



In-Country Management and Distribution of Long Lasting Insecticide-Treated Nets: **A LOGISTICS GUIDE FOR IMPLEMENTERS**



USAID
FROM THE AMERICAN PEOPLE



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First edition published in 2010 — Reviewed by Margaret Desilier, Syon Niyogi and Baika Sesay

Second edition published in 2014 — Reviewed by Orhan Morina, Lantonirina Razafindralambo, Suzanne Van Hulle and Sarah Weber

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AND DISTRIBUTION
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April 2014

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1. LIST OF ACRONYMS

ANC	Antenatal care
CIF	Cost, insurance and freight
CPM	Critical Path Method
CRS	Catholic Relief Services
DMCR	Damaged Misused Commodity Report
DIP	Detailed implementation plan
EPI	Expanded Program on Immunization
FDP	Final distribution point
LLIN	Long-lasting insecticide-treated bed nets
M&E	Monitoring and evaluation
MOH	Ministry of Health
NMCP	National Malaria Control Program
SCM	Supply chain management
TCO	Total cost of ownership
WHO	World Health Organization

2. INTRODUCTION

2.1 CONTEXT

For over fifty years, Catholic Relief Services (CRS) has provided food aid in various forms, in both humanitarian emergency response and nutrition and food security development. This has mainly been through funding from the U.S. government (USAID/FFP and USDA). CRS has developed proven logistics and supply chain management systems and procedures to ensure that food is managed efficiently and accounted for accurately. More recently, CRS has increased its portfolio of public health assistance to include the provision of large volumes of various health commodities. Long-lasting insecticide-treated bed nets (LLIN) are one particular health commodity that has become an important tool in the fight against malaria.

From 2007 to 2013, CRS distributed over eight million LLIN in West Africa, mostly through large distribution campaigns as well as continuous routine distributions. Similar to food assistance, the distribution of large quantities of LLIN requires precise and methodical preparations, which must start at least one year ahead of the scheduled start of the distribution timeframe or campaign dates.

This guide aims to help organizations plan and carry out successful distributions of LLIN. It was inspired by CRS's experience managing Title II food assistance commodities across the world, as well as recent experience in LLIN distribution in three West African Countries, all funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria:

- In The Gambia in 2009, CRS conducted a nationwide distribution campaign of 600 thousand LLIN to pregnant women and children under the age of five, followed by continuous distribution of LLIN to pregnant mothers and children through health centers. CRS is preparing a replacement distribution campaign of 1 million LLIN in May 2014.
- In Niger, CRS provided 2.5 million LLIN to all Nigerien women and children under the age of five in a massive campaign that lasted four days in April 2009. CRS is preparing for a distribution of 1.65 million LLIN in May 2014, for universal coverage in two regions of Niger.

- In Guinea in May 2013, CRS distributed 3.3 million LLIN to all households in 19 of the country's 33 prefectures. The campaign organization required extensive advance planning and complex coordination between many actors.

2.2 INTENDED AUDIENCE

CRS created this guide to share the insights and expertise gained from the experience of these LLIN distribution campaigns and to offer advice to the community of practitioners, especially those familiar with U.S.-funded food assistance programs, in the efficient management and successful distribution of LLIN or other similar products. This guide offers simple methodical procedures and tools for supply chain management (SCM) from initial planning to final distribution and reporting.

Organizations with experience managing Title II food assistance commodities will find this guide especially familiar and simple to follow, because the principles and tools for managing Title II commodities are similar to those required for managing LLIN distribution programs, particularly when the distribution is continuous. The advice in this guide is based on the following assumptions:

- The LLIN were *donated* and shipped by the donating agency or by the supplier to a seaport used for normal commercial cargo, destined for the country of distribution. No guidance on international procurement and shipping is provided.¹
- The organization receives the LLIN cargo in the port of discharge and takes title and risk until the LLIN are distributed to their intended recipients.
- The receiving country is landlocked; therefore, a discussion of inland transit is included. This allows the guide to be equally useful for both coastal and landlocked countries.

Organizations using this guide are encouraged to take into account specific funding requirements from their donor, their own internal rules and procedures and the specificities of their operating environments. In particular, since LLIN are medical supplies, organizations should always consult and coordinate with the Ministry of Health (MOH) in the country of operation, especially regarding policies, requirements or other instructions pertaining to the importation, storage, distribution and usage of medical supplies, including LLIN. They should also

¹ Though CRS has experience in international procurement and shipping, this guide is specifically for local organizations and for in-country LLIN management.

regularly consult the World Health Organization (WHO) guidelines for pesticide handling, which can be found at the WHO Pesticide Evaluation Scheme (WHOPES) website.

There are several reference materials available for consultation on SCM, including import, port operations, storage and warehouse management and distribution techniques. For references specific to the procurement and SCM of medical supplies, including LLIN, the following links provide a good sample of the material available free of charge online:

- <http://www.psmtoolbox.org/en/>
- http://www.rollbackmalaria.org/toolbox/tool_RBMLinDistrToolkit.html
- <http://allianceformalariaprevention.com/resources-view.php?categoryID=29>
- <http://deliver.jsi.com/dhome/resources/tools/printedtools/scessentialsprintedtools>
- <http://www.who.int/malaria/publications/LLINmanual.pdf>

2.3 ORGANIZATION OF THIS GUIDE AND DISCLAIMER

Though it is thorough, **this guide is not intended to provide detailed or universal step-by-step instructions** for the planning, sourcing, receipt, storage and distribution of LLIN. Rather, **it describes the main features of well-organized SCM for LLIN**, which users can build upon to meet their needs and operational requirements. Part 1 focuses on tools and processes used in forward planning. Part 2 describes processes, steps, inputs, actors, outputs and tools required for effective LLIN distribution from receipt to distribution. Part 3 discusses reporting and accountability requirements, reporting tools and data retention.

3. PLANNING

This section describes the planning steps and tools for a good LLIN SCM process. It starts with the overall LLIN distribution objective setting, the quantification of needs and the detailed step-by-step logistics planning of the operation.

3.1 PLAN OF OPERATION

The Plan of Operation, also known as a project or program proposal, describes the goals, objectives, activities and results of the project. A complete Plan of Operation should include a detailed implementation plan (DIP), a budget and plans related to monitoring and evaluation, human resources, SCM and logistics. It should also include clear, detailed descriptions of the strategies and systems required to ensure successful implementation of the proposed intervention. These elements of the Plan of Operation are separately discussed below.

The distribution of LLIN is always done within a larger set of public health strategies and activities to combat malaria. On its own, LLIN distribution would not be adequate as a malaria prevention strategy. Generally, each project starts with a baseline and sets targets, which are either complementary to or supported by LLIN distribution. However, LLIN distribution is typically a predominant project component in terms of budget share and the overall success of the project. Each project must have a well-articulated Plan of Operation showing how the different activities, including LLIN distribution, fit within a coherent strategy and will be implemented in an orderly manner to achieve the project objectives.

In addition, due to the complexity of arranging the logistics of a large distribution, it is necessary to take into consideration the operating conditions. The following aspects must be clearly addressed in the Plan of Operation:

- **Seasons:** Malarial transmission tends to be cyclical, with higher prevalence rates in the rainy season. If the distribution is not continuous, i.e., a campaign-style distribution, it is important to plan its period before the high transmission season to intensify LLIN distribution and usage.
- **Roads and weather:** Access to remote areas by road gets complicated during the rainy season; some areas become inaccessible, or the cost of accessing them becomes prohibitive.



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- **Recipients' livelihoods and cultural practices/beliefs:** It is necessary to understand the sociology of recipients. For example, some LLIN colors can be offensive in some settings, some cultures do not allow that women appear in public or in the presence of men, pregnant women might not want to reveal that they are pregnant due to customs, and sleeping arrangements or habits might be such that LLIN will not be used for sleeping or by those who need them most.
- **Supply lead time:** Organizations must consider two sequential lead times. First, organizations should consider that it takes between one and three months to organize and complete an international bidding process. Second, it generally takes between two and six months between placing an international purchase order and the completion of delivery. The planning process needs to begin well ahead of the targeted distribution timeframe to allow for sufficient preparation and to account for possible delays. Due to increased demand and because only a few LLIN manufacturers are certified by the WHO, limited stocks of LLIN are available for order. Almost all LLIN purchases must be placed in a production queue. As of February 2014, seven LLIN brands or products have full WHO recommendations, while four brands have interim recommendations. Manufacturing and delivery timeframes have decreased in the past few years due to increased demand and competition between

the recommended products' manufacturers, but it is still uncommon to order and receive LLIN in less than three months. Organizations should schedule the start of their distribution activities with these lead times in mind.

- **Order size and cost efficiency:** Generally, larger orders are more cost effective due to economies of scale. As much as possible, organizations planning distribution of LLIN should combine their needs within a national campaign for bulking of orders and shipments, or they should place orders with sequential deliveries. Often, a nationally or regionally coordinated approach to planning and procurement is ideal.
- **The environment:** This includes aspects such as the existing adaptations to the local environment as well as aspects such as disposal of packaging.

Within the Plan of Operation, planning for the logistics of LLIN receipt, storage, dispatch and distribution includes determining the following:

1. When, where, how many and in what specifications will the LLIN be needed?
2. When and where will they be sourced, delivered and received?
3. Where, how and how long will they be stored?
4. What is the quality of storage (consider access, security and safety), and how much space is required for storage?
5. How much inventory will be carried and for how long?
6. How and when will they be transported from the central storage to distribution points?
7. How will they be distributed to end-users?
8. What monitoring and information management systems need to be in place to ensure accountability and efficiency in the above processes?

The supply chain needs to be planned in minute detail to avoid problems during implementation. This requires a solid understanding of supply chain constraints such as lead times, space requirements, optimal inventory carriage and so on. The organization must also understand operational constraints, such as national policies on health products, road network, available storage capacity, relevant cultural preferences and practices and so on.

If not taken into account, these constraints can lead to inaccurate estimation of needs, poor definition of the needed specifications, poor timing of deliveries, pipeline jams or breaks, insufficient or excessive storage capacity and other problems. A well-planned supply chain process will ensure that the right goods are delivered on time, when and where they are needed. For this to happen, the six steps below (described in Sections 3.2 to 3.7) need to take place. All six steps are equally important and interrelated. They must be planned in a coordinated fashion, since they influence one another. A minimum of one year should be allocated between the planning process and the distribution start date.

3.2 DETAILED IMPLEMENTATION PLAN

The DIP is the main day-to-day project management tool. Done on a spreadsheet, it details who does what, who reports to whom, who supports whom, who approves what and other management arrangements. It also includes the start and end dates for every activity, steps or tasks within activities and any dependent or parallel activities. The DIP is a living document and should be updated daily by the project manager (PM) to reflect progress, challenges and setbacks.

There are three specific project management tools that compose a complete DIP: the Critical Path Method (CPM), the Gantt chart and the RASIC Chart. Together, these tools provide clarity and visibility about the management of a LLIN supply chain and distribution.

CPM: This identifies the steps in a process, their relative importance for the overall process outcome and how they are interdependent. It is a standard project management tool that was adapted from engineering network systems. It takes different forms and can be a graphic flowchart, or it can be represented as a spreadsheet.

GANTT chart: Named after Henry Gantt, this represents the timeline of activities within a project. It can be configured to show relationships between activities in the same way the CPM does.

RASIC chart: This chart assigns individual responsibilities for specific tasks within an organized team environment. It shows who is Responsible for a task, who Approves, who Supports, who must be Informed and who should be Consulted or should Concur on a given task within each project activity.

These three tools are usually combined into a linear excel spreadsheet that provides an overall picture of what needs to be done, what time it

needs to start and end and what each team member needs to do for every task and activity. See Section 6.1 and Annex 1 for a sample DIP that includes these three components.

3.3 ESTIMATING HUMAN RESOURCES NEEDS

A good SCM process needs qualified and committed human resources, with the right skills and expertise, in sufficient numbers and at the right time. It is important to estimate ahead of time, as part of the Plan of Operation, what positions are needed and how they are to be filled. At a minimum, a LLIN distribution process should have the following positions:

- A **project manager** who is responsible for the overall project management
- An **SCM specialist** who oversees the entire SCM process at a strategic or higher level; this should be someone with strong supply chain knowledge, particularly for medical products, including quantification, operations management, inventory control and reporting skills
- A **logistics officer** who manages the day-to-day operations pertaining to the implementation of the SCM process; this person should also have strong inventory management experience
- An **LLIN accountant** who manages all logistics documentation and information; although if there are significant resources constraints, the logistics officer can also fulfill this role in addition to the day-to-day management of the physical movements of LLIN
- **Warehouse officers** who are stationed at each warehouse location where the LLIN will be stored for an extended period of time
- A minimum of four **distribution agents** per distribution site: one for verification of recipients' IDs against a pre-established recipients' list, two to exchange vouchers for LLIN, and one for demonstration on the hanging and use of LLIN; these are often volunteers from within the recipient community, and in a routine distribution, a pair of distribution agents is sufficient for either a mobile or fixed site distribution
- **Mobile distribution supervisors**, the number of whom depends on the overall area, available mobility options and number of distribution points; in a campaign setting, mobile supervisors should be in pairs or trios and should be able to visit each distribution site for every distribution day, while in a routine



PHOTO COURTESY OF SUMITOMO CHEMICAL

distribution setting, mobile supervisors should be able to visit each distribution site at least once a month

- **End user checkers** and/or **M&E officers** who are similar to distribution agents and vary in numbers depending on the coverage requirements; they visit recipients after distribution to monitor the usage of LLIN, assist users as necessary and report on user experience and other project performance indicators and statistics

These roles are similar to those required for management of a Title II food assistance program.

3.4 DEFINING AND ESTIMATING LLIN NEEDS

The definition and quantification of LLIN needs is generally part of the procurement process. Though this guide considers that LLIN are an in-kind donation, in most cases the donor collaborates with the recipient in the definition and quantification of an LLIN donation. This section provides key aspects that the recipient organization should consider in the definition of the types, shapes, sizes, colors and active ingredients, as well as the quantities of LLIN needed for the fulfilment of its Plan of Operation.

3.4.1 LLIN Specifications

Implementers should evaluate LLIN specifications based on general characteristics, including physical properties (shape, size, material, conditioning, etc.) and bio-chemical properties (active ingredients, localized vector resistance, etc.).

LLIN are non-pharmaceutical medical products. Organizations intending to distribute LLIN must always consult with the MOH and other local health officials during the product selection process, because different technical requirements or specifications might be applicable in different countries or settings. Other general requirements are necessary to ensure that LLIN are well defined and a good fit for their intended purpose.

The following elements should be considered:

1. **Consult targeted users:** It is important to understand who will be using the LLIN and whether or not the intended users are already familiar with the adequate setup of LLIN and their usage, whether the LLIN are already in use within the target areas and if so, what the user feedback has been for the LLIN they already have. Feedback can be on any of the physical or chemical properties or on other aspects of recipients' experiences using the LLIN.
2. **Consult the WHO's list of pre-qualified LLIN:** The WHO maintains a list of prequalified LLIN brands as maintained by the WHO's Pesticide Evaluation Scheme (WHOPES). The MOH generally follows the WHO recommendations. Implementers should verify whether the product has been recommended or approved for use by the WHO and verify whether there are any international restrictions or regulations specific to the product.
3. **Consult the MOH:** Implementers must consult closely with the MOH to ensure that any health products procured are in accordance with national guidelines. CRS will not procure equipment that is not approved for use in a given country except under exceptional circumstances and only once CRS has obtained the necessary written approvals from the relevant authorities in the country.
4. **Consult the donor** and confirm that the preferred or preselected products and distribution strategy are allowable according to donor requirements and policies before proceeding to quantification and distribution planning.

The process of defining the LLIN to be procured will result in detailed, but generic, specifications including their technical description (denier, bursting strength, hanging hooks, etc.), material, size, shape, color, packaging and any other generic identifiers. Specifications should not be excessively narrow so as to limit competition in the procurement process. For example, the exact product name or manufacturer should not be part of the initial specifications.

3.4.2 LLIN Quantification

Through the quantification process, implementers should determine the following:

1. How much of every product is needed for the planning horizon (project life)
2. How the total number is divided into smaller management periods (e.g., months or quarters)

Quantification is “the process of estimating the quantity and cost of the products required for a specific health project (or service), and, to ensure an uninterrupted supply for the project, determine when the products should be procured and distributed.”²

All quantification must follow usage-centered logic. The starting point is either current consumption/use or intended coverage of needs. The Plan of Operation should feature a detailed description of intended end-users, including their numbers and locations. It should also include the number of LLIN needed, based on estimates from the recipients’ past or current usage or based on intended coverage.

The current WHO goal for LLIN distribution is for *universal coverage*. That means that every individual should sleep under an LLIN. However, this does not mean that every person should *own* a LLIN, because not every individual sleeps alone. Nor does it mean that only beds should have an LLIN on them, because in many places people do not sleep on beds. This goal is subject to interpretation, based on local context and constraints, but there are two WHO-approved methods of calculating universal coverage:

- *One LLIN for 1.8 people*: This is based on the assumption that in most developing countries, people share sleeping spaces. About half of the households have an odd number of members. Therefore,

2 USAID Logistics Handbook, 6.

households with an odd number (n) of members receive either $(n+1)/2$ or $(n-1)/2$ LLIN. The second option does not achieve universal coverage, as a significant number of households end up with less than one LLIN for every two people. For a detailed analysis of the resulting allocation under this method, see Kilian et al.³

WHICH BASIS?

In 2012, in Guinea, the funding proposal specified 1 LLIN for 1.8 people, which resulted in 3,021,222 LLINs for an estimated population of 6,316,720 people (56% of the country's total population).

Subsequently, when CRS was conducting a house-to-house count of recipients and issuing distribution vouchers, the national policy on LLIN distribution was changed from to cover 'sleeping spaces' rather than individual people in each household. In the end, the number of LLINs required was 3,247,849. The gap of 236,549 LLINs (7.8% of original estimates) had to be covered with LLINs initially planned for a subsequent distribution in another region.

This example illustrates the fact that the difference between the two methods can be significant, and it is important for implementers to ensure that the chosen method is in line with national policies.

- *One LLIN per sleeping space*: This is a more precise method of estimating needs, but it requires that the field agent of the distributing organization visit every household to identify the number of sleeping spaces. Furthermore, the notion of "sleeping space" is not well defined in terms of sizes, and could, for example, vary according to how many people sleep together. A typical sleeping space could correspond to a medium, large or extra-large LLIN. Also, the number of sleeping spaces in a household can be positively correlated with the household's wealth, meaning richer households would receive more LLIN than poor ones.

³ 'How many mosquito nets are needed to achieve universal coverage? Recommendations for the quantification and allocation of long-lasting insecticidal nets for mass campaigns'; Albert Kilian, Marc Boulay, Hannah Koenker and Matthew Lynch; *Malaria Journal* 2010, **9**:330

The estimation of LLIN needs should always start from population statistics and clearly explain the steps taken to arrive at the number of LLIN needed. See Section 6.2 and Annex 2 for a sample LLIN quantification table.

If there are other LLIN available from other sources for the same target population, the organization should account for them by either deducting them from the estimation of needs or by reallocating any additional nets to non-covered areas.

In addition to the allocation of LLIN per user, implementing organizations need to account for other logistical realities, including the following:

- *Damage, misuse and losses:* Within the supply chain, it is possible that some LLIN will become unusable or lost. It is prudent to account for this by adding a buffer amount.
- *Packaging and transport:* LLIN are packaged in bales of 25, 40, 50 or 100. It is not practical or prudent to unpack the bales until they reach distribution; therefore, when pre-positioning LLIN, the numbers need to be rounded up.
- *Quantification errors:* All distribution planning data starts with demographic information, which can often include some estimation errors.

Due to these realities, if it is possible budget-wise, a buffer stock of 5–15 percent of the quantified LLIN requirements should be included.

While the quantification for LLIN should be part of the original Plan of Operation, the SCM specialist should work closely with the MOH, National Malaria Control Program (NMCP) and other key stakeholders prior to LLIN acquisition to review the proposal's quantifications and identify any changes in assumptions that may have taken place since the proposal's submission that will affect procurement needs. The SCM specialist should provide technical input during the process and will hold responsibility for verifying the calculations.

3.5 BUDGETING FOR LLIN LOGISTICS

This section addresses the question, “How much will it cost?” Once the LLIN needs have been quantified, they need to be budgeted for.

As the assumption in this guide is that they are acquired as gifts in-kind and are delivered to the nearest seaport, their value will be given



by the donating organization. However, even then, it is important for the implementing organization to know the full cost, including the value of the in-kind donation, not only in order to provide the donor with accurate information, but also to ensure that every cost in the SCM process is clearly identified and planned for.

In addition to the Cost, Insurance and Freight (CIF) value, the total cost of LLIN includes all logistics costs from the point of delivery at the port to the final distribution, including inland transit, customs documentation and processing, warehousing, survey fees, testing fees and tracking and documentation fees, as well as any additional tolls, fees and charges. In addition to standard fees and charges, penalties for any delays in moving cargo or in processing customs documentation must be known to give the organization a full risk assessment and avoid any unreasonable charges. The SCM specialist needs to ensure that all these fees are budgeted for in order to avoid any unforeseen costs.

It is necessary to know the cost to receive, store, manage, dispatch and deliver the needed products in the required quantities. In addition, having a detailed cost analysis helps the organization identify possible cost savings and other efficiency gains. The following steps are necessary for this exercise:

1. Obtain detailed quotations from the donating agency or directly from a number of suppliers (generally, at least three). The costs must indicate clearly where the supplier must deliver the LLIN and what elements of the delivery are included in the supplier's price. Generally, the invoice is included in the delivery documents, but it is better to have a good idea of the cost before signing the agreement, for good budgeting purposes.
2. Obtain quotations from a number of freight forwarders, surveyors, port operations agents and customs clearing agents for all port, inland delivery and customs clearing services.
3. Obtain quotes from a number of local warehouse owners to identify storage options and costs.
4. Obtain from local transport companies the transport and delivery costs from primary storage points to final distribution points (FDPs).
5. Confer with local customs, chamber of commerce, transport authorities and other health implementers to assess the realism of the quotes obtained from service providers (Steps 2 to 4 above), and ensure the costs are genuine, reasonable and competitive.
6. Assess alternative options and associated costs for the delivery, storage, transport and handling of the goods. These include but are not limited to:
 - a. international and local shipping/transport;
 - b. transit fees, customs clearing and forwarding;
 - c. quantity survey;
 - d. quality testing and analyses;
 - e. losses and loss management (loss can be from theft, misuse or damage);
 - f. storage and management costs from receipt to distribution (this might be ongoing or for the duration of the project, if the LLIN are distributed on an ongoing basis throughout the project, or it can be for a shorter time if the LLIN are distributed through a mass distribution campaign);
 - g. an accounting and logistics management information system; and
 - h. disposition of damaged stock and/or packaging material.

7. Calculate the total cost of ownership (TCO) using these elements.
8. Identify any opportunities for cost savings (e.g., combination of orders, simplified delivery systems, shorter stock carriage or centralized storage).
9. Review the estimated total cost against budget or budget request.

If the budget is not closely aligned with anticipated costs after taking into consideration all possible cost savings, the implementing organization should review the quantifications and/or specifications. In this review, it is important to make realistic adjustments so as to avoid cutting cost elements to the point of compromising quality of the LLIN or project performance.

As a general rule, the organization should make adjustments to cost elements over which it has control, as a measure for aligning budget and cost. Any external costs, such as those obtained through bids or through industry standards, should not be adjusted without discussion of the adjustment effects with potential service providers.

3.6 PLANNING THE SUPPLY CHAIN

3.6.1 SCM Sequencing and Pipeline Planning

Once the number of LLIN needed over the planning horizon has been determined, the organization must sequence the procurement within the planning horizon, breaking it down into simple steps and associated quantities. To complete this process, the organization will determine the following criteria:

- **Which procurement and delivery method will be used and the lead-time between procurement and delivery:** This influences the timing of the order or call forward. For example, if the typical timeframe for a competitive bidding process is one month, the contracting timeframe is one month, the order fulfilment is two months and the shipping timeframe is 15 days, the implementing organization should plan on requesting the LLIN from the donating organization at least 5–6 months before they are needed in the country.
- **The recommended shelf life of the LLIN and the quantity required upon delivery in-country:** Typically, the shelf life of an LLIN is five (5) years, or 20 washes from the date of its first usage. This has an impact on replacement planning, and

the organization must have good information on any past LLIN distribution for the same recipients. This is especially important in a continuous distribution scenario, as it gives the organization a good idea of how to sequence the distribution.

- **The average distribution quantities per month or quarter and whether the distribution is linear or seasonal:** For a continuous distribution, the organization must take into consideration the average distribution quantities per month or quarter in order to avoid stock build up or breaks. In particular, if certain periods are more appropriate for distribution, it is important to take into consideration this cyclical/seasonal fluctuation. For example, it is a good idea to distribute as many LLIN as possible just before the rainy season, and it is generally more difficult to distribute in the rainy season.

Available stock in-country and when it will be exhausted: If there are already LLIN available in the country for the same target populations, it is necessary to consider those before ordering additional quantities of LLIN.

Determining these criteria will help the SCM specialist to develop a delivery and distribution pipeline, sequencing the delivery and distribution plan in a coherent manner (e.g., identifying when the LLIN are needed in-country and when they are intended to be distributed). The development of a pipeline is much more important when the distribution of LLIN is scheduled to be continuous, but it is also useful for campaign distribution.

A detailed LLIN pipeline must be part of the SCM plan. See Section 6.3 (and Annexes 3.1 and 3.2) for a sample pipeline.

3.6.2 Internal Transport, Storage and Handling (ITSH)

Generally, LLIN are received in a central storage area and then dispatched to secondary warehouses and onward to FDPs. There can be variations to this approach, depending on, for example, the number of end users, available storage capacity, distance between warehouse(s) and distribution points or the state of the roads. In any case, the organization must assess these variables and devise an ITSH plan.

The ITSH plan should assess how much storage space is required for the entire consignment and adjust the in-coming delivery plan and outgoing

dispatch schedule to ensure that available space is used rationally. Generally, it is important to limit the storage timeframe and number of storage locations. Ideally, LLIN should be received in one location and dispatched directly from that location to the FDPs. Sometimes, however, secondary or transit storage is unavoidable; either due to limitations in transport options or a differentiated road network. For example, there might be good roads between the main warehouse and regional urban centers, so that large trucks can be used, but the area between regional areas and FDPs might be impossible to reach with large trucks, or their needed quantities might be too small to justify larger trucks. In this case, transit/secondary storage might be necessary.

The ITSH concerns are similar to those associated with food assistance programs. With LLINs, volume is a greater issue than weight because LLINs are lighter and bulkier than food. Storage conditions are a lesser concern because LLINs are non-perishable and are generally better protected against weather and other elements. However, LLIN packaging is often uneven and can cause stacking challenges.

See Section 6.5 and 6.6 (Annexes 5 and 6) for sample Transport and Storage Plans.

3.7 INFORMATION MANAGEMENT AND ACCOUNTABILITY

3.7.1 Information Management

The organization is obligated to deliver LLIN to the intended end users in the most efficient and effective manner, and it must account for both the resources and the processes involved in the supply and distribution chain. For this purpose, it is important to establish ahead of time the systems for monitoring and evaluation (M&E) of the SCM plan; this M&E includes an information management system.

The organization should have a system for collecting and storing information. The system should allow easy collection, aggregation and analysis of information on quantities of LLIN received, distributed, remaining, lost and so on; recipients planned versus those reached and any other information related to how the activities are helping to reach the project's objectives and to the efficiency of the SCM processes. Some tools are included in the Information Management and Reporting section at the end of this guide, but they need to be prepared and tested ahead of the actual implementation as part of the planning process.



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The logistics information is always based on signed documentation, including bills of lading, transport waybills, delivery notes, warehouse inventory reports, survey reports, distribution reports and others. There should be a good filing system for all these documents, and operators should enter key data into a database for electronic storage and retrieval, analysis, compilation and reporting. There are several inventory management software options, electronic data capture tools and databases that can be used to store information. The decisions on what software to use, how it should be configured and what information is needed should be made ahead of the delivery of the first LLIN to avoid a buildup of unprocessed data and loss of documentation.

3.7.2 Project Monitoring and Accountability

Humanitarian and development assistance projects have several stakeholders to which they are accountable. In particular, they are accountable to donors, local authorities and the recipients.

Donors provide the resources for a specific purpose and need assurance that those resources are used effectively and efficiently, for the performance of the stated purpose and the achievement of the stated targets. The organization must plan to provide accurate reports of the entire LLIN supply chain, including value for money, resources stewardship and organizational efficiency.

Local health authorities have enacted public health objectives that include the distribution of LLIN. The organization must ensure that health authorities are involved in and supportive of all project activities, and that they are informed of the project approach, methodology, plans, setbacks and results in order to include the project's information in the national health information system. Project information should also be also to coordinate other similar or complementary health efforts and potentially as a means of capacity building.

Recipients are the primary stakeholders of all distribution activities. It can be very embarrassing and damaging when an organization states publicly that an LLIN distribution process targets universal LLIN coverage and some households end up being left with no LLIN. It is equally wasteful when households receive LLIN and use them as fishing nets or wedding veils. Occurrences such as these are documented. It is therefore important to ensure that mechanisms are in place to minimize or eliminate the likelihood of such events. The organization must also develop efficient and proven procedures for addressing them when they occur.

All contractual arrangements must account for what happens when there are losses or misuse of resources. The organization must have robust internal control systems, and its organizational structure must accommodate adequate segregation of duties. As indicated in the previous section, the organization must set in place good distribution monitoring and end use checking systems and a credible and reliable information collection and retention system for audit purposes. It must be able to provide required reports in a timely manner and with credible, supported management information. For a complete, detailed resource on management systems, see the CRS Institutional Strengthening Guide⁴, which includes a detailed chapter on SCM.

⁴ The entire guide is available for download at <http://www.crsprogramquality.org/publications/2011/10/4/institutional-strengthening-guide.html>

4. IMPLEMENTATION

Once the initial LLIN distribution planning stage is complete and the project agreement is signed, the organization must begin implementing the project according to the plan. This section describes all elements of the SCM implementation process in sequential order.

This section provides key features of every SCM activity including a summary of the activity, persons responsible for the activity, the required inputs and desired or expected outputs, how the activity connects to other aspects of the project and a detailed description of the activity.

Not all aspects of every activity can be addressed in this guide, and users should consider the narrative descriptions provided herein as basic guidance rather than comprehensive instructions.



4.1 MACRO PLANNING: SCM DIP

Key Features	SCM Activities and Steps
Summary	The DIP is presented as a spreadsheet that describes the sequential processes of a supply and distribution chain in the form of a linear process flow. It includes the main steps of every SCM process or activity, target performance timeframes, the actors involved in the process and their immediate relationships with other activities.
Responsibilities	<i>The SCM specialist is the process owner of the DIP</i> <i>All project staff must participate in the development of the DIP and must be kept informed of any significant updates, including delayed activities, completed activities and changes in targets.</i>
Inputs	<ul style="list-style-type: none"> • Overall project DIP: The SCM DIP should fit within an overall project DIP • Industry standards for deliverables from external suppliers, such as port discharge, storage, inland transport, customs clearance standards and rules.
Outputs	<ul style="list-style-type: none"> • SCM DIP
Connections	All other project documents and processes: The SCM DIP must fit within an overall project implementation framework.
Description	<p>Project implementation must start with a macro-planning exercise, which consists of creating and maintaining a DIP. The DIP pre-defines the sequence of events in a coherent manner. The DIP is divided into eight sections that describe the sequential processes of a supply and distribution chain in the form of a process flow, as described in Section 2.2 of this guide. This includes the main steps of every process or activity, the actors and their target performance timeframes. The DIP's eight sections cover the following areas:</p> <ol style="list-style-type: none"> 1. <i>Partnerships and contracts</i> that need to be established to set the operating structure and regulate relationships between the actors 2. <i>Coordination and collaborative arrangements</i> that need to be formalized for the project to fit well within national health priorities and gain support from other players in the health system 3. <i>LLIN procurement</i> by the donating agency and delivery to the implementing organization; the implementing organization must understand the procurement process 4. <i>Port discharge and transfer of title</i> processes and arrangements that need to be in place; some of them must be planned and set in motion before the LLIN arrive 5. <i>Transportation of LLIN from the port</i> to the primary warehouse in the distribution country; this inland transit must be smooth and expedient to minimize losses and delays. Receiving and storage arrangements, personnel, facilities, tools and systems must be in place before the LLIN arrive, and the process of receiving and storing the LLIN must be well executed, supervised and documented, and all parties' responsibilities must be clear 6. <i>Dispatch</i> from the main storage to secondary storage and on to FDPs; these are important steps as this is where the responsibility for LLIN accountability starts being spread, and physical control of LLIN can become scattered among several entities 7. <i>Distribution</i> plans that detail for each FDP its own specific distribution plan, including needs and their costs, the distribution point setup, the distribution team and their clearly defined roles and the distribution procedures; this includes distribution supervision 8. <i>Post-distribution monitoring</i>, which is a process by which distribution agents and supervisors visit every household shortly after distribution to ensure the proper usage of LLIN, brief the recipients on how to protect themselves with the LLIN and how to care for the LLIN and obtain feedback from the recipients on the distribution process. This is an important part of the process, as it informs the team on how they did and what the recipients' experiences with the distribution and the use of LLIN are, which can be useful for future LLIN distributions <p>An SCM DIP must account for all these activities and every step within every one of the activities.</p> <p>The DIP is a planning document. However, it is included in the implementation section because it needs to be created at the beginning of the project, and it must be updated at least once a week by the SCM specialist. As such, it is a living document that serves as a dashboard for the SCM process of the project.</p> <p>The eight sections of the DIP correspond roughly to the ten steps of the SCM implementation, which are described below in Sections 4.2 through 4.11 of this guide.</p>
Tools	DIP Worksheet (Annex 1).

4.2 PARTNERSHIPS AND CONTRACTS

Key Features	<p>4.2.1 Grant Agreement (Resources Transfer Authorization)</p> <p>4.2.2 Agreements with Implementation Partners (Partnership Agreements)</p> <p>4.2.3 Contract for External Suppliers of Goods and Services</p>
Summary	<ul style="list-style-type: none"> The Grant Agreement, or Resources Transfer Authorization, is the document through which the donor agency approves the project and allocates resources. Once the organization has a signed agreement, it can initiate the acquisition and shipping of LLIN. If the organization intends to implement the project with other partners, the relationships, responsibilities and resources allocated to the partner organizations must be governed by partnership agreements (or sub-recipient agreements) with every partner organization. All supplies of goods or services by commercial parties, which require contractual arrangements rather than a purchase order must be identified. The bidding documents, selection processes and draft contracts must be developed early enough (i.e., before they are actually needed) to avoid delayed implementation due to late contract development and review.
Responsibilities	<p><i>The donor's Agreements Officer develops the Project Agreement.</i></p> <p><i>The project manager and organization leaders review and approve the agreement by signing it.</i></p> <p><i>The project manager develops all partnership contracts. The organization's leaders and legal counsel review and approve them.</i></p> <p><i>The Procurement Officer develops tender documents for commercial supplies that are related to LLIN management and initiates the tender process.</i></p> <p><i>The Administration Officer develops all commercial contracts.</i></p> <p><i>The project manager, organization leaders and legal counsel review and approve contracts and bid documents prior to their issuance.</i></p> <p><i>The organization's leaders liaise with the donor for the Project Agreement, the transfer of resources and to start the acquisition process. They also discuss with intended sub-grantees and other partners the content of the partnership agreements, and expedite signing of sub-agreements.</i></p> <p><i>The SCM specialist initiates information gathering for the requirements of LLIN importation, including port processing, inland transit and customs clearing. The SCM specialists also collaborates with the Administration and Procurement Officer(s) on the procurement process for locally purchased goods and services, including transport, quantity and quality survey, customs clearing, warehousing, and so on. He or she also communicates with the donor's procurement unit to initiate LLIN procurement and shipping details (see Section 3.4).</i></p>
Inputs	<ul style="list-style-type: none"> Proposal documents Partner capacity assessment
Outputs	<ul style="list-style-type: none"> Grant Agreement Partnership Agreements Commercial bidding documents and bid review forms Procurement contracts
Connections	<ul style="list-style-type: none"> Donor's Agreement Officer Commercial service providers Implementation partners
Description	<p>The Grant Agreement includes the number of resources the donor agrees to commit to the project and the conditions of the grant. Once the organization has a signed Grant Agreement, it should do the following:</p> <ul style="list-style-type: none"> Set in place local partnership agreements. These define the responsibilities of local partners in project implementation and performance, the resources allocated to the partner and the general terms and conditions of the partnership. Each partner must be assessed in terms of capacity and risk associated with the resources with which they are entrusted and their expected contribution to the success of the project. The partner assessment defines what partnership structure is most appropriate and what capacity building needs to take place. For example, partners with weak financial management capacity will be given smaller advances and receive training on financial management and reporting. Determine the required commercial contracts, initiate the associated procurement processes and develop relevant contracts for eventual signature with selected suppliers. Typical contracts may include freight forwarding, warehousing, transport, quality control and survey; there may be others as well. Conduct an analysis of local requirements for the importation and other logistics requirements for in-country management of LLIN; this is to ensure that the LLIN procurement process and associated documentation, pre-shipment inspections and conditions of importation are met prior to beginning the importation process.
Tools	N/A

4.3 COORDINATION AND COLLABORATION

Key Features	<p>4.3.1 Collaboration with Government and Local Authorities</p> <p>4.3.2 Coordination with Peer Partners</p>
Summary	<p>As stated previously, LLIN distribution does not happen in a vacuum, nor is it an end in itself. The distribution of LLIN must support a comprehensive package of public health objectives, and the organization responsible for distributing LLIN must collaborate with all other entities and people engaged in similar or complementary projects. These include but are not limited to the various levels and bodies within the MOH; other organizations involved in public health programming in the geographic area of intervention; organizations doing similar work in the rest of the country and other entities vertically associated with malaria prevention, including funding institutions, research bodies, local government authorities, and others. The collaboration must be purposeful and strategic, aimed at increasing the effectiveness of LLIN distribution and securing support from all possible influences. Coordination and collaboration do not necessarily entail long meetings that distract staff from planning the LLIN distribution project.</p>
Responsibilities	<p><i>The Project Director and organization leaders lead all collaboration initiatives and direct team members at their levels as relevant. They also define the strategic objectives and desired outcomes from all collaborative efforts and ensure the responsible staff are equipped for and supported in their interactions with other entities.</i></p>
Inputs	<ul style="list-style-type: none"> • Approved proposal documents • National public health policy documents
Outputs	<ul style="list-style-type: none"> • A convergence of supportive energy and synergy of efforts from all public health actors for LLIN distribution
Connections	<ul style="list-style-type: none"> • MOH and its various departments, including local and regional offices, health centers, and so on • Local and authorities at central and peripheral level (such as Ministry of Health officials, regional health directors, district health teams, etc.)
Tools	N/A
Description	<p>First and foremost, the organization's leaders need to be aware of who is who in the fight against malaria in the country. The project management team also must know which other actors are in the intervention area, if this is different from within the national boundaries and who else is engaged in malaria prevention in the same or other regions. This includes intimate knowledge of the national health system, including its rules, operational structure, challenges, and partners of the MOH. Leaders must also have a good understanding of the "politics" of the health system.</p> <p>The organization's leaders should aim to operate within a larger community of actors through collaborative operational arrangements, information sharing and participation in formal thematic committees, for the organization of distribution of LLINs. Typical thematic committees include those for logistics, information and communication and overall coordination. In addition to relevant staff of the organization, committee members represent the MOH, local authorities and other actors in health activities.</p>

4.4 LLIN PROCUREMENT AND/OR ACQUISITION

Key Features	<p>4.4.1 International Requisition and Procurement</p> <p>4.4.2 WHO Rules and Standards for LLIN</p> <p>4.4.3 International Transport and Importation</p>
Summary	<p>The procurement of LLIN is ruled by both health products policies, which are generally established by the WHO and the local MOH, and international trade policies and trade-related standard practices. While this guide's assumption is that the LLIN are donated in-kind, the SCM specialist must ensure compliance with these policies and rules throughout the purchase and delivery process to avoid blockage, delays in delivery, penalties and/or ending up with unusable LLIN.</p>
Responsibilities	<p><i>The SCM specialist</i> is the overall process owner and guarantor of a smooth ordering and call forward and delivery process. The specialist manages both process and information on procurement and shipping. He or she also communicates with the donor's procurement unit, shippers, ports authorities, freight forwarder, local customs authorities and any other entities involved in the delivery process.</p>
Inputs	<ul style="list-style-type: none"> • Procurement contract • WHO guidelines for LLIN procurement, including the WHOPES-recommended LLIN list
Outputs	<ul style="list-style-type: none"> • Delivery documentation including shipping tracking documents, packing list, bills of lading, commercial invoice, quality certificate and certificate of origin
Connections	<ul style="list-style-type: none"> • Donor procurement officer or contracted Procurement Agent • WHOPES • MOH in the distribution country • Local customs officials
Description	<p>Once the organization has a signed Grant Agreement, it should initiate the LLIN acquisition process through a purchase requisition or call forward. This may be a simple request from the organization to the donor, indicating when the LLIN will be required in the country and requesting that the donor procure and ship the LLIN. It could also be a more involved process in which the organization has to describe specifically the product requirements and possibly participate in the procurement process through the review of offers and provision of information related to the shipping and in-country delivery of the LLIN. Generally, the latter is more demanding but gives the organization more ownership of the quality and supply and delivery terms, which may better meet the organization's needs.</p> <p>LLIN are generally internationally procured and need to be shipped from the manufacturer to the organization's warehouse in the recipient country. In this guide, it is assumed that the procurement and international shipping, up to the discharge seaport, are arranged by the donor on behalf of the organization. The guide therefore does not consider in detail the procurement and shipping processes.</p> <p>However, the organization must ensure that procurement is done in such a manner that the LLIN purchased meet the requirements. This includes providing the needed specifications, both physical and chemical, to ensure that the LLIN supplied meet local requirements; requiring appropriate quality testing and documentation to facilitate the importation and clearing of the LLIN through customs; and preparing adequately for the receipt and storage through contracting sufficient space and monitoring the delivery flow.</p>
Tools	<ul style="list-style-type: none"> • Purchase requisition or call forward • Shipping contract/booking note

4.5 PLANNING FOR PORT DISCHARGE AND INLAND FORWARDING

Key Features	<p>4.5.1 Port Receipt Process and Documentation</p> <p>4.5.2 Inland Transit Contract and Process</p>
Summary	<p>In preparation for the receipt of LLIN in the discharge port, the organization needs to have ready all aspects of the discharge, port receipt, clearance, transit storage, inland transport and forwarding. Shipping, port operations, inland transit and customs clearing are specialized activities that require contracting third party service providers.</p> <p>In order to preserve the interests of the organization and to ensure good stewardship, the organization's SCM specialist and logistics officer must fully understand the roles and responsibilities of each actor, critical contract terms and usual commercial practices.</p>
Responsibilities	<p><i>The Administration Officer</i> prepares relevant commercial service contracts in collaboration with the SCM specialist.</p> <p><i>The SCM specialist</i> reviews service contracts and liaises with the donor for shipping documentation. He or she provides shipping documents to service providers for port operations and customs processing. The SCM specialist also arranges meetings between involved parties, including port authorities, port customs authorities, shipping line representatives, consignees (the organization's) representative, freight forwarder, surveyors and stevedores.</p> <p><i>Legal counsel</i> review contracts for legal compliance and ensure the interests of the organization are legally protected.</p> <p><i>The organization's leaders</i> review, approve and sign contracts and endorse bills of lading to selected freight forwarder.</p>
Inputs	<ul style="list-style-type: none"> • Booking note or shipping contract, with clear delivery terms • Bill of lading and other commercial documents such as certificate of origin, commercial invoice, etc. • Port facilities fact sheet
Outputs	<ul style="list-style-type: none"> • Port discharge arrangements • Inland transport plan • Freight forwarding and inland transit contract • Surveyor contract
Connections	<ul style="list-style-type: none"> • <i>Port authorities and associated services (stevedores, storage, etc.)</i> handle cargo of LLIN at the port on behalf of carrier and receiver. • <i>The freight forwarder</i> signs the freight forwarder contract and prepares documentation and personnel and physical resources (e.g., lifting equipment, trucks for direct delivery or port transit storage if necessary) for the receipt and handling of LLIN cargo. • <i>The surveyor</i> receives documentation and prepares for port discharge and in-country (warehouse) delivery.

<p>Description</p>	<p>The SCM specialist liaises with the procurement agent and/or supplier to obtain shipping documents and prepare for clearing ahead of the arrival of cargo.</p> <p>He or she drafts service contracts for freight forwarders and surveyors. See descriptions of freight forwarders' and surveyors' roles in Section 3.6.</p> <p>The SCM specialist arranges for all involved parties to meet prior to the arrival of the cargo and agree on their roles and the procedures they will follow to ensure smooth cargo discharge, port handling and inland transit arrangements for expedient delivery to the consignee (organization).</p> <p>In some cases, shipping is booked on a through bill of lading, which means the shipping contractor is also responsible for inland transit of the LLIN up to the receiver's warehouse. If this is the case, the organization does not need to contract a freight forwarder, but it still needs to arrange for customs clearing in the receiving country and survey services for both port discharge and in-country primary warehouse delivery and receipt.</p> <p>The SCM specialist must also set clear expectations for the connection between port delivery and inland transit. Goods must be cleared through the port before they can be released for inland transit. On the other hand, port storage can be expensive beyond a very short "free time" (often not more than five days). Furthermore, there can be double handling (unloading and loading) and associated potential losses if the LLIN must go into port storage, thereby increasing the transit cost and timeframe. The freight forwarder should provide sufficient guarantees as to their capacity for clearing and moving cargo for inland transit as quickly as it is unloaded; whether or not the shipping is on a through bill of lading. The SCM specialist should keep in mind that, irrespective of who has a contract with the freight forwarder, the cargo belongs to the organization, and the specialist is the representative of the cargo owner.</p> <p>Most LLIN are delivered in containers; often, containers need to be de-stuffed at the port and returned. In this case, the containers preferably should be transferred directly onto trucks for immediate inland transport rather than into port warehouses. This, however, requires arrangements between the marine carrier and the inland carrier. In the case of a through bill of lading, the marine carrier is also responsible for inland transport and can simply transfer the containers; however, in some cases, even with a through bill of lading, there may not be enough container platforms, and the LLINs therefore need to be transferred onto trucks. The organization must ensure that the responsibilities for the transfer of LLINs are clear and that the transfer is supervised by a surveyor who can assign responsibilities in case of losses.</p>
<p>Tools</p>	<p>N/A</p>

4.6 PORT DISCHARGE

Key Features	<p>4.6.1 Transit Intermediaries and Their Roles</p> <p>4.6.2 International Transit and Customs Clearing Documents</p>
Summary	<p>When cargo berths in the discharge port, the organization (consignee/receiver) takes title and risk, according to the booking note or shipping contract terms.</p> <p>As port and customs operations are specialized activities, it is preferable that the organization contract service providers to act on its behalf. The main service providers are the freight forwarder and the surveyor. The organization then passes custody and risk, but not the title, to the freight forwarder through the endorsements of the bills of lading and freight forwarding contract terms.</p> <p>The organization must clearly define all parties' roles. All parties must acknowledge the well-articulated expectations of the receivers and must well understand the cargo delivery terms in order to avoid unnecessary delays, charges or arguments that often arise in port operations.</p>
Responsibilities	<p><i>The SCM specialist</i> supervises and observes port operations on behalf of the organization (consignee/receivers).</p> <p><i>The freight forwarder</i> takes delivery of cargo from the ship as per the booking notes and arranges for inland transport.</p> <p><i>The surveyor</i> observes and reports on quality and quantity of cargo delivered by the ship and received by the freight forwarder on behalf of the organization.</p> <p><i>Stevedores</i>, working for either the shipping contractor or the freight forwarder, ensure safe discharge and stacking of cargo within the port area and onward loading on truck for inland transit.</p> <p><i>Port officials</i> facilitate the discharge and temporary storage of cargo in a bonded area within the port, pending its onward transport to the receiver's warehouse.</p> <p><i>Customs officials</i> facilitate clearing and entry of cargo in the country where the port is. If the cargo is for onward transport to another country, they also facilitate transit documentation.</p>
Inputs	<ul style="list-style-type: none"> • Service contracts for freight forwarder and surveyor • Cargo booking note with delivery terms • Matrix of involved parties and their roles, with contact details • LLIN shipping and customs documents
Outputs	<ul style="list-style-type: none"> • LLIN received in good order from the shipping contractor
Connections	<ul style="list-style-type: none"> • Port and customs authorities • Stevedores • Transporters
Description	<p>The organization contracts the services of a freight forwarder and a surveyor for the port receipt of its LLIN cargo. It is recommended that the SCM specialist be present in the port to observe the discharge and to provide assistance to the service providers as needed.</p> <p>The freight forwarder is in charge of receiving cargo from the shipping contractor at the port, arranging for temporary storage and onward inland transit, clearing customs and delivering the LLIN to the organization's designated storage area.</p> <p>The surveyor is in charge of monitoring and documenting the quality and quantity of cargo delivered at the port, dispatched from the port to the warehouse and received in the organization's warehouse. The surveyor observes the discharge and delivery operations and writes a survey report that describes the delivery process, the status and the quantity delivered at each step, and assigns responsibilities for losses and damages to cargo. There should be a surveyor at the port as well as at the receiver's warehouse.</p>
Tools	N/A

4.7 INLAND TRANSIT

Key Features	<p>4.7.1 Transit Intermediaries and Their Roles</p> <p>4.7.2 International Transit and Customs Clearing Documents</p>
Summary	<p>The freight forwarder processes port documentation and organizes transport of LLIN from the port to the receiver's main warehouse. The size of the fleet depends on road conditions and the size of the cargo.</p> <p>It is preferable to ensure minimal port storage and have direct delivery for as much of the cargo as possible, as port warehouses are generally not safe and in some cases have to be rented when storage goes beyond a short free time. This illustrates the importance of early planning of port operation.</p>
Responsibilities	<p><i>The freight forwarder</i> arranges for port clearance and onward transport to receiver's warehouse after taking possession of LLIN from the shipping contractor. He or she also clears customs on behalf of the receiver in the destination country.</p> <p><i>The surveyor</i> monitors the port clearance process as well as loading and truck departures from the port for inland transport. The surveyor communicates daily with the SCM specialist regarding cargo movements and issues.</p> <p><i>The SCM specialist</i> maintains contact with the freight forwarder and surveyor to ensure performance as per the receiver's expectations, the cargo booking note and the freight forwarder's contract terms.</p>
Inputs	<ul style="list-style-type: none"> • Freight forwarder contract • Surveyor contract • Customs documentation • Waybills
Outputs	<ul style="list-style-type: none"> • Inland transport and delivery plan • In-country customs clearance documents • Cargo delivered to the central warehouse
Connections	Customs officials
Description	<p>The freight forwarder is responsible for delivering cargo from the port to the organization's main warehouse. If the receiving organization is in a country other than where the port is located, this delivery involves transit through the port country into the receiving country.</p> <p>The freight forwarder should arrange for sufficient and adequate trucks to ensure smooth delivery of cargo and to avoid long port storage or transit delays. The freight forwarder should also promptly clear customs in the receiving country.</p> <p>LLIN are medical supplies and therefore generally benefit from duty-free import status in many countries; especially when they are also gifts. If the organization has duty exemption status for its imported goods, it should also use it to expedite customs clearance.</p> <p>Some countries require testing of certain goods to verify their contents. In other countries, only one entity is allowed to import medical supplies and can do so on behalf of other receivers. As indicated in Section 3 of this guide (Planning), the organization should inquire about entry conditions and required documentation in the receiving country well ahead of LLIN importation to avoid any problems with the customs clearing of the LLIN.</p>
Tools	N/A

4.8 IN-COUNTRY RECEIPT, STORAGE AND INVENTORY MANAGEMENT

Key Features	<p>4.8.1 Clearing Customs</p> <p>4.8.2 Receiving Consignments</p> <p>4.8.3 Primary Storage: Requirements and Best Practices</p> <p>4.8.4 Inventory Management: Principles, Procedures and Documentation</p>
Summary	<p>The organization should be ready to receive the LLIN cargo from the freight forwarder as it is delivered. A surveyor should be present throughout the delivery process to witness and report on the delivery.</p> <p>There should be adequate warehouse space for the LLIN cargo, a skilled warehouse officer, inventory management documentation (e.g., stack cards, a warehouse ledger or inventory forms) and warehouse equipment (e.g., palletes and safety equipment)</p>
Responsibilities	<p><i>The SCM specialist</i> oversees the delivery process and all warehouse management procedures.</p> <p><i>The logistics officer</i> assists in the delivery process, verifies documentation and supervises warehouse activities.</p> <p><i>The warehouse officer</i> receives cargo from each truck and records received cargo in warehouse documents. The warehouse officer also signs truck waybills to indicate receipt and makes appropriate comments and manages day-to-day warehouse activities.</p> <p><i>The surveyor</i> witnesses delivery and reports on quality and quantity of cargo. He or she quantifies and assigns responsibility for losses and damages.</p> <p><i>The freight forwarder's agent and drivers</i> deliver cargo to the receiver's warehouse in good condition.</p>
Inputs	<ul style="list-style-type: none"> • Warehouse with adequate equipment • Inventory management documentation • Waybills
Outputs	<ul style="list-style-type: none"> • Goods received notes (GRNs) or signed waybills • Survey report • Completed warehouse ledger and stack cards • LLIN received and stacked in good order
Connections	<p>Customs Officials</p> <ul style="list-style-type: none"> • Freight Forwarder/Transporters • Surveyor

<p>Description</p>	<p>After clearing customs, the freight forwarder transports the LLIN to the receiver's designated warehouse, per the inland transit contract. Cargo should be delivered as soon as it is released from customs, in reasonable flow to ensure smooth discharge.</p> <p>Logistics officers and warehouse officers should avoid bending to pressure from transporters to discharge trucks quickly. Trucks should be discharged in the order in which they arrive at the warehouse and at a pace that allows for adequate counting by all parties and proper handling and stacking in the warehouse.</p> <p>Ideally, delivery terms for the inland transit contract should place the cargo discharge and stacking under the responsibility of the freight forwarder, so that any discharge losses are charged to the freight forwarder.* Each truck should be completely discharged and recorded separately to allow for proper accountability by drivers and for easy tracking in case of dispute.</p> <p>Generally, LLIN are packaged in bales of 25, 40, 50 or 100. It rarely happens that a bale contains one or two fewer or more LLIN than stated. Receivers should always ensure that there is a simple method for randomly checking that the right number of LLIN are received. Opening each bale might give an accurate quantity; however, this is not practical as it is very slow and would render the LLIN un-stackable and difficult to dispatch further. Therefore, this approach is not recommended. Instead, CRS recommends the following tips:</p> <ul style="list-style-type: none"> • Any bale that appears to be deformed, torn or otherwise damaged should be closely inspected and, if necessary, opened. • Each bale has an approximate weight, as does each LLIN. The weight might vary a little, but the variation should never be as great as the weight of an LLIN. During delivery, one in approximately ten bales should be weighed; if the weight varies significantly from the standard weight, the bale should be opened and the LLIN should be counted. <p>The warehouse officer should record in the warehouse ledger each truck waybill including its number, the truck's details, the quantity received and receipt date. The warehouse officer should sign each waybill and keep a copy. The warehouse officer can also issue a GRN to the transporter as receipt certification in addition to or in lieu of signing the waybill.</p> <p>At the end of each day of delivery, the logistics officer should collect copies of the GRNs or receipt-signed waybills for filing and recording in the inventory management database, which is sometimes called the logistics management information system (LMIS).</p> <p>Most LLIN are packaged in relatively standard-shaped bales, but the packaging is often slippery (as it is made from polypropylene or plastic). Sometimes, especially for conical LLIN, the shape is irregular and varies significantly. When stacked, the piles can be unstable. Bales should always be stacked in alternating rows in the form of a brick wall construction. Where they are too unstable, a pyramid-like stacking system should be adopted. There are several resources that demonstrate how to stack bales. One example is http://www.wikihow.com/Stack-Hay.</p> <p>Aside from making the warehouse orderly and safe, the main benefit of a regular stacking system is to make periodic inventory counts easy. It is impossible to conduct an inventory count of a poorly stacked warehouse; therefore, it is possible to have losses or missing bales for a long time before knowing it. If the bales are impossible to stack in an orderly fashion, it is a good idea to secure them with boards, bars or other safe dividers in such a way that each section of the storage space has the same number of bales and lends itself to easy access, counting and verification.</p> <p>LLIN are not perishable. However, the warehouse should always be secure, clean and waterproof. Furthermore, it is important to store LLIN on pallets, especially if the expected storage timeframe is longer than a few weeks. This allows for airflow between the floor and the nets and helps avoid a buildup of moisture under the LLIN.</p>
<p>Tools</p>	<p>N/A</p>

* For standard delivery terms, see <http://www.iccwbo.org/incoterms/wallchart/wallchart.pdf>

4.9 DISPATCH TO SECONDARY STORAGE AND DISTRIBUTION POINTS

Key Features	<p>4.9.1 Estimating requirements for each distribution point: Micro-planning</p> <p>4.9.2 Estimating transport requirements by corridor and scheduling internal transport</p> <p>4.9.3 Temporary storage at FDP</p> <p>4.9.4 Managing returns and redeployments</p>
Summary	<p>The organization should arrange for the transport of LLIN cargo to distribution points shortly before the scheduled distribution day.</p> <p>It is not recommended to store LLIN at the distribution points for more than two days, because security conditions are often inadequate. Dispatch to distribution points should be done one or two days prior to the scheduled distribution day, but preparations for the dispatch should start much earlier.</p> <p>Organizations should estimate the number of LLIN to dispatch to each distribution point through a distribution micro-planning exercise. They should define and arrange required transport and storage ahead of the scheduled dispatch date.</p>
Responsibilities	<p><i>The project manager</i> communicates results from the distribution micro-plans for SCM action and prepares or approves the dispatch requisition.</p> <p><i>The logistics officer</i> participates in the micro-planning exercise and uses the results to prepare a dispatch and temporary storage plan. He or she also prepares transport documentation (waybills) on the basis of the dispatch requisition.</p> <p><i>The SCM specialist</i> reviews the transport and storage plan.</p> <p><i>The organization's leaders</i> approve the micro-plans and transport and storage plans and authorize dispatch waybills.</p> <p><i>The transporters</i> collect and carry LLIN to distribution points.</p>
Inputs	<ul style="list-style-type: none"> • Quantification of recipients per distribution point • Internal transport contract
Outputs	<ul style="list-style-type: none"> • Detailed dispatch plan • Requisition for warehouse dispatch • Dispatch waybills
Connections	<ul style="list-style-type: none"> • Transporters • FDP Leaders (Health Center Medical Officer, or Community leader)

<p>Description</p>	<p>The organization’s project management team must re-estimate recipients per distribution point. Each distribution point should be able to serve a reasonable number of recipients, taking into consideration distance from the distribution point to the most remote connected villages.</p> <p>Micro-plans identify target recipients, the required number of LLIN, funds, material, equipment and personnel and their roles for each FDP Administrative or health zone agents must compile all micro-plans to aggregate the information for the specific area. The health authorities and project manager must validate each micro-plan. In particular, health authorities must participate in and approve of each micro-plan within their region of authority.</p> <p>A master table, showing all LLIN requirements by distribution point and by administrative area, must be submitted to the SCM team for logistics processing.</p> <p>On the basis of the aggregated micro-plan data, and the dispatch requisition, the Logistics Officer prepares a dispatch plan by transport corridor. Depending on the size of the operation and the quality of roads, organizations can use secondary and tertiary storage facilities (see box). In this case, the organization should prepare a secondary storage plan. A sample storage and dispatch plan* is shown in Annexes 5 and 6.</p> <p>Recipients at every delivery point must be informed ahead of time of the incoming cargo in order to prepare receipt and storage. Every delivery point must confirm receipt and report any discrepancies. All discrepancies must be noted on the delivery waybill or the goods received note and signed by the receiving party and the truck driver.</p> <p>A small number of reserve LLIN should be allocated in addition to the exact number of required LLIN to ensure there is no stock-out during distribution. Stock-outs are embarrassing and often require supplementary delivery, which is costly in time and money, or redeployment from areas with surplus, which creates confusion in accountability and information management. Organizations should avoid at all costs redeployments of LLIN.</p> <p>At the end of the distribution, account for and return to the central warehouse all remaining undistributed stock, unused funds and other resources together with a distribution report and an inventory status report (see Section 4.10: Distribution and Section 5.1: Reporting).</p>
<p>Tools</p>	<ul style="list-style-type: none"> • Sample micro-plan (Annex 4) • Sample dispatch plan (Annex 6)

With eight health regions and 42 health districts in Niger, in 2009 CRS/Niger used the following:

- one main warehouse
- 42 secondary warehouses
- 750 rural health centers
- over 7000 distribution points

CRS dispatched LLIN from the main warehouse to secondary (district) warehouses starting a month before the scheduled mass campaign. One week before the campaign, CRS dispatched LLIN from secondary warehouses to village health centers. The day before the distribution, team leaders of each distribution point collected their respective LLIN allocations from rural health centers.

Created by Ben Safari for CRS/Niger (2009)

4.10 DISTRIBUTION

Key Features	<p>4.10.1 Micro-Planning</p> <p>4.10.2 Distributing Vouchers and Identifying Recipients</p> <p>4.10.3 Distributing LLIN</p> <p>4.10.4 Distribution Point Resources Accounting</p>
Summary	<p>Successful distribution of LLIN is the culmination of every step described above and the ultimate objective of the SCM process. It must be done in a well-planned and orderly fashion. LLIN recipients should each receive the LLIN to which they are entitled, as per the stated criteria. There are several types of and techniques for distribution. This section describes two of them: campaign and routine (continuous) distribution. Documentation needs to be complete and accurate to show accountability and good stewardship.</p>
Responsibilities	<p><i>Distribution agents</i>, under the leadership of a team leader, arrange and execute the distribution. They also document the distribution and report back to the logistics officer and project manager through pre-determined channels.</p> <p><i>Mobile controllers/end use checkers</i> provide troubleshooting and technical advice to distribution teams. They need to travel across distribution points within their areas and remain in phone communication with all distribution teams throughout the distribution period.</p> <p><i>Health authorities</i> participate in the distribution on behalf of government and ensure the distribution follows government protocols and policies for LLIN coverage.</p>
Inputs	<ul style="list-style-type: none"> • Recipient lists • LLIN • Blank distribution forms, including recipient sign-off sheets, daily distribution reports, inventory status reports and recipient status reports
Outputs	Completed distribution forms
Connections	N/A

<p style="text-align: center;">Description</p>	<p>Distribution activities start with recipient identification and registration. CRS has typically done this via house-to-house visits, identification, registration and issuance of vouchers corresponding to the number of LLIN to which the household is entitled. The recipient registration and issuance of vouchers must be done a few weeks prior to the distribution of LLIN to ensure that the results of the registration are analyzed and factored into the dispatch and distribution of the LLIN. A registered household has specific voucher numbers associated with it. On the LLIN distribution day, the vouchers presented by that household's representative must match their numbers and the household details on the registration list. Any mismatch must be investigated before the organization can release LLIN. Matching the voucher numbers and the household representative's ID card effectively serve as a household identifier and certification that all LLIN are provided to the intended recipients.</p> <p>There are two LLIN distribution types; the distribution method chosen will influence the registration process.</p> <p>a. Campaign distribution:</p> <p>Campaign distribution is the best method for rapid scale up of LLIN universal coverage when coverage is low or non-existent. This has been the most frequently used method of LLIN distribution in recent years.</p> <p>The distribution happens on a given number of days.* When LLIN are intended for pregnant and lactating mothers and young children, distribution is often combined with national vaccination days.</p> <p>Each intended recipient needs to be pre-identified by name and residence (village) to ensure cross verification of recipients, and each is given a recipient card or voucher. During the distribution campaign, the intended recipient should show his or her card or exchange a voucher at a distribution post in order to receive the LLIN.</p> <p>The card or voucher number is recorded next to the recipient name in the recipient list, and the recipient signs off or stamps his or her thumbprint next to the corresponding name to confirm receipt.</p> <p>Each distribution day, the distribution team reconciles the LLIN stock against the number of served recipients and compiles a daily distribution and inventory report and forwards it to a regional health coordinator and to the organization's project manager and/or logistics officer.</p> <p>At the end of the campaign, distribution teams at every FDP compile recipient and inventory status reports and forward them to a regional health coordinator and to the organization's project manager and/or SCM Specialist. The SCM Specialist verifies and aggregates all FDP reports into a project-wide distribution and recipient report.</p> <p>b. Routine distribution:</p> <p>Continuous distribution has generally been used to fill universal coverage gaps, often between large campaigns, to ensure that people who become eligible after campaign distribution do not go without LLIN, and that those who were missed during the campaign are reached. This is ongoing distribution of LLIN, often used in conjunction with pregnant and/or lactating mothers' antenatal care (ANC) appointments or with the Expanded Program on Immunization (EPI), to sustain universal coverage.</p> <p>Generally, distribution occurs at health centers or posts. It is important for these facilities to keep a stock of LLIN; therefore, they must have inventory management capacity and regularly report on and replenish their stock.</p> <p>Given the fact that LLIN coverage in most malaria endemic regions is now relatively high, the WHO has recently revised its recommendations to National Malaria Control Programs, giving higher priority to routine or continuous distribution as a means of sustaining universal coverage.</p> <p>However, there is also recognition that it is not sufficient to use ANC and EPI alone to ensure universal coverage. Complementary distribution venues or criteria are necessary. Examples are school-based distribution, home-visit-based distribution and localized moving mini-campaigns.</p> <p>CRS is currently using a version of the latter approach in the Gambia (May 2014), where a campaign is scheduled to last six weeks, with distribution teams moving from one area to the next until the entire country is covered. CRS envisions for LLIN replacement a longer cycle and/or broader coverage, particularly for groups of recipients considered to be more vulnerable.</p> <p>CRS is also planning another effort in Niger (2015) with distribution that will target specific "pockets" of low coverage or high risk within broader regions, instead of full-blown campaigns for every household.</p> <p>Each time an eligible recipient is given an LLIN, his or her details are recorded and they sign off on a recipients list. At the end of every month, a person responsible for each distribution team compiles a recipient and inventory status report and forwards it to a regional health coordinator and to the organization's project manager and/or SCM Specialist.</p> <p>Continuous/routine distribution should be easy for organizations that are familiar with Title II commodity distribution, because the dispatch, distribution and reporting system is exactly the same.</p>
<p style="text-align: center;">Tools</p>	<ul style="list-style-type: none"> • FDP distribution report • Recipient sign-off sheet

* CRS conducted a four-day national LLIN distribution campaign.

4.11 POST-DISTRIBUTION MONITORING, LLIN HANGING AND USER BRIEFING

Key Features	<p>4.11.1 Post-Distribution Monitoring</p> <p>4.11.2 LLIN Hanging and User Briefing</p>
Summary	<p>Following the distribution, end use checkers and M&E officers visit all, or a random sample of, recipient households to verify that recipients received the LLIN and that they are using them correctly. This is done both to verify randomly the accuracy of the data contained in the recipient and inventory status reports and for LLIN usage monitoring.</p> <p>In addition, the agents must verify that the LLIN are hung correctly to provide maximum coverage; if not, they should help with or demonstrate to household members the appropriate disposition of LLIN and brief them on how to use them correctly.</p> <p>This is a critical aspect of project success and resource accountability, and organizations should take it seriously.</p>
Responsibilities	<p><i>End use checkers</i> visit selected households to assist them in hanging LLIN and to guide proper usage of LLIN.</p> <p><i>M&E officers</i> routinely visit recipient households to record and compile LLIN usage information and other M&E data, e.g., malaria incidence in recipient households.</p>
Inputs	<ul style="list-style-type: none"> • End user verification checklist • M&E data collection forms
Outputs	<ul style="list-style-type: none"> • Completed checklists and forms
Connections	<ul style="list-style-type: none"> • Local health authorities
Description	<p>Though it is a great achievement to distribute LLIN to the intended recipients, it is not the ultimate objective, nor is it the primary success factor for any malaria prevention project. Recipients must use the LLIN as intended, and the organization must proactively ensure that they do so.</p> <p>Post-distribution end user monitoring, LLIN hanging, recipient briefing and usage training and ongoing monitoring of the use and quality of LLIN are much more than reporting requirements. They are necessary activities to achieve success in universal coverage, and they are the best ways to measure the success of distribution efforts and the contribution of LLIN usage in the fight against malaria.</p> <p>Immediately after distribution, end use checkers and M&E officers must visit all, or a selected representative proportion of, recipient households and verify that they received the LLIN and that they hang them appropriately, as well as provide counseling on how to use and care for the LLIN.</p> <p>End use checkers and M&E officers also should verify that all household members are sleeping under an LLIN in order to certify that the universal coverage objective has been reached in every household. If some members of the household are not sleeping under an LLIN, or if some of the household's LLIN are not being used, end use checkers should inquire about the reasons for the shortcomings and resolve them, either through additional distribution or through counseling and assistance with hanging the LLIN. They should also interview the users on the experience of sleeping under an LLIN and collect feedback on all aspects likely to be useful in the preparation of future LLIN procurement and distribution.</p> <p>M&E officers must regularly monitor LLIN usage over time to measure user attrition, LLIN quality degradation and, very importantly, recipient experience after an extended period of time sleeping under LLIN and the incidence of malaria compared to before the LLIN distribution.</p> <p>While post-distribution end use monitoring is not a part of SCM, it is part of the control and verification system that helps measure the success of the SCM strategy and inform future distributions.</p>
Tools	N/A

5. INFORMATION MANAGEMENT AND ACCOUNTABILITY

5.1 RECIPIENT AND INVENTORY STATUS REPORTING

Section 4.10: Distribution points out that each distribution point needs to fill out a recipient and inventory status report and forward it to the organization. This is a simple report that shows how many LLIN were received, how many were distributed and to how many recipients and how many are left in stock. The report must be supported by a recipient sign off sheet and receipt documentation. It is also a good idea to include a brief narrative reporting on the distribution process and indicating any problems encountered and how the distribution team resolved the issues.

Recipient and inventory status reports are compiled by region and then for the entire project to form an aggregated distribution and recipient status report. If the distribution is continuous, these reports should be periodical and should follow the organization's or donor's reporting cycle. Ideally, they should be monthly or quarterly.

The aggregated inventory and recipient status report, or SCM report, is an important document that is shared with the local health officials (MOH, NMCP), the donor and other interested stakeholders. It is crucial to ensure that all information contained therein is accurate and is supported by appropriate inventory management documentation.⁵ This report and all supporting documentation are auditable documents and should therefore be prepared with care and filed systematically. See Section 6.7 and Annexes 7.1 and 7.2 for sample LLIN supply chain management reports.⁶

5.2 MANAGING LOSSES AND CLAIMS

Though LLIN are not perishable, they can be damaged through rough handling. Also, as people become more aware of the benefits of sleeping under LLIN, and given the high demand for LLIN, they have

5 In 2009, CRS/Niger used a combination of mobile phone texts for fast daily reporting from distribution centers to the central project coordination unit, so that every day at 6 PM, the exact situation of every distribution point was well known. However, before formally reporting to the donor, all this information was verified with documentation and keyed into an inventory management software. All discrepancies were verified and corrected or justified prior to the production of the SCM report.

6 Created by Ben Safari for CRS/Niger (2009)

become a marketable good and are a target for theft during handling. They are then sold in local markets. It is not uncommon to find LLIN, usually given for free, labeled as project goods in local markets, especially in large cities. Organizations should be aware of the risks and take measures to ensure **all** LLIN reach their intended recipients.

The SCM status report includes information on the port receipt, inland and internal transport and distribution. In the unfortunate event that losses occur, the report should include a section on losses. See the SCM Report for information on losses. In addition, any loss should be reported formally, through an individual loss report, similar to the Title II food aid Damaged Misused Commodity Report (DMCR). A sample DMCR is included in this guide as an example of how to report an individual loss (Section 6.8 and Annex 8).

All losses along the supply chain must be claimed against the responsible parties in the most administratively efficient manner. For example, the value of any transport losses must be accounted for and deducted from the transporter's payment. This process must be pre-defined in the transport contract. If the loss value is higher than the contract value, then the transporter should not get paid, and the organization must issue a claim for the difference owed by the transporter.

Losses that are attributed to the organization's or partners' staff or collaborators involved in LLIN management must equally be claimed against the responsible parties, through direct invoicing or deduction of the value owed from the responsible party's payment. Losses thought to be the result of criminal activity must be reported to the appropriate authorities for investigation.

5.3 INFORMATION MANAGEMENT AND ACCOUNTABILITY

Organizations should establish protocol for information management and systems for communicating, verifying and storing SCM data. All documentation should be accurate, verifiable, supported by original evidence and well detailed. In particular, any movement of any LLIN should be recorded and authorized, even if it is an internal transfer between or within warehouses.

LLIN that come from different suppliers, production lots and/or different purchase or delivery contracts should be recorded separately throughout the supply chain for easy identification. This is very



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important for evaluation, especially in case of losses and associated claim settlements when prices/costs differ from lot to lot or from contract to contract. This is also critical for traceability if there are questions on the physical or chemical qualities or on the effectiveness of the LLIN.

The organization should conduct internal audit exercises at least once every two years. Generally, local business laws and the donor's or the organization's own internal policies require recipient organizations to keep all project records for a number of years after the end of the project. Organizations should confirm and respect applicable record keeping and archiving requirements. The usual standard is five years beyond the life of the project, but this may vary from one country to another, or from one donor to another. Organizations must ensure they respect the most stringent requirements to avoid being caught with no documentation.

6. RESOURCES

6.1 DETAILED IMPLEMENTATION PLAN (ANNEX 1)

Annex 1 is available for download at crsprogramquality.org/storage/pubs/health/DIP

The DIP is part of what is generally called macro-planning. It includes all activities necessary to execute the project as approved and, in particular, to manage the entire supply chain for the LLIN, from procurement/acquisition to distribution and reporting.

The sample provided is generic. It is adapted from several distribution plans and from the steps in this guide. Each activity is presented in grey, with a two-digit number, and then broken into its specific, sequential steps (denoted by four-digit numbers). The duration of each step is estimated in Column E, and start and end dates are in Columns F and G. Column H indicates whether the start of a step depends on the completion of another and, if so, Column I shows the activity on which this one directly depends. Columns K through P assign responsibilities using the RASIC method; finally, Columns R and S are for additional information. In particular, if there is an anomaly within any given step, such as a delay, these columns give details of the activity status and describe the issues.

Overall, the DIP is a powerful project management tool and can be used not only for LLIN distribution planning, but for any project. The more detailed and the more frequently reviewed and discussed it is, the better. Typically, from about six months before an LLIN distribution campaign, the project team reviews the DIP every week.

6.2 QUANTIFICATION (ANNEX 2)

Annex 2 is available for download at crsprogramquality.org/storage/pubs/health/quantification.

A sample quantification is provided as Annex 2. It is based on a real quantification exercise in Niger. Population estimates are based on a population census, which was conducted in 2012, with projected population growth for every health district. It is important to use disaggregated statistics as much as possible as they provide area-specific information and minimize aggregation errors, which can



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be significant when one targets a small area but uses national statistics. From the projected population in the campaign year, a ratio of 1 LLIN for every 1.8 people is applied to estimate the number of LLINs required. Furthermore, with the assumption that LLINs will be procured in bales of 40 each, a logistics adjustment is applied to ensure that dispatches from the central warehouse can be made without opening any bales.

Another example of quantification is apparent from the Micro-Plan (see Section 6.4 below, and Annex 4, cells J14 to J23). This time, the LLIN quantification is based on the number of sleeping spaces.

As both quantification methods are accepted by the WHO, the choice of the quantification basis is a matter of MOH policy or choice. Implementers should always consult with the MOH for quantification.

6.3 PIPELINE (ANNEXES 3.1 AND 3.2)

Annex 3 is available for download at crsprogramquality.org/storage/pubs/health/pipeline.

Three samples that can be used as a pipeline are included.

The first is the food commodity pipeline (Annex 3.1). This food pipeline is chosen as a sample to point out the similarity between food aid management and LLIN management—especially for continuous

distribution. It provides the in-coming and outgoing flow of stock and is useful not only in planning the overall stock needs, but also in sequencing deliveries in such a way that there are no pipeline overflows or shortages. The projections are based on recipients and the intended ration per recipient. For LLIN, the recipients will be different. They can be the estimated recipients for all distribution points if the distribution targets, for example, pregnant women who come for their first ANC visit. Alternatively, they can be the target recipients per region if the distribution is planned in such a way that it is itinerant, moving from one area to the next. The 'ration' would also be different; for LLINs, this would correspond to the required coverage basis (see section 3.4.2 Quantification). But overall, this pipeline can easily be converted into a LLIN pipeline.

The second is the production and delivery schedule. This type of pipeline shows the breakdown of deliveries from the manufacturer to the primary warehouse, with quantities, load dates, transit time and estimated time of arrival at destination.

The third sample is embedded in the Storage and Distribution Plan (see Annex 5). In this case, it simply shows the expected deliveries for a given period of time and where they will be dispatched to make space in the main warehouse and to pre-position them before the next shipment arrives.

Ideally, these three types of pipelines should be used simultaneously, as they focus on different aspects of supply chain management which complete one another.

6.4 MICRO-PLAN (ANNEX 4)

Annex 4 is available for download at crsprogramquality.org/storage/pubs/health/micro-plan.

There needs to be a micro-plan for every FDP to ensure consistency in distribution processes and in the costs. The included micro-plan sample has three sections.

The first section shows relevant demographics and geographic data for a number of FDPs within one area and the number of needed LLIN for each one of those FDPs. The LLIN are then separated into groups of among conical and rectangular nets and converted into bales. The second section presents the needs and budget for transporting and handling the LLIN from the primary or secondary warehouse to

each FDP. The third section is an analysis of the training, staffing, distribution and supervision costs.

6.5 STORAGE AND DISPATCH PLAN (ANNEX 5)

Annex 5 is available for download at crsprogramquality.org/storage/pubs/health/storage-and-dispatch.

The storage and dispatch plan must be in sync with or part of the pipeline. Ideally, the two should be automatically linked in one Excel workbook, so that changes in one are updated in the other. The storage and dispatch plan simply shows the breakdown of LLIN from primary storage to secondary storage and possibly beyond. It shows how many LLIN will be received, stored and then dispatched from one warehouse to the other, and when that will occur. It also shows what storage space is needed for a given location and what transport means are necessary to facilitate transfers. The included sample storage and dispatch plan is simple and self-explanatory.

6.6 DETAILED TRANSPORT PLAN (ANNEX 6)

Annex 6 is available for download at crsprogramquality.org/storage/pubs/health/transportplan.

The detailed transport plan is an optional tool that is helpful when there are many transfers or dispatches happening concurrently or that are very time-sensitive and when there is a need to coordinate them well with the transporters. The plan helps the organization rationalize transport equipment and monitor several transport rotations simultaneously. The plan must allow for loading and unloading time as well as reasonable time for travel and return. The transporter must allow for extra capacity in case of a breakdown or delay. When planning transport, the logistics officer must also plan for extra time in case of unforeseen delays. When used, the detailed transport plan must be included as an annex to the transport contract, as it becomes a transporter's performance measurement tool.

6.7 SCM AND RECIPIENT STATUS REPORT (ANNEX 7)

Annex 7 is available for download at crsprogramquality.org/storage/pubs/health/SCM-and-recipient.

The format of the report depends on what the organization considers important to report on, what the donor wants to know, what level

of detail is required and, generally speaking, presentation style preference. For the report to be complete, it must show the sequence of movements of the LLIN, including procurement and shipping, primary warehouse receipt, secondary warehouse receipt and distribution at FDPs. It should also present losses and other anomalies along the supply chain. If possible, it should analyze the reasons for and current status of any anomalies. Where relevant, the report should also include the number of recipients from each reported distribution point or region.

The report must be as detailed as the intended audience wants it, but it should always be done in a manner that allows for the data to be easily traceable and understood by someone who has not participated in its preparation. All data manipulations must be explained, and formulas should be kept as such in the file, to allow the reviewer to see how the manipulations were done. Any complex calculations should be explained, and any circumstantial data or adjustments should be accompanied by explanatory comments. Typically, the summary report is accompanied by a detailed report for every distribution point or period that is summarized in the report; this allows reviewers the opportunity to verify and compare summaries with the details.

This guide provides two sample SCM and recipient reports.

6.8 DAMAGED OR MISUSED COMMODITY REPORT (ANNEX 8)

Annex 8 is available for download at crsprogramquality.org/storage/pubs/health/DMCR.

The included DMCR is for illustration only and concerns food losses. It provides the loss quantity and value and relevant circumstances, with requested/suggested loss management procedures. The DMCR must be submitted to the donor as soon as the loss is known and assessed.

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