Storage and Warehousing
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STORAGE AND WAREHOUSING
Storage and Warehousing

Objectives

• Definitions and Basic Principles
• Warehouse Management Outline
• Selecting a Warehouse
• Staff
• Equipment
• Capacity of a Warehouse
• Receiving, Despatch, Losses
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**Definition**

- Storage/warehouse facilities are locations where food and non-food commodities are stored pending onward movement.

![Diagram of logistics flow](image-url)
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**Basic Principles**

- Existing warehouses should be used whenever possible
- Facilities should be appropriate for the storage of commodities
- Storage facilities should be chosen to achieve the most cost-effective and logistically practical delivery operation
- Each facility should hold an appropriate level of stocks, taking into account the shelf-lives of commodities
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**Storage Facilities May:**

- Be co-located with the distribution point
- Serve a number of separate points
- Serve as an intermediate store from which commodities are forwarded to another storage facility
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Warehouse Management

Areas

• Managing temporary or permanent warehouses
• Receiving of goods
• Storage
• Stock control
• Dispatch of goods
• Security of warehouses
• Stock Reports
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Warehouse Management

The 11 Major Rules of Running a Warehouse

1. Rotate stock so old goods are used first: FIFO
2. Stack goods safely
3. Plan 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 I need tomorrow/next week/next month

This is summed in your Weekly/Monthly Report
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Warehouse Management

The 11 Major Rules of Running a Warehouse

1. Keep goods secure
2. Keep warehouse clean: Daily, weekly, monthly schedules
3. Dispose of spoiled goods correctly and quickly
4. Communicate effectively
5. Conduct physical inventory on a regular basis

This is summed in your Weekly/Monthly Report
Selecting a Warehouse

Exercise

• What do you think are the most important criteria/considerations in the selection of a warehouse?
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Warehouse Exercise

• Purpose (Regional, Central, Local, Dist.)
• Profile (Emergency, Volume, Cold, etc)
• Size (Future and current needs)
• Be conveniently located (transport routes)
  • Road, Rail, Air, Sea, River, Relief action
• Special requirements (cold chain, fridge, a/c)
• Be far from sites of potential flooding or landslides
• Be accessible to trucks with a carrying capacity of at least 10 tons? (Secure parking, turning, loading, unloading, etc)
• Adequate equipment (forklifts, pallets, etc)
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Warehouse Exercise

• Be sound, non-combustible construction
• Not be liable to pollution or infestation from other warehouses or industrial facilities
• Hygienic considerations
• Have adequate power supply, lighting, cooling, etc
• Be dry and well ventilated, free from rodents, termites and other pests
• Have platforms or ramps for ease of loading and unloading
• Have floors that are level, strong and watertight
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Warehouse Exercise

• Be secure:
  • Away from high risk areas
  • Fully enclosed by perimeter fences or walls
  • 24 hour security
• Office space
• Staff facilities (drinking water, toilets, food, etc)
• Ownership
  • Shared facilities
  • Private, other NGO
  • Existing staff
  • Contract type, liabilities, payment terms, etc
Nothing Suitable is Available

- Build with traditional local materials and tarpaulins
- Construct new warehouses using locally available cement and metal sheets
- Use old railway wagons or empty shipping containers
- Import pre-fabricated structures
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Staff

Key to any warehouse operation

- TOR’s
  - Logistics Assistant
  - Storekeeper
  - Tally clerks
  - Cleaners
  - Labourers
- Employment contracts
- Labour contracts
**Equipping A Warehouse**

- Basic equipment should include
  - Pallets and tarpaulins
  - Brooms
  - Fire extinguishers
  - First Aid Kits
  - Repackaging Equipment
  - Weigh scales
  - Ladders, shovels, torches
  - Office equipment

- List in course book & Engineering in Emergencies
**Storage and Warehousing**

**Capacity of a Stack**

Weight of one cubic meter of a given commodity expressed in MTN/M3

- Also known as BD (bulk density)
- Used to Calculate:

1. The capacity of a stack
2. The surface area required to store commodities
3. The capacity of the warehouse
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Capacity of a Warehouse

Exercise

• Complete Questions
• Exercise Instructions
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Answers to Questions 1 & 2

• Question 1: 28m (length) x 16m (width) x 3m (high) = 1,344m³

• Question 2: (12m x 5.4m) surface size of stack x 3m (max. height) = 194.4m³ (usable volume of 1 stack) x 4 (number of stacks) = 777.6m³ (usable volume of warehouse)
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Answers to Question 3 & 4

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<th>Usable volume</th>
<th>Bulk Density</th>
<th>Capacity of Stack</th>
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<tbody>
<tr>
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<td>= 136.080 MTN</td>
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<tr>
<td>Rice</td>
<td>194.4 m³</td>
<td>0.86 MTN/M³</td>
<td>167,184 MTN</td>
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<tr>
<td>Wheat</td>
<td>194.4 m³</td>
<td>0.65 MTN/M³</td>
<td>126,360 MTN</td>
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<tr>
<td>Skim Milk</td>
<td>194.4 m³</td>
<td>0.44 MTN/M³</td>
<td>85,536 MTN</td>
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</table>

- Warehouse capacity is 515,160 MTN
- Maize in 4 stacks, 3m high is 136,080x4 = 544,320, Can’t fit, Panic!!!
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Answers to Question 5

1. Rations of 400g per day for 1,000 people amounts to 400kg/day or 0.4 MT/day

2. So, 60 days stock = 60 x 0.4 = 24MTN

3. 1 MTN of grain occupies approximately 1.5m³ (volume as per ref sheet). If bags are stacked 4m high, 1 MTN of grain will occupy $1.5/4=0.4m^2$ approx. floor space.

4. 24 MTN requires $24 \times 1.5(m^3/mtn) = 36m^3$ (volume) or, if stacked 3m high (max whse height), $36/3=12m^2$ or floor area.

5. To calculate the total warehouse floor area required, add 20% (multiply by 1.2) to allow for access aisles and ventilation with the warehouse.

6. Total floor area required is $12 \times 1.2=14.4m^2$
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Receiving & Storage of Goods

➔ Before Reception:
  • Plan storage
  • (Re) Arrange space in the WH
  • Engage Workmen for off loading as required

➔ During Reception:
  • Quantity and Quality checked by Storekeeper and Recorded
  • Complete paper work and stock control processes

➔ Storage:
  • Store the Goods at the defined space
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**Dispatch of Goods**

- When relief goods should be dispatched:
  - Decide which stack of the stock to send, (FIFO, expiry dates, etc)
  - Decide in what order to send the goods
  - Arrange local transport and staff, as required
  - Count and load stock
  - Advise the requester that the relief supplies have been sent
  - Arrange for resupply
  - Clean warehouse and re-arrange piles, to maximise space and prepare for arrival of new items
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Major causes of loss

- Inadequate supervision
- Theft, looting, pilferage
- Leakage during transport or distribution
- Poor packing and/or handling
- Prolonged, bad storage
- Weather damage
- Infestation, Rodents, etc
- Contamination
- Fire
GOLDEN RULE:

"IF IT MOVES - RECORD IT"
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QUESTIONS