<td>48%</td>
<td>100%</td>
<td>11.3</td>
</tr>
<tr>
<td>S9906622</td>
<td>IEHK2006, kit, basic unit, malaria</td>
<td>MEDICAL KITS</td>
<td>47%</td>
<td>100%</td>
<td>7.4</td>
</tr>
<tr>
<td>S5006001</td>
<td>Hygiene kit, adult</td>
<td>WATER AND SANITATION</td>
<td>46%</td>
<td>27%</td>
<td>5.7</td>
</tr>
<tr>
<td>S9906623</td>
<td>IEHK2006, kit, suppl.1-drugs</td>
<td>MEDICAL KITS</td>
<td>42%</td>
<td>100%</td>
<td>8.7</td>
</tr>
<tr>
<td>S5007335</td>
<td>Squatting plate, plastic, w/o pan, 120 x 80 cm</td>
<td>WATER AND SANITATION</td>
<td>42%</td>
<td>54%</td>
<td>1.3</td>
</tr>
<tr>
<td>S5006035</td>
<td>Water tank, collapsible for trucking, 6 m³</td>
<td>WATER AND SANITATION</td>
<td>29%</td>
<td>50%</td>
<td>0.5</td>
</tr>
<tr>
<td>S9906621</td>
<td>IEHK2006, kit, basic unit</td>
<td>MEDICAL KITS</td>
<td>29%</td>
<td>100%</td>
<td>6.2</td>
</tr>
<tr>
<td>S9906627</td>
<td>IEHK2006, kit, suppl.3-renewable</td>
<td>MEDICAL KITS</td>
<td>27%</td>
<td>100%</td>
<td>10.3</td>
</tr>
<tr>
<td>S9906630</td>
<td>Basic family water kit for 10 families</td>
<td>WATER AND SANITATION</td>
<td>24%</td>
<td>100%</td>
<td>0.2</td>
</tr>
<tr>
<td>S0114051</td>
<td>Nut. Kit, inpatient, module-registration</td>
<td>NUTRITION</td>
<td>24%</td>
<td>100%</td>
<td>13.0</td>
</tr>
<tr>
<td>S9908200</td>
<td>Sterilization, kit C</td>
<td>MEDICAL KITS</td>
<td>21%</td>
<td>100%</td>
<td>4.1</td>
</tr>
<tr>
<td>S9906626</td>
<td>IEHK2006, kit, suppl.2-equipment</td>
<td>MEDICAL KITS</td>
<td>21%</td>
<td>100%</td>
<td>7.9</td>
</tr>
<tr>
<td>S5006018</td>
<td>Water tank, collapsible, 1500 l, w/dist. kit</td>
<td>MEDICAL KITS</td>
<td>17%</td>
<td>25%</td>
<td>15.6</td>
</tr>
<tr>
<td>S9908300</td>
<td>Obstetric, surgical kit, suppl.1-drugs</td>
<td>MEDICAL KITS</td>
<td>16%</td>
<td>100%</td>
<td>7.4</td>
</tr>
<tr>
<td>S9906624</td>
<td>IEHK2006, kit, suppl.1a-drugs</td>
<td>MEDICAL KITS</td>
<td>16%</td>
<td>100%</td>
<td>7.3</td>
</tr>
<tr>
<td>S5086011</td>
<td>Tarpaulin, reinforce, plastic sheet, 4 x 5 m</td>
<td>SHELTER/FIELD EQUIP.</td>
<td>15%</td>
<td>53%</td>
<td>4.4</td>
</tr>
<tr>
<td>S1300074</td>
<td>Artem 20mg + Lumefl20mg disp tab / 6/PAC-30</td>
<td>PHARMACEUTICALS</td>
<td>15%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>S5006020</td>
<td>Water tank, collapsible, 1000 l, w/dist. kit</td>
<td>WATER AND SANITATION</td>
<td>14%</td>
<td>11%</td>
<td>0.5</td>
</tr>
<tr>
<td>S9901003</td>
<td>PEP kit</td>
<td>MEDICAL KITS</td>
<td>14%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>S9906536</td>
<td>Water tank, onion, collaps, 30 m, w/taps</td>
<td>WATER AND SANITATION</td>
<td>13%</td>
<td>53%</td>
<td>1.7</td>
</tr>
<tr>
<td>S1580021</td>
<td>Multiple micronutrient tab, sach., PAC-30</td>
<td>NUTRITION</td>
<td>13%</td>
<td>91%</td>
<td>14.0</td>
</tr>
<tr>
<td>S9795020</td>
<td>First aid kit A</td>
<td>MEDICAL KITS</td>
<td>12%</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td>S5006019</td>
<td>Water tank, collapsible, 5000 l, w/dist. kit</td>
<td>WATER AND SANITATION</td>
<td>12%</td>
<td>29%</td>
<td>0.5</td>
</tr>
<tr>
<td>S5006051</td>
<td>Chlorine/PH, Pool Tester Kit for 250 l</td>
<td>WATER AND SANITATION</td>
<td>11%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>S1551005</td>
<td>Folic acid 5mg tabs/PAC-1000</td>
<td>PHARMACEUTICALS</td>
<td>10%</td>
<td>100%</td>
<td>0.7</td>
</tr>
<tr>
<td>S9902220</td>
<td>Midwifery kit, suppl. 1a-drugs</td>
<td>MEDICAL KITS</td>
<td>9%</td>
<td>100%</td>
<td>7.6</td>
</tr>
<tr>
<td>S9902217</td>
<td>Midwifery kit, kit.1-drugs</td>
<td>MEDICAL KITS</td>
<td>9%</td>
<td>100%</td>
<td>10.6</td>
</tr>
<tr>
<td>S5006061</td>
<td>Pump, 2”/50 mm, centrifugal, diesel driven</td>
<td>WATER AND SANITATION</td>
<td>8%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>S1588355</td>
<td>Water pump, NaOCC, 33 mg tabs/PAC-50</td>
<td>WATER AND SANITATION</td>
<td>7%</td>
<td>85%</td>
<td>5.5</td>
</tr>
<tr>
<td>S5006116</td>
<td>Portable Bacteriological Field test kit 1</td>
<td>WATER AND SANITATION</td>
<td>7%</td>
<td>22%</td>
<td></td>
</tr>
<tr>
<td>S9902219</td>
<td>Midwifery kit, kit.3-renewable</td>
<td>MEDICAL KITS</td>
<td>6%</td>
<td>100%</td>
<td>12.5</td>
</tr>
<tr>
<td>S9902218</td>
<td>Midwifery kit, kit.2-equipment</td>
<td>MEDICAL KITS</td>
<td>2%</td>
<td>100%</td>
<td>10.4</td>
</tr>
<tr>
<td>S5006025</td>
<td>GPS Receiver Garmin eTrex 30</td>
<td>WATER AND SANITATION</td>
<td>2%</td>
<td>100%</td>
<td>1.0</td>
</tr>
<tr>
<td>S1505060</td>
<td>Amoxicillin 250mg tabs/PAC-1000</td>
<td>PHARMACEUTICALS</td>
<td>2%</td>
<td>100%</td>
<td>16.0</td>
</tr>
<tr>
<td>S0330200</td>
<td>Gloves, exam, latex, woundfree, small, BOX-100</td>
<td>MEDICAL RENEWABLE</td>
<td>1%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>S5007311</td>
<td>Water cont, PVC/PE,10l, collaps, w/o logo</td>
<td>WATER AND SANITATION</td>
<td>1%</td>
<td>82%</td>
<td>3.5</td>
</tr>
</tbody>
</table>

* Basic family water kit for 10 families, apparently taking 0.2 days to go through Leads 1 and 2, actually takes longer but changes in coding have reduced the number of cases in which the average lead time is calculated for that item.
times. Thus, a lack of reserve levels can lead to longer lead times for deliveries, particularly for those supplies that are always provided through the UNICEF Copenhagen warehouse.

Figure 7: Evolution of Stock Levels for Items that are Most Often Below Reserve Level (Dec 31st 2011 - July 17th 2014)
B. Bottlenecks in the Supply Chain and Lead 2

Based on analysis of lead times, the evaluation team found that for Rapid Response orders, Lead 2 (Preparation) is the lead for which processing time varies the most from 0 to 37 days, with an average value of 6.0 days and a standard deviation of 6.12 days. Further, the Principal Components Analysis (PCA)\textsuperscript{136} on Rapid Response orders concluded the existence of a positive correlation among lead-time variables, and in particular, between Leads 0 and 2. This means that when items take a longer amount of time to go through one of the leads, they usually take long to go through the rest of leads, which holds particularly true for Leads 0 and 2. The evaluation found that if SD had a greater control of processing times for Lead 2, then SD would importantly increase its control on the total number of days that items take to arrive to port-of-entry. Indeed, it is understood from the analysis that the control of the processing for Lead 2 (Preparation) is highly variable and a key driver in determining the overall lead time.\textsuperscript{137}

\textbf{Chart 18: Average Lead Times By Type of Item for Rapid Response orders}

Another important finding from the data analysis is the confirmation that some item characteristics slow down the delivery process. \textit{Table 16} below shows which characteristics slow down or speed up the delivery process. Further, the team has identified which type of items could be delivered faster than they currently are, given that Lead 2 is the lead in which there is the most room for improvement out of all leads (see \textit{Table 17} below).

\textsuperscript{136}PCA is a statistical technique for multivariate analysis conducted to gain understanding of the structure of a dataset (i.e. the correlations between its variables). It transforms a high number of variables into a smaller set, in a way that the maximum variability of the data is retained. Thus, it allows for simple graphical representations with minimal loss of information.

\textsuperscript{137}Supported by qualitative data from evaluation Solomon Islands Case Study.
### Table 16: Summary of Characteristics that Increase or Decrease Lead Times for Item Order Shipments

<table>
<thead>
<tr>
<th>Trend description</th>
<th>Items for which leads are relatively shorter, often in particular Leads 0 and 2.</th>
<th>Items for which leads are relatively longer, often in particular Leads 0 and 2.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Destination countries</strong></td>
<td>Guinea (1,0,0,5), Comoros (2,1,2,1), Jordan (1,1,3,4)</td>
<td>S. Tome &amp; Principe (13,7,8,3), Mauritania (12,2,12,3), Mali (7,4,7,3), Sierra Leone (8,5,5,1), DRC (5,4,6,3)</td>
</tr>
<tr>
<td><strong>Month of order</strong></td>
<td>May (2,2,2,2)</td>
<td>January (15,8,10,8), September (6,2,26,4)</td>
</tr>
<tr>
<td><strong>Budget year</strong></td>
<td>2013 (2,2,6,2)</td>
<td>2012 (6,3,6,3)</td>
</tr>
<tr>
<td><strong>Type of order</strong></td>
<td>Warehouse order (3,3,4,2)</td>
<td>International order (6,2,13,4)</td>
</tr>
<tr>
<td><strong>ESL item</strong></td>
<td>ESL item (3,3,5,2)</td>
<td>Not ESL item (5,3,7,3)</td>
</tr>
<tr>
<td><strong>Type of item (Material group)</strong></td>
<td>Identification and signage (3,0,3,2), Education supplies (3,2,4,2), Warehousing (1,0,4,1) and Medical renewable (4,2,4,2),</td>
<td>Diagnostic test kits (7,7,18,3), WASH (4,2,7,3), Pharmaceuticals (5,3,6,3), Cold chain equipment (3,1,17,4), medical equipment (6,2,26,4), Medical kits (2,6,5,2),</td>
</tr>
<tr>
<td><strong>Type of item (material description)</strong></td>
<td>EDUCATION SUPPLIES: Classroom supplies (2,2,5,1), Physical education (2,2,3,2), IDENTIFIC. &amp; SIGNAGE: Decals (3,0,4,2), Flags and banners (3,0,3,2), T-shirts &amp; clothing (2,0,3,1), MEDICAL RENEWABLE: Syringe/Immunization (2,2,3,1), Tube/catheter/drain (0,0,2,3), Waste disposal (3,2,3,1), PHARMACEUTICALS: Dermatologicals (2,2,3,3), Minerals &amp; Vitamins (2,1,5,2), SHELTER/FIELD EQUIP.: Bedding (0,1,2,4), STAFF SUPPLIES: Safety gear (1,1,5,0), WAREHOUSING: Prefab. Warehouses (1,0,4,1), Misc. packaging (1,0,5,1), WATER AND SANITATION: Collapsible tanks (3,1,4,1), Geophysical equip. (0,1,3,0), Other water tanks (1,1,5,3),</td>
<td>DIAGNOSTIC TEST KITS: Malaria test kits (7,7,18,3), PHARMACEUTICALS: Antimalarial (11,5,13,2), WATER AND SANITATION: Diesel generators (5,2,15,3), NUTRITION: Food fortification (1,1,20,25), SHELTER/FIELD EQUIP.: Tarpaulins (4,3,8,3), EDUCATION: Play materials (4,2,4,2), COLD CHAIN EQUIPMENT: Comp. refr./freezer (2,0,19,4), MEDICAL EQUIPMENT: Elec. resusc. equip. (6,2,26,4),</td>
</tr>
</tbody>
</table>

Given the lead times and also the number of orders, the sectors (i.e. material groups) on which most attention should be prioritized for improvement are WASH, Nutrition, Pharmaceuticals, Medical kits and Shelter and field equipment. The below table provides more specific information on lead times per type of item within each sector. Main lead time challenges are observed in latrines, portable test equipment, treatments and family water kits (WASH), Therapeutic food and Anthorometric equipment (Nutrition), antimalarials, such as Artem+Lumef, antiprozoals, other antibacterials and analgesics (Pharmaceuticals), IEHKs and PEP kits (Medical Kits) and Tarpaulins and tents (Shelter). Specific analyses for each of these sectors can be found in Annex H: Quantitative Analysis though they are summarized in Table 17 below.

---

138 Considering last version of the ESL only.
Having identified Lead 2 as the lead presenting the most potential for improvement, Lead 2 for warehouse items was further analyzed by the evaluation team per available data. To assist in that process, the evaluation, divided Lead 2 into two sub-leads:

- Lead 2.1 from the date in which the stock transfer order arrives to the warehouse until the items are ready for pick-up (handling unit date).
- Lead 2.2 from the date in which the items are ready for pick-up until they are actually shipped.

Data analysis, see Table 18 and Table 19, concludes that, on average, more than two thirds of the time that items take to go through Lead 2 is spent in the second Sub-Lead 2.2 (or when items are ready to be picked up until they actually transported for shipment). Lead 2.2 takes up to 78% of the time for Lead 2 for Rapid Response orders.

### Table 17: Lead Times for Main Item Types Under Rapid Response

<table>
<thead>
<tr>
<th>Group</th>
<th>Type</th>
<th>LEAD 0</th>
<th>LEAD 1</th>
<th>LEAD 2</th>
<th>LEAD 3</th>
<th>SUBTOTAL (Leads 1 through 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDICAL KITS</td>
<td>Medical kits</td>
<td>79</td>
<td>1.9</td>
<td>6.5</td>
<td>5.3</td>
<td>2.1</td>
</tr>
<tr>
<td>NUTRITION</td>
<td>Food fortification</td>
<td>2</td>
<td>0.8</td>
<td>0.7</td>
<td>15.5</td>
<td>29.8</td>
</tr>
<tr>
<td></td>
<td>Therapeutic food</td>
<td>11</td>
<td>2.2</td>
<td>0.1</td>
<td>8.1</td>
<td>2.9</td>
</tr>
<tr>
<td></td>
<td>Anthropometric equip</td>
<td>16</td>
<td>6.3</td>
<td>0.8</td>
<td>7.4</td>
<td>1.4</td>
</tr>
<tr>
<td>WATER AND SANITATION</td>
<td>Bulk Water Tanks</td>
<td>2</td>
<td>0.0</td>
<td>4.5</td>
<td>19.5</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>Other pumps</td>
<td>3</td>
<td>0.9</td>
<td>3.7</td>
<td>16.7</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>Diesel generators</td>
<td>4</td>
<td>5.5</td>
<td>1.5</td>
<td>15.3</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td>HHWT, chemical</td>
<td>4</td>
<td>3.4</td>
<td>9.1</td>
<td>4.0</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>Latrines</td>
<td>13</td>
<td>2.5</td>
<td>0.8</td>
<td>6.8</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>Port.test eqpt/reag.</td>
<td>10</td>
<td>12.5</td>
<td>0.8</td>
<td>9.2</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>Treatmt units/Chems</td>
<td>10</td>
<td>2.5</td>
<td>3.1</td>
<td>5.0</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>Water kits, family</td>
<td>8</td>
<td>6.4</td>
<td>2.0</td>
<td>3.8</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>Polyem containers</td>
<td>3</td>
<td>1.9</td>
<td>1.5</td>
<td>4.3</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>Other water tanks</td>
<td>1</td>
<td>1.0</td>
<td>1.0</td>
<td>5.0</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>Collapsible tanks</td>
<td>16</td>
<td>2.9</td>
<td>1.1</td>
<td>4.3</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>Geophysical equip.</td>
<td>1</td>
<td>0.0</td>
<td>1.0</td>
<td>3.0</td>
<td>0.0</td>
</tr>
<tr>
<td>PHARMACEUTICALS</td>
<td>Antimalarials</td>
<td>15</td>
<td>11.4</td>
<td>4.8</td>
<td>12.7</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td>Hormones&amp;Endocrines</td>
<td>1</td>
<td>6.1</td>
<td>5.9</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Antidotes</td>
<td>1</td>
<td>6.1</td>
<td>5.9</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Anticonvulsants</td>
<td>1</td>
<td>6.1</td>
<td>5.9</td>
<td>5.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Antiprotozoals</td>
<td>4</td>
<td>4.6</td>
<td>4.4</td>
<td>4.3</td>
<td>3.8</td>
</tr>
<tr>
<td></td>
<td>Other antibacterials</td>
<td>6</td>
<td>3.5</td>
<td>3.2</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td></td>
<td>Analgesics/n. opioids</td>
<td>5</td>
<td>4.1</td>
<td>3.5</td>
<td>3.4</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>Anthelmintics</td>
<td>6</td>
<td>4.7</td>
<td>1.0</td>
<td>7.0</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>Antisepsis</td>
<td>5</td>
<td>7.2</td>
<td>1.2</td>
<td>6.6</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>Water &amp; Electrolytes</td>
<td>6</td>
<td>4.4</td>
<td>2.8</td>
<td>4.0</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>Ophtalmological</td>
<td>2</td>
<td>3.1</td>
<td>2.9</td>
<td>3.5</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>Antifungals</td>
<td>2</td>
<td>3.1</td>
<td>2.9</td>
<td>3.5</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>Beta Lactams</td>
<td>15</td>
<td>4.2</td>
<td>2.0</td>
<td>4.8</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>Minerals &amp; Vitamins</td>
<td>10</td>
<td>1.6</td>
<td>3.4</td>
<td>5.0</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>Antihistamines</td>
<td>7</td>
<td>3.0</td>
<td>1.8</td>
<td>2.4</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>Dermatologicals</td>
<td>3</td>
<td>2.0</td>
<td>2.0</td>
<td>3.0</td>
<td>2.7</td>
</tr>
<tr>
<td>SHELTER/FIELD EQUIP</td>
<td>Tarpaulins</td>
<td>16</td>
<td>3.5</td>
<td>3.1</td>
<td>7.5</td>
<td>2.9</td>
</tr>
<tr>
<td></td>
<td>Blankets</td>
<td>2</td>
<td>1.3</td>
<td>0.7</td>
<td>6.0</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Tents</td>
<td>18</td>
<td>4.1</td>
<td>1.8</td>
<td>6.2</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>Bedding</td>
<td>2</td>
<td>0.3</td>
<td>0.7</td>
<td>2.0</td>
<td>3.5</td>
</tr>
<tr>
<td>STAFF SUPPLIES</td>
<td>Staff shelter/camp</td>
<td>6</td>
<td>0.7</td>
<td>0.0</td>
<td>8.7</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Safety gear</td>
<td>4</td>
<td>1.0</td>
<td>1.0</td>
<td>5.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
For materials supplied by SD’s warehouse, the priority for reducing packing times should be placed on pharmaceutical items (Antimalarials, Antiprotozoals, Other antibacterials, Anthelmintics and Minerals & Vitamins) and WASH items (particularly family water kits and polymer containers).

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139 The evaluation Jordan Case Study cited the challenge of WASH items lead times.

140 For all the items mentioned, packing takes more than 1.5 days on average with at least 3 order shipments were done in the period of analysis (From 2012 to the 1st Quarter of 2014).
Table 20: Average Lead Times for Leads 2.1 and 2.2 for Warehouse Items in Rapid Response orders By Type of Item

<table>
<thead>
<tr>
<th>Group</th>
<th>Type</th>
<th>#</th>
<th>Sub Lead 2.1</th>
<th>Sub Lead 2.2</th>
<th>LEAD 2</th>
<th>SUBTOTAL (Leads 1 through 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDICAL KITS</td>
<td>Medical kits</td>
<td>78</td>
<td>0.7</td>
<td>4.6</td>
<td>5.3</td>
<td>14.0</td>
</tr>
<tr>
<td>PHARMACEUTICALS</td>
<td>Antimalarials</td>
<td>6</td>
<td>3.2</td>
<td>1.2</td>
<td>4.3</td>
<td>15.2</td>
</tr>
<tr>
<td></td>
<td>Hormones &amp; Endocrines</td>
<td>1</td>
<td>2.0</td>
<td>3.0</td>
<td>5.0</td>
<td>14.9</td>
</tr>
<tr>
<td></td>
<td>Antidotes</td>
<td>1</td>
<td>2.0</td>
<td>3.0</td>
<td>5.0</td>
<td>14.9</td>
</tr>
<tr>
<td></td>
<td>Anticonvulsants</td>
<td>1</td>
<td>2.0</td>
<td>3.0</td>
<td>5.0</td>
<td>14.9</td>
</tr>
<tr>
<td></td>
<td>Antiproteozoa</td>
<td>4</td>
<td>1.8</td>
<td>2.5</td>
<td>4.3</td>
<td>12.4</td>
</tr>
<tr>
<td></td>
<td>Other antibacterials</td>
<td>6</td>
<td>1.7</td>
<td>2.2</td>
<td>3.8</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>Analgesics/n. opioids</td>
<td>5</td>
<td>1.2</td>
<td>2.2</td>
<td>3.4</td>
<td>10.5</td>
</tr>
<tr>
<td></td>
<td>Anthelmintics</td>
<td>6</td>
<td>1.5</td>
<td>5.5</td>
<td>7.0</td>
<td>9.8</td>
</tr>
<tr>
<td></td>
<td>Antianaeasias</td>
<td>5</td>
<td>1.0</td>
<td>5.6</td>
<td>6.6</td>
<td>9.8</td>
</tr>
<tr>
<td></td>
<td>Water &amp; Electrolytes</td>
<td>12</td>
<td>1.1</td>
<td>2.9</td>
<td>4.0</td>
<td>9.4</td>
</tr>
<tr>
<td></td>
<td>Ophthalmological</td>
<td>2</td>
<td>1.5</td>
<td>2.0</td>
<td>3.5</td>
<td>9.4</td>
</tr>
<tr>
<td></td>
<td>Antifungals</td>
<td>2</td>
<td>1.5</td>
<td>2.0</td>
<td>3.5</td>
<td>9.4</td>
</tr>
<tr>
<td></td>
<td>Beta Lactams</td>
<td>15</td>
<td>1.5</td>
<td>3.3</td>
<td>4.8</td>
<td>9.4</td>
</tr>
<tr>
<td></td>
<td>Minerals &amp; Vitamins</td>
<td>10</td>
<td>2.4</td>
<td>2.6</td>
<td>5.0</td>
<td>8.4</td>
</tr>
<tr>
<td></td>
<td>Antidiarrhoeas</td>
<td>7</td>
<td>0.9</td>
<td>1.6</td>
<td>2.4</td>
<td>7.8</td>
</tr>
<tr>
<td></td>
<td>Dermatomatologicals</td>
<td>3</td>
<td>1.3</td>
<td>1.7</td>
<td>3.0</td>
<td>7.6</td>
</tr>
<tr>
<td>SHELTER/FIELD EQUIP.</td>
<td>Tarpaulins</td>
<td>14</td>
<td>1.3</td>
<td>5.7</td>
<td>7.0</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td>Blankets</td>
<td>2</td>
<td>1.0</td>
<td>5.0</td>
<td>6.0</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>Tents</td>
<td>17</td>
<td>0.3</td>
<td>5.1</td>
<td>5.0</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td>Bedding</td>
<td>2</td>
<td>1.0</td>
<td>3.0</td>
<td>2.0</td>
<td>6.2</td>
</tr>
<tr>
<td>NUTRITION</td>
<td>Anthropometric equip.</td>
<td>15</td>
<td>1.4</td>
<td>5.1</td>
<td>6.5</td>
<td>8.7</td>
</tr>
<tr>
<td>WATER AND SANITATION</td>
<td>Treatment units/Chems</td>
<td>8</td>
<td>1.1</td>
<td>2.9</td>
<td>4.0</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>Water kits, family</td>
<td>8</td>
<td>1.8</td>
<td>2.4</td>
<td>3.8</td>
<td>9.6</td>
</tr>
<tr>
<td></td>
<td>Polymer containers</td>
<td>3</td>
<td>2.0</td>
<td>2.3</td>
<td>4.3</td>
<td>9.5</td>
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<tr>
<td></td>
<td>Latrines</td>
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<td>0.9</td>
<td>4.0</td>
<td>3.0</td>
<td>6.4</td>
</tr>
<tr>
<td></td>
<td>Collapsible tanks</td>
<td>10</td>
<td>0.3</td>
<td>3.1</td>
<td>3.4</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>Geophysical equip.</td>
<td>1</td>
<td>0.0</td>
<td>3.0</td>
<td>3.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Port. test eqpt/reag.</td>
<td>2</td>
<td>0.0</td>
<td>3.0</td>
<td>3.0</td>
<td>4.0</td>
</tr>
<tr>
<td>STAFF SUPPLIES</td>
<td>Safety gear</td>
<td>4</td>
<td>1.0</td>
<td>4.0</td>
<td>5.0</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>Staff shelter/camp</td>
<td>4</td>
<td>0.5</td>
<td>3.5</td>
<td>4.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Total general</td>
<td></td>
<td>262</td>
<td>1.1</td>
<td>3.9</td>
<td>4.8</td>
<td>10.6</td>
</tr>
</tbody>
</table>

C. Information Management

Sufficient gains have been made in tailoring information management needs to meet requirements. SD has made a productive shift to the presentation of real-time and standardized data (via dashboards), which is a positive development leading to improved visibility and understanding of the emergency supply chain. However, the dashboards are still man-made products (as compared to system generated reports) that take many hours of work by a few specialized staff to develop on a regular basis. Thus, there is limited automated visibility of the emergency response supply chain despite the capabilities of VISION/SAP.

In addition, the UNICEF SAP system faces challenges that affect the overall SD system including emergency responses. Specific challenges that have arisen both through the data collection process for this evaluation and from qualitative data collected from users include:

- There is a lack of internal SD consensus as to how VISION data should be interpreted.
- Data can be of poor quality (text field not controlled fields).

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141 Horn of Africa Lesson Learning Exercise - Final Report 15 June 2012.pdf: UNICEF supplies were an important element in UNICEF visibility, as in previous emergencies. A communications officer provided up-to-date information allowing the DOC to communicate on UNICEF supplies. Messaging on supplies was developed, e.g., '100 metric tonnes feeds 7,000 children suffering from severe acute malnutrition'.

142 SD OMP 2014-2017 specifies that following "the implementation of VISION, several workflows and reports in VISION have become more cumbersome due to system bugs. SD has lost efficiency and performance and this is a source of staff frustration."
• Electronic data interchange (EDI) system with freight forwarder has a high rate of error (20-25% of EDI information transaction). This could be a result of 4 freight forwarders operating in different ways.
• UNICEF material specified in VISION is not always correct leading to underestimation or over estimation of shipment weights and volumes.
• The modification of orders in VISION is complicated and leads to the production of duplicate lines in the database that are not automatically cleaned by the system.
• VISION is not used through the entire UNICEF supply chain by key entities (such as warehousing) which can hinder the visibility of the system.
• The VISION is not specialized with the SAP logistics module.
• SAP is not a user-friendly system and thus field offices have difficulties to act within the system.

D. Long-Term Agreements (LTAs)
Qualitative data suggests that competitive tendering processes with multiple LTAs helps to ensure that UNICEF is maximizing cost efficiencies. LTAs are meant to allow for UNICEF to avoid procuring the majority of its supplies during an emergency (which can be cost inefficient) though the use of purchase orders is still not as fast as mobilizing supplies from UNICEF’s own warehouses and stock.

Table 21: Lead Times for International Purchase Ordered Item Shipments by Type of Emergency and Use of LTA

<table>
<thead>
<tr>
<th>Emergency type</th>
<th>Order type</th>
<th>#</th>
<th>LEAD 0</th>
<th>LEAD 1</th>
<th>LEAD 2</th>
<th>LEAD 3</th>
<th>SUBTOTAL (Leads 1 to 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid Response</td>
<td>Non LTAs</td>
<td>13</td>
<td>3.8</td>
<td>1.2</td>
<td>14.6</td>
<td>3.5</td>
<td>19.3</td>
</tr>
<tr>
<td>Emergencies</td>
<td>LTA</td>
<td>64</td>
<td>6.2</td>
<td>2.1</td>
<td>13.0</td>
<td>4.2</td>
<td>19.3</td>
</tr>
<tr>
<td>Other Emergencies</td>
<td>Non LTAs</td>
<td>369</td>
<td>8.8</td>
<td>10.6</td>
<td>50.9</td>
<td>7.6</td>
<td>69.2</td>
</tr>
<tr>
<td></td>
<td>LTA</td>
<td>868</td>
<td>8.6</td>
<td>4.2</td>
<td>37.0</td>
<td>16.1</td>
<td>57.4</td>
</tr>
</tbody>
</table>

In the case of Rapid Response orders, the sample size was not large enough to determine whether LTAs allow for shorter lead times or not. In the case of Other Emergency Orders, it is evident that LTAs allow for shorter lead times for Leads 1 and 2, reducing them 20% to 60% of the time.

To What Extent Are the SD Shipment Hubs (Copenhagen, Dubai and Panama) Enabling Cost-Efficient Emergency Responses?

Per the evaluation's team direct observation, UNICEF global warehousing in Copenhagen is excellent by humanitarian standards. As noted previously, orders from UNICEF warehouses are on average faster than international POs. The Copenhagen warehouse dominates the allocation of UNICEF emergency supplies globally with almost 95% of all stocks maintained in Copenhagen (see Table 22 below). Thus, there is limited utilization of SD regional supply hubs despite the potential efficiencies to be explored in maintaining pre-positioned emergency supply in strategic warehousing hubs where the supplies can sometimes be mobilized more rapidly. As a result of the lack of systematic linkages between the UNICEF supply upstream and downstream components, the focus on UNICEF procurement is primarily on global procurement instead of regional, national or local procurement.

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143 The evaluation’s Solomon Islands case study identified that greater visibility at the CO level regarding what and when items would arrive would have been appreciated by the CO. The Philippines Case Study cited the limited understanding and use of VISION/SAP by the CO during the emergency response.
144 Per OMP 204-2017, UNICEF SD projects $810 million in savings from 2013-2017 and is planning to expand from 3 to 20 RUTF suppliers.
145 Data analysis for this evaluation suggests that warehouse orders are on average 9 days faster than international POs (average of 10 days for warehouse orders as compared to 19 days for international POs).
146 The Haiti Case Study cited that the first aircraft arrived from Panama within 12 to 24 hours after the earthquake struck. Solomon Islands Case Study highlighted the utility of in-country pre-positioned supplies for immediate emergency response which was particularly important given the significant logistical distances involved with supplying the Solomon Islands.
147 The evaluation Jordan Case Study cited that local procurement challenges can exist for UNICEF during the emergency response phase.
### Table 22: UNICEF Global Stock Levels

<table>
<thead>
<tr>
<th>Warehouse Location</th>
<th>Number of types of supplies</th>
<th>Total Stock value (July 17th 2014, US$)</th>
<th>Total Stock value (%)</th>
<th>Main item types</th>
<th>Extension of warehouse (sq. meters)</th>
<th>Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD Warehouse, Copenhagen</td>
<td>1,200</td>
<td>45,243,107</td>
<td>94.8%</td>
<td>800 supply items and kits – for health, water &amp; sanitation and education programmes, and emergency response</td>
<td>23,000</td>
<td>Building complex provided by Danish Government. Stock managed by Supply Division</td>
</tr>
<tr>
<td>Dubai hub</td>
<td>73</td>
<td>2,113,254</td>
<td>4.4%</td>
<td>Bulky emergency items, e.g. water containers, blankets, LLINs, tents, tarpaulins and cooking sets.</td>
<td>4,000</td>
<td>Cooperation with Kuehne &amp; Nagel and Dubai Port World. Stock managed by Supply Division</td>
</tr>
<tr>
<td>Panama hub</td>
<td>22</td>
<td>361,400</td>
<td>0.8%</td>
<td>Includes blankets, water containers, tarpaulins, LLINs and education supplies</td>
<td>500</td>
<td>Cooperation with UNHRD</td>
</tr>
<tr>
<td>Shanghai Regional Logistics Centre</td>
<td>Information not immediately available. Stored items are mainly education kits</td>
<td></td>
<td></td>
<td></td>
<td>8,000</td>
<td>Cooperation with the Government of China</td>
</tr>
</tbody>
</table>

**Source:** Stock quantities as provided by the SD on July 17th 2014. Supply Annual report 2010.

Qualitative data suggest that there are likely cost efficiencies from having donated warehousing in key global regional hubs (Dubai, Panama\(^{148}\) and Shanghai\(^{149}\)). However, there appears to be a lack of daily management understanding and control of UNICEF supplies in the supply hub locations. Management of hub stocks are handled by contractors or other organizations making UNICEF detailed control of this stocks variable (e.g. there is no EDI between systems). Supply hubs such as Dubai and Panama do not store medical items, which helps to explain why they are less in use during Rapid Response which often includes medical components.

Eighty-five percent of survey respondents were aware of SD pre-positioning supplies, of which, more than 63% of respondents stated that this pre-positioning of supplies was Very Effective or Extremely Effective.

**Chart 19: Survey Question - How would you rate the pre-positioning of supplies in terms of effectiveness?\(^{150}\)**

![Chart 19](chart19.png)

Data analysis suggests that improvements in the functioning of the Dubai warehouse can be identified. Items stored in the Dubai warehouse are sent to the ports of Dubai, Mersin, Jebel Ali and Amman. Per Table 23 below, during emergencies of type “Other Emergencies”, orders from these

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\(^{148}\) “(The hub) was vital to the emergency response in Haiti” Supply Annual Report 2010.

\(^{149}\) “80% of education kits now packed in Shanghai, saving of over $500,000 per annum, including for Democratic Republic of Congo, Sudan, Pakistan and hub replenishment.” Supply Annual Report 2010.

\(^{150}\) Answered only by those aware of pre-positioning of supplies.
ports take more than 12 days to go through lead 2.2, which could mean that the freight forwarder Kuehne & Nagel takes too long to pick them up, or it could mean that coordination between the warehouse and the freight forwarders is not properly done. For Rapid Response orders, items from Dubai take the longest to go through sub-lead 2.2.

Table 23: Average Lead Times Per Port of Exit for Warehouse Orders

<table>
<thead>
<tr>
<th>Port of exit</th>
<th>LEAD 0</th>
<th>LEAD 1</th>
<th>LEAD 2</th>
<th>SUB-LEAD 2.1</th>
<th>SUB-LEAD 2.2</th>
<th>LEAD 3</th>
<th>SUBTOTAL (Leads 1 to 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Emergencies</td>
<td>1994</td>
<td>8.2</td>
<td>9.7</td>
<td>16.1</td>
<td>4.5</td>
<td>11.5</td>
<td>15.9</td>
</tr>
<tr>
<td>SHANG HAI</td>
<td>21</td>
<td>12.6</td>
<td>46.3</td>
<td>24.9</td>
<td>4.0</td>
<td>20.9</td>
<td>33.5</td>
</tr>
<tr>
<td>AMMAN</td>
<td>3</td>
<td>10.7</td>
<td>3.7</td>
<td>70.7</td>
<td>0.0</td>
<td>70.7</td>
<td>15.0</td>
</tr>
<tr>
<td>JEBEL ALI</td>
<td>44</td>
<td>13.8</td>
<td>6.9</td>
<td>18.6</td>
<td>0.5</td>
<td>18.1</td>
<td>37.2</td>
</tr>
<tr>
<td>COPENHAGEN</td>
<td>1892</td>
<td>8.1</td>
<td>9.4</td>
<td>15.9</td>
<td>4.7</td>
<td>11.1</td>
<td>15.4</td>
</tr>
<tr>
<td>PANAMA</td>
<td>7</td>
<td>6.8</td>
<td>1.3</td>
<td>16.0</td>
<td>0.6</td>
<td>15.4</td>
<td>11.9</td>
</tr>
<tr>
<td>MERSEN</td>
<td>1</td>
<td>5.0</td>
<td>0.0</td>
<td>15.0</td>
<td>2.0</td>
<td>13.0</td>
<td>2.0</td>
</tr>
<tr>
<td>DUBAI</td>
<td>26</td>
<td>4.6</td>
<td>4.1</td>
<td>12.2</td>
<td>0.0</td>
<td>12.2</td>
<td>3.9</td>
</tr>
<tr>
<td>Rapid Response Emergencies</td>
<td>352</td>
<td>3.1</td>
<td>2.9</td>
<td>4.4</td>
<td>1.0</td>
<td>3.6</td>
<td>2.2</td>
</tr>
<tr>
<td>COPENHAGEN</td>
<td>314</td>
<td>3.1</td>
<td>3.1</td>
<td>4.5</td>
<td>1.0</td>
<td>3.5</td>
<td>2.2</td>
</tr>
<tr>
<td>DUBAI</td>
<td>16</td>
<td>2.0</td>
<td>1.4</td>
<td>6.9</td>
<td>0.0</td>
<td>6.9</td>
<td>0.8</td>
</tr>
<tr>
<td>JEBEL ALI</td>
<td>9</td>
<td>0.5</td>
<td>0.5</td>
<td>1.0</td>
<td>2.0</td>
<td>-</td>
<td>7.0</td>
</tr>
<tr>
<td>BILLUND</td>
<td>13</td>
<td>1.5</td>
<td>0.0</td>
<td>2.5</td>
<td>0.5</td>
<td>1.9</td>
<td>1.0</td>
</tr>
</tbody>
</table>

3. CONCLUSIONS

The conclusions based on the findings and analysis of evaluation data collected through interviews, focus groups, secondary data and the survey are organized according to the four evaluation objectives.

3.10 OBJECTIVE 1 – PROGRESS MADE SINCE 2007

Significant progress has been made since 2007 specifically as related to the following steps taken towards strengthening SD emergency response and preparedness capabilities:

- Development of the ESRS (implementation started in 2009).
- Establishment of a rapid response preparedness level for 250,000 people, as agreed by the CCC review steering group.
- Delineation of a three-phased response, split into time windows of 72 hours, 2 weeks and 2 months.
- Creation of Supply Manual Divisional Procedures and Simplified Standard Operating Procedures (SSOPs) relevant to SD emergency supply response.
- Creation of the Emergency Supply List.
- Development of the Emergency Supply Calculator.
- Creation of a roster of emergency human resources for SD emergency deployments.
- Pre-positioning of supplies at regional warehousing hubs and ensuring availability of current and online inventory information regarding the stock levels held in different SD warehouses and hubs.
- Implementation of the VISION/SAP system in 2012 aimed at integrating SD and CO systems and increasing the visibility of the UNICEF supply chain. creation of excel-based dashboards based on data from VISION/SAP.
- The establishment of KPI#1 as the main performance indicator for SD.
- Establishment of the Emergency Coordination Unit as a functional coordination unit at SD.

3.20 OBJECTIVE 2 – ASSESSMENT OF PAST PERFORMANCE

3.21. SD has a critical role to play in UNICEF’s organizational response to emergencies supporting the delivery of UNICEF emergency programming throughout the world. Since 2007, SD has taken

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151 Missing data for Rapid Response orders exiting from Jebel Ali is due to an error in records that lead to negative values (i.e. according to Supply Pipeline Report data, items were shipped one day before being handled).
152 UNICEF ToR Objective 1: Take stock of past changes since the 2007 Supply Function Evaluation, map systems, processes, and capabilities in place in the supply chain as it pertains to emergency response.
153 UNICEF ToR Objective 2: Assess past SD performance of emergency preparedness and response, particularly examining the effectiveness, efficiency, and relevance of SD’s support to humanitarian action.
many steps aimed at ensuring that SD emergency response and preparedness can better meet UNICEF global contextual requirements.

3.22. There is a very positive internal UNICEF perception of a well-functioning SD Emergency Response. Based on the analysis of the UNICEF emergency response lead times, the reality is that SD is challenged to meet the thresholds established by UNICEF. On average Rapid Response orders take 11.2 days to be fulfilled. Thus, while the speed of response may be sufficient to meet UNICEF CO expectations, the supply chain organizational benchmarks established are likely overly optimistic to match what is realistically possible (on average).

3.23. The dedication of emergency response staff and responsiveness of SD to CO requests for support during emergencies is a strength of SD emergency response. There are generally good levels of awareness of CO needs and responsiveness to CO requests for support though that is even more so for emergency response support as compared to preparedness support.

3.24. Despite the critical pull relationship between COs and SD Copenhagen, the UNICEF global supply chain is separated at the upstream and downstream levels instead of connecting the supply chain in a cohesive supply chain loop. This separation is due in part to UNICEF’s decentralized global organizational management structure. This has resulted in the lack of an integrated supply chain that systematically connects the upstream and downstream components.

3.25. SD emergency preparedness support to COs and ROs consists of a diverse range of activities including training, guidelines, tools and plans to help COs plan for emergency response while also advising and supporting COs with logistics and supply chain decision-making. This support is very much appreciated by COs. However, due to SD staff time constraints, particularly when there are multiple L3 emergencies, there is less time available for SD staff to focus on establishing systematic preparedness linkages through processes and procedures within the emergency supply chain (at either the upstream or downstream levels) and then training staff accordingly.

3.26. The existing ESRS is functional but less than optimal given that the current ESRS is mostly an internal ECU document not linked to a budget. Further, the strategy does not have clear linkages to wider UNICEF emergency strategies while the emergency preparedness component of the strategy is minimal and shows no direct linkages with the ROs or COs.

3.27. The ESL is well known and established within UNICEF and the existing items on the ESL are deemed to be relevant though it is likely that additional items need to be added to the ESL. The ESL is currently updated on an ad hoc basis without any formal process of determining what items should be added or removed and how stock levels should be adjusted accordingly.

3.28. On average ESL items arrive five days faster than non-ESL items. Some SD systems, particularly the ESL stock levels system focused on maintaining a static ESL stock capacity for 250,000 persons, are rigid and do not effectively incorporate the variable stock level quantities required depending on the supply item type. The ESL’s use of a static 250,000 population target underestimates global needs for UNICEF emergency response and reserve quantities are insufficient for particular items within the ESL. Further, for a number of ESL items, the ESL reserve levels are not respected.

3.29. Specific lead time challenges are observed in latrines, portable test equipment, treatments and family water kits (WASH), Therapeutic food and Anthropometric equipment (Nutrition), antimalarials, such as Artem+Lumef, antiprozoals, other antibacterials and analgesics (Pharmaceuticals), IEHKs and PEP kits (Medical Kits) and Tarpaulins and tents (Shelter).

3.30. SD warehouse orders are processed and delivered faster than international purchase orders (POs) in both Rapid Response and Other Emergency situations. UNICEF global warehousing in Copenhagen is excellent by humanitarian standards with the Copenhagen warehouse dominating the allocation of UNICEF emergency supplies globally with almost 95% of all stocks maintained in Copenhagen. There is currently limited utilization or management of SD regional supply hubs.

3.31. Emergency supply forecasting and preparedness activities based on early warning and trend data are still needed.\(^{156}\)

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\(^{154}\) **Upstream**: All activities between orders released from the CO and point of entry into the country, managed by SD.

\(^{155}\) **Downstream**: All activities between point of entry and delivery to beneficiary, managed by UNICEF CO.

\(^{156}\) “In countries where disasters caused by hydro-meteorological hazards are recurrent, improved preparedness measures do save money: UNICEF could save up to 85.7% on air freight costs by simply shipping the relief supplies by sea months before
3.32. ECU is a valued partner within SD and beyond providing a critical emergency coordination function. However, ECU’s capacity is stretched when covering multiple L3 emergencies and very reliant on key individuals, instead of systems and processes, to deliver response coordination.

3.33. Internal SD coordination is not yet systematic or supported by processes with no physical EOC that is used for emergency coordination.

3.34. The matrix management approach at SD and the decentralized UNICEF global approach brings both efficiencies and challenges to UNICEF supply chain management. Matrix management allows for effective leveraging of the whole of SD capacity for emergency response but also creates staffing backfill challenges. With respect to UNICEF organizational decentralization, the COs are closest to those in need and can use national and local networks to support with supply chain management, but that also results in a supply chain that is separated between the downstream and upstream levels.

3.35. The creation of the SD Emergency Roster with established processes is a positive development but there is currently little systematic emergency roster skills development that takes place.

3.36. UNICEF benefits to the greatest extent from in-kind contributions related to the transportation or storage of emergency supplies. As compared to other topical areas of interest for SD, in-kind contribution management during emergencies was not raised through the evaluation as a significant challenge or obstacle to supply chain effectiveness.

3.37. UNICEF actively participates at the global cluster level, maintains good working relationships with other parts of UNICEF and has positive working relationships with third party supply chain contractors.

3.38. Despite a commitment to improvement, there are limited levels of systematic learning taking place.

3.39. Supply chain organizational benchmarks are overly optimistic and inconsistent measurement definition (related to KPI#1) challenge SD.

3.4 OBJECTIVE 3 – RECOMMENDATIONS

Please see Section 4 Recommendations.

3.5 OBJECTIVE 4 – ADDITIONAL KEY LESSONS LEARNED

In addition to the conclusions cited above, which reflect learning and SD development since 2007, key lessons learned that the evaluation identified are as follows:

3.51. SD’s constant intent to improve and adapt to match emergency requirements is a component of SD’s success.

3.52. As with any successful organization, staff dedication and advances in SD human resources (particularly the emergency roster) is, and will continue to be, a key driver of organizational success.

3.53. Lead 2 performance is a key determinant of overall supply chain lead time performance. Thus, addressing Lead 2 challenges is important for future emergency supply chain optimization.

3.54. Investments in SD warehousing and supply reduces lead times as compared to other emergency orders delivered through third party providers.
3.55. UNICEF establishment of the Country Office as the primary client and being available to meet CO requests generates very positive appreciation from COs.

3.56. Emergency response work, particularly when multiple emergencies are concurrently ongoing, tends to usurp ECU capacity, leaving less time and effort available for preparedness work.

3.57. The deployment of senior management at the outset of an L3 is a critical component in defining SD operational success. Further, the deployment of data analyst and human resources positions are very valuable for UNICEF responses.

3.58. The implementation of VISION/SAP continues to bring challenges that also affect supply emergency response. SD has made a productive shift to the presentation of real-time and standardized data (via dashboards,) which is a positive development leading to improved visibility and understanding of the emergency supply chain. However, the dashboards are labour-intensive and not system generated reports.

3.59. Making prepositioned stock immediately available is important, particularly for emergency responses.¹⁶⁰

3.60. UNICEF RO and Shared Services Centre can be positive for L3 emergency responses such as the Syria response¹⁶¹ and can bring about operational efficiencies. The regional supply chain function can be missed when it is not available.¹⁶² Ability to meet demand will likely be stretched during protracted emergencies affecting multiple countries.

3.61. Regional Office roles and responsibilities during emergencies are not well-defined and varies by region and individual personalities involved.

3.62. UNICEF Programme staff would benefit from a better understanding of supply chain process flow.¹⁶³

3.63. Seconding a UNICEF staff to the Logistics Cluster to assist with Logistics Cluster management may assist in supporting UNICEF CO with logistics capacity. Secondment to the Logistics Cluster is an action that UNICEF could reproduce in other emergencies.¹⁶⁴

4. RECOMMENDATIONS

4.1. INTRODUCTION TO RECOMMENDATIONS

The evaluation team proposes two different types of emergency supply chain recommendations for UNICEF consideration and use: Strategic and Tactical Recommendations.

The most significant and challenging recommendations related to long-term emergency supply chain optimisation and emergency response performance enhancement are the six strategic recommendations. These six recommendations likely will take more time (1-5 years), resourcing and commitment to implement. SD will also need to seek buy-in from other parts of UNICEF (including high level management in New York and ROs/COs) in order to effectively implement these strategic recommendations. Thus, the strategic recommendations are more complex while likely bringing the greatest long-term potential benefits to UNICEF and SD.

The tactical recommendations are meant to address many of the improvements to the emergency supply chain that would require lesser levels of resourcing and capacity while still offering significant improvements on UNICEF emergency supply chain performance. These tactical recommendations can also be termed as ‘quick wins’ given that they could be carried out in a relatively shorter period of time (1-6 months) while still demonstrating emergency supply chain optimization.

¹⁶⁰ Per evaluation Solomon Islands and Haiti Case Studies.
¹⁶¹ Per evaluation Jordan Case Study.
¹⁶² Per evaluation Philippines Case Study.
¹⁶³ Per evaluation Somalia and Philippines Case Studies.
¹⁶⁴ The benefits of this approach was specifically cited in the Myanmar case study.
While there are various recommendations that could be made to improve the UNICEF supply emergency response and preparedness, to encourage utilisation these recommendations have been summarized and prioritized. Given their relative levels of importance, the strategic recommendations are presented first (section 4.2) and the tactical recommendations are presented second (section 4.3) in order of priority.

4.2. STRATEGIC RECOMMENDATIONS

**STRATEGIC RECOMMENDATION #1: CONNECT UPSTREAM & DOWNSTREAM FOR AN INTEGRATED EMERGENCY SUPPLY CHAIN**

It is essential that UNICEF maintain a well-functioning emergency supply upstream response capacity. However, in order to have an integrated UNICEF global emergency supply chain, SD has a critical leadership role to play in better connecting the upstream and downstream emergency supply chain components. The UNICEF emergency supply chain does not end at the port-of-entry but actually extends to the last mile of in-country delivery. Further, the “pull” in the UNICEF emergency supply chain comes from the CO level often making this component of the supply chain a driver of emergency response supply chain success (or failure). SD leadership and technical capacity should be mobilized to an even greater extent to support downstream or CO emergency supply chain and logistics during emergencies while also providing substantive preparedness support (see Strategic Recommendation #2). Buy-in from a range of UNICEF emergency supply stakeholders (particularly COs) should be secured as a part of this process so that they too contribute and are held accountable for the functionality of the global UNICEF supply chain and the critical downstream component.

Specific suggested action steps related to Strategic Recommendation #1 include:

1. **i)** Led by SD, create a global emergency supply optimization working group comprised of key global emergency supply actors (SD, EMOPS, Regional Offices and CO representatives) involved at both the upstream and downstream levels of the emergency supply chain.

2. **ii)** Charge this working group with responsibility for the modeling and mapping of the global UNICEF emergency supply chain with a particular focus on how global emergency supply planning, forecasting, sourcing, warehousing and transport can be optimized at all levels of the emergency supply chain (national, regional and international levels).

3. **iii)** Clearly delineate roles and responsibilities within the global supply chain for all of those involved in the global emergency supply chain.

4. **iv)** Establish global emergency supply processes and procedures to codify results from this global optimization process.

5. **v)** Link this effort to a robust and dynamic supply chain feedback and communication mechanism (see Tactical Recommendation #7) to better connect the upstream and downstream components of emergency. By even better understanding the downstream requirements, which is particularly critical in emergency response operations, SD will be better able to make adjustments that more rapidly meet field needs.

6. **vi)** Integrate global procurement with regional and national level sourcing and procurement. In doing so, UNICEF should be able to better link and identify synergies related to more integrated national, regional and international sourcing of emergency supplies.

7. **vii)** Measure the global integrated supply chain through all leads (Leads 0-3) per Tactical Recommendation #2. In measuring this level of improvement, UNICEF should establish a Lead 0, maintain a separate measurement for Leads 1-3 but connect Leads 0-3 with a third global comprehensive supply chain KPI.

Further and as a part of this recommendation, SD would take global leadership and responsibility for establishing the standards and specifications for all UNICEF emergency response supplies while also

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165 This working group could build upon existing global processes and working groups already established or be a new working group focused on better connecting global emergency supply.

166 Note that this evaluation was only focused on the international level though informed with data collected at regional and national levels via targeted key informant interviews, case studies and survey.
ensuring that the latest innovations related to emergency supply chain management (from either the global or field levels) are identified, developed and implemented in collaboration with UNICEF COs. Thus, SD would take responsibility for ensuring that best practices, standards and new innovations are applied at both the upstream and downstream levels of the supply chain.

a) Benefits:
   i. Enhanced Delivery on UNICEF’s CCCs.
   ii. Integrated global supply chain creating efficiencies to the benefit of downstream and upstream components.
   iii. More accurate whole of supply chain measurement that is a better reflection of UNICEF supply chain performance during emergencies.
   iv. Increased global team building that will truly bring together the entire UNICEF supply community.

b) Costs:
   i. Moving forward with this recommendation increases SD risk profile as they take more responsibility for supporting the UNICEF downstream component. The downstream supply chain component is highly variable and SD has limited ability currently to affect downstream supply chain performance.
   ii. SD would likely need to expend significant political capital and strategic planning efforts to build the buy-in from other UNICEF entities throughout the world (UNICEF New York, COs and ROs).
   iii. Systems costs related to better linking the upstream and downstream components (though this cost should be mitigated somewhat by the fact that VISION is intended to be a global supply chain tool).
   iv. Increased investment in recognizing new best practices, standards and innovations and then disseminating them to both the upstream and downstream supply chain components.

STRATEGIC RECOMMENDATION #2:
DEDICATE ADDITIONAL EFFORT, PROCESSES AND SUPPORT TO SUPPLY CHAIN & LOGISTICS PREPAREDNESS

Linked to Strategic Recommendation #1 is the need for SD emergency response to focus to a greater extent on supporting downstream emergency response preparedness (also termed as emergency supply readiness for response). Doing so will enable SD to even better meet CCC Benchmark specifying that “all commodities are delivered to point-of-use or partner.”

SD emergency preparedness should include global emergency supply and logistics mapping, assessment and forecasting based trend data that also projects anticipated emergency supply chain utilization. UNICEF should identify, based on past historical emergency response trend data from countries that do generate significant commitments of UNICEF emergency supplies, specific countries to target with SD supply and logistics emergency preparedness support. SD would manage the overall global forecasting process while COs would be key partners, contributors and beneficiaries of this strengthening process. Thus, SD would also likely need to support some COs in this process. Approximately 5 countries that need SD support could be identified for the first pilot year (2015) and with an additional 10 countries subsequently added each year until a robust global SD preparedness program is in place. The first key step with any of the pilot countries would be to conduct a comprehensive UNICEF tailored supply chain and logistics capacity assessment in emergency vulnerable countries. SD could then invest in developing tools for emergency preparedness dissemination, connecting the global supply community, ensuring that logistics infrastructure at the country and/or regional levels, and national procurement are in place prior to the next emergency response. All SD emergency supply preparedness activities should be aligned and coordinated with EMOPS emergency preparedness efforts.

As a part of a revised SD emergency strategy (see Tactical Recommendation #1) with related budget, SD should ensure funding is available for the design of an SD emergency response training primarily

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167 Also noted in Supply Function Evaluation Final.pdf November 2007, Page 63: Preparedness is not supported with appropriate internal funding structures. Country Offices plan with varying degrees of success for emergency operations. In some cases, predictable disasters are not budgeted for either through Regular Resources (RR) or Other Resources (OR).

168 The Evaluation Philippines Case Study cites as a key lessons learned the need to address supply and logistics vulnerabilities in advance of the emergency response.
targeted to SD and supply community staff. This training could be developed with a unique UNICEF emergency supply and logistics curriculum and piloted in 2015 with the goal of conducting a minimum of three emergency response trainings annually. This supply and logistics emergency response and preparedness training could also include training for non-supply and logistics staff (particularly Programme staff) as secondary target participants. SD tools (e.g. the ESC) would be included within the trainings as a part of SD dissemination efforts.

Emergency preparedness should also take place at the upstream SD level. Strategic Recommendation #5 and Tactical Recommendations #1, 6 and 9 are directly linked to this important part of future SD emergency preparedness work. Dedicated staff resourcing would be required to better manage preparedness support (CO supply and logs assessments, training, coaching etc.) from SD to downstream components.

a) Benefits:
   i. More accurate understanding of UNICEF global supply requirements.
   ii. Cost efficiencies and more rapid response through preparedness.
   iii. Better trained, connected and prepared supply community staff.
   iv. Programme and other supply community staff have a common understanding of SD emergency response that could lead to increased efficiencies at the field level.

b) Costs:
   i. Additional staffing to support CO preparedness. This could be a mix of permanent UNICEF supply community staff and external staff resources allocated on an as-needed basis.
   ii. Training curriculum development, training hosting and related costs.
   iii. Expenses related to the creation of more accurate trend data and forecasting to guide preparedness efforts.
   iv. In-country emergency supply and logistics costs (possibly absorbed by both the CO and SD).

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STRATEGIC RECOMMENDATION #3:
CREATE DYNAMIC EMERGENCY STOCK LEVEL SYSTEM FOR ADAPTABILITY AND MORE RESPONSIVENESS

SD can shift to a dynamic emergency stock level management system in which actual emergency stock levels are adapted for each item (expanded and contracted as necessary) every six months to match current or anticipated global requirements. The great diversity of supplies in the supply catalogue makes the UNICEF response unique, but it also makes it difficult to manage warehouse stock levels. Demand for items is very different from one item to another; therefore items should be categorized based on their demand (for instance by classifying emergency supplies as those with “Frequent High Demand in High Quantities/cost”, “Frequent Demand in Low Quantities/cost” or “Infrequent Demand with High Quantities/cost”). This type of categorization should be considered when determining the dynamic stock levels. Suggested criteria to take into account in the design of a dynamic stock level management system are the following:

- Historical emergency trends and seasonal fluctuations relevant to emergency responses.
- Replenishment times of each specific emergency commodity.
- Strengthened annual emergency forecasting process (potentially led by ROs and/or COs feeding data to SD).
- Early warning triggers that can inform adjustments in stock levels.
- Global UNICEF tailored assessment of the current situation. Link the number and scale of L3 emergencies to global UNICEF stock levels.
- The size and cost of each item.
- Storage costs.
- Effectiveness of each particular item to respond to the urgent humanitarian needs of populations.

UNICEF could establish more systematic ways of determining the optimal stock level for each particular emergency supply item based on the list of elements described above. It is important to

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Possibly entitled Supply & Logistics Emergency Response Training (SLERT) or another title chosen by SD.
note that demand as recorded in the Supply Pipeline Report is not necessarily real demand. Sometimes COs are encouraged to order different items due to lack of availability of needed ones. This factor would need to be taken into account when conducting the historical demand analysis with an exhaustive review of each item that could also be linked to regularly updating the ESL (Tactical Recommendation #5).

Following the development of the dynamic system for testing, an initial pilot could be established by one SD Centre to test the proposed new stock level management system. Once the stock level formula is established for one SD Centre and tested for success and lessons learned, other SD Centres (and their corresponding stocks) could be inserted into the system until all Centres’ stocks are a part of a new UNICEF dynamic emergency stock management system. Divisional Procedures would be established, or modified, that specify how stock estimates are created and updated on a regular basis.

a) Benefits:
   i. Stock levels that better match actual emergency requirements.
   ii. Improved stock management and speed of response.
   iii. Reduce lead times for Other Emergency orders.

b) Costs:
   i. Staff time and effort required to establish and manage a dynamic emergency stock management system.
   ii. Contracting of business intelligence consulting services to support with the design of this system.
   iii. Potential increase in stock inventory costs for items that need a higher stock levels than are currently maintained.

STRATEGIC RECOMMENDATION #4:
FURTHER OPTIMIZE SD EMERGENCY RESPONSE SYSTEMS AND PROCESSES

SD should shift from a heavy reliance on individuals in ECU to an emergency response that is built on consistent systems and processes. While skilled and experienced staff will always be needed to manage emergency response operations, building systems and processes (that are also reflected in divisional procedures) creates a more sustainable long-term platform for SD emergency management.

SD should establish a SD headquarters emergency management team, possibly called the Supply Response Management Team (SRMT-HQ)\(^\text{170}\) with defined activation procedures, roles and responsibilities of team members that is mobilized for L3 emergencies. Each SRMT-HQ would be staffed by SD staff (particularly Emergency Focal Points (EFPs)) and led by ECU. EFPs, and any other SD staff seconded\(^\text{171}\) to a SRMT-HQ, would be expected to contribute actively\(^\text{172}\) to the SRMT-HQ on a consistent basis with a direct reporting line to the SRMT-HQ Manager on a short-term basis. Thus, EFPs would be active and accountable contributors to SD emergency response capacity. Specific roles and responsibilities on the SRMT-HQ would be established to provide increased emergency operational management clarity for all involved staff. SD staff would rotate through the SRMT-HQ as needed to ensure adequate coverage. Thus, the SRMT-HQ would have access to consistent and dedicated SD human resources as provided by SD Centres and units. The SRMT-HQ would be the direct focal point. Specific designations for each SRMT-HQ would be made per L3 emergency (e.g., Haiyan SRMT-HQ; Ebola SRMT-HQ). Concurrently, divisional procedures or protocols regarding communication would be put in place to establish triggers for when emergency coordination is or is not required and what may be expected in terms of information, decision-making or SD emergency response team composition (either at headquarters or field levels).

SD should also utilize a SD emergency operations center (EOC) at SD in Copenhagen for emergency coordination. It should be a dedicated facility at SD with all of the required equipment and space

\(^{170}\) SD can determine what name is most appropriate if it does indeed take action on this recommendation. Thus the SRMT-HQ title is provided for indicative purposes.

\(^{171}\) In these situations, backfill staff will be needed to ensure that EFP staff regular responsibilities are not overly neglected. Thus a pool of staff (internal SD, supply community or external staff) to backfill key positions should also be established.

\(^{172}\) Percentage of time requirements should be established so that a high percentage of EFP staff time is spent supporting an emergency response – for example EFPs should spend 50% of their time in the emergency operations center serving on a SRMT during the first week of an L3 response.
needed to manage three simultaneous global L3 emergency responses. SRMTs would work from the SD operations center ensuring a consistent and dedicated space for SD and field emergency supply and logistics coordination. In the case of multiple L3 emergencies, the operations center could be divided into L3 task areas for each specific response while cross-functional responsibilities (e.g. shipping) would support each of the L3 responses. Emergency coordination meetings with all required SD staff would be coordinated from the EOC. Information available for all SD staff would be available in the EOC while staff would more consistently be in close proximity during emergency operations facilitating communications, analysis and rapid decision-making.

Finally, SD should increase its focus on enabling data and information to improve emergency response and preparedness. This would include the enhancement of SD capabilities to produce real-time data for distribution throughout UNICEF (NY, CO and RO levels) and publicly as appropriate. Thus, the data tools should consider multiple audiences and contexts for application in emergency responses enabling real-time access and visibility throughout the UNICEF supply chain.

Updated divisional procedures related to each of these enhancements should be established and circulated throughout SD.

a) **Benefits:**
   i. More robust contingency and systems in place in case certain individuals are no longer available.
   ii. Shared understanding of roles and responsibilities.
   iii. Efficiencies through improved UNICEF internal coordination and decision-making based on real-time data and supply chain visibility.
   iv. Time and level of effort savings by key staff who currently have to prepare dashboards manually.

b) **Costs:**
   i. Investments related to optimizing VISION so that it can produce real-time data available globally.
   ii. Staff time and effort related to the establishment of divisional procedures needed to operationalize these recommendations.
   iii. Resourcing involved in the creation of a SD emergency operations centre.
   iv. Increased staff time devoted to SRMT responsibilities that decreases time available for normal SD duties. Potential costs related to backfilling those positions until staff can rotate back through the SRMT.

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**STRATEGIC RECOMMENDATION #5:**
CONTINUED INVESTMENT IN STRENGTHENING EMERGENCY HUMAN RESOURCES

It is essential that UNICEF continue tapping into the UNICEF global supply community (particularly beyond SD) as a basis for strengthened emergency human resources capacity. As that is done, SD would also benefit from developing tiers in the emergency response roster that differentiates positions and skill levels, setting a basis for skills development. Tiers for SD consideration would include Tier 3 (those without international training of emergency experience but who demonstrate potential), Tier 2 (those with some international emergency response experience who have basic levels of emergency response capabilities) and Tier 1 (those who are ready for deployment immediately, have the required experience and training and only require additional coaching). Emergency response field trainings should be prioritized for SD community deployable staff in Tiers 2 & 3. If gaps in fulfilling the on-call roster are identified, then SD could look beyond its existing roster to external candidates if needed. Advanced training curriculum and a coaching program should be developed for Tier 1 staff. A SD training curriculum, based on practical field based scenarios, would be developed to meet the audience and needs of various roster members for both emergency response and preparedness missions. A sufficient number (approximately 40 persons initially) would

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173 Many humanitarian agencies develop different tiers of staff who are prioritized for deployment based on their experience and skills to match frequent operational requirements. For example, the International Federation of Red Cross and Red Crescent Societies uses a tiered approach within its Field Assessment and Coordination Team (FACT) while different Red Cross National Societies use tiers of personnel to delineate Emergency Response Unit (ERU) rosters. Delineation of rosters and investment in rosters is also referenced in the People in Aid paper “Surge Capacity in the Humanitarian Relief and Development Sector”, by Houghton and Emmens 2007.
matriculate through the SD emergency response and preparedness training on an annual basis. Critically, staff trained could be used for both emergency response and preparedness missions thus providing a group of staff available to support with implementation of Strategic Recommendation #2.

Further, an on-call roster of deployable staff (delineated by likely required positions for SD emergency response teams such as the Supply & Logistics Team Leader/Coordinator, Logistics Coordinator, Data Analyst, Human Resources etc.) should be developed so that there is some consistency in terms of always having staff available for emergency responses who understand their roles. SD and global supply chain community staff would volunteer for positions on an on-call team (either SRMT-HQ or SRMT-Country Office (CO)), in advance thus filling position requirements for a UNICEF SRMT-HQ and SRMT-CO monthly on-call roster. Importantly, the SRMT would be a complementary SD system to the existing UNICEF IRT while also endeavouring to cross train, to the extent possible, UNICEF Programme managers so that they too can both be deployable assets and have a better understanding of emergency supply. When an emergency takes place, the SD on-call emergency teams (SRMT-HQ and SRMT-CO) are already cleared (professionally and personally) as available for immediate deployment for integration into a CO response operation and/or IRT. When an emergency response deployment is required, actual field-based requirements are then matched with the on-call roster to determine the best field team composition for each particular response. However, the on-call roster list of available staff would be the first option when considering prospective staff for deployment. Once those on the on-call roster are deployed, the on-call roster should be replenished as rapidly as possible in anticipation of the next emergency response deployment.

Lastly, an internal SD task force should be created and directly linked to the latest human resources enhancement efforts being organized by UNICEF NY to specifically address gaps in the 3rd wave of longer-term supply and logistics emergency response staff while also ensuring that SD teams are fully integrated and complementary to UNICEF emergency response processes and systems (e.g. the IRT). This process, working through and in collaboration with any existing process already underway through UNICEF NY, should specifically determine how it would be possible at the beginning (after the 1st week) of an L3 response for the recruitment of the 3rd wave of staff needed to fill longer-term supply and logistics positions in the field. Thus, SD would maintain responsibility for ensuring that the 1st and 2nd waves of supply and logistics staff are covered (through the roster and on-call systems) while UNICEF human resources would take even greater responsibility for the recruitment of 3rd wave candidates through standard recruitment processes and systems. Importantly, this approach should also entail extending the pool of 2nd wave responders to include external specialists in emergency supply chain and logistics who can be trained in advance through the UNICEF training programs and more actively incorporated into the UNICEF supply community.

a) **Benefits:**
   i. Increased staff development opportunities that support retention rates.
   ii. Engagement of a more diverse pool of expertise and experience available for both emergency response and preparedness missions.
   iii. More consistent capacity across response phases.

b) **Costs:**
   i. Staff time and effort involved in creating and maintaining tiers within the roster and an on-call roster for emergency response.
   ii. Political capital needed further build UNICEF HR buy-in to early 3rd wave recruitment.

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### STRATEGIC RECOMMENDATION #6: STRENGTHEN INFORMATION MANAGEMENT SYSTEMS (VISION/SAP) FOR EMERGENCY RESPONSE

For the SD dashboards, SD should conduct an internal review involving UNICEF CO, RO and NY to clearly define the dashboard requirements so that the dashboards provide the required level of visibility throughout the organization during emergency responses. The review and subsequent action

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174 Based on the Evaluation Philippines Case Study, a key lessons learned in and future best practice identified the deployment of data analyst and human resources positions as being very valuable particularly in L3 emergencies.

175 Note that SD can determine what name is most appropriate if it does indeed take action on this recommendation. Thus the SRMT-CO is provided for indicative purposes.

176 HoA Lesson Learned Exercise (12 March 2012).
steps should consider needed VISION/SAP system-wide enhancements for emergency response while ensuring that real-time emergency data is automatically available from VISION (instead of the manual creation of reports by staff). Further, SD must ensure that there are enough surge staff proficient in VISION/SAP immediately ready for deployment (minimum of 2 data analysts on-call each month for deployment). A business case may need to be developed in order to receive investment approval for taking action on this strategic recommendation. If that is indeed needed, SD should first calculate the cost per year in terms of working hours and level of effort required to manually produce the dashboards as compared to the costs of purchasing a reporting server, the expertise and running costs needed to finally apply VISION for this purpose.

**a) Benefits:**

i. Eventual cost savings over the long-term by eliminating the need for some staff to manually create dashboards.

ii. Key UNICEF supply chain stakeholders (CO, RO, SD, and NY) can all access the dashboard in real time creating increased visibility throughout the UNICEF supply chain.

**b) Costs:**

i. Additional investment, beyond that which UNICEF has already made in VISION, to ensure that VISION can produce real-time reports.

### 4.3. TACTICAL RECOMMENDATIONS

#### TACTICAL RECOMMENDATION #1:
**UPDATE, ENHANCE & LINK EMERGENCY SUPPLY RESPONSE STRATEGY ON A REGULAR BASIS**

SD should ensure that the internal ESRS is even more comprehensive (adding in sections related to target audience, a clear goal, objectives, activities linked to objectives) and connected to measurable indicators\(^{177}\) (beyond the KPI#1 and related benchmarks) for annual performance review. Further the Emergency Strategy should have a budget (particularly for preparedness work) so that it is clearer as to how the emergency strategy will be implemented on an annual basis and with what resourcing. This budget should focus on funding needed for SD (e.g. emergency team trainings, equipment for emergency deployments that may or may not be reimbursed by COs) and CO (e.g. UNICEF supply and logistics field assessments, CO emergency logistics trainings) levels of preparedness. If possible, the ESRS should be linked to wider SD, EMOPS and other strategies to the greatest extent possible. In the Emergency Strategy design process, input should be solicited from multiple levels of SD (senior management, Centres, EFPs etc.), EMOPS, ROs, certain COs and the supply community. Once enhanced, the ESRS should be distributed and disseminated widely through SD, EMOPS, ROs and relevant COs. Finally, the Emergency Strategy should be updated on an annual basis (preferably connected with SD annual strategic planning processes) and informed by summarized emergency After Action Reviews (see **Tactical Recommendation #2**).

The ESRS should also incorporate those recommendations from this evaluation that SD decides, through the evaluation management response process, to implement.

**a) Benefits:**

i. Clearer articulation of the ESRS that leads to increased buy-in across the organization in support of the SD strategy.

ii. Enhanced performance management that enables more effective response and support.

iii. Enables ECU to invest to a greater extent in preparedness efforts by maintaining a preparedness budget that allows in supply chain preparedness investments (such as training, coaching and UNICEF country level logistics enhancements).

\(^{177}\) Such indicators would assess the performance of the SD for orders flagged as “other emergency orders” or for items that are not stored in the warehouse. Also, indicators would track performance beyond Lead 1 and Lead 2.1. Indeed, Lead 2.2 needs to be monitored further, even that it does not fully fall within ECU’s responsibility, as it is a key component of ensuring the fulfilment of the CCCs (the 72 hour benchmark).
b) **Costs:**
   i. Additional staff time, of already heavily burdened staff, required to manage a more complex and inclusive strategic planning process.

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**TACTICAL RECOMMENDATION #2: STRENGTHEN EMERGENCY LEARNING & MEASUREMENT**

To further demonstrate SD’s commitment to learning and improvement, SD should standardize a SD emergency After Action Review (AAR) process that would collect lessons learned and assign responsibility for required action following each emergency response. AARs should be conducted at a minimum after every L3 response and led by an impartial entity within SD. On an annual basis, AARs from specific emergency responses should be consolidated into a summary of annual lessons learned that inform the annual ESRS and SD annual strategic planning.

Regarding the measurement of the SD KPI, the KPI should be adjusted to account for a Lead 0, Leads 1-3 and a summative lead (Leads 0-3). The responsibility and accountability for Lead 0 would remain with the CO while SD maintain responsibility and accountability for Leads 1-3. However, SD would take on responsibility for tracking and measuring progress (or regressions) related to Lead 0-3. Some of the data from this evaluation can even be used as a baseline for future lead measurement. Importantly, UNICEF would be responsible for making strategic and tactical adjustments to global UNICEF supply and logistics based on data and analysis derived from this improved measurement. This should be done through an annual KPI review process that informs annual strategic planning.

Further, UNICEF should reconsider the actual wording of the existing KPI and related benchmarks so that they are realistic, aligned with more accurate means of measurement and use consistent language throughout all UNICEF documentation.

a) **Benefits:**
   i. Improve overall emergency response and preparedness by learning from past responses.
   ii. Strengthened measurement that leads to improved management and responses.

b) **Costs:**
   i. Staff time and effort.
   ii. Political capital and other staff time related to revision of the KPI.

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**TACTICAL RECOMMENDATION #3: FOCUS ON LEAD 2 (PREPARATION) ENHANCEMENTS**

Enhancements and optimization related to Lead 2 (Preparation) can improve total emergency response lead times. Thus, prioritization of Lead 2 enhancements should be a priority for SD. More specifically, SD warehousing should address the time required until items are shipped from the warehouse departure area to transport carrier (3.6 days on average). Warehousing can involve shipping as early as possible and specifically work with shipping partners to identify those collaborative steps that can be taken by both parties (SD and the shipping partners) to bring about enhancements that reduce Lead 2 lead times. For example, transport and shipping should ensure that air charter contracts are hired with a cancellation fee while also applying the UNICEF ‘no regrets policy’ to airlifts given that cancelled of flights may result due to a change of plans at the CO level.

a) **Benefits:**
   i. Increased collaboration and coordination between SD units to decrease delivery time.
   ii. Reduced lead times related to Lead 2 and overall KPI.

b) **Costs:**
   i. Staff time and level of effort.
   ii. Cancellation fees, if the flight (per example above) is not used.

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178 Lead 2 presents a high variability in terms of length. As stated in Annex H: It is important to note that Lead 2 (Preparation) is the lead for which processing time varies the most from 0 to 37 days, with an average value of 6.0 days and a standard deviation of 6.12 days. If the SD had a greater control on processing times for Lead 2, then the SD would importantly increase its control on the total number of days that items take to go through the supply chain and arrive to port-of-entry.
TACTICAL RECOMMENDATION #4:
FOCUS ON ADDRESSING EMERGENCY SUPPLY LEAD TIME CHALLENGES BY SECTOR

For materials supplied through international purchase orders, SD should review LTAs to ensure that an emergency response clause is included in all of them and monitor supplier performance related to the following sectors and items:

- **Nutrition**: Therapeutic food;
- **Pharmaceuticals**: Antimalarials (Artem + Lumef);
- **WASH**: Latrines, Other pumps, Diesel generators, Portable test equipment.

SD should ensure that all ESL items maintain a minimum of three active suppliers with emergency stock available for Rapid Response. Each ESL item should be under an LTA with the supplier that can maintain a mandatory safety stock. SD should ensure that all ESL items maintain a minimum of three active suppliers with emergency stock available for Rapid Response. Any less than three suppliers for an ESL item needs to be documented and have ECU approval.

For materials supplied by SD’s warehouse, the priority for reducing packing times should be focused on pharmaceutical items (antimalarials, antiprotozoals, other antibacterials, anthelminthics and minerals and vitamins) and WASH items (water kits, family and polymer containers).

Finally, respect for maintaining ESL levels is important for the functioning of UNICEF emergency supply. Particular challenges related to respecting ESL levels for the following items should be addressed: Thermal Fleece Blanket, Nutrition Kit (in-patient, module equipment), the Diarrhoeal Disease Set Packing, the Plastic Mat and the Rectangular Light Weight Tent (42m²).

**a) Benefits:**
- A wider variety of suppliers can help to reduce lead times and ensure access to more external stock.
- Additional suppliers stock would increase available emergency stocks.

**b) Costs:**
- Staff time and negotiations with suppliers.
- Supplier costs associated with maintaining stocks on UNICEF’s behalf.

TACTICAL RECOMMENDATION #5:
REGULARLY UPDATE ESL

It is essential that SD continue maintaining a strong ESL and ESL-related processes. However, the ESL should be enhanced by standardizing annual and ad-hoc processes for making adjustments to the ESL. As a part of this process, Emergency Focal Points in each Centre would bring ESL updates to an ESL Review Committee. The ESL Review Committee would ensure that the ESL is updated based on comprehensive data collected from each Centre. ESL stock levels (maximum stock levels, safety stock, and replenishment times) would be calculated, documented and approved by the ESL Review Committee.

Further, the ESL would benefit by further classifying the items in the ESL by type of demand (both frequency of demand and type of emergency they serve to respond to) to manage items separately by cluster of items, and do forecasts by cluster. An ABC analysis and an analysis of demand to determine such clusters could further enhance the ESL. SD should review and ensure the recording of accurate weights and volumes for existing ESL items and any new emergency supplies. Once completed for the ESL, other emergency items not on the ESL should be reviewed to accurately ascertain their weights and volumes. SD divisional procedures would then be updated to ensure that future items would be applied correctly in VISION. Divisional procedures should be updated to reinforce the point that SD procurement centres are accountable for receiving from suppliers weight.

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180 For all the items mentioned, packing (Sub-Lead 2.1) takes more than 1.5 days on average and at least 3 order shipments were done in the period of analysis (From 2012 to the 1st Quarter of 2014).

181 An ABC analysis is used for a range of items that have different levels of significance and should be handled or controlled differently. It is a form of Pareto analysis in which the items (such as activities, customers, documents, inventory items, sales territories) are grouped into three categories (A, B, and C) in order of their estimated importance. 'A' items are very important, 'B' items are important, 'C' items are marginally important.
and dimensions at procurement time, get the warehouse staff to confirm weight and dimensions at reception time and enter in VISION within 72 hours such information at contracting and receiving time.

a) **Benefits:**
   i. Ensures that ESL stock levels are calculated and adjusted on a regular basis.
   ii. Accurate weights and volumes that should enhance UNICEF shipping times and efficiencies.
   iii. Increased stock availability to ESL level by mathematically reviewing ESL stock levels using past consumption, trend, and replenishment time (particularly as combined with Strategic Recommendation #3).

b) **Costs:**
   i. SD staff time and effort to organize and coordinate the new ESL Review Committee.
   ii. SD staff time and effort working with suppliers and warehouse staff to ascertain accurate weights and volumes.

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**TACTICAL RECOMMENDATION #6:**
**CONDUCT A COMPREHENSIVE REVIEW TO GUIDE GLOBAL WAREHOUSING ADJUSTMENTS**

SD should conduct a comprehensive review to guide adjustments in its global warehousing utilization specifically covering the positioning of supply hubs in existing and prospective hub locations. Conducted by an expert review facilitator (internal or external personnel), this review would determine the best location for hubs by region. The review would determine if UNICEF were to shift 30% of its global supply to regional hubs, which hub locations would be then most cost effective and efficient for emergency response. Specifically the review would include, though not be limited to, the following regional supply hub location factors:

- Economical rationale with cost in and out (fees) and customs exceptions
- Airfreight charter availability
- Sea freight route and frequencies
- Possible agreement or support from states and civil stability
- Type of goods and consumption by COs in that region
- Resistance to natural disasters and global warming
- Employment laws and regulations
- Supplier capacity in the country/region and route from suppliers to hub
- Regulations on imports and exports
- Ability and capacity for medical pharmaceutical supply storage (including cold chain)
- Speed of supply response
- Regional disaster profile

Further, this review would explore how best to link with UNHRD, IFRC, and other prospective partners to explore how to reinforce coordination and use of existing warehousing structures. At a minimum, in existing locations SD should explore making one UNICEF staff at each hub responsible for stock management on a regular basis.

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111010_overview of the Emergency Supply Strategy review.docx: Proposed follow-up activities in 2012: Review the SD hub-network and consider additional SD hub(s) to be established for shorter and cheaper routing of emergency supplies. Analysis of value of additional hub in SE Asia under way.

Horn of Africa Lesson Learning Exercise - Final Report 15 June 2012.pdf: All COs consider the pre-positioning of supplies one of their greatest strengths in being able to respond quickly and scale up. Pre-positioning in zonal/regional centres was seen as especially important, so that supplies would be closer to the point of need, and UNICEF’s presence was also very important for the monitoring of supplies. COs made use of prepositioned supplies in the months leading up to the L3 declaration.

“The effect of IFRC regional logistics concept on the efficiency of relief item delivery for the population affected by the Yogyakarta Earthquake in May 2006.” Established that if the Pakistan supply chain set up was used to respond to the Yogyakarta Earthquake it would have cost around 18 million CHF rather than 9 million CHF – and IFRC would have only been able to assist less than half the families than was actually achieved.

“The effect of IFRC regional logistics concept on the efficiency of relief item delivery for the population affected by the Yogyakarta Earthquake in May 2006.” The supply chain was fully operational in Yogyakarta 3 times faster than in Pakistan and almost 6 times faster than for the tsunami response. Coupled with a drastic improvement in order lead time and use of pre-positioned stock, nearly 75% of ALL required items were available for distribution within the first 8 weeks. It is noteworthy that in the response phase, kilometers that relief items were transported for Yogayakarta was reduced by 46% in comparison with the Pakistan response and 87% from the tsunami operation.
a) **Benefits:**
   i. Increased decentralization of stocks that reduces risks related to having all supplies in one centralized location.
   ii. Reduction of delivery costs to CO.
   iii. Decreased delivery time.
   iv. Ability to more rapidly use sea freight after the first wave of airfreight cargo, which can result in significant cost savings.

b) **Costs:**
   i. Staff time and effort and consultant costs to conduct the review.
   ii. Maintenance and operational costs associated with managing multiple hub locations.
   iii. Additional SD staff costs related to having staff responsible for hubs on a regular basis.

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**TACTICAL RECOMMENDATION #7:**

**STRENGTHEN QUALITY CONTROL AND USER FEEDBACK DURING EMERGENCY RESPONSES**

For future emergency responses, and particularly for those that involve local procurement, SD should work with the CO to obtain end-user feedback in real-time (to the extent possible) and engage third party quality inspection in-country to spot check specific emergency commodities supplied based on a random selection process. End-user feedback,\(^{186}\) coordinated with the CO and UNICEF Programme team, should be solicited as a standard protocol for UNICEF so that adjustments can be made as needed to ensure that the supplies provided are suitable to end-user requirements.

Third party inspections should be implemented to help ensure that quality inspections of UNICEF emergency supplies are conducted, but without hindering emergency response timing. Quality inspections could be contracted by SD with the monitoring and communication from CO on QI company performance. Any new processes related to end-user feedback or third party inspections process should first be tested on a L2 response before again being tested on an L3 emergency. Once these processes are established they should be considered for systematic adoption as a part of SD divisional procedures.

a) **Benefits:**
   i. Increase feedback mechanism and emphasize culture of constructive feedback.
   ii. Rapid understanding of quality control issues that can be fixed and potentially applied to improvements throughout the supply chain.
   iii. Even better understanding as to what items on the ESL are needed and adequate.

b) **Costs:**
   i. Costs associated with additional third party inspection in country.
   ii. Staff time and effort, communication with CO.
   iii. Potential delays if third party inspections are not managed in an effective and expeditious manner (in which case this recommendations would be null and void).

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**TACTICAL RECOMMENDATION #8:**

**HELP TO MEET UNICEF GLOBAL DEMAND FOR LOGISTICS SUPPORT**

SD should support the on-going UNICEF organizational efforts aimed at creating a standardized package of staff equipment,\(^{187}\) facilities\(^{188}\) and logistical operational equipment\(^{189}\) in support of all UNICEF staff. Thus, a significant array of UNICEF emergency equipment could be sourced, positioned and deployed by SD in support of UNICEF operations. These standardized sets of equipment would be pre-packaged for air shipment so that they could be deployed rapidly from SD to any emergency globally when either the CO facilities have been destroyed or where it may be necessary for UNICEF to establish a field presence and no local facilities (either due to unavailability of facilities or the destruction of existing facilities) are available. When the decision is made to act on

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186 Possibly through mobile feedback mechanisms or randomized user surveys.
187 Could include personal kit such as personal first aid kit, sleeping bag, mosquito dome, cell phone, satellite phone, headlamp/flashlight, food for 7 days, water bottle, emergency blanket etc.
188 Could include tent accommodation for the entire UNICEF IRT (not only SD staff), tent cooking facilities, tent office facilities and all related facility equipment (tables, chairs, desks, utensils, plates, cups, glasses, coffee machine etc.).
189 Could include items such as forklift(s), truck pallets, shrink wrap film, adhesive tape, telecommunications equipment (including HF, VHF. BGAN and handheld satellite phones), vehicles and mobile warehousing structures.
this recommendation, the first logical step would be to review other comparative equipment packages and set-ups by other major international organizations. Based on that review, UNICEF tailored packages of emergency response equipment should be established for rapid deployment. Importantly, this recommendation should feed into UNICEF organizational efforts led by EMOPS already underway aimed at creating this capacity.

a) **Benefits:**
   i. Strengthened UNICEF organizational-wide emergency response capabilities.
   ii. Demonstrated value added and leadership within UNICEF by providing critical logistics support that staff will appreciate in a very tangible way.

b) **Costs:**
   i. Leadership time and effort needed to expand SD mandate and responsibility.
   ii. Investment in establishment of equipment needed for deployment. This cost could be mitigated by charging equipment deployed to an emergency response to the operation (as an operational cost).