Chapter 2: Warehousing and Stock Management

Contents

2.1 What is covered in this chapter?

Definitions and concepts	Minimum standards and Red Cross standards	Stock audit requirements
Stock safety	Health & safety in the warehouse	In-kind BRC support to the Red Cross Movement
Building a stock strategy	Roles and responsibilities in stock management	Storage options

2.2 Definitions and concepts

The 11 major rules of running a warehouse

1. **Rotate** stock so old goods are used first: FIFO (first in, first out). If goods have an expiry date, use FEFO (first expired, first out).
2. **Stack** goods safely.
3. Plan the **layout** of goods for easy access and finding them again.
4. **Record** all movements or losses on the correct forms.
5. **File** all papers immediately.
6. **Plan** ahead: what goods/staff/transport will be required on the next day/week/month?
7. Keep goods **secure**.
8. Keep warehouse **clean**, with daily, weekly and monthly cleaning.
9. **Dispose** of spoiled goods correctly and quickly.
10. **Communicate** objectives, plans, progress and issues effectively.
11. Conduct physical **inventory** on a regular basis.

Definition:

A warehouse is defined as a planned space for the storage and handling of goods and materials. Goods and materials stored in a warehouse are considered as stock, which is also called 'inventory'. Warehouses are an integral part of the supply chain, their main purpose being to serve as physical transit points between supply (delivery from suppliers) and demand (end-users or beneficiaries).

Where needed, warehouses allow for the breakdown of bulk deliveries across different requestors or into phased deliveries, and for the combination of loose items into kits to meet beneficiaries' needs.

A well-managed and well-positioned warehouse allows for speedy responses to both planned and unplanned needs and ensures that both inventory and staff are ready to respond to planned and unplanned needs.

2.2.1 Functions of a warehouse

is available to download from the annexes to this chapter.

- Define storage location
- Physically move goods to location
- Record location used
- Consolidate storage into full storage units
- Move stock to picking areas
- Pick damaged goods and prepare for separate storage
- Report stock movements in the bulk storage area

- Define and prepare picking instructions
- Allocate resources for picking
- Pick
- Advise discrepancies
- Move to sorting, consolidating, packing or dispatching area
- Complete and pass on documentation

Goods receipt → **Bulk storage** → **Picking** → **Goods dispatch**

Kitting

Repacking

- Receive
- Unload
- Check
- Make available for storage

- Consolidate orders
- Pack and label
- Prepare documentation
- Arrange vehicle movement
- Load and seal vehicle
- Dispatch

2.2.2 different types of inventory

It is important to be aware of the difference between stock (inventory), office supplies, office equipment and assets:

	Stock	**Office supplies**	**Equipment**	**Assets**
Definition	Consumable items that are tracked and stored until use or distribution	Temporary or disposable consumables, food or cleaning products required on a day-to-day basis, for use in the office or residence	< £1,000 Not powered by electricity No running costs Not defined as asset by donor	> £1'000 **or** > 3 years useful life **or** Powered by electricity **or** Incurs running costs **or** Defined as asset by donor
Examples	Programme supplies for direct distribution	Stationary	Furniture	Owned property / Vehicles
	Office supplies for distribution to beneficiaries, partners	Office cleaning materials	Housing equipment	Comms equipment / IT hardware
	Vehicle spare parts, fuel	Food for office consumption	Household items	Large household appliances
Reporting requirements	Stock report	None	Property register	Asset register
Storage location	Warehouse	In the office	In use or in store room*	In use or in store room*

The storeroom is typically a small room in the office where a small stock of office supplies are kept.

2.2.3 Purposes of holding stock

The main purpose of stock is to de-couple supply and demand in an operation that requires the provision of pre-determined goods and materials.

In an ideal world	In the humanitarian world
Exact needs are known	Needs fluctuate unpredictably
Suppliers are reliable	Suppliers are liable to multiple risks (environmental, political and financial)
Supply is stable	Supply is often interrupted
infrastructure is stable	Infrastructure is exposed to multiple risks (environmental, political and financial)
Little to no need for inventory	**Inventory acts as a buffer against structural risks**

2.2.4 Stock ownership

Generally, stock is owned by its original requestor (the person who pays for the goods) and physical management of items and materials is delegated to Logistics.

This means that logistics cannot choose to increase or decrease stocks unilaterally and that updates on inventory must be shared between the Logistics team and the owners of the stock they manage in the delegation.

In that sense, Logistics are responsible for the inventory they hold for others, but requestors and programme managers are accountable for the type and quantity of items they require Logistics to hold in stock for their use.

2.2.5 Stocks management – roles and responsibilities

WAREHOUSING & STOCK MANAGEMENT	Responsible	Warehouse staff	
	Accountable	Requestor/budget holder	
	Consulted	Programme team	Health & Safety
	Informed	Logistics team	Finance team

RACI matrices used throughout this manual, they break a process into steps, specifying who is **R**esponsible, **A**ccountable, **C**onsulted and **I**nformed at each step of the process

Finance must be involved in the stock management process as it usually comes with large budgetary requirements. The valuation of inventory is critical for the organisation to manage the risk of ownership of stock in general, and in particular to support the definition of insurance requirements.

2.2.6 Financial management of stocks

For financial management of stock in the UK, refer to the <mark>Bulwick warehouse SOP</mark>, <mark>ERU kit SOP</mark>, <mark>UKO stock management SOP</mark>, <mark>RLU stock management SOP</mark> and the <mark>Balance sheet guidance note</mark>. More information on the RLU and ERU stocks management can also be found in chapters 7 and 8 of the Manual.

The general concepts to bear in mind are:

- Inventory held by international logistics for preparedness purposes is valued in collaboration with the Logistics Finance business partner, based on procurement information shared by the Logistics team.
- The value of inventory held by Logistics sits on the BRC balance sheet from the moment stock is received to the moment it is despatched for use.
- When stock is despatched for use, the value of the despatched items is charged to its requestor and taken off the BRC balance sheet.
- When stock needs to be disposed of, Logistics must use a <mark>write-off form</mark> to record the disposal. The value of the disposed items is usually charged to the Logistics budget and taken off the BRC balance sheet. See Section 2.9.5.2 for more details on stock write-offs.
- It is recommended that the members of the Logistics team who manage stock regularly meet with both their requestors and the Finance team to review current stock type, levels and locations, discuss proposed changes (if any), ensure budget management and reconcile stock. In the BRC, the Logistics team meet with owners of the stock they manage (ERU kits, RLU representatives) and with their Finance business partner on a regular basis.

2.2.7 Stock positioning

Within the Red Cross Movement, stocks are held at different levels and the processes to follow to access stock vary between levels of storage:

STOCK POSITIONING		
Country level	**Regional level**	**Global level**
Stock that is available in country	Stock held in regional hubs	Stock held in IFRC-managed global hubs
Locally available stock can belong to the country's NS or to a partner NS and would include the ERU kits that a PNS chooses to hold for IFRC-led responses.	In RLUs (**Kuala Lumpur** in Asia, **Panama City** in Americas), stocked by the IFRC and other PNSs and managed by the IFRC.	The **Dubai** and **Las Palmas** logistics centres are "global hubs", serving all regions equally.
NS that do not hold ERUs may also have stocks available in country, either for ongoing programmes or for preparedness purposes.	In sub-regional warehouses or in decentralised regional stores ("cluster warehouses"), in **Harare**, **Douala** and **Dakar**.	

IFRC Current Global Stock Pre-Positioning Locations
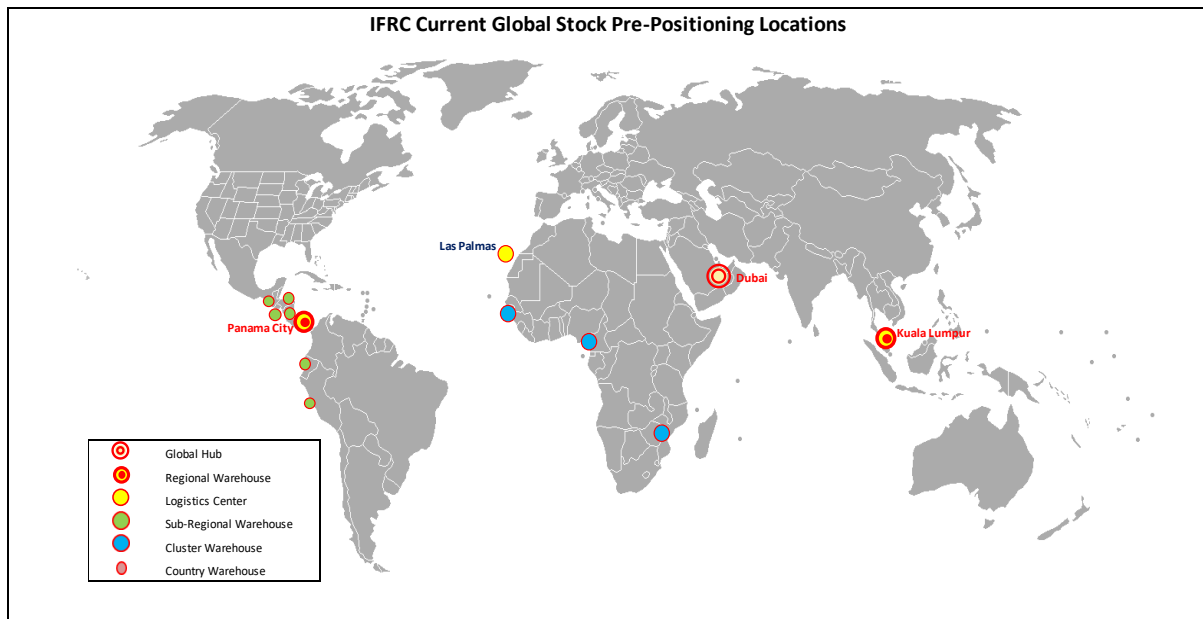
The IFRC's global stock strategy aims are:

> **To cover the initial needs of the immediate aftermath of any disaster, the IFRC, with the stock pre-positioning of their members in the different RLU, has pre-positioned emergency response stockpiles in their network of regional warehouses across the globe, which could support up to 450,000 people at anytime and anywhere.**

The IFRC's global stock strategy is under development at the time of writing. To be sent the latest version of the document, contact your Logistics business partner in the UK team.

2.3 Building a stock strategy

2.3.1 Assessing the warehouse requirement (number, location and operation):

During the *design phase* of a programme, a stock strategy should be developed, including the potential requirements for warehousing. This should fit into the wider supply chain strategy for the programme (see supply chain strategy template and guidelines).

Warehouses are required when the time required to purchase and mobilise relief items is expected to be lengthy or when responding to a protracted crisis where the risk of disruption on the supply chain is high.

A network of warehouses may also be required to ensure the rapid and efficient delivery of relief supplies. Since most BRC programmes are short-term (a maximum of several years) the need for a permanent warehouse is rarely justified, although it can be considered as a long-term solution for an HNS supporting future programmes.

Stock strategies must be in line with organisational strategies because holding stock with a projected high value is a risk to the organisation. Other supply chain options, such as the delivery of goods taking place closer to the required time, are sometimes preferable.

However, holding stock cannot always be avoided, especially in the context of an emergency where supply lines might be disrupted, local markets disturbed and needs fluctuating.

Programmes should not be built around the stock strategy (*What do we have?*) but a stock strategy around the programme (*What do we need?*).

Relief programme	→ Procurement plan	→ **Mandatory supply chain strategy** (incl. stock strategy)
Other types of programmes	→ Procurement plan if relevant	→ **Optional supply chain strategy** (incl. stock strategy)
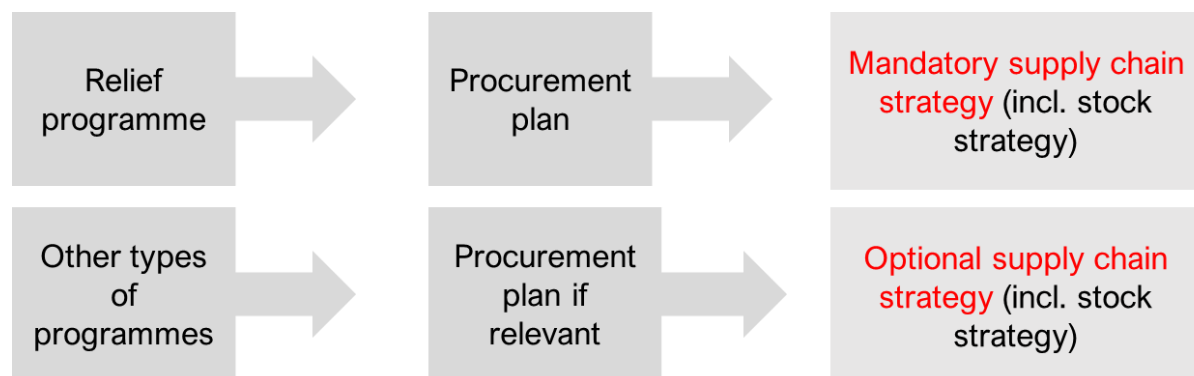
It is a requirement to develop stock and supply chain strategies for any programme that has a relief component (e.g., the distribution of goods and/or a construction component where the construction will not be subcontracted). Other programmes that include one-off supply activities (e.g., vehicles, equipment, tools, etc) require a procurement plan but not necessarily a stock or supply chain strategy.

2.3.2 Quantity and location of warehouse(s)

- Type of items to be stored
- Scale of operation and required stock levels
- Geographic and seasonal conditions
- Distances to programme site(s) and supply entry points
- Infrastructure available
- Availability of transport services
- Lack of other storage options (vendor-managed inventory, 3rd party warehousing, etc.)

→ **Number and location of warehouses required for an operation**

2.3.3 Stock strategy definition

Link to stock strategy definition diagram.

During the *planning phase*, the programme team should provide the following information to enable logistics to develop a stock strategy.

2.3.3.1 What?

Storage requirements vary depending on type of items: NFI and food items can usually be stored in bulk and do not require specific storage or handling practices, beyond being stored separately from chemicals and other dangerous goods.

Some items require special attention in terms of the type and security of storage they require. Specific attention is required when storing and handling these items.

Medical supplies and drug shipments can contain small and high value items, many of which have a limited shelf-life. A secure area is required, and close attention must be paid to expiry dates.
Antibiotics and vaccines require temperature-controlled cold storage arrangements, with sufficient capacity and a reliable power source, with a back-up option.

Non Food Items (NFIs) can usually be stored in bulk with no specific storage or handling limitations

Combustible items, such as alcohol and ether, must be stored separately, preferably in a cool, secure shed in the compound and outside the main warehouse.

Dangerous goods such as fuels, compressed gases, insecticides and other flammable, toxic or corrosive substances, are hazardous.
International regulations require special markings to identify their dangers.

Consider the volumes to be stored: the quantity to be stored and the frequency and size of deliveries and despatches will influence the stock strategy definition.

Will the stock strategy involve holding kits in stock? How much kitting activity is expected to take place in the warehouse? Kits are often used in emergencies, when the aim is to provide large quantities of a standard set of items to large numbers of people. The IFRC standard product catalogue (SPC) includes a wider variety of kits, normally provided as full kits by long-term suppliers sourced by the IFRC (https://www.ifrc.org/en/what-we-do/logistics/procurement/catalogue-/).

Handling hazardous substances:
- Inform warehouse personnel of the specific hazards associated with the dangerous goods in store and provide personal protection equipment (PPE), training and regular practice on how to deal with accidents and spills.
- Post clear instructions, in the local language, on how to deal with hazardous substances and spills, including who should be notified.
- Follow instructions on package labels carefully.
- Stack hazardous materials with care, prominently posting signs that display their dangers to all who have access to the storage area.
- Store flammable substances separately and away from the warehouse building.
- Do not permit smoking, cooking or open flames of any kind within ten metres of the storage areas. Ensure that fire extinguishers and sand buckets are nearby.
- Substances which vaporise easily, whether flammable or toxic, must be kept cool.

- Store chemicals such as fertilisers, pesticides or cement separately from other items, and never store them in a warehouse where foodstuffs are located.
- Always comply with local regulations when storing hazardous materials.

Managing kits:
- Kits and their content used by any Movement partner should always match IFRC or ICRC specifications, although other UN standards might be used in exceptions. Non-standard kits may have to be developed for specific operations, with items procured and delivered as loose stock and kitted in the warehouse before despatch and delivery. Standard kits may also be used, with slightly modified contents to cater for specific needs.
- Variations from standard kits must always be discussed and agreed with the programme team so they match the technical requirements and so all kits, and their content are exactly identical.
- A cost analysis is required to determine if the kits should be assembled by the NS or by the supplier. If it is decided that the NS or other partners will cover the kitting activities, this should be taken into consideration when designing the warehouse and its space and health and safety requirements.
- Throughout the supply chain, it is important that a kit is always considered as a single item (one unit) that cannot be separated. Items included in a kit cannot be requested as separate units.
- Where the kit contains one or more perishable items, the whole kit expires as soon as a single unit reaches its expiry date. This is often the case for medical kits; a medical kit containing a single expired item should be placed in quarantine until the expired item is replaced.
- If kits are assembled inside the warehouse, it is recommended that a requisition form is used specifically for the assembly of kits, as the kit is built from pre-existing loose stock.
- Only complete kits can be returned; otherwise they should be received in stock as loose items.
- Where kits are complex (more than 15 items, high-value, varying expiry dates, medical kits or assembled in the warehouse), it is recommended to use a kit preparedness tracker (easily developed in Excel) to manage them and communicate clearly on the capacity to deploy them. The tracker also helps to support the kit replenishment process.

2.3.3.2 Where?
- Where is the programme being implemented, and where are the goods required?
  - Geographical location (is access by road, sea or air?)
  - Rural or urban area
  - Number and location of sites
  - Security situation
- What warehouses are available, in the region and country, in and outside of the Movement, and what are their associated costs?
- What are the options and costs of renting commercial warehousing?
- What are the options and costs of using temporary Rubb Halls (mobile storage units, or MSUs) or containers (a last resort, due to cost, storage conditions and their difficulty to manage)?

Gathering this information will allow for a decision on where along the supply chain to position the warehousing (at global, regional, local or field level).

Consider the option and cost of having Vendor-Controlled Inventory (VCI). Where there are long-term relationships with suppliers, suppliers can hold stock for the RCRC in their own

warehouses. The stock is prepaid by the RCRC and released with a simple stock request. In this case, requirements need to be carefully calculated and transport costs closely estimated as they are likely to be higher. A VCI strategy is viable where the variety of items required is small and can be supplied by a maximum of two or three suppliers, who are willing to collaborate and consolidate shipments to control transport costs.

2.3.3.3 When?

A detailed timeline (start and finish dates for the programme), with requirements throughout the programme's implementation.

Details of the frequency of deliveries and despatches will also be helpful here.

2.3.3.4 How?

Design the reception, requesting, despatch and reporting processes at an early stage of the programme design, to inform the level of human, financial and administrative resources required.

Questions to ask when defining a warehouse resourcing strategy:
- How will deliveries be managed? Who will process them and how will they be documented?
- How will requests from users be managed? When will they be received by the warehouse team and how will they be documented? Who will prepare the orders – in what timeframe, at what frequency, with deliveries done where (at the warehouse door or at the site?)?
- How will despatch operations be managed? Who will oversee the booking of transport, how will transport be booked, how will despatch be documented, who will validate despatch and how will delivery rounds be organised?
- How will stock reporting be compiled and communicated? What information will be recorded and what will the reporting cycle be (weekly, bi-monthly or monthly)?

2.3.3.5 How much?

Some factors you need to consider when setting the stock minimum:
- Total population in the area
- Total population at risk in case of disaster
- The kind of disasters that might occur
- The probability of disasters happening
- The kind of items needed
- Replenishment time = the time it would take to get relief items from HQ or other partners to your area
- The response capacity of the branch (number of active volunteers trained in emergency response and/or logistics)
- Available storage space
- Available transportation means…

The setting of minimum stock levels must be discussed between the logistics and programme teams.

The Logistics team should make a recommendation based on the programme's requirements, to be assessed by the programme team in view of objectives, budgets and timeline.

There are a set of criteria that support defining the ideal inventory level. Usually these include:

- The budget available for warehousing and transportation costs. Limited resources will influence what type of warehouse activities the programme can afford, in terms of storage space, transportation possibilities and human resources.
- Clarifying the different purposes of the inventory:

	Working stock	Safety stock	Preparedness stock
Purpose	To meet normal or expected demand for humanitarian goods between deliveries.	To mitigate the risk of stock-outs in the period between deliveries (due to increased demand or decreased supply).	To meet sudden increases in demand.
Depends on	Level of demand	Unpredictability of demand	Organisational policy
	Order frequency	Unpredictability of supply	Availability of funds and resources to manage
	Vehicle spare parts, fuel	Risk appetite	Household items

- Understanding the stock-time curve: this is about managing the supply and demand. The usage rate of stock can vary and it is important to identify and record times when the safety stock is used. See the below diagram that illustrates the stock-time curve.
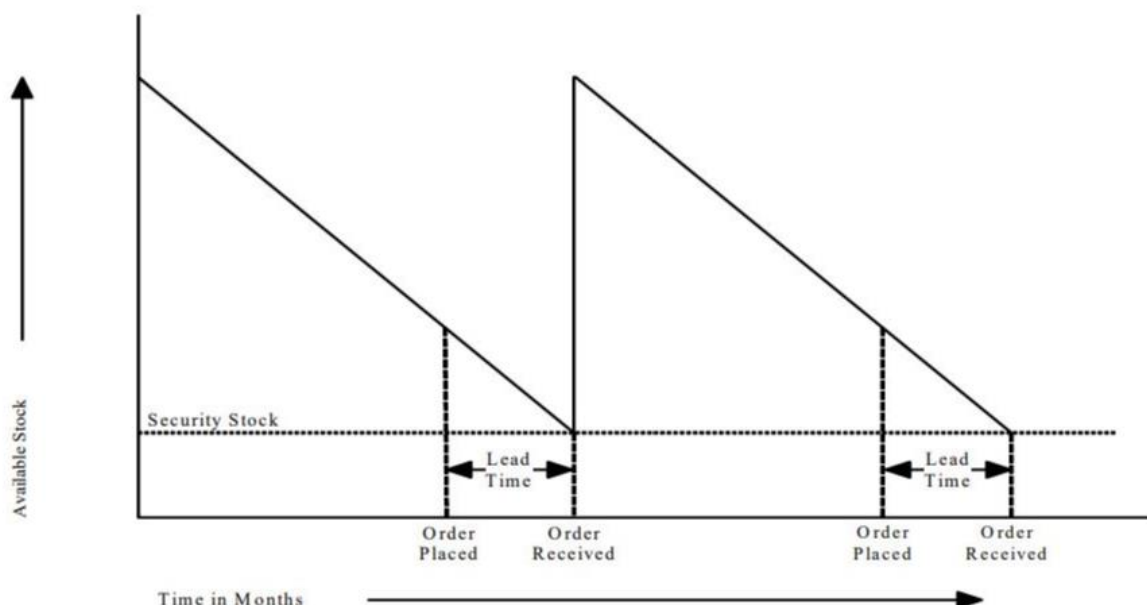
- Using forecasts. Estimating demand and supply capacity will support the accurate definition of order quantity and frequency. Forecasts will be based on the organisation's strategy (how they define preparedness requirements in the stock strategy paper), assessment reports (how they define working stock levels in assessment reports) and short-term forecasts and risk assessments (how they define safety stock levels in the programme plan).
- Choosing an ordering system – choose the trigger for placing a replenishment order. Apart from the stock level and the usage rate, two factors can determine what is the right time to place an order:
    - Order placement and delivery lead time

▪ Order quantity
- Considering the shelf life of items held in stock in the ordering cycle.

To determine the order frequency and quantity, the free stock level is the most important information to have at hand.

$$
\begin{aligned}
&physical\ stock\ on\ hand \\
&+ stock\ on\ order\ from\ suppliers \\
&+ stock\ in\ transit \\
&- reserved\ stock \\
&= \textbf{Free stock level}
\end{aligned}
$$

Reserved stock is stock already allocated to orders in preparation, or stock otherwise reserved for special purposes.

There are two different "standard" re-ordering systems:

Two-bin system	Periodic review system
	- Define review period, depending on stock movement frequency.
- Best used for low-value items	- Best used for High usage, "critical" items
- Stock is kept in two separate bins (50 per cent in each bin).	- Weekly/monthly review of free stock quantity.
- When Bin One is empty, start picking into Bin Two and replenish quantity for Bin One and Bin Two.	- Replenishment system options: - *Top-up system:* at each review, place an order to top up from available stock to a target stock (agreed with stock owners) - *Minimum stock system:* place order when free stock is less than minimum stock (a "re-order point"). Bear in mind that other factors can impact the order quantity, such as the minimum order quantity set by suppliers or the available budget.

Remember

$$Reorder\ quantity\ (ROQ) = average\ daily\ usage\ x\ average\ delivery\ lead\ time$$

$$Reorder\ point\ (ROP) = ROQ + safety\ stock$$

When ROP is reached, an order should be placed to the ROQ quantity calculated.

Safety stock must be an organisational decision (expressed in days', weeks' and months' usage), based on risk appetite.

ROQ should be calculated with daily, weekly and monthly numbers consistently across the calculation. This calculation takes consumption during both the order lead time and consumption in general into account but variations (higher or lower consumptions) will not be incorporated.

A concrete example

➡ **The initial situation:**
- In Sinapai branch, they decided to stock at least 50 family kits
  (= 50 lanterns, 50 buckets, 50 jerry cans, 150 blankets, …).
- Their actual stock is 60 complete family kits.

➡ **The distribution:**
- After a small disaster, the branch distributed 10 family kits with 15 extra jerry cans and 10 extra blankets.

➡ **The new situation:**
- They only have 35 complete family kits left.

➡ **Replenishment needs:**
- They absolutely need to replenish 15 jerry cans and 10 blankets to reach their stock minimum of 50 complete family kits.

General considerations for stock strategy definition
- Are there other programmes planned (by BRC or another NS) with similar activities that could potentially fit into one stock strategy? If yes, ensure strategies are aligned and well embedded.
- If stock strategy poses too high a risk or does not provide VFM, can alternative modalities be considered? Think of vendor-controlled inventory, or stock managed by partners.
- Are there any previous experiences with this HNS or context we can draw from? Consult with other programme managers.
- How does the stock strategy support development of the capacities of the HNS? How is it aligned with its strategic objectives?
- Logistics can advise ordering extra items for safety, but this must always be agreed with the budget holder (or programme manager) before placing the order.

2.3.4 Estimating your storage space needs

Once it is confirmed that one or several warehouses will be needed to deliver the objectives of the programme and with the storage location(s) agreed, you will need to estimate the storage needs.

The size and type of the warehouse will depend on the required storage capacity for an operation and is determined by the maximum quantity (in tonnage and volume) of supplies to be stored there.

This may be different from the total quantity required for the whole operation. The quantity of stock to be held and the number of warehouses to use will vary along the duration of the programme and is determined by the programme plan.

The required storage volume depends on the weight-per-volume ratio of the goods. The area occupied by one item depends on its volume, the height of the storage space and the maximum permissible load-per-square-metre of floor space.

To illustrate how volumes can vary dramatically, below are some examples of the average volume in cubic metres of one tonne of the following items:

Items	1 MT (1 metric ton = 1000kg)
Grain, flour, sugar (bagged)	$2m^3$
Medicines (average for bulk shipments and medical kits)	$3m^3$
Vegetable oil (in drums or tins)	$1.5–2m^3$
Blankets in pressed bales (approximately 700)	$4–5m^3$
Blankets in un-pressed bales	$8–10m^3$
Clothes (in bales)	$7–10m^3$
Tents (approximately 25 family tents)	$4–5m^3$
Kitchen utensils (in 35–40kg boxes)	$4.5m^3$

When calculating storage requirements, only 70 percent of the total warehouse's surface capacity should be considered as available for storage space. The remaining 30 percent is used to ensure proper ventilation, passageways, handling space and repackaging areas.

Warehouse's storage capacity

$Approximate\ storage\ capacity\ of\ the\ warehouse = Length\ x\ width\ x\ (height - 1m)\ x\ 70\%$

How to calculate the required storage capacity:
- Add the total weight and total volume of the items to be stored and use the volumetric info from the above table (CBM per MT requirements)
- Divide the total CBM by 70 and multiply by 100 to calculate the total warehouse volume needed. Assume 2m stacking capacity. Include truck docking areas (in addition to the storage spaces).

item	packaging type	A/C	stock levels	stock levels	stock level	space required per MT in M3	cubic requirement	area in sqm required for optimum stacks at 2m high	total area needed (incl 30%)
		unit	pc	kgs	MT				
Rice 5% broken	Bags	kg	639,000.00	639,000.00	639.00	1.50	958.50	479.25	623.03
Beans red kidney	Bags	kg	262,312.00	262,312.00	262.31	2.00	524.62	262.31	341.01
Vegetable oil	Tin	litre	82,214.00	82,214.00	82.21	1.70	139.76	69.88	90.85
Wheat soya blend	Bags	kg	83,042.00	83,042.00	83.04	2.00	166.08	83.04	107.95
Sugar white	Bags	kg	7,071.00	7,071.00	7.07	1.50	10.61	5.30	6.89
lodised salt	Bags	kg	2,357.00	2,357.00	2.36	1.50	3.54	1.77	2.30
Family tents	Piece	piece	213.00	18,105.00	18.11	5.00	90.53	45.26	58.84
Kitchen set	Box	piece	512.00	2,560.00	2.56	4.50	11.52	5.76	7.49
Blankets 50%	Bundle	piece	1,230.00	61,500.00	61.50	10.00	615.00	307.50	399.75
grand total sqm									*1,638*

2.3.5 Estimating your floor-load capacity needs

No more weight than that specified in the warehouse leasing contract should be stacked per square metre of floor space. The permissible load at ground-floor level will normally be 1,000–3,000kg/m², but on upper floors (or ground floors where there is a crawlspace or basement) it can be as low as 500–800kg/m².

Always do a physical check of the floors – when they are in good condition, standard capacity calculation will be good enough, but when floors are damaged, their capacity will be reduced.

Floor capacity calculation, rice bags

1 bag	= 50 kgs

1 storage layer = 5 x 10 bags
= 50 bags
= 2500 kgs

A 14-layer stack = 14 x 50 bags
= 700 bags
= 35 tons

Each layer is 5m x 5m = 25 sqm

Minimum required floor-load per sqm for storing the rice bags:
= 35 tons/25smq
= 1.4 ton/sqm

2.3.6 Calculating stock turnover and adjusting target stocks

It is good practice to periodically review the target levels of stock that have been set for a programme and set a stock turnover target (per item and per period) to ensure that the stock targets remain relevant to the operation.

The stock turnover target can vary from one item to another and depends on the context of the operation.

At the BRC, the stock turnover target on NFI stocks pre-positioned for emergency response is equal or greater than two per year: to consider stocks as relevant, the ratio of items issued out to the average inventory level in the year must be greater than two.

A basic way to calculate the average inventory is the beginning-of-year inventory plus the end-of-year inventory, divided by two.

$$average\ inventory = \frac{(\text{inventory at beginning of year}) + (\text{inventory at end of year})}{2}$$

A few questions to guide the stock review:
- Of the total stock, how much has been used (requested or issued stock divided by total stock, in percent) over the period observed?
- What is the total percentage of stock loss (expired, damaged, and lost stock divided by total stock, in per cent)?
- What is the ratio of used storage area vs available storage area in the warehouse?
- What are the objectives of the programme the stock serves?
- What are the relationships of the NS with established suppliers in the area? Could they provide VCI or respond to needs within a maximum of 48 hours?

2.4 Sourcing a warehouse

2.4.1 Setup options

Central, regional and distribution-point warehouses can be built, commercially rented or provided by the host National Society, the government or operational partners. Buildings designed for storage are preferred as central or regional warehouses.

Where no suitable facilities exist, the construction of temporary or permanent warehouses should be considered. Immediate and interim needs can be met through the use of specially designed warehouse tents (MSUs) or other temporary storage facilities.

Wherever possible, avoid sharing a warehouse with another agency and, especially, commercial firms. Where this is unavoidable, fence off different partners' areas or clearly mark each partner's stock. Additionally, when sharing a warehouse with another agency, a standard Memorandum of Understanding (MOU) should be signed to specify the detailed terms and conditions of the lease/sharing. This ensures a clear understanding of the storage terms and conditions and removes ambiguity. It should also include a minimum notification period should the conditions of the share need to change.

Options to share warehouse facilities within RCRC:

PNS uses an IFRC-managed warehousing facility	PNS uses a HNS or PNS-managed storage facility	HNS uses an IFRC-managed warehousing facility
Referenced to the integration agreement or service agreement	Develop local agreement PNS HQ Logistics teams informed	Local agreements should be developed between the HNS, the local delegation and the relevant RLU

Advantages:
- Warehouse systems are already in place
- Increases cooperation
- Location of storage facilities is optimized already

2.4.2 Types of warehouse:

2.4.2.1 Temporary warehouses

2.4.2.1.1 Tents

Tents can be standard tents or Rubb Hall (MSU) tents.

Tents should always be set up on flat and firm ground (preferably on a concrete slab), with ditches around their outside perimeter. If possible, add a tarpaulin or net on top of the tent, allowing space for ventilation between the roof of the tent and the additional tarpaulin. If using a tarpaulin to cover stored items, ensure that a separate tarpaulin protects the items from the ground. Make sure the tent can be securely closed with padlocks. Ideally, it should be fenced inside and out to limit access and manned with 24-hour security wherever possible.

Rubb Halls (also known as mobile storage units or MSUs) are tents that have been specially developed for emergency storage purposes. The standard model used in RCRC operations offers a maximum 600m^3 of storage, and a ground surface of 240m^2 for palletised storage. Erecting a tent requires 12 people, at least one of whom must be a trained technician, and takes two days. Rubb Halls should also be lined with mesh or chicken wire to prevent theft.

Rubb Halls are usually equipped with a locking system that requires one large padlock, or two padlocks if the Rubb Hall can be opened at both ends.

Length	24m
Width	10m
Height	Approximately from 3m on side to 6m at ridge
Materials	Steel structure and UV proof PVC coated canvas cover
Logo/branding	Banners that can be attached or printed directly on the canvas

Note: Rubb Halls are available in different sizes. However, the above is as per RCRC standards and is the model deployed to most RCRC operations.

Rubb Halls can be ordered by Logistics through the IFRC or the ICRC or directly from the supplier (see https://www.rubbuk.com/). The BRC holds Rubb Hall tents in the IFRC RLUs in Panama, Kuala Lumpur and Dubai. Rubb Halls are only be released for extremely urgent and rapidly onset operations, with a strong business case and approval of the relevant international Logistics coordinator.

Good reasons to deploy a Rubb Hall include:

- Extensive damage to buildings
- Temporary increase of stock in emergency situations (where warehousing space is already available but insufficient to absorb increased stock).
- Pre-positioning of stock in remote locations where there is no infrastructure.
- Legal response where humanitarian agencies are not allowed to build permanent structures.
- A high likelihood that the location of the operation will change in the duration of the response.

2.4.2.1.1 Re-purposed containers/wagons or barges

Where no firm ground can be found or where tents cannot provide security for stock, it is possible to use shipping containers as temporary storage. If a container is used for long-term storage, it needs to be repurposed to create optimal conditions for its maintenance and for the items stored.

Air circulation:
- Place the container on concrete blocks, and – if relevant – secure it and the blocks into the ground, to prevent it being blown over in a cyclone/hurricane.
- Ensure a perimeter of at least one metre around the container.
- Ensure the container has lateral ventilation to allow cool air inside the container (an opening to the side of the container, that needs to be waterproof). If vents are not installed, have them cut into the container.
- Ensure there is roof ventilation by installing waterproof turbine ventilators to allow hot air to get out.

Characteristics of the ventilator
- Galvanized steel or aluminium
- Lubricated track system
- Min. diameter: 12"/30 cm
- Min. height: 12"/30 cm
- Min. number of vanes: 20

Place the container on 10" reinforced concrete blocks, repair it where necessary and make it weather and rust proof (1 inch = 2,5 cm).

Make 4 to 8 rodent proof lower lateral 12" x 12" air vents by drilling series of ½" holes through the inner groove of the container wall. (Inside view)

Cover these air vents on the outside with home made moulded galvanized steel plates welded ¾ around to prevent vertical & lateral water infiltration.

Apply 2 coats of anti-corrosion white paint inside and outside the container. Cover the air vents on the inside with mosquito screening to prevent insect infestation.

Cut out the opening for the turbine ventilator and weld a (4") inch circular turbine base to the opening. (The base must not stick out more than (2") inches).

Place the 12" diameter turbine ventilator into the welded base and bolt it to it for added security. The rotating vanes will prevent rain penetration.

Build a roof (canopy structure, tin roofing, …) preferable with an angle of 120° and fix it to the container.

The container should be retrofitted, as in the below diagram. The pointed roof (at a 120-degree angle) is preferable, as it will provide better protection from heavy rain.
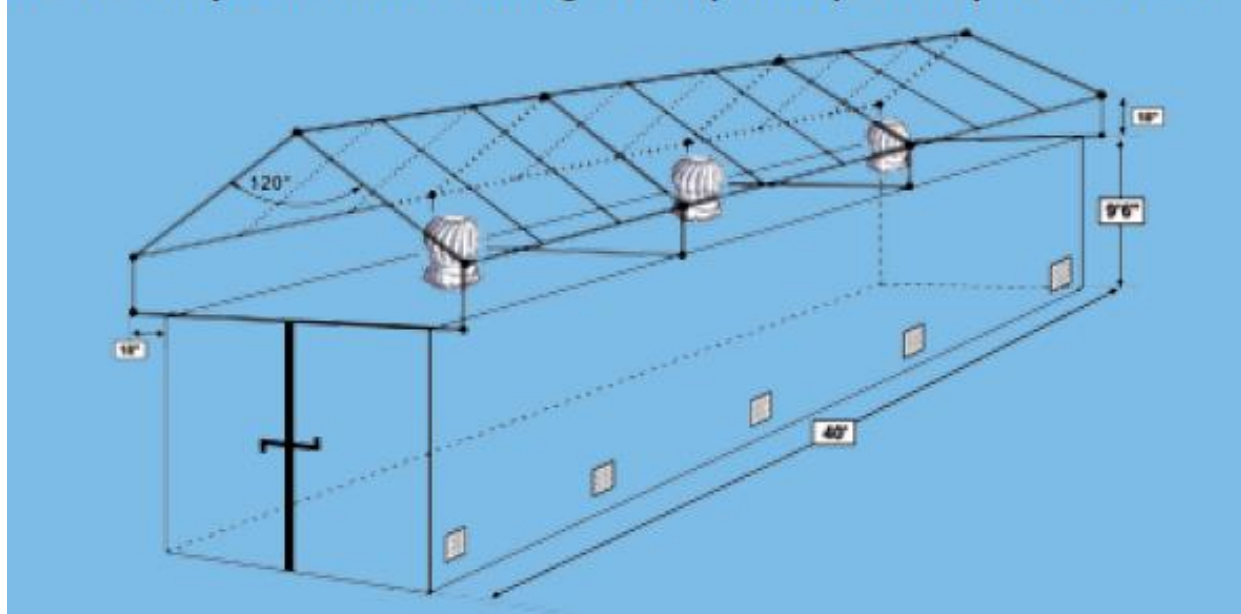
The major risks to a container storage unit are adverse weather and pests. Accurate roofing, anti-corrosion and anti-rust measures will protect against adverse weather. Netting and regular maintenance will prevent damage from pests.

Train wagons and barges can be retrofitted in a similar way.

Using barges for storage is an option, but not a preferred one: it is much more difficult to maintain good storage conditions in a humid environment (even if the barge is out of the water, the humidity inside it will be a problem). If using a barge for storage, make sure ventilation is guaranteed through similar processes as for a container, and measure humidity levels carefully, using a hygrometer where possible.

2.4.2.2 Permanent warehouse

In emergency setups, warehousing facilities will usually be rented as opposed to purchased.

2.4.2.2.1 Find a suitable warehouse

1 > Characteristics of a good warehouse

➡ Solid building with a flat, firm floor.
➡ Dry and well ventilated.
➡ Gives protection against animals, insects and birds.
➡ Gives protection against humidity, extreme temperature fluctuations and local weather conditions.
➡ Easy access for trucks.
➡ Easy loading and unloading.
➡ Secure against theft (locked, gate, …).
➡ In an appropriate site (low disaster vulnerability: above flood level, away from salt spray, …).

Also consider:
• Size of the warehouse
• Accessibility 24/7
• Red Cross visibility
• Ownership of the warehouse or the land it is on
• Avoid sharing with other agencies. If not possible mark very well the area that belongs to you

2.4.2.2.2 Agree lease conditions

- Cost and payment schedule.
- Period of lease agreement.
- Period of notice for terminating or extending the lease.
- Include confirmation of property insurance, covering third party, fire, water damage and any damage to the structure of the building.
- Details of security arrangement: who will provide security services and in what pattern (number of guards, rotation times, validation of guards, etc).
- An inventory of any equipment, fixtures and fittings included with the building and a detailed description of their condition and maintenance requirements.
- Confirmation of sole tenancy or, where relevant, details of other tenants. Where a warehousing facility, the memorandum of understanding with sharing tenants should be annexed to the lease contract.
- Information about the ground or floor strength.
- Weight capacity of any equipment included in the lease (forklift, racks shelves, etc).
- Access by the landlord to the warehouse must be specified in the lease. The landlord should preferably notify the leasing party before accessing the warehouse.

To uphold the RCRC's neutrality principle, the identity of the owner of the premises (might be different from the leaser) must be known. Where the owner is linked to the military, religious authorities or government, this should be reported to Headquarters for risk analysis. Also review any previous usages of the warehouse to identify risks, such as if it was previously used to store dangerous/toxic material, weapons, etc.

A template Warehouse rental agreement is available as a download from the annexes section.

2.5 Setting up a warehouse

2.5.1 Mapping a warehouse

Once the storage space has been identified, it will need to be optimised for your planned needs. Areas to be included in the storage map are:

WAREHOUSE AREAS		
Bulk storage area where the majority of items will be stored – it can be densely organised. items in most regular demand should be closest to the goods receipt/despatch/picking areas.	**Goods receipt area** Estimate its dimensions per the expected incoming volumes: if you expect to receive items in 20-ton truckloads, make sure your reception area is large enough to store the corresponding volume.	**Goods despatch area** Estimate its dimensions per the expected outbound volumes: if you expect to dispatch items in 20-ton truckloads, make sure your despatch area is large enough to store the corresponding volume.
Picking area Depends on the dispensing units: if items will be despatched in a smaller packaging unit than they come in, you will need a picking area (bulk construction items such as nails, bolts or medicine, as you will dispense packs or bottles in smaller quantities than the base carton quantity).	**Office space** Ensure office space can be isolated from noise and vehicle movements and is ventilated. A safe path to the office space must be kept clear at all times	**Packaging materials storage area** Use to store carton boxes, pallets, wrapping and strapping materials.
	Cold chain area For items which require specific temperature conditions. **Move close to power supply source and ventilation.**	**Sanitary facilities, breakout area** Ensure respect for cultural norms. **Emergency exits and fire fighting equipment** Must be signalled clearly
Truck docking area For trucks to station and manoeuvre and offload. Include level docking platform if possible.	**Quarantine area** For expired, damaged items or items pending inspection or test results. **Must be lockable.**	**Security shed/quarter** For security personnel to use during shifts and to store their work equipment. Should be located near the main entrance to the warehouse compound.

Each of the areas should be clearly separated from one another, and space between stacks, racks, shelves or pallets must be included, to allow for passage and cleaning.

Depending on how the goods will be handled (manually or with specialised equipment), the space between storage blocks will be different. For human handling, 1.2m is usually enough. Where specialised equipment (forklift, sack truck or hand pallet truck) is used, the manufacturer will be able to confirm the required turning circle.

Each storage unit must be at least 50cm away from the main wall of the warehouse.

Standard layouts include:
- U-flow
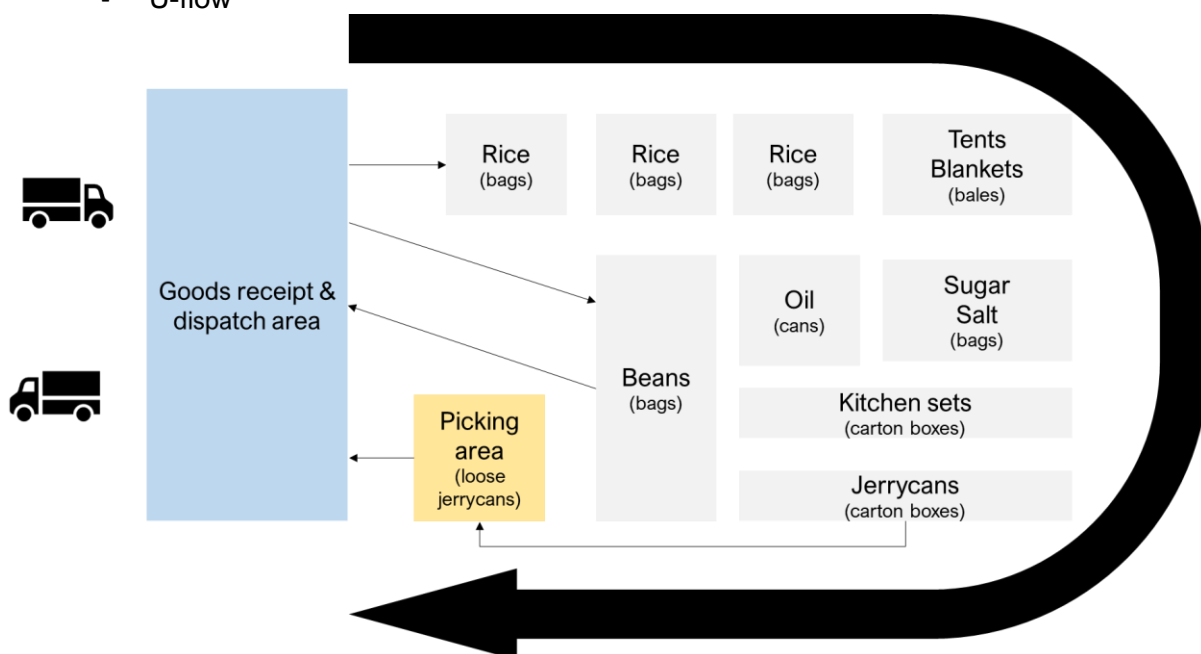
U-flow is used when the receiving and loading areas are next to each other on the same side of the building. It provides the following features:
- Because the receipt and dispatch areas are side by side, the space can be used flexibly, particularly if these activities are scheduled to take place at different times in the working day. This can save space.
- Personnel and equipment can be used in a flexible way, reducing the overall requirement for resources.
- Because the main access to the building is in one place, access and security are easier to manage.
- The building may be extended on three sides where required and where the site allows.

- Through-flow
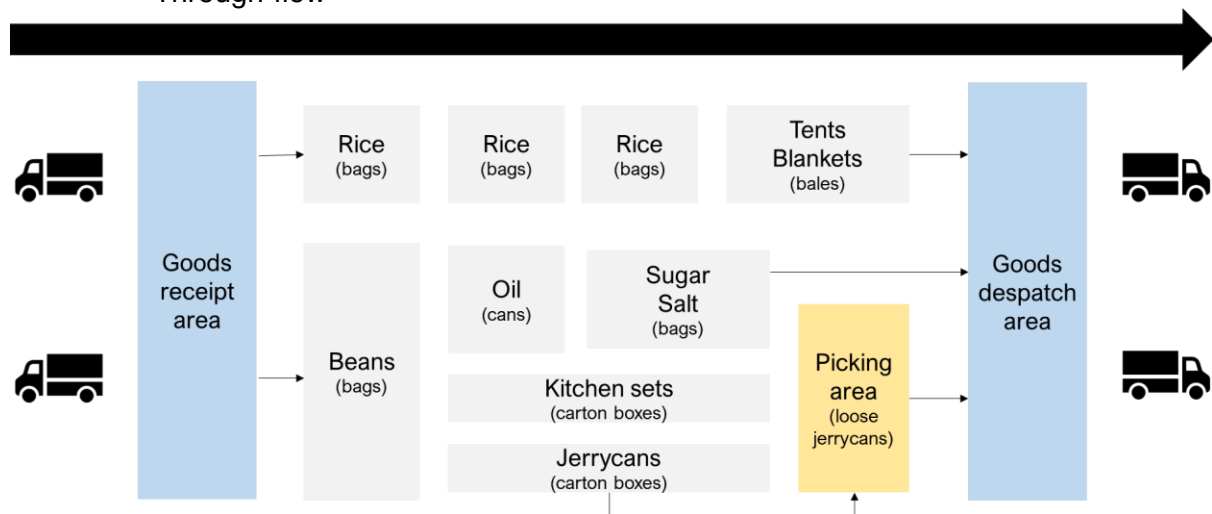
Through-flow is used when the receiving and dispatch areas are at opposite ends of the building. It tends to be used under the following conditions:
- Where vehicles and equipment used in receipt and dispatch are of different types.
- Where the flow of vehicles around the site will be facilitated.

The warehouse manager should ensure that all areas of the warehouse are physically identified, and a map of the warehouse must be available and posted on its walls.

2.5.2 Equipping a warehouse

Depending on the type of goods to be stored, the activities that will take place in the warehouse and the equipment available, the warehouse will have to be fitted with office equipment, specific storage equipment, additional safe storage space and/or partitioning.

In certain cases where the warehousing activities are expected to be critical to the operation, it may be relevant to invest in handling equipment.

In all cases, the storage facility will have to be equipped with a fire prevention system.

2.5.3 Storage options
2.5.3.1 Stacks
A stack is a pile of the same item on a warehouse shelf.

Goods must be stacked separately and sorted by programme ownership, expiry dates or final destination, for example.

A bin card must be physically attached to each stack or grouping with the same CTN, batch number and expiry date.

Wherever possible, stacks should be placed on pallets and not directly on the floor, to avoid contact between the goods and water. Where possible, they should be wrapped in plastic sheeting or tarpaulins.

Where supplies of pallets are limited, note that bagged foods are more vulnerable to humidity than canned or bottled products, so food items should be stacked in priority.

Where pallets are not available, items can be temporarily stacked on plastic sheeting laid on the ground.

The distance from stacks to walls and between the stacks must allow a person (or a forklift) to pass and be at least 50cm.

The recommended size of a stack is 5 x 5 metres and a maximum 2.5 metres high with bags stacked by 5 x 10 = 50 in each layer x 14–15 layers (= ~ 700 bags).

The stack height will be affected by the type of packaging; boxes and jute bags stack higher than woven polypropylene bags, which tend to slide. When stacking cartons, ensure that lower packages in the stack are neither crushed nor torn. Commodities packaged in tins and plastic bottles, have lower restrictions in terms of maximum stacking heights.

In addition to height restrictions, oil packages frequently indicate a recommended maximum number of rows for stacking. Check the instructions on packaging, where they exist, or consult the suppliers for information.

Where stacks are tall, it is useful to tie a rope around the top layer to stabilise them.

Bags that need to be stacked higher than 2.5m should be stacked up to 2.5m as above, with the additional layers stacked in a pyramid to avoid slippage. Plastic sheeting can be added between layers to prevent slippage.
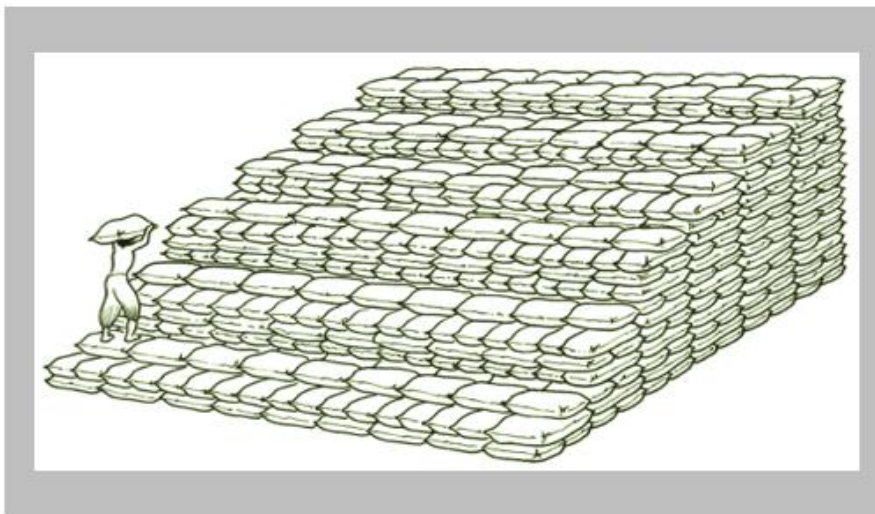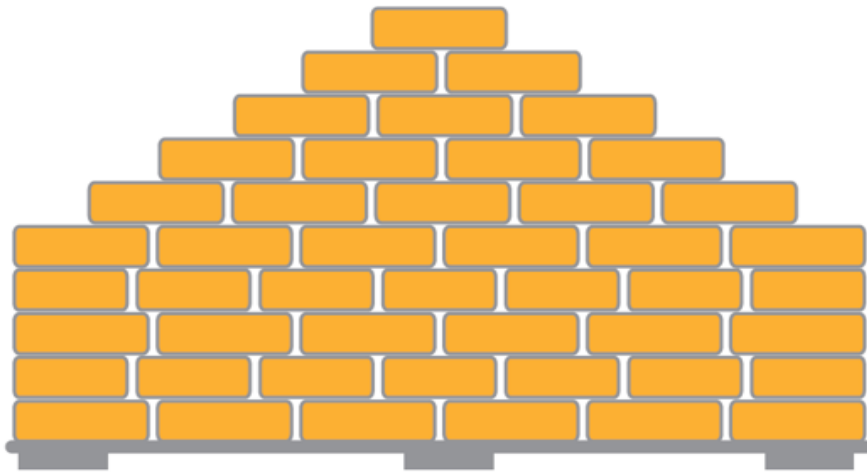
2.5.3.2 Volumetric storage

Create a one-cubic metre container to measure sand, gravel or a quantity of construction materials in bulk. This works well for timbers, poles, bamboos and items stored in "bundles" of 100 pieces.

2.5.3.3 Pallet racks

Simple pallet racks usually have two or three tiers. Two tiers of pallet-racking require a clear total height of about three metres and three tiers require a clear total height of about 4.5 metres. It is possible to have more tiers, but sophisticated mechanical handling equipment is then required.

The benefits of shelving and pallet-racking can be combined. The bottom tier of racking may be used to store the working stock if arranged at a convenient height for manual order picking. Alternatively, a special picking shelf can be placed immediately above the bottom tier of pallets. In both cases, the upper tiers can be used to store safety stock or bulk stock. Caution: check the racks' load-carrying capacity with their owner/manufacturer or an independent engineer before using them and check every rack regularly for signs of damage.

Keep space between the racks and the walls, ensure that the racks are stable and, where possible, fixed together and to the wall and/or to the floor.
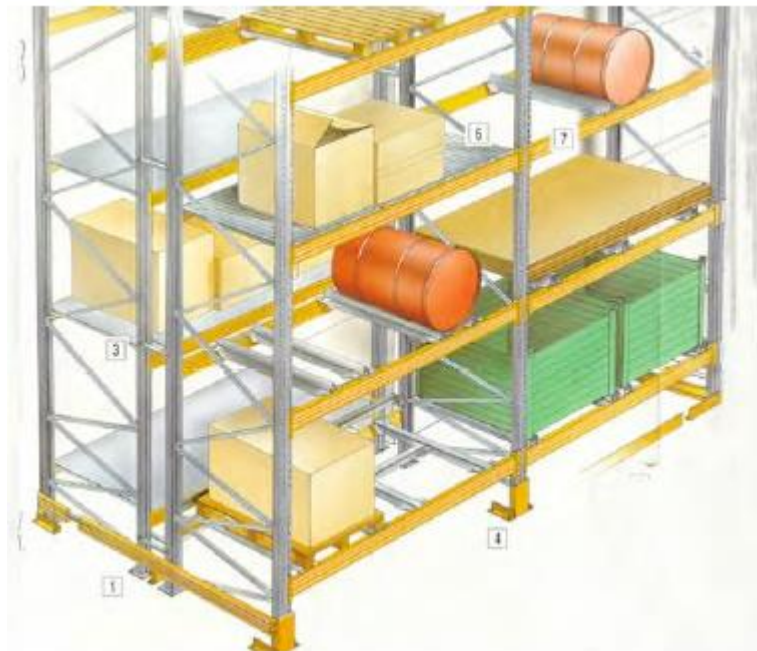
2.5.3.4 Large racks

Large racks are useful when storing large inventories of a variety of types, and where the dimensions of pallets are not the standard dimensions of packaging. The racks pictured here have the advantage of adjustable racking height.

Leave space between the racks and the walls.

Ensure that the racks are stable and where possible, fixed together, to the walls and/or to the floor.
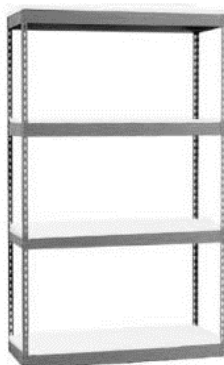
2.5.3.5 Shelves

Use shelves where there are a lot of small items and/or when there are items that need repacking (medical supplies, kits, etc). Storage on shelves does not require mechanical handling. In tropical countries where termites attack wood, metal structures are preferred. Shelves can be taken apart and adjusted to suit the goods to be stored.

Keep space between shelves and walls to improve ventilation.

2.5.4 Choosing the best storage options

Bulk items
(loose)
Volumetric storage

1000 kgs = Variable volume

Make sure the volume is defined at item level, as each item will have a different density

1522kg of gravel = 1cbm
1,922kg of sand = 1cbm

Construction materials

Bundles of xx units

1000 kgs = Variable volume

Keep stacks fenced with timbers or wiring

Food in bags
(grains, flour, sugar, salt)
Stacked on pallets, with chicken wire between pallet and supplies

1000 kgs = 2CBM

Food in cans or bottles
Stacked on pallets

1000 kgs = 1.5 CBM

Ask manufacturer for maximum stacking layers

NFI in boxes

Stacks
Adjustable racking

Check stackable height where items are fragile

Medical supplies
(drugs)

Large racks for main storage

Shelves for picking units

NFIs in bags or bales

Stacks (fenced)

Adjustable racking

1000 kgs = 8–10cbm

Stacks if stable

Adjustable racking preferred for bales

Medical equipment
Pallet racks or large racks

In addition to the above, note that to store medical and/or food items you will likely need:
- Cold chain equipment: passive (ice packs or other isotherm systems) and active (power-generated)
- A locked storage space for controlled substances
- A quarantine area equipped with shelves/racking

2.5.5 Manning your warehouse

Based on the process mapping exercise (part of the stock strategy definition – see "How"), adequate resourcing will be required for the operation of the warehouse.

The size of the warehouse team will depend on the size of the operation, and the allocation of tasks should be adjusted accordingly (one member of staff may cover several of the below functions). Below is a standard organisation chart including all the skills needed to operate a warehouse.
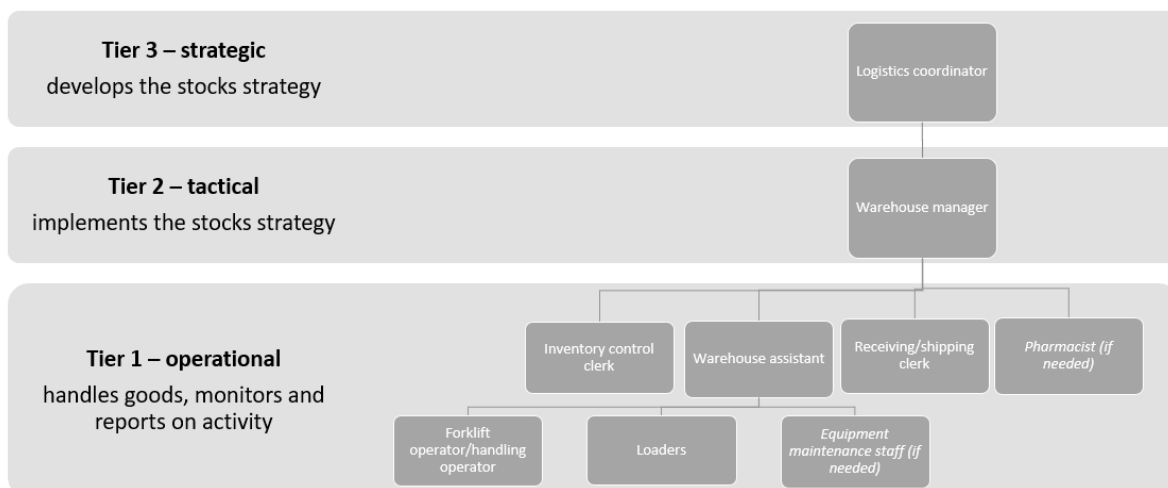
2.5.5.1 Recruiting a warehouse team

Standard job descriptions are available for download from the annex section of the chapter.

Should you need any examples of written tests for recruitment, Logistics coordinators can provide them upon request.

Guards and security staff and services can be either hired as staff or day labourers, outsourced as a service or included in the lease of the warehouse. Where guards are hired as staff or day labourers, the warehouse manager will have to define working patterns and shifts (rota). Ideally, these should be captured in a guards' shifts planner.

Some situations will call for a set of core permanent staff, with the arrangement for temporary staff to meet periodic increases in demand or workload. Holding a register of daily workers with contact details and specific skills, managed by the warehouse manager only, can be useful.

HNS volunteers can also help in the warehouse during periods of high activity, but this must be agreed with the HNS and their procedures and practices must be observed in terms of volunteer hours, incentives and payments. Do not engage volunteers as regular staff without prior approval from and consultation with the HNS.

Must manage working hours and performance directly	**Hired as staff**	Permanent staff with benefits
Ensure status in country allows recruitment in own NS's name		Can be trained and retained
High turnover of staff	**Hired as daily labourers**	Flexible workforce
		Wide pool to recruit from
		HNS can provide volunteers
Limited control over allocated resources – competition with other clients	**Outsourced**	Flexible workforce
		Guaranteed professional service
Limited control over allocated resources	**Included in warehouse lease**	Not included in head count
No control over ethical management standards		No direct management

2.5.5.2 Managing the warehouse team

Warehouse managers are permanent staff members, HNS staff or volunteers. They are responsible for all activities related to stock movements: the reception, storage, release, dispatch and recordkeeping for all goods.

The warehouse manager defines, schedules and coordinates the activities and resources that need to be available to deliver the mission of the warehouse. They also oversee security arrangements, control the recruitment of day labourers and manage the schedules, payment, performance and training of all warehouse personnel.

Regular team meetings should be held, organised by the warehouse manager:

Frequency	Attending	Purpose
Monthly	Complete warehouse team and logistics delegate	Monitor performance against set objectives and discuss updates on projects
Weekly	All warehouse staff	Warehouse manager to present operational objectives of the week and reflect on the past week
Daily	Individual briefs to loaders and receiving/despatching staff	Allocate daily tasks

Where daily labourers are regularly recruited, a system must be in place to request the number required each day, record their attendance and report to finance for payment. For example, the receiving/shipping clerk should request through a daily worker request form, signed off by the warehouse manager. Attached to daily worker records sheet, the whole file should be submitted to finance for weekly payment at an agreed time. As far as possible, day labourers should only be hired as security guards, cleaners and loaders.

2.6 Managing a warehouse

Once the warehouse is selected, sourced, set up and the team has been put together, the warehouse operations can begin.

2.6.1 Warehouse access
All staff members with access to the warehouse (keyholders) must be recorded.

A keyholder list must always be kept and updated: anyone gaining access to the warehouse must sign the key sign-in and -out list (kept in hard copy in the warehouse or Logistics office). The warehouse manager is responsible for keeping the list up to date, and the Logistics delegate is accountable for ensuring the list is always up to date and available and should therefore review the list periodically.

2.6.2 Warehouse maintenance
Regular inspections must be scheduled.

	Clean	Check
Daily	Floors	Pest signs
		Locks
Weekly	Walls	In-depth check for pest
	Sides of racks, shelves, fridges	Stability of racks, shelves
Monthly	Complete deep-clean: floor, storage, structure, roof, gutter, surroundings	Wall cracks
		Water leakages

A ==maintenance schedule== must be put together and shared, detailing all types of scheduled maintenance and status (equipment, building, facilities etc.). All maintenance undertaken and the matching findings must be recorded and signed off by the warehouse manager.

2.6.2.1 Pest control

Pests are a major risk for warehouses and can critically damage items in stock.

The most common forms of pest found in storage spaces are:

- Rodents (rats and mice): destroy packaging and consume foodstuffs and medicines; also contaminate them with their excrement and urine. Eliminating places in and around the warehouse where rodents can breed is the most effective means of preventing an infestation. Traps, with or without poison, can be used.
- Spiders
- Beetles
- Other insects: termites attack stock and wooden structures. Cockroaches and moths attack grain and flour.

Harbouring pests in the warehouse can jeopardise the integrity of the items in stock as well as damage personnel health. If left unattended, an infestation can result in extensive property and product damage and can even affect the warehouse's structural integrity.

As a preventive measure, warehouses and stored items should be carefully inspected on a regular basis for signs of infestation (a quick daily check, an in-depth weekly check, an extensive ==monthly check==). Using soapy water or a mixture of water and vinegar (1:1 ratio) for the deep cleans is the best preventive measure against pests.

Incoming and outgoing stock should be inspected as they are loaded or unloaded. Random samples should be taken from newly arrived consignments to ensure the quality of the goods and to prevent infested goods entering the warehouse and contaminating other stock. Alternatively, certificates must be obtained from the manufacturer and transporter to guarantee that the items delivered are free of pests.

2.6.2.1.1 Pest inspection checklist

Warehouse inspections are best conducted at the end of the afternoon, when temperatures are highest, and insects are most active.

Simple methods for finding insects:

Check the base and top of each stack

Check under the pallets for insects, spider webs, cocoons, traces of insects and rodents.

Signs: excrement, bite-marks

Check the corners:

slightly raise the bags

(careful not to upset the pile)

Use a sampling spear

check for insects in the middle of stacks

Lift several bags from the top of the pile,

pull them onto their sides to examine the unexposed sides and look between the bags

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Open and spread out the contents of some bags to check for the presence of insects

They will be more easily spotted if the bags are shaken before being opened

2.6.2.1.2 What to do in case of infestation

If infested stock is found, immediately separate and quarantine them from the rest. Consult with local experts in the Red Cross Red Crescent, World Food Programme, Food and Agriculture Organization, government or university agriculture departments and/or commercial fumigators.

The warehouse manager must promptly report all infestations to the Logistics delegate and/or the Logistics coordinator in UKO.

The choice of the optimum pest-control product, dosage and method of application should be left to an expert. Using the wrong product, method or dosage could render the treatment useless or the goods hazardous to human consumption. Only trained pest removal experts should be allowed to decide on the treatment method.

Preventative	Curative

Insects

Preventative	Curative
Spraying of warehouse (lasting)	Treatment of warehouse surroundings (not lasting)
Direct spraying of food items* (lasting, potentially toxic)	Fumigation* (not lasting)

Rodents

Preventative	Curative
Cats (outside warehouse)	Bait**
Prey bird sounds	
Traps, incl. glue traps (change location often)	
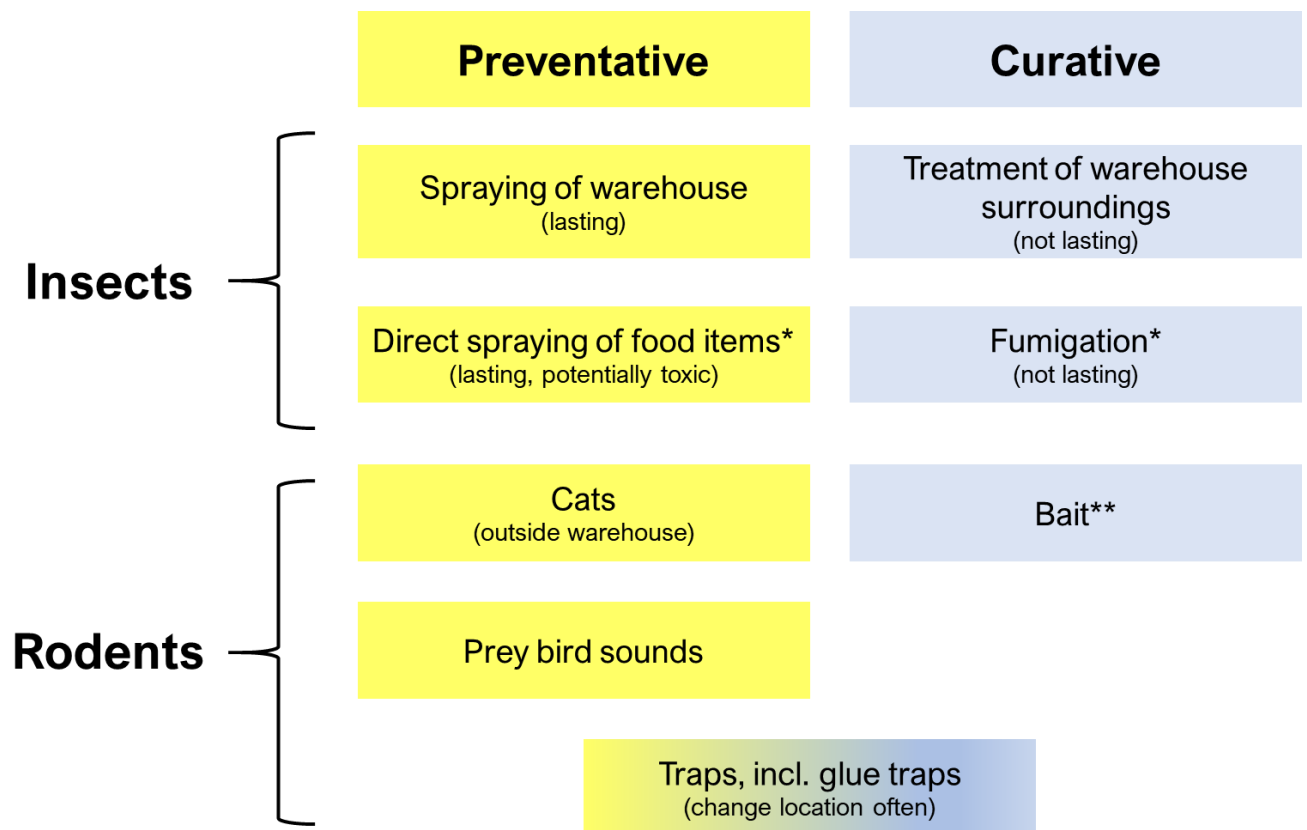
Items may need to be procured internationally – refer to your Logistics coordinator.
***Be mindful of local food practices. rats poisoned in the warehouse may escape and be eaten by local population.*

2.6.2.2 Humidity control

A lot of the items typically stored in humanitarian supply chains (grain, flour, cans of food, drugs, machinery, NFI kits or construction materials) are sensitive to extreme humidity, and a lot of the places where humanitarian supply chains operate have humid climates.

Humidity levels must therefore be tightly controlled in an RCRC-operated warehouse to maintain the quality of the items in stock and avoid losses. It is recommended that hygrometers be fitted in the warehouse and that humidity levels be checked and recorded every day, especially during rainy seasons. Where humidity levels are high, consult with your regional Logistics coordinator.

2.6.2.3 Temperature control

All warehouses must be equipped with temperature-recording devices. Ideally, several of them must be placed throughout the warehouse, close to the ground and to the ceiling, and at both ends of the warehouse.

The readings of the temperature trackers should be extracted each month by the warehouse manager, or manual temperature recording forms should be maintained and filed.

Some goods require temperature-controlled storage to prolong their life, and most goods are degraded or damaged by extreme temperatures. Manufacturers can confirm which of the goods they supply must be stored within specific temperature ranges and advise on steps to

take in case of cold chain rupture. Temperature requirements are usually included in the items' packaging.

Chilled and frozen goods require special refrigeration equipment and should be handled with care. Care should also be taken to avoid temperature extremes in the ambient area of the warehouse (e.g., ensuring adequate ventilation and avoiding excessive exposure to direct sunlight).

Examples of temperature-sensitive goods include medicines and foodstuffs. These goods must be kept within a certain temperature range from the time of their manufacture to the point of their consumption. As an example, many vaccines need to be kept at between zero and eight degrees Celsius. If temperature limits are not respected, vaccines will often lose their efficacy or original expiry dates will no longer be guaranteed.

A supply chain that deals with such temperature-sensitive goods is known as a cold chain. In a cold chain, measurements are taken, and checks are made to confirm that the goods have remained within the specified temperature range throughout the chain. Cold chain failures are a frequent cause of problems in immunisation programmes.

From a warehouse perspective, the vulnerable parts of the cold chain are:

Unloading and loading operations
Often these involve moving goods from one area to another, which poses a challenge to ensure products stay within their allowed temperature range.

Interrupted power supply
To support an active supply chain, constant power is needed. The use of stabilisers and battery switch is highly recommended where an active supply chain must be maintained

In warehouses where temperature-sensitive items are stored, there must be a clear temperature control procedure with a process in place to ensure temperature are checked and recorded twice per day. All cold chain materials must be checked twice daily – use the temperature recording forms to track temperature in fridges and freezers. One form should be available for each of the fridges in use.

Standard storage temperatures are normally defined as follows:
- Deep freeze: below -15ºC.
- Refrigerator: +2ºC to +8ºC.
- Cooled: +8ºC to +15ºC.
- Room temperature: +15ºC to +25ºC.

To learn more about cold chain management, check out the Logistics Cluster guidance document.

2.6.3 Good storage practices
2.6.3.1 Food

Food storage

- Food needs to be protected from sun, rain, humidity and extreme temperatures.

- Covered and protected storage is preferable.

- If uncovered and unprotected storage cannot be avoided, make sure this is temporary (maximum 10 to 15 days)

- Always store food separately from chemicals (including pesticides, fertilisers, cement, and fuel), dangerous goods and drugs. This applies to when loading onto vehicles.

- If you are treating a warehouse that contains food against pests, make sure the chemical used is food-safe (consult your regional logistics support if you are unsure)

- Ensure the storage areas are cleaned daily, and that all cleanings are recorded (daily sweep, weekly clean and wipe-down, monthly deep clean)

- Food items should always be stored either on pallets or on tarpaulins if stacked, or on shelves/racks that do not touch the walls of the warehouse.

- Use a sampling spear for taking samples where necessary.

- Pay particular attention to infestation signs

- Immediately separate and quarantine infested stocks from the rest. Consult with local experts in the BRC, HNS, IFRC, World Food Programme, Food and Agriculture Organization, government or university agriculture departments and/or commercial fumigators. All infestations must be reported immediately to country manager and logistics team in UK.

- Expired food items must be quarantined and stored separately until they can be destroyed.

- Maintain a system to warn off pre-expired food supplies – when on their last six months of shelf life, food can be donated to local authorities or other parties. Keep a list of the three and six-month-pre-expired food on your stock records.

- Perishable stocks must be rotated following FEFO principles (see above definitions in Section 2.2) .

- Expired food must be disposed of immediately. Check with local health authorities to determine whether it can be used as animal feed or for the appropriate disposal method (incineration or burial). Be mindful that the destruction of food may sometimes cause strong cultural reactions.

- Pay particular attention to the reception process to confirm weight received: weigh five to ten per cent of the consignment and extrapolate weight of the full consignment to estimate total weight of the consignment against documented weight or use a truck weighbridge to compare the actual weight to the documented weight on the GRN/delivery note/waybill. Record any discrepancy on the GRN.

- Remember that the ICRC maintains regional QA testing teams who can support the testing of food items.

- Always record batch numbers and expiry dates of food items upon receipt and stock movement (at minimum on the bin card, preferably on stock card and stock report).

2.6.3.2 Medical supplies

Medical supplies storage
- No direct sunlight on the boxes.

- Temperature in the warehouse must be controlled and recorded daily, and fridge temperature must be controlled and recorded twice daily where cold chain items are stored.

- Cartons should be stored on pallets or tarpaulins or on clean racks/shelves that do not touch the walls of the warehouse.
- Drugs should ideally be stored by type of drug: infusions, injectables, oral drugs, diagnostic tests, etc.
- Always store medical supplies separately from chemicals or food (pesticides, fertilisers, cement, fuel included), and dangerous goods. This also applies when loading onto vehicles.
- If stored on pallets, all cartons should be clearly labelled with their contents. If stored on shelves/racks, shelves must be labelled.
- Always record batch numbers (found on the outer cartons and on each container of the drugs, allocated by the manufacturer) and expiry dates of medical supplies upon receipt and record batch references at all stock movements (on bin card, stock card and stock report – see Section 2.6.8 for definitions and guidance on stock tracking tools).
- It is good practice to track medical supplies on stock cards raised by batch number. Alternatively, you can record the batch number of the drugs as they moved in and out of stock. See different types of stock cards.
- When conducting checks of the warehouse, check the packaging of drugs thoroughly for wet cartons, chewed plastic and spilt liquids.
- Perishable stock must be rotated following the FEFO (first expired, first out) principle.
- Maintain an alert system to warn about pre-expired drugs – during the last six months of their shelf life, drugs can be donated to local authorities or other parties. Keep a list of the three and six-month-pre-expired drugs on your stock records.
- Expired drugs are not fit for human consumption and should be destroyed safely. Contact your local Food and Drug Administration to enquire about the regulations around the destruction of medical supplies.
- Expired or damaged drugs must be quarantined until they can be safely destroyed. Keep a record of drugs placed in quarantine on the relevant bin and stock cards.

2.6.3.3 NFIs

NFI (Non-Food Items) storage
- Take care when stacking NFIs; stacks are fragile.
- If packed compactly, Bales should be stacked; if packed loosely they should be stored in caged piles.
- Build your stacks in a way that facilitates the inventory process (in layers of ten, for example).
- Avoid storing NFIs on the ground – stack them on pallets or tarpaulins or using racks or shelves.
- Clearly separate areas of the warehouse which contain stock that is still to be kitted from the areas used for the storage of the kits.
- NFIs often won't have batch numbers – use the CTN number allocated by your RLU to track how long your items have been in stock.
- For goods that do not expire, ensure you use the FIFO (first in, first out) method to rotate your stock.

2.6.3.4 Construction materials

Construction materials storage

- Small parts such as screws, nails, turns and bolts are measured by weight rather than units.

- A two-bin system works best for small parts – store the stocks in two separate bins or buckets (50 per cent in each bin or bucket). When the first container is empty, start tapping into the second and suggest re-ordering (in this case, re-ordering quantity should be Bin One plus Bin Two).

- For poles, sticks, metal bars and other long and/or bulky items, build "reference" storage areas, with items separated by quantity. For example, store wooden poles in bins with 100 pieces in each. This will help managing stocks per FIFO principles and avoid the deterioration of stock.

- For sand, gravel and other loose materials, build tank storage per cubic metre to help track stock levels. A good option is to build one cubic metre "bins" and cover them to preserve the quality of the material.

- The maximum height of a stack of cement should not exceed 15 bags, to prevent lumping from pressure. The width of stacks should not be more than four bags or 3m, which means that each layer should be comprised 16 cement bags, to a maximum height of 15 layers.

- Cement must always be kept dry and away from the walls of the warehouse. Ideally cover cement stacks with tarpaulin to protect the bags.

2.6.3.5 Dangerous goods

Dangerous goods storage

- The management of dangerous goods is legally regulated – check with your local authorities whether you hold any dangerous goods in storage.

- Dangerous goods must be clearly identified and stored separately from any other items in store, ideally locked away to minimise the number of people who handle them.

- Only selected and trained staff should be allowed to handle dangerous goods.

- Dangerous goods must be tracked separately from the rest of the items in stock.

- When conducting routine warehouse checks, check the packaging of dangerous goods thoroughly for: wet cartons, chewed plastic, broken seals and spilt liquids.

- All material safety data sheets must be available in hard copy at the warehouse and in soft copy to the entire Logistics team.

- When planning for transport of dangerous goods, check their safety data sheets and with local authorities or your freight agent in case of any doubt.

- Transporting dangerous goods requires specific packaging and preparation operations.

- Rules on the international transportation of dangerous goods are generally more stringent that those for domestic transportation.

- Fuel and chlorine are the most commonly stored dangerous goods in humanitarian contexts – make sure they are managed accordingly.

Examples of MSDS sheets can be found online for more details.

2.6.3.6 Chemicals

Chemical products storage

- Chemicals can never be stored with food or drugs supplies.

- A lot of chemicals are dangerous goods – make sure you identify them and follow section 2.6.3.5 section guidance
- When conducting routine warehouse checks, check the packaging of chemicals thoroughly for wet cartons, chewed plastic, broken seals and spilt liquids.
- Most chemicals are perishable. Maintain an alert system to warn of pre-expired chemicals – when in the last six months of their shelf life, they can be donated to local authorities or other parties. Keep a list of the three and six-month-pre-expired chemicals in your stock records.
- The disposal of chemicals is extremely sensitive. Always refer to your Logistics delegate, regional Logistics or UKO Logistics before initiating the process to dispose of chemicals.
- Fuel and chlorine are the most commonly stored chemicals in humanitarian contexts – make sure they are managed accordingly.

2.6.3.7 Kits

Storing kits
- Factor activities relating to kitting into your warehouse mapping exercise.
- Refer to the IFRC standard product catalogue
- Always agree variation from standard kits with the programme team.
- Consider the kit as one unit once it is fully kitted from loose stock.
- Items included in a kit cannot be requested as loose items unless the entire kit is broken into single items.
- Where a kit contains perishable items, the kit expires at the same date as the item with the earliest expiry date.
- Try to use a stock requisition to release loose items to be kitted to help the traceability of stock movements in the warehouse.
- Never accept the partial return of a kit. Record all items received as loose stock and only kit once all items are available for kitting.
- Where relevant, maintain a kit tracker spreadsheet.
- Ensure that the value of kits held in stock is accurately calculated and shared with finance.

2.6.4 Insurance

You should ensure that your stock and warehouse are covered by insurance. The stock held in UK (UKO and Bulwick sites) is covered under the BRC's insurance policy. The current policy covers the value of stock held at both locations and approximations of the stock's value are shared with the insurance manager.

The excess for insurance is £5,000 – any losses or damages under this value are not covered and cannot be claimed through the policy. Replacement for these items must come out of the Logistics team budget and be discussed with Finance.

For losses or damages over £5,000, the UK insurance manager must be contacted to process the claim. If the level of damage is over £10,000, the insurance company may send an inspector to validate the damage.

Once the claim has been processed, the money will be returned to the insurance manager, who will re-code this to the Logistics budget. The items' value should remain on the balance sheet until the money from the insurance claim has been transferred to the balance sheet. Finance will inform Logistics when the insurance refund is captured in their account.

For overseas projects, refer to the NS insurance policy and make sure stock is covered against theft, flooding, fire, destruction. The warehouse lease contract may also state whether insurance should be purchased by the lessor or the lessee.

2.6.5 Receiving stock

2.6.5.1 Plan for reception:

Request details of incoming goods as early as possible, with the estimated weights and dimensions clearly stated on the documents.

Arrange your reception area to ensure that the full consignment can be temporarily stored before being moved into the bulk storage area – if necessary, make temporary adjustments to the warehouse layout (reduce the dispatching area, for example) to accommodate the consignment. Make sure any temporary changes to the layout are communicated to the warehouse team.

If receiving a cold chain consignment, make sure you have a spare fridge as reception area. If necessary, prepare passive cold chain (isotherm carton boxes or cool boxes fitted with ice-blocks) to use as extra reception area.

When receiving large consignments, it is good practice to draft a reception plan with end users to capture their priorities. The reception plan should detail:
- The extra capacity needed for offload/check/storage of the incoming goods
- The re-scheduling of all major consignment preparations to avoid the reception
- The order of priority in which items should be checked and placed in the bulk storage area (i.e. available for despatch)

Where possible, an offloading plan should be made available for the offloading process: have a list of all the boxes for each CTN or order, so that offloading supervisors can tick the boxes one by one as they are offloaded.

2.6.5.2 Upon reception of the consignment

Check that all documents are attached to the consignment:
- commercial invoice
- gift certificate
- packing list
- waybill, bill of lading, air waybill or CMR sheet
- relevant customs clearance certificate (tax waiver documents for example).

If receiving containers, ensure that the container seals are in good condition.

Proceed to offloading (use the offloading plan, if available), checking the condition of each box or pallet as it is offloaded and checking the labels on each packaging unit.

Confirm that the number of boxes offloaded matches the consignment documentation (purchase order and packing list in particular). If they match and no damaged boxes are found, sign the <mark>waybill/delivery note</mark> provided by the transporter.
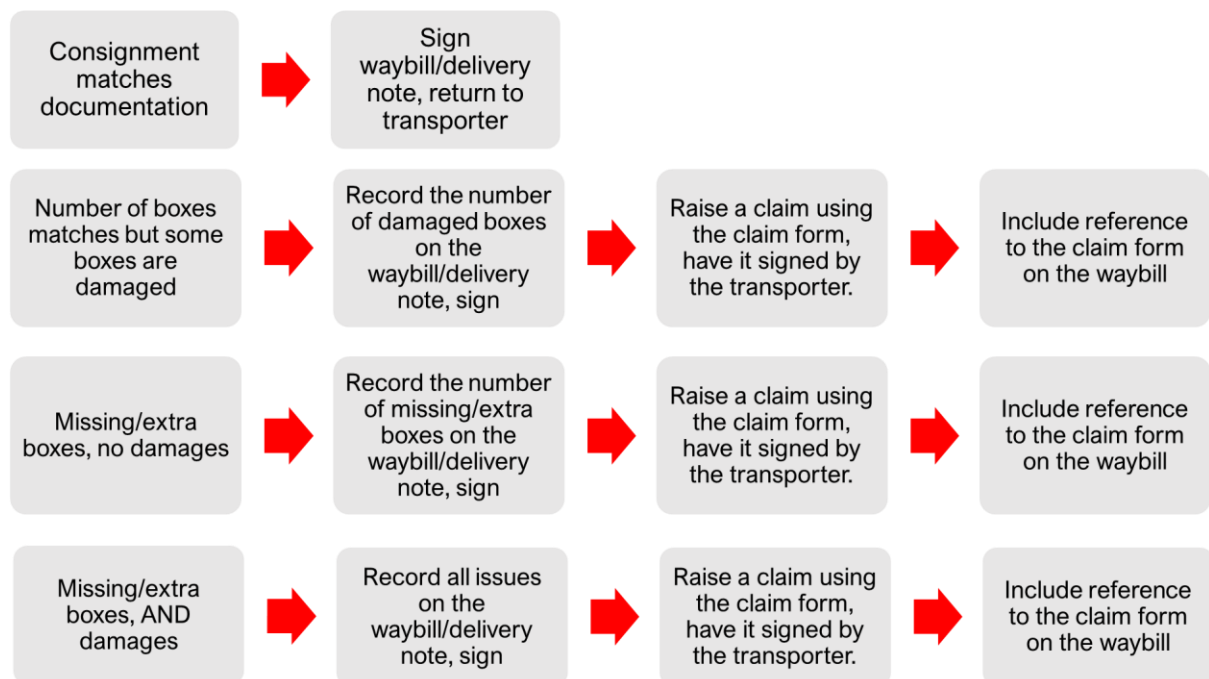
If receiving a cold chain consignment, read the temperature-monitoring devices attached to the consignment to confirm cold chain has been maintained throughout the transport process. Where an anomaly appears on the readings (i.e. where the temperature has risen above 8°C or below 0°C), record it on a claim form and have it signed by the transporter. Include reference to the claim form on the waybill and share the claim form and temperature readings with the delegation's pharmacists to confirm that drugs are fit for use.

Check and inspect the contents of each box to confirm the exact quantities received against the packing list attached to the consignment. Record any discrepancy and reconcile once all boxes have been inspected (sometimes all ordered goods are in the consignment, but the packing lists are not accurately broken down per packaging unit).

For more details on documenting procedure for the reception and despatch of goods, refer to Chapter 3.

2.6.6 Document the reception

Raise a <mark>GRN</mark> to confirm the exact quantities received. The GRN must be raised in 1 original and 3 copies.

White copy	Blue copy
ORIGINAL	
Hand out to supplier and/or donor (when stock is donated)	Hand out to transporter

Green copy	Yellow copy
File in Logistics' files	File in the warehouse

When the GRN is raised electronically, it is good practice to inform all stakeholders and keep soft copies on file or in archives.

Raise a claim in case there are any discrepancies against the shipping documents, in quantities or in quality.

Record all incoming quantities on the appropriate stock cards, referring to the GRN number.

Record all incoming quantities on the bin/stock cards if applicable, referring to the GRN number.

Make sure the stock levels are updated as per the applicable stock tracking method:
- If using an electronic system, stock levels should be updated automatically when posting a GRN.
- If manually updating the stock levels, make sure the updates are captured on the stock cards and in the upcoming reporting cycle (this can be immediate, within the work week or within the applicable reporting period).

Keep a copy of the signed waybill on file, including copies of any claims raised and enter them on a claim tracker for follow-up.

Some consignments will require inspection by a third party (this would have been agreed at the time the order was placed). In this case, a company must be selected to observe the reception process, sample the items received as per the agreed sampling method and take the samples away for analysis. Typically, items that require third-party inspection would not be available for distribution until the inspection results are available. Samples taken for inspection should be recorded as sampled quantities – this quantity should be withdrawn from the GRN and should not be included in the quantities recorded in stock.

Procurement manager should hand over the procurement file to Finance so they can match with the invoice. Note: Invoices should be delivered to a Finance staff and not to the warehouse staff processing the reception.

2.6.7 Receiving stock for the BRC (in UK or at RLUs)

2.6.7.1 With Agresso

Where items are received into stock through an Agresso purchase, the physical GRN must be raised in the usual way and received quantities must be updated in Agresso. To do so, the receiver must open the Agresso PO and enter the received quantities in the "quantity received" column. Where deliveries are incomplete, the Agresso PO should be closed after the received quantities are consigned against the PO quantities.

This applies to all stock purchased through Agresso, including RLU prep-positioned stocks (see Section 2.8 for more details on RLU stocks).

2.6.7.2 Receiving international stocks from IFRC (pipeline report and CTN #)

2.6.7.2.1 The <mark>pipeline report</mark>

The pipeline report indicates the type and quantity of goods in the pipeline for internationally sourced supplies for a given operation, as well as their point of origin and expected/actual date of arrival.

The pipeline report allows Logistics delegates in the field to pre-arrange warehouse space, custom clearances and transport. Depending on space availability and need, goods may be taken from border posts and airport and port facilities to a central warehouse or directly to distribution-point warehouses. The pipeline report indicates all the consignments (i.e., past, ongoing and future shipments) and CTN allocated to that operation.

Regular updates of the pipeline report should be shared with the International Federation's regional logistics unit leading the operation, National Society staff, donors, operational partners and whomever else the logistics coordinator deems relevant to the success of the operation.

The <mark>pipeline report</mark> serves many functions:
- Distribution managers can use it to pre-plan distributions according to incoming items from donors and international procurements.
- Other operational agencies, as well as customs clearance agencies, can be in copy of the pipeline report, to assist in establishing a global overview of relief items for the operation and to facilitate inter-agency coordination and the preparation of reception/clearing plans.

International Federation of Red Cross and Red Crescent Societies
Fédération internationale des Sociétés de la Croix-Rouge et du Croissant-Rouge
Federación Internacional de Sociedades de la Cruz Roja y de la Media Luna Roja
الاتحاد الدولي لجمعيات الصليب الأحمر والهلال الأحمر

Pipeline Report   09/05/08

Session OU :   IFRC Regional Logistics Unit

Date :   -   To   -

Project Name :   Tropical Cyclone (ME)

Country Name :   Myanmar

CNSG No / CTN	ETD / ETA	ATD / ATA	GRN Dt	Sender Name	Item	UOM	Pkg Type	Item Qty / Consignment Cost	Rem/ POE	Currency	Dest site / Consignee	Tmspt Mode / Ship Docs	Vehicle Details	Item Total Wt in Kg / Item Total Vol im M3	Remarks
CSGN-MYRLU-08-0050	08/05/08 00:00			Japanese RC	KIT, SHELTER, (shovel, handsaw, 2x tarpaulins,	Kit		300.00	YANG ON		Yangon	AIR AWB:630 5041566 8	Chartered Aircraft	6,600.00	
08-0000567	08/05/08 00:00							15,186.00		CHF	MMRYN	PB 121/08		15.600	
CSGN-MYRLU-08-0051	08/05/08 00:00			Japanese RC	JERRYCAN, foldable,10L, food grade plastic, screw cap 50mm	Pce		3,750.00	YANG ON		Yangon	AIR AWB:217 -186943 51	Regular Aircraft	663.00	
08-0000569	09/05/08 00:00							15,000.00		CHF	MMRYN	THAI TG303/09		8.060	
CSGN-MYRLU-08-0051	08/05/08 00:00			Japanese RC	TARPAULINS, woven plastic, 4 x 6 m, white/white, piece	Pce		1,000.00	YANG ON		Yangon	AIR AWB:217 -186943 51	Regular Aircraft	4,300.00	
08-0000568	09/05/08 00:00							15,710.00		CHF	MMRYN	THAI TG303/09		11.150	
CSGN-MYRLU-08-0053	10/05/08 20:15			American RC	MOSQUITO NET, Long Lasting Impregnated Bed Nets,	Pce		8,000.00	YANG ON		Yangon	AIR MAWB:2 17-1869 4395	Regular Aircraft	3,554.00	
08-0000582	11/05/08 08:45							43,360.00		CHF	MMRYN	THAI TG303		12.930	
CSGN-MYRLU-08-0052	10/05/08 20:15			British RC	JERRYCAN, foldable,10L, food grade plastic, screw cap 50mm	Pce		3,000.00	YANG ON		Yangon	AIR MAWB:2 17-1869 4395	Regular Aircraft	530.00	
08-0000575	11/05/08 08:45							9,930.00		CHF	MMRYN	THAI TG303		6.440	

The regional Logistics office (RLU) has ultimate responsibility for updating all aspects of the pipeline report – both headquarters' information (new donor commitments, consignment departures, etc) and field-based information (arrivals, losses, etc). The RLU shares all relevant pipeline information with the field daily, and even more frequently at the beginning of an operation.

Pipeline reports are automatically generated by the mobilisation software programme. The RLU is responsible for all data entry into the software programme, hence, for updating the pipeline report. The field-based Logistics delegate is responsible for confirming and reporting to the RLU on the state of all consignments immediately following their arrival. The delegate must also share a copy of the GRN to the RLU so that it can be sent to the appropriate donors and/or suppliers. Note:

2.6.7.2.2 The CTN number

Commodity Tracking Numbers
- Each IFRC shipment is assigned a unique consignment tracking number by the IFRC's Logistics department, called CTN.

- A consignment refers to a shipment that is handled by a common carrier – this shipment may contain only one type of goods or a combination, each with their own CTN.

- Large donations with the same CTN may need to be sent in several shipments and will thus have multiple consignment numbers.

- The consignment number and the CTN are key elements in the tracking process – they must both be recorded on the GRN so it can be matched to the goods in the pipeline report and a report sent to the appropriate donor.

- Unsolicited goods donations will also appear on the pipeline report, however they will not be allocated a CTN.

The CTN is assigned to each donated or procured commodity. It is also the primary tracking information used to identify the source (donor) of the goods for accurate reporting and must appear on all documents. Shipping, clearing and forwarding documents should be filed by CTN reference for ease of traceability.

The RLU allocates a CTN at the time of donation or procurement. Prior to procurement of any relief item (such as non-food, food, water and sanitation or health supplies) in the field, a CTN must be requested from the RLU.

It is extremely important to mark this tracking number on each document and, where possible, on each package. Stencils can be used to mark individual goods where the CTN was not included on the pre-printed bags or cartons. Whenever goods are received without a tracking number, the RLU must be contacted for the missing number or, in the unlikely event that none was pre-assigned, to acquire one. The CTN must be written on each document, including the relief distribution report, ensuring a link between Logistics and Relief operation reporting.

The CTN is not the item code. An item code is the number assigned to each item listed in the standard product catalogue which is published by the IFRC (available online). The item code allows easy reference of items in the catalogue, which describes the standard specifications of individual relief items.

Record the CTN on all documents!
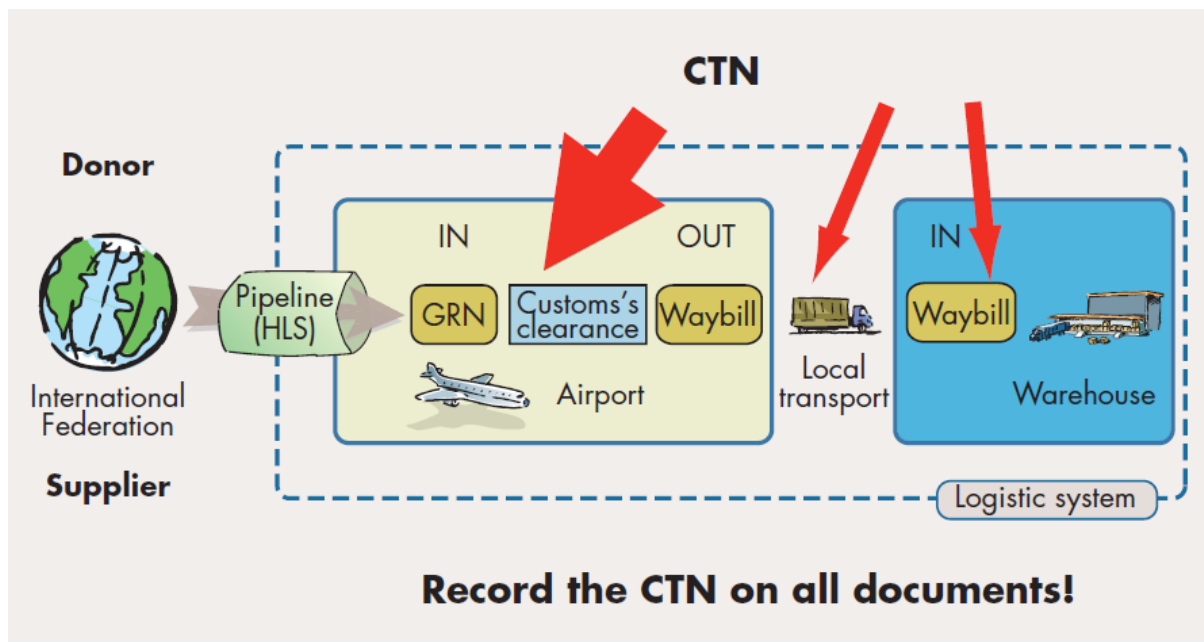
2.6.8 Dispatching stocks
Refer to Section 3.8 in Chapter 3.

2.6.9 Relocating stocks to a new warehouse
Some programmatic or contextual changes (insecurity, lease conditions, etc) may require moving stocks to a new facility. This is a resource-intensive process and should be planned well in advance, to ensure that the programme's staff (including support functions) are aware of the timings, implications and resource requirements involved.

Transporting the entirety of an operation's stock requires careful planning. If the exact weight and volume of the stock is known, it will be relatively easy to calculate truck requirements for the move. If such data is not available, the most practical way to prepare for the move is to mark areas on the floor of the warehouse, their dimensions corresponding to the trucks available for the move, and transfer the stock into these markings, stacking it to the maximum height of the truck, while incrementally dismantling the storage units, and recording all items moved into each of the marked out areas.

Ensure that all items in the warehouse are included in the volume calculations. This includes stock, storage systems, office materials, equipment and machinery, spare materials, generators, etc.

Cold chain stocks must be transferred to passive cold chain containers (cool boxes with ice packs) for the duration of the move. It is preferable to use air transportation for cold chain items if the move is long-distance (more than 12 hours by road).

Documenting the contents of each truck (packing lists and waybills) and scheduling the trucks' trips to the new warehouse is essential.

Ensure that the stocks needed for distribution most urgently are moved into the new warehouse first and pace the arrivals of the trucks to leave time to place each shipment into storage before the next one arrives.

Ensure that restricted goods are transported in locked containers as far as possible, that dangerous goods are transported separately and that quarantined stock, if it must be transported, is transported separately.

Note: Where stocks are being moved to a distant location, ensure that the trucks used (whether hired or owned) can stay overnight at secure locations and have all the necessary road permits to enable them to transit without delays or obstacles.

The rules and guidance points listed in Section 2.6.3 apply to storage in transit.

2.6.9.1 Relocating a temporary warehouse

2.6.9.1.1 Rubb Hall

The Rubb Hall takes about two days and a team of 12 people to dismantle (and the same to re-erect it in its new location). Ensure that you follow the instructions closely when dismantling the tent. This means that the transfers need to be well-scheduled, taking into consideration the dismantling time, the transit time and the re-erecting time.

The items stored in the Rubb Hall will likely have to be temporarily stored in a different facility (probably another Rubb Hall erected nearby) for at least a week.

2.6.9.1.2 Container

Never move a repurposed container without first emptying it of its stock. As the container is repurposed into a temporary storage unit, some ventilation holes will have been made in its structure; ensure that it is protected while it is in transit to its new location.

2.6.9.2 Relocating a permanent warehouse

See guidance points in Section 2.6.9.

Ensure the new warehouse is inspected while empty, well in advance of the move (a minimum of two weeks) and arrange for any identified need to be addressed before the move (wall fixtures, pest control, ventilation, etc). The new warehouse must be mapped before the first stocks arrive at its location, so that briefed staff can easily move the goods into storage. Ensure storage systems (shelves, racks, etc) are installed before the first stock is delivered, and that water and electricity supply is arranged in advance.

2.6.10 Stock records

Once goods are in stock, the field Logistics officer and the warehouse manager must ensure that the stock is maintained in good condition and accurately tracked until they are dispatched. Stock should be kept at manageable levels to permit frequent rotation to avoid the build-up of unused stock and losses due to spoilage and overdue expiry dates.
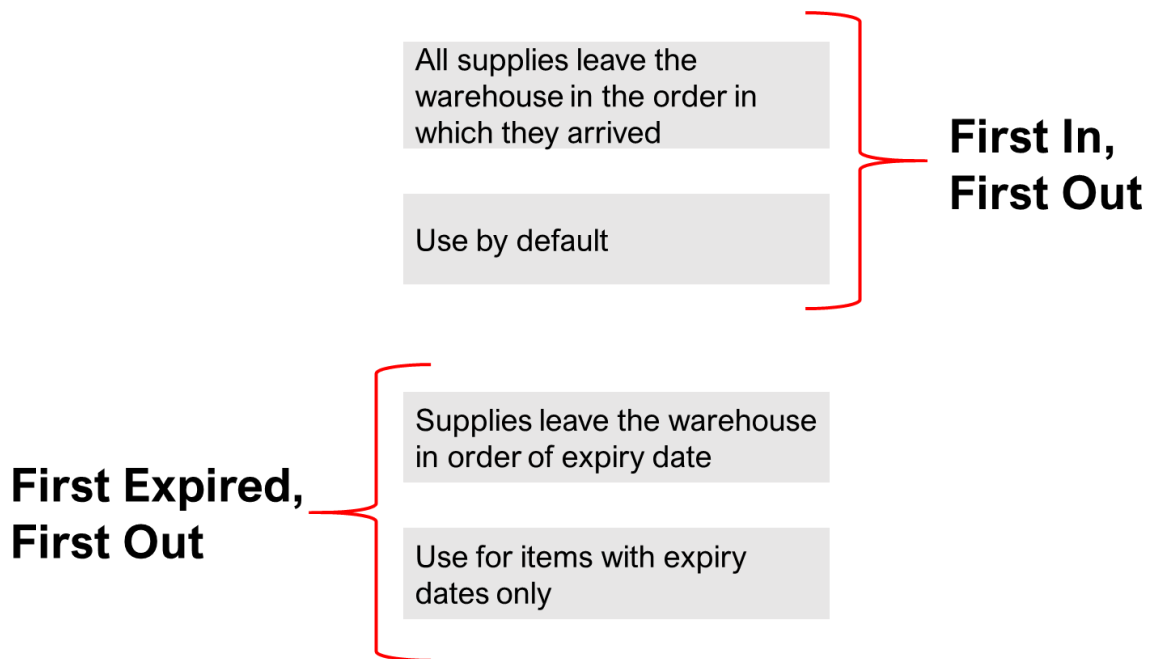
All supplies leave the warehouse in the order in which they arrived	**First In, First Out**
Use by default	

First Expired, First Out	Supplies leave the warehouse in order of expiry date
	Use for items with expiry dates only

Apply the **First In, First Out rule;** all supplies should, in principle, leave the warehouse in the same order in which they arrived. The exception is the F**irst Expired, First Out rule**; items with expiry dates must be distributed according to their expiry date. Additionally, damaged, infested or damp goods that are still fit for human consumption must be distributed before older stocks and without delay, to avoid further loss.

All supplies stored in the warehouse must be registered on ==stock cards and bin cards.== These cards are the primary tracking tools used in a warehouse – they follow the commodities from the time they enter the warehouse to the time they are dispatched.

Though similar, the two forms have separate functions and should not be confused. Templates for the cards can be found in the appendices, and both are discussed below. Ideally, both stock cards and bin cards should be used, especially where few items are in store and where they are in large quantities and under different CTN numbers.

2.6.10.1 Bin cards

A bin card must be physically attached to each grouping (a stack, pile or grouping on a shelf) of an item in a warehouse. It provides basic information about the goods:
- item type
- CTN (where applicable)
- batch number (where applicable)
- quantity
- origin
- arrival date
- expiry date
- any re-conditioning it has undergone

Separate cards must be issued for each stack, as well as for goods with different CTNs, batch numbers or expiry dates. A grouping of one commodity (hereafter referred to as a stack) can be increased on the same bin card, as long as the goods are placed in the same stack and have the same CTN, expiry date and batch number (where applicable).

Where any of these three do not correspond, a new stack must be started, even where the commodity is the same. Every time an item with the same CTN, batch number and expiry date is received, either under a GRN or a transfer waybill, and is added to a pre-existing stack, the quantity is recorded in the "IN" column on the bin card. The "OUT" column is used every time part of the stack is dispatched under a waybill or losses have occurred and a claim report has been filed.

The bin card is closed and removed from the storeroom when the entire stack has been dispatched, transferred or accounted for under a claim report. The old card must be filed, sorted by item code and date.

2.6.10.2 Stock cards

All commodities received or dispatched from the warehouse should be immediately registered on a stock card by the warehouse manager. These entries should correspond to a GRN, waybill or, in the event of loss, a claim report.

Every entry should bear the signature of the warehouse manager or, in the case of larger operations, a designated assistant. A stock card is less detailed than a bin card and includes stock with different expiries or batch numbers.

Stock cards can also be raised by batch number or by CTN where no bin cards are in use. It is a summary of all bin cards for goods with the same CTN and indicates the overall stock level for an item. The "IN" and "OUT" columns are completed in the same way as on the bin cards.

The warehouse manager is responsible for keeping the stock cards in a safe location in the warehouse office space and must ensure that they are filed properly (in alphabetical order, by catalogue codes or by area of the warehouse, for example) and that all stock cards that have been filled out are numbered and archived properly.

The summary of all stock cards is the stock report or stock movement report, which is used for daily, weekly or monthly reporting and for stock management.

2.6.11 Stock management and reporting options

Besides using the mandatory bin and stock cards, total stock levels can be monitored using different systems, with varying levels of automation and sophistication.

2.6.11.1 Manual stock board

This can be useful in small operations, with a limited number of items in stock and a limited number of end users. A stock board is a visual way of informing requestors of current stock levels in the warehouse and must be updated every time there is a stock movement. This system should be used only in cases where no other options are available or sustainable, and for as short a period as possible.

2.6.11.2 Excel spreadsheet stock report and analysis

Excel stock reports are useful where stocks are held at multiple locations as spreadsheets can easily be compounded to obtain a general stock overview. The frequency of update and sharing of the spreadsheets must be pre-agreed, so that the information reflects stock levels at the same point in time.

2.6.11.5 Offline databases

There are several ways to maintain local databases containing the stock information. These are maintained offline (they do not require an Internet connection) and can be exchanged between locations to calculate compounded stock levels. Reports can also be extracted from these databases and shared with stock owners in Excel format. The general trend in the humanitarian world is to use this type of solution less often, as Internet connections become more widely available.

2.6.11.4 Online databases

The use of software solutions, either in a "ready-to-use" version or specifically developed for a specific user, is becoming more common.

Orders can be placed through the system, and stock levels are automatically updated from other transactions approved in the system: for example, raising a GRN against an approved PO will result in an increase in stock levels, recorded against the GRN reference generated by the system, and approving a stock movement in the system will generate a waybill and reduce the stock levels.

These solutions are a considerable investment and should be developed in common across the Movement where possible, to share the costs of development and ensure consistency.

Refer to the latest version of the stock management strategy published by the IFRC for more information about the development of stock management systems.

2.6.11.5 LogIC (logistics inventory control)

LogIC is currently the system that is most widely used across the Movement, particularly in IFRC-led operations, but the IFRC and ICRC are currently looking to develop a more holistic joint stock-tracking tool. Each National Society can choose the system they use to track stock.

2.6.12 Warehouse performance management

The warehouse manager is responsible for overall reporting and KPI monitoring, under the supervision of the Logistics delegate. KPIs monitored include:

	Definition	**Source**	**Target**
Warehouse utilisation (%)	What part of the available storage space is actually utilised?	Warehouse map Stock volume information	If <70%, warehouse is being under-utilized
Stock accuracy (%)	What part of the stock is accounted for correctly after stock takes?	Stock take report	100%
Order preparation lead time (days)	Number of days from approved request to despatch of items	Requisitions Waybills	To be agreed locally
Loading / offloading lead time (hours)	Number of hours to load or offload consignments	Visitors' book	To be agreed locally
Claims against deliveries (units)	How many claims have been raised on shipments dispatched from the warehouse?	Waybills Claims forms	To be agreed locally

2.7 The ERU stock management

The Emergency Response Unit kit is designed to support emergency teams deploying in the field and make them as self-sufficient as possible. The kits that are put together and maintained by National Societies contain key items for the ERU teams to perform their role, including infrastructure items to help operate offices and warehouses such as tents and generators, as well as items for delegates themselves, such as camping and kitchen equipment.

The purpose of the kit is also to act as a NS capacity-building tool – there is a general rule that items sent into the operation will be left with the Host National Society, for use in future disasters. Once the kit has been despatched, the BRC's international Logistics team will generally procure a new kit. When a team wishes to return specific items of a kit, they will propose it to the Logistics and Emergencies teams, who will make a decision.

More details on ERUs can be found on the IFRC website: http://www.ifrc.org/eru

The BRC holds two types of ERUs:
- Logistics (the BRC holds two full kits, so can potentially deploy two Logistics ERUs at the same time)
- Mass sanitation module for 20,000 people (MSM20)

As this is an IFRC standard tool, the kit list is standardised across ERUs – the lists can be found on the IFRC standard product catalogue (SPC). National Societies can add additional items but they cannot take any away.

The National Societies that hold the ERUs meet regularly in Geneva and sometimes review and update the kit list, but this can only be done in agreement with the other ERU holders.

For more details about the procedures that apply to the maintenance, replenishment and deployment of the ERU kits that the BRC holds, refer to the ==ERU kit SOP== and to chapter 8 of the Manual.

2.8 The RLU stocks management

As detailed in their stock pre-positioning strategy, the IFRC currently hold stock in a number of different locations and allows PNSs to use warehouses run by the IFRC to pre-position stocks as well.

The primary purpose of these warehouses is to store and manage standard non-food items (NFIs) to respond to Emergency Appeals (EA) and for use within BRC programmes and partnerships.
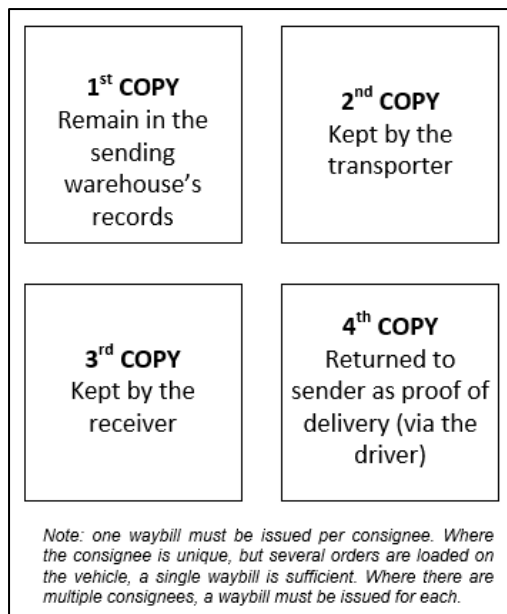
Stocks are also sometimes loaned to other NS. As part of this pre-positioning mechanism, and based on an annually reviewed agreement, the BRC currently holds stock in the following places, managed by the IFRC:
- Panama (Americas region)
- Kuala Lumpur (Asia region)
- Dubai (Middle East and North Africa region)
- Zimbabwe (East and Southern Africa region)

Each warehouse is managed by IFRC staff and follows internal standard operating procedures for its management, layout, access, staffing and procedures.

For more details about the procedures that apply to the maintenance, replenishment and deployment of the stock held in the RLUs, refer to the ==RLU SOP== and to chapter 7 of the Manual.

2.9 Releasing stock

1st COPY Remain in the sending warehouse's records	**2nd COPY** Kept by the transporter
3rd COPY Kept by the receiver	**4th COPY** Returned to sender as proof of delivery (via the driver)

Note: one waybill must be issued per consignee. Where the consignee is unique, but several orders are loaded on the vehicle, a single waybill is sufficient. Where there are multiple consignees, a waybill must be issued for each.

Remember to apply the First In, First Out rule: all supplies should, in principle, leave the warehouse in the order in which they arrived. The exception is the First Expired, First Out rule; items with expiry dates must be distributed according to their expiry date. Additionally, damaged, infested or damp goods that are still fit for human consumption must be repackaged and distributed before older stocks and without delay, to avoid further loss.

Remember that management of the stock is delegated to the warehouse manager or Logistics delegate in charge of the warehouse, while ownership of the stock remains with the budget holder, generally the programme manager. Therefore, Logistics must guarantee the traceability of stock movement and report to the stock owner on the same.

To support this, systems must be implemented to release stock, deliver items safely and document all stock requests processed by the warehouse team.

2.9.1 Prior to releasing stock from the warehouse:
Stock release must be authorised by the stock owner.

Generally, Requisition forms are used as stock request forms to document approval of the stock release, by ticking the "request for stock issue" box. Where this option is not available, a separate stock release form should be developed.

The stock request form should be filled out by the requestor, reviewed by the requestor's supervisor and approved by the stock owner. The warehouse team should also sign the stock request to signify their acceptance of the order preparation task. The warehouse team is responsible for keeping the approved stock request forms on file and must be able to give access to the records during an audit.

A packing list must be raised and communicated to both the requestor and the consignee of the stock (if different). It must provide a breakdown of the consignment per packaging unit (box, sack, barrel, etc), with the weights and dimensions of each container included in the consignment.

The packing list must be prepared by the warehouse staff in charge of order preparation and reviewed by the warehouse manager before the consignment leaves the warehouse. A separate packing list must be issued for each order. Several orders can be loaded onto the same vehicle, so the driver of a vehicle might be given several packing lists.

Within the Movement, waybills are often used as packing lists, in which case there is no need to include a separate packing list.

	Requisition (stock request form)	Packing list	Waybill
Prepared by	Requestor	Warehouse staff (storekeeper)	Warehouse staff (dispatcher)
Authorised by	Stock owner (budget holder)	Warehouse manager	Warehouse manager
Received by	Warehouse staff	Transporter Consignee	Transporter Consignee
Signatory	Warehouse staff	Storekeeper Warehouse manager	Warehouse manager Transporter Consignee
Contents	Details of items requested and quantity (use item codes if possible)	Detailed contents per packaging unit (box, container, pallet…)	Total number of packaging units per consignment
			Total weight and volume
	Requested delivery date and place	Weight and volume per packaging unit	Sender and consignee details
			Transporter details
Reference to	Programme code (budget, activity)	Requisition(s) #	Packing list(s) #
Copies	Requestor Warehouse	Warehouse Receiver	Warehouse (x2) Receiver Transporter

Remember to use CTN reference whenever available!

2.9.2 How to prepare a consignment

The careful preparation of a consignment will avoid losses, claims and discrepancies, and mitigate the risks involved in delivering it to its consignee.

Step-by-step order preparation
- Pick the items to be shipped and move them to the dispatch area.
- Group items into containers or onto pallets (having checked container size requirements with the consignee). Remember to keep empty boxes/containers/pallets in the warehouse for re-packaging where required.
- Split the consignment by item type – refer to the list of requirements for each item and document any dangerous goods as required.
- Count the total number of containers in the entire consignment.
- Print labels for each container, ensuring a CTN is noted on the label if applicable.
- Safely close all containers, shrink-wrap and strap pallets.
- Stick labels to containers/pallets.
- Weigh and measure containers individually.
- Report consignment details on a packing list.
- Obtain packing list sign-off.
- Raise waybill for the consignee.
- Arrange or order transport services.

- Prepare vehicle loading plan as per agreed vehicle specifications (including box list).
- Load vehicle (ticking off boxes/pallets on the list as they are loaded) and hand documentation to the driver.
- Share the packing list, waybill and driver contact details with consignee to inform them of incoming shipment.

For details on shipping goods, see Chapter 3.

2.10 Stock takes and reconciliation

Inventories (stock takes) are helpful to:
- Know what is in stock, by quantity, value and quality
- Agree corrective actions in case of discrepancies or poor quality of stock
- Update reporting tools

Stock takes should follow two separate patterns:

2.10.1 Cycle counting

It is good practice to have five per cent of stock, or a minimum of ten stock cards, checked each monthly.

This process should be led by the warehouse manager or team, with a stock spot check report prepared and shared with the Finance team member in charge of stock and balances, and with the stock owner.

All differences must be recorded on the stock spot check report and investigated and explained within one month or before the next stock spot check takes place. This should be done by the warehouse manager, under the supervision of the Logistics delegate.

All boxes/pallets that are counted can be sealed and strapped after the Finance and programme business partner have accepted the spot check, so they don't need to be counted again during the 100 per cent stock takes.

Cycle counting can also be done on a predetermined cyclical schedule. Effective cycle counting requires the counting of a pre-set number of items every workday and should result in the counting of all warehouse stock twice a month (refer to the below section on cycle counting procedure).

Cycle counting procedure
The number of stock cards determines the frequency of the cycle count.

To calculate the number of items to be counted daily in order to permit a complete count of all warehouse stock twice during the month, multiply the number of stock cards by two and divide the result by the number of workdays in the month.

For example:
30 stock cards in warehouse: 30 x 2 = 60
20 workdays in month: 60/20 = 3

In this example, the items listed on three stock cards are to be counted each day.

A schedule for conducting cycle counts is then established and integrated into the daily or weekly routine. Bin cards, stock cards and the documents certifying receipt or dispatch (waybills, GRN) of the supplies being controlled are verified.
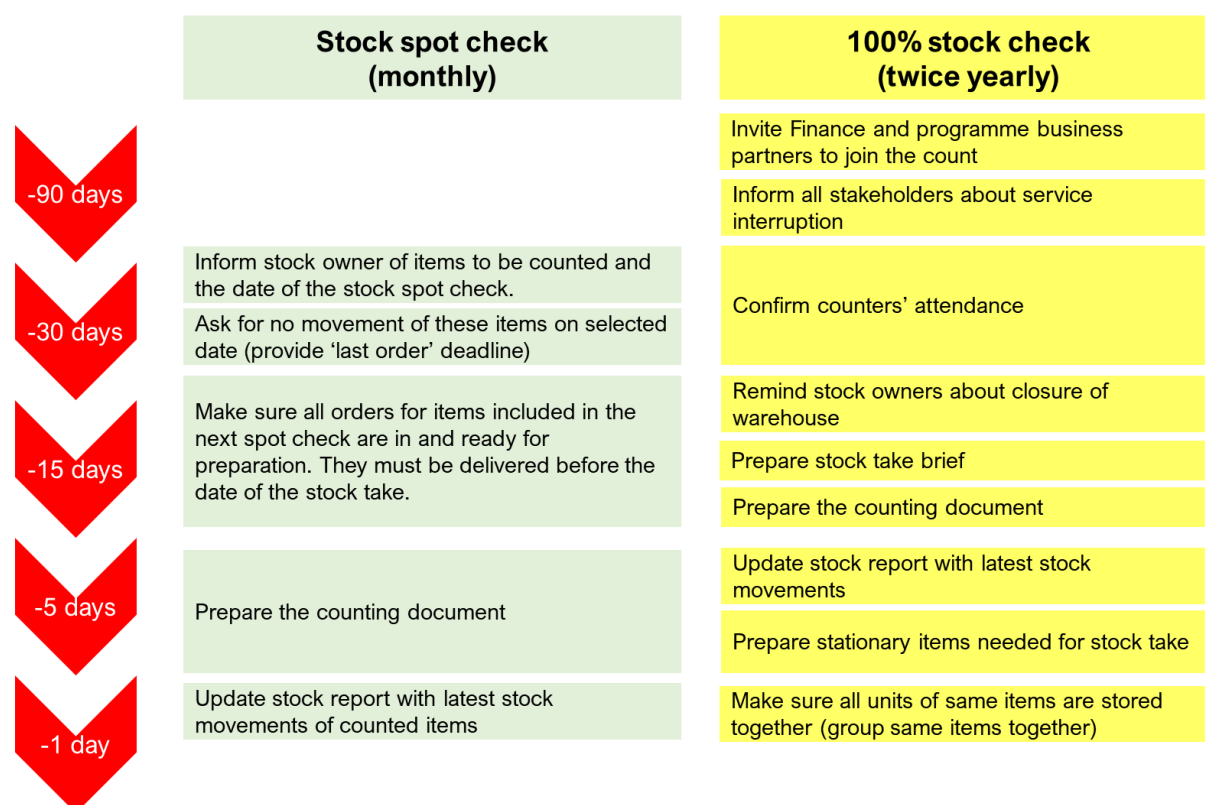
The latest global stock report is crosschecked for conformity against the stock cards. A physical count is performed for the selected items and crosschecked with the stock cards and bin cards. When variances are found, the cause (e.g., count error, recording error, unrecorded dispatch, theft) is identified and appropriate corrective actions are taken.

2.10.2 100% stock audit

It is mandatory to conduct at least one 100 per cent stock take each year, though it is good practice to conduct two 100 per cent stock takes per calendar year.

All counted quantities should be reported on a ==stock take report==, with all discrepancies recorded and investigated, and the report approved by relevant authority (usually Head of Logistics or Head of Delegation) and shared with all stock owners and the head of Logistics or delegation within one month of the stock take.

Before a stock take

	Stock spot check (monthly)	100% stock check (twice yearly)
-90 days		Invite Finance and programme business partners to join the count
		Inform all stakeholders about service interruption
-30 days	Inform stock owner of items to be counted and the date of the stock spot check.	Confirm counters' attendance
	Ask for no movement of these items on selected date (provide 'last order' deadline)	
-15 days	Make sure all orders for items included in the next spot check are in and ready for preparation. They must be delivered before the date of the stock take.	Remind stock owners about closure of warehouse
		Prepare stock take brief
		Prepare the counting document
-5 days	Prepare the counting document	Update stock report with latest stock movements
		Prepare stationary items needed for stock take
-1 day	Update stock report with latest stock movements of counted items	Make sure all units of same items are stored together (group same items together)

During a stock take

Stock spot check (monthly)	100% stock check (twice yearly)
Locate items to be counted	Make sure no order preparation is pending. If necessary, update the stock reports with latest stock movements.
Record a physical count on the stock take sheet (theoretical stock should not be included).	Brief counters on their role and allocate counting responsibilities.
Mark all counted boxes (colour code or date-stamp).	Distribute counting sheets. Theoretical stock should not be visible on the stock take sheet, and blank lines should be added to record additional items if needed
Reconcile physical count with stock cards, highlighting and investigating discrepancies (use GRNs, donation certificates, waybills and stock requests in archive).	Make sure counters open every box they have been asked to count, unless a box's content has been counted during a stock spot check.
Fill out a stock spot check report and submit to the warehouse manager and stock owner.	Make sure all counting sheets are handed to the warehouse manager and signed off by counters.

After a stock take

	Stock spot check (monthly)	100% stock check (twice yearly)
Same day	Record physical count on stock card (report in red or other identifiable format)	
Within 1 week	Update the stock report with confirmed physical quantities	Reconcile physical count with stock cards, highlighting and investigating discrepancies (use GRNs, waybills and archived stock requests to investigate)
	Seal and strap counted boxes/pallets	
	Agree required corrective actions and record in stock spot check report	
	File stock spot check report	
Within 2 weeks		Agree required corrective actions and record in stock take report
		Prepare stock take report, submit to Head of Logistics and stock owners
		File stock take report

Note: Stock audits can be conducted by internal or external auditors, outside of scheduled stock takes. The warehouse manager will have to produce the necessary documents to conduct a four-way match between physical stock, stock cards, stock report and GRN/waybill/donation certificates/PO.

Physical stock	=	Stock cards	=	Stock report	=	Stock documentation *(waybills, GRN, POs, donation certificates)*
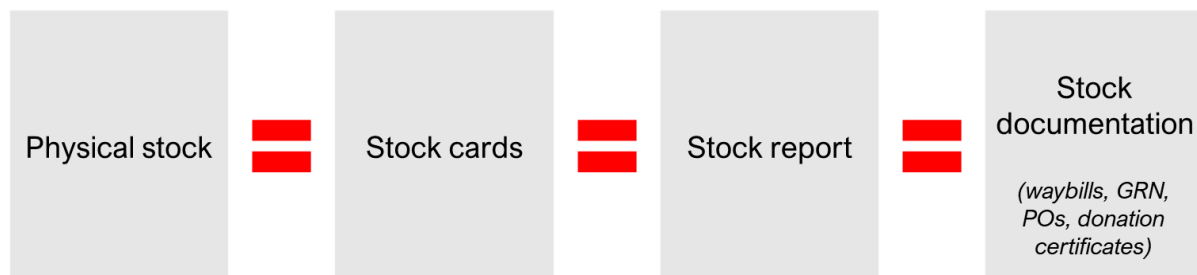
2.10.3 Stock reporting

2.10.3.1 The stock report

The summary of all stock cards is the ==stock report== or stock movement report, which is used for reporting and overall stock management.

The stock report should be in a simple format, capturing the opening balance, quantities received (split between purchases and donations) or issued (split between requests, losses, donations or disposal), and closing balance for each item in stock.

Stock reports are usually updated on a monthly basis and shared with stock owners as a snapshot of the available quantities in the warehouse, though Finance and UKO-based Logistics coordinators may also request to receive them. In emergency operations, this report can be required to be shared on a weekly or a daily basis.

In addition to the above, the periodic stock report should ideally highlight:
- The 20 per cent fastest-moving goods in the warehouse.
- The 20 per cent slowest-moving goods in the warehouse.
- Where items are perishable, those quantities expiring within the next six and three months must be highlighted and actions to avoid wastage agreed.

2.10.3.2 Annexes to the stock report

- The ==monthly warehouse checklist== must be completed and attached to the stock report.

- Quarantined items must either be reported against separately or visually identifiable in the report, with the reason for placing the items in quarantine clearly. Items held in quarantine and cleared to be returned to "normal" stock must also be tracked on the report.

- A ==warehouse dashboard== can be put together and shared with stock owners and other clients to give a measure of the activity level in the warehouse and inform of any upcoming changes (such as deep cleans, training events or stock counts).

- The value of any stock donations (received or issued) must be known by the warehouse team and included in the report for Finance to record. If requested, ==donation certificates== must be produced.

- Ideally, the total value of stock losses (due to expiry, theft or damage) must be known and included in the report for finance to record. If requested, <mark>disposal or loss certificates</mark> must be produced.

Always consult with the stock owner to be informed of any specific donor requirements. Donors will usually want to know the value and content of the stock balance at the end of a project they fund.

2.11 Disposing of and writing off stock

Stock that is not used by its owner should be donated or disposed of, depending on the context and on the quality of the items. In either case, the stock movement must be recorded like any other, and the value of stock transferred must come off the inventory. Stocks owned by the BRC are written off, i.e. taken off the Logistics balance sheet.

The BRC has determined the following priority order, through which asset/inventory disposal must be executed:

1. Donation to HNS
2. Donation to RC/RC Movement
3. Donation to local partner
4. Donation to another humanitarian actor
5. Sale
6. Destruction

Donation to staff is strictly prohibited, though staff/volunteers are permitted to bid on items which are on sale.

There are various reasons to write stock off:

*RSL: remaining shelf life
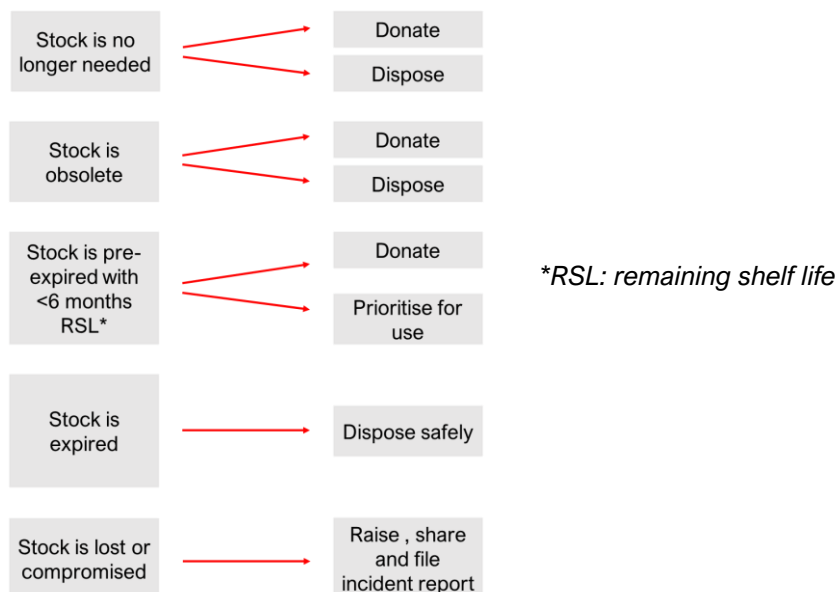
2.11.1 Donating stock

Before donating stock, make sure that:
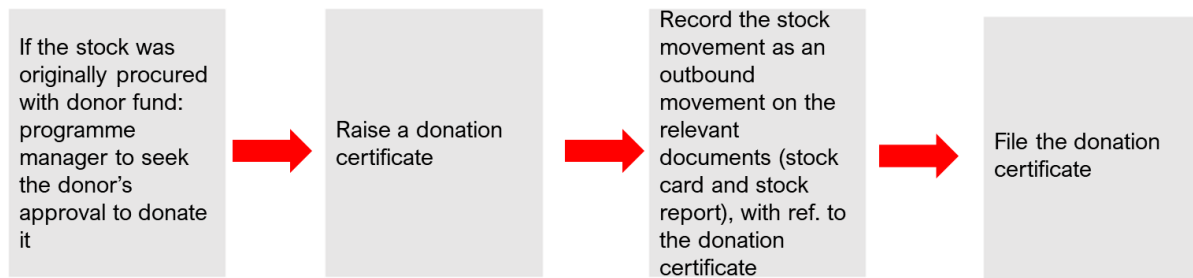
The prospective receiver wants the items → ask: "Do you want the items?"

The prospective receiver can safely use the items → ask: "Can you provide guarantees that you have the means to use and control the items safely?"

A donation can be made to a partner organisation or to a separate project within the same organisation, though it is then more of a transfer.

In all cases, the process to follow is the same:

If the stock was originally procured with donor fund: programme manager to seek the donor's approval to donate it	→	Raise a donation certificate	→	Record the stock movement as an outbound movement on the relevant documents (stock card and stock report), with ref. to the donation certificate	→	File the donation certificate

The donation certificate:

- Must include at least an estimate of the total value of the donated items.
- Must be approved as per the approval matrix: the higher the value of the items donated, the more senior the approver – follow guidance in Section 4.6.1 in Chapter 4.
- Must be signed by the stock owner (programme manager) and the receiving organisation/partner.
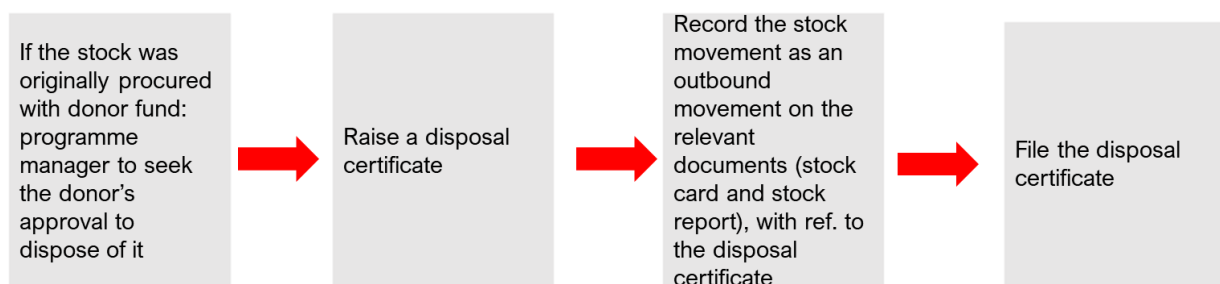
Finance must be informed of the value of the donated/transferred stock so they can reallocate the values accordingly. Ideally, the total value of donated stock must be communicated to Finance on at least a yearly basis, through a donation report.

When receiving donated stock, the donating partner or programme must raise the donation certificate, and the receiver of the donation must record the quantity as an inbound stock movement. The total value of received stock must be reported on a similar basis as the donated stock. See stock donation tracker format. The format must be used for recording asset and stock donations – see Chapter 4 for more details on asset donations.

2.11.2 Disposing of stock

Disposing of stock means destroying it and should be a last resort. Where stock is disposed of, this must be done in a safe and legally compliant way.

The process to follow is:

If the stock was originally procured with donor fund: programme manager to seek the donor's approval to dispose of it	→	Raise a disposal certificate	→	Record the stock movement as an outbound movement on the relevant documents (stock card and stock report), with ref. to the disposal certificate	→	File the disposal certificate

The disposal certificate must:
- Include at least an estimate of the total value of the disposed items.
- be approved as per the approval matrix: the higher the value of the items disposed of, the more senior the approver – follow guidance in Section 4.6.1 in Chapter 4.
- Be signed by the stock owner (programme manager) and the receiving organisation/partner.

Finance must be informed of the value of the disposed stocks, so they can write its value off accordingly. Ideally, the total value of disposed stock must be communicated to finance on at least a yearly basis at least, as part of the yearly reports.

When disposing of food items, medical supplies, dangerous goods or chemicals, it is recommended to liaise with the appropriate local authorities to understand the rules that apply. Where destruction is required, it must be documented by a ==destruction certificate==, signed by the NS disposing of the stock and the authority overseeing the destruction. Note that authorities usually charge a fee for destruction.

If stock is returned to the UK damaged or if items in stock in the UK or in any of the global IFRC warehouses expire (e.g., water purification drops, first aid kit), they must be written off in a ==stock write-off form==, in which the Logistics Officer must justify the reasons for the write-off and propose options for dealing with the stock which could include:

- Destroying the items.
- Donating items (e.g., to shops or UK operations). If items or equipment are in good condition and have resale potential, contact the eBay manager in retail who will consider them for posting on eBay. Email: ebayretailsales@redcross.org. Address: British Red Cross, eBay, Unit 2D, Road Three, Industrial Estate, Winsford, Cheshire CW7 3GE.
- Recycling or disposing items. Radios, satellite phones and electronics need to be disposed of properly and the TA should contact IT or a supplier to dispose of items properly.

The Logistics Officer documents different options, stating the preferred option in the recommendation section and gets this signed off by the Head of Logistics.

When the form is signed, the Logistics Officer gets this agreed/written off by Finance and actions the agreed outcome.

Note: Additional funds will need to be requested for higher value asset write-offs, as they are deducted from logistics management's budget.

2.11.3 Recording a stock loss or theft

An ==incident report== must be completed when stock is stolen or lost to damage, destruction or bad management, where the total value of the loss is above £100.

The incident report must be raised by the warehouse staff in charge of the stock, with proposed follow-up actions reviewed by the Logistics delegate and approved by the Logistics coordinator. The incident report must specify the estimated value of the total loss.

Where the incident report is raised to report on stocks held in UKO, Bulwick or in the IFRC's RLUs, the incident report must be prepared by the Logistics Officer, reviewed by the Logistics

Manager and approved by Head of Logistics and international Finance. See <mark>SOPs</mark> for more details on these procedures.

The quantities declared as lost must be reported on the stock card and report, with reference to the incident report.

2.12 Health and safety in the warehouse

In a warehouse there is the potential for serious incidents or accidents to occur.

Every effort should be made to reduce the risk of accidents:

Equipment	• All equipment (e.g., trolleys, sack trucks and hand-operated pallet trucks) should be carefully and regularly maintained. Specialised equipment must only be used by trained, authorised employees (some equipment may require load testing to ensure they are fit to use). • Access in areas where forklift trucks are used should be restricted to prevent people being hit during loading and unloading activities.
Storage	• Racking and shelving should be regularly checked. • Shelving with collapsing stacks should be immediately restacked. • Shelving and racking should be firmly secured to the floor or to the building – if this is not possible, keep racking to only two levels.
Facilities	• Toilet facilities and welfare areas should be provided, so that breaks can be taken away from the main warehouse.
Personal safety	• Staff must be issued with protective clothing where required (based on an assessment of risk) – specifically, boots and gloves for handling heavy and bulky goods. These must be kept clean and regularly inspected to ensure they are fit for purpose and replaced when they are not. A record of PPE equipment must be kept on site. • Ensure all staff are aware of hazards and are fully trained in safe working techniques, including manual handling techniques. • First aid kits should be available and regularly checked, and one or more permanent warehouse staff should be trained in basic first aid.
Hazards	• All hazardous materials like oils, lubricants and fuels should be assessed so the correct action can be taken if staff are exposed to a spillage. All materials will have a safety data sheet which provides this detail and is available from the manufacturer. Safety data sheet are supplied for all the materials deployed in the ERU modules. • Immediately clean up spilt goods, especially oils, lubricants and fuels, as this will reduce the risk of slips and falls, as well as the risk of fire. • Expired goods and food items no longer fit for human consumption must be correctly disposed of immediately. Check with local health authorities to determine whether they can be used as animal feed or for the appropriate disposal method: incineration or burial. • Smoking is prohibited in the warehouse and adjoining compound. • Cooking and open fires should be restricted to designated areas in the compound – never inside the warehouse. • Damaged pallets should either be repaired or discarded.

2.12.1 Guidelines for the manual handling of heavy loads

- Assess the weight of the item and ask for help if it is too heavy for you to lift safely.
- Clear a path and know where you are going.
- Lift with your legs and knees.
- Hold the object close to your body with your feet a shoulder-width apart.
- Keep your eyes up and your back straight. Avoid twisting, as this places extra strain on the back.

When undertaking a site risk assessment, contact the local Health and Safety focal point. This will usually be the IFRC in multilateral operations, but it can also be coordinated by the ICRC or the HNS. For warehouses in the UK, the focal contact person is the Health and Safety adviser, who must inspect all buildings used and rented by the BRC.

2.12.2 Fire safety in the warehouse

Warehouse staff must be trained as fire wardens – see the safety training pathway (Section 2.10.4).

For UK warehouse-staff, contact the health and safety team (Health&Safety@redcross.org.uk) to receive fire warden training (a three-hour, face-to-face course).

Fire safety in the warehouse

- Fire safety procedures should include clearly marked fire exits and escape routes marked with the sign used in the country of operation.

- A fire assembly point must be clearly identified.

- The fire safety procedure instructions must be clearly posted around the warehouse and all staff (including National Society volunteers) must be trained on what to do in the event of a fire. The information should be represented in pictures or in the local language as well as in English.

- Fire safety equipment must be present in all warehouses, and a maintenance plan must be in place for each type of equipment. The equipment must be checked by staff on a weekly basis.

- All inflammable materials like oils, lubricants and fuels should be stored together and away from the fire escape routes. This should ideally be outside in a covered and caged area, so that in the event of a fire these items can be extinguished without risk to the main warehouse stock.

- Any fire alarms and smoke detectors must be regularly tested – ideally weekly.

- A fire evacuation drill must be conducted once per rotation of International staff.

- Where possible, it is advisable to liaise with the local fire brigade, to make them aware of the Red Cross activities in the warehouse.

Types of Fire Extinguishers

The fire extinguishers in the ERU modules sent by the British Red Cross are red, with their type identified by a coloured band:

- Red for water
- Cream for foam
- Blue for dry powder
- Black for carbon dioxide

Wet chemical extinguishers are not provided – fire blankets are available for cooking areas.

Examples of useful fire signage

2.12.3 Managing dangerous goods

See Section 2.6.3.5 for details on handling dangerous goods.

There are different regulations in place for different modes of transport and in every country.

Ultimately, for all modes of transport – sea, air, rail, road and inland waterways – the United Nations Committee of Experts on the Transport of Dangerous Goods and other organisations, which includes the International Air Transport Association, have assigned dangerous or hazardous substances one of nine classes, in order to help make the transportation of dangerous goods as safe as possible.

Note that the number of the class of dangerous goods does not indicate the degree of danger.

1. **Explosives**: capable of producing hazardous amounts of heat, light, sound, gas or smoke.
2. **Gases**: includes compressed gases, liquefied gases, dissolved gases, refrigerated liquefied gases and aerosols. Gases are dangerous both because they pose a risk as potential asphyxiants and because of their flammability.
3. **Flammable liquids**: volatile and can give off a flammable vapour.
4. **Flammable solids**: highly combustible and can cause fire through friction.
5. **Oxidising substances**: classified as dangerous goods because, although not necessarily combustible themselves, they can contribute to the combustion of other hazardous substances.
6. **Toxic and infections substances**: can cause serious injury or death to humans if swallowed, inhaled or by contact with skin. Infectious substances are classified for containing pathogens, including bacteria, viruses, parasites or other agents that can cause disease in humans or animals upon contact.
7. **Radioactive materials**: any substance which contains atoms that are subject to radioactive decay.
8. **Corrosives**: react chemically to damage or destroy material, including living tissue, upon contact.
9. **Miscellaneous**: present a danger not covered by other classes. This class includes environmentally hazardous substances, elevated temperature substances and GMMOs or GMOs.

Dangerous goods require specific documentation and handling methods: packing, moving and transporting them is highly regulated and should be overseen by a third-party service provider.

2.12.4 Safety training pathway

The BRC employs a full-time Health and Safety advisor to facilitate a variety of training, most of which is bespoke. Below is a list of the most common training delivered, most of which can be delivered remotely. The Health and Safety team are working on collating a standard catalogue of the available training; in the meantime, feel free to contact them directly.

The below training courses address safety from an occupational safety perspective and not from a personal security perspective, which is addressed in the HEAT courses developed and managed by the security team based in UKO. The below falls under the delegate refresher requirement and must be refreshed every two years.

	Content	Target audience
Driver safety training	Vehicle, traffic and driver safety awareness training	All drivers of RC vehicles
General safety awareness training	Occupational health and safety (basics)	All staff with roles that involve the manual handling of goods
Risk assessment and management training	How to identify, mitigate and report risks	All managers of staff working in environments where manual handling takes place
Hazardous substances training	How to identify and manage hazardous substances	All staff with roles that involve the manual handling of potentially hazardous goods
Warehouse safety management training	Racking, shelving and handling goods	All warehouse staff
Environmental protection training	Managing the risks of warehouse activities on the environment	All warehouse staff