



Warehouse Improvement - CENAME Cameroon

August 2014



USAID
FROM THE AMERICAN PEOPLE

SIAPS 
Systems for Improved Access
to Pharmaceuticals and Services

Warehouse Improvement - CENAME Cameroon

Gabriel Daniel

August 2014



USAID
FROM THE AMERICAN PEOPLE

SLAPS 
Systems for Improved Access
to Pharmaceuticals and Services

This report is made possible by the generous support of the American people through the US Agency for International Development (USAID), under the terms of cooperative agreement number SIAPS-2011-002. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.

About SIAPS

The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to assure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

Recommended Citation

This report may be reproduced if credit is given to SIAPS. Please use the following citation.

Gabriel Daniel. 2014. *Warehouse Improvement for CENAME Cameroon*. Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health.

Key Words

Cameroon, CENAME, CAPR, magasin, warehouse optimization

Systems for Improved Access to Pharmaceuticals and Services (SIAPS)
Center for Pharmaceutical Management
Management Sciences for Health
4301 North Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Telephone: 703.524.6575
Fax: 703.524.7898
E-mail: sps@msh.org
Web: www.msh.org/siaps

CONTENTS

Acronyms	iv
Acknowledgments.....	vi
Executive Summary	vii
Background.....	1
General Observations of CENAME Warehousing	3
Structure	3
Shelving and Warehouse Dimensions	4
Temperature Control and Cold Chain.....	6
Store Management	6
Product Storage/Distribution in the Warehouses	7
Occupational Safety	7
Material Handling and Moving Equipment	7
Stock Status Analysis.....	8
Recommendations for Warehouse Optimization	9
Key Recommended MHE for CENAME	12
Actions taken during the STTA in April 2014.....	13
Labels for CENAME Warehouses.....	13
Signage Developed and Provided as Part of the Technical Assistance	15
Description of <i>Magasins</i> with a Drawing to Show the Dimensions and Number/Location of Aisles/Bays	17
Magasin K.....	17
Magasin M	19
Magasin Q.....	20
Magasin P.....	21
Magasin N.....	22
Magasin AP (Autre Program)	23
Magasin O	24
Magasin R	25
Magasin Gare	26

ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
AP	Autre program (other program)
ART	Antiretroviral therapy
ARV	Antiretroviral
CAPR	Centres d'Approvisionnement Régionaux (Regional Pharmaceutical Supply Centers)
CENAME	Centrale Nationale d'Approvisionnement en Médicaments et Consommables Médicaux Essentiels (National Essential Medicines and Medical Supplies Store)
CHAI	Clinton Health Access Initiative
CNLS	Commission Nationale de Lutte Contre le SIDA (National Commission to Fight AIDS)
EPI	Expanded Programme on Immunization
EU	European Union
FBO	Faith-based organization
FEFO	First expired, first out
FIFO	First in, first out
FP	Family planning
GI	Gastrointestinal
GOC	Government of Cameroon
HF	Health facility
HIV	Human Immunodeficiency Virus
IV	Intravenous
LF	Lymphatic filariasis
MDT	Multi-drug treatment/therapy
MHE	Material handling equipment
MOH	Ministry of Health
MSH	Management Sciences for Health
NGO	Non-governmental organization
ORS	Oral rehydration salt
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PHP	Public health program
PMIS	Pharmaceutical management information system
PMTCT	Prevention of mother-to-child transmission
QA	Quality assurance
RDT	Rapid diagnostic test
RH	Reproductive health
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SOPs	Standard operating procedures
SPS	Strengthening Pharmaceutical Systems
SRO	Sels de réhydratation orale (ORS)
STTA	Short-term technical assistance
SYNAME	<i>Système National d'Approvisionnement en Médicaments Essentiels</i> (National Essential Medicines Supply System)

TB	Tuberculosis
UN	United Nations
USAID	US Agency for International Development
VPP	Voluntary pooled procurement
WHO	World Health Organization
WMS	Warehouse Management System

ACKNOWLEDGMENTS

We would like to thank the General Manager Dr. Oussmanou Taousse; Dr. Frederic Mistral Samba; Dr. Tabi Sampsun Nkengi; Mme Nathalie Ezzo; and Mr. Mauris Demanou, in addition to the store personnel of CENAME, whose cooperation and support were key to a successful review. We also thank SIAPS Country Project Director, Dr. Kaze Gege Buki; and Dr. Aline Kane; along with the staff of SIAPS/Cameroon, without whose guidance and support this work would not have succeeded.

EXECUTIVE SUMMARY

The US Agency for International Development (USAID) Systems for Improved Access to Pharmaceuticals and Services (SIAPS) program is helping Cameroon's Ministry of Health (MOH) to improve pharmaceutical management systems so they ensure availability and use of medicines for improving health outcomes. One component of this support is strengthening the warehouse management systems in "La Centrale Nationale d'Approvisionnement en Medicaments et Consommables Medicaux Essentiels" (CENAME) and six Centres d'Approvisionnement Regionaux (CAPRs) in selected locations (Adamawa, South West, North West, Centre, and Littoral) regarding management and accountability of the key health commodities used for human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS). This support extends from basic warehouse operations management technical support to capacity building of warehouse staffs and infrastructure development (e.g., equipment, fixtures and fitting provision, installation, inventory management and distribution plans). In the last several months, SIAPS/Cameroon has increased the storage capacity of the rented warehouses of CENAME by installing 284 racks/shelves.

This technical report complements the trip report and PowerPoint presentation given following the warehouse optimization exercise that SIAPS conducted in April 2014. The report focuses on short-term immediate actions that can be taken based on the observations we made during this exercise. The key findings show the challenges that exist regarding space, organization, and availability of warehouse accessories. The major area of need is the reorganization of CENAME to optimize available space by consolidating the same types of products in one warehouse rather than storing these products in different locations. By doing so, better inventory control and management can be achieved.

Several products either have expired or will expire soon. These products are not segregated and are occupying active storage space. By moving these products to a quarantine area, proper documentation can be conducted and measures can be taken to dispose of them. This will prevent accidental distribution and use of these unsafe products, and create space for other active products. The scattered nature of the stores and the shortage of material handling, moving equipment, managing distribution to CAPRs, and paying clients make the operation inefficient. Issued products are regularly moved from the main stores to the dispatch section. This requires use of material handling equipment (MHE), which is in short supply. What's more, the driving ground is uneven, making movement difficult and at times subject to damage. CENAME has rented two large storage spaces from Camrail, the national railway company, where SIAPS has provided the racks needed to organize the storage. Due to their distance from the main CENAME location and the absence of store personnel there, it is time consuming and inefficient for staff to commute every time a transaction takes place. In addition, no inventory control system exists at the Gare warehouse. The absence of locator labels makes storage ad hoc and non-compliant with good storage practices.

We have issued several short-term and long-term recommendations that address some of these challenges. Investment in human capacity, safety, equipment, logistics technology, and infrastructure are needed to strengthen CENAME's operations, which will result in more modern

structures capable of delivering efficient and accountable services. CENAME can begin implementing many of the recommended improvements now. For example, both organizations can now begin to develop warehouse location identification systems that enable their workers to know precisely where all products are stored in their facilities. In the long term, in order for CENAME to meet the ever-increasing demand for supply chain management and distribution, fundamental steps need to be taken. These include planning for a new CENAME designed to meet professional warehousing and service standards, including having hubs that are appropriately located as branches in the regions. This could involve assuming the supply chain and logistics role of the CAPRs so they can serve this purpose. This will logically limit CAPRs' ability to actively assume their core functions of capacity building, mentoring/supportive supervision, training, and managing and reporting public health programs of the districts and health facilities

The table below summarizes three areas the technical report addresses: – short-term actions, long-term actions, and measures taken during the short-term technical assistance (STTA).

Box 1. Summary Recommendations and Activities Conducted

➤ Short-Term Interim Key Recommendations Involving Existing Facilities

- Reorganize and consolidate the stores so they only keep designated items
- Segregate and plan for disposal of unusable, obsolete, and expired products
- Dismantle shelving at *magasin* (store or warehouse) PP, clean and use it as interim storage for products to be disposed and later for selected slow-moving items not affected by high temperatures due to the low height of the *magasin*, which is not convenient for routine storage of active pharmaceuticals
- Use Gare *magasin* for antiretroviral drugs (ARVs) and other program products only
- Keep alcohols and other dangerous liquid products in a specially designated store for safety and security
- Affix recently developed signs in their respective locations in the stores
- Refer to the detailed short-term recommendations on page 16

➤ Transformational Recommendations

- Develop a comprehensive warehouse master plan for a new state of the art CENAME
- Design a modern CENAME warehouse with adequate space, less congestion, adequate transport fleet, additional moving and handling equipment, etc.
- Establish a new CENAME in an appropriate location with a potential for expansion
- Conduct a study tour to countries where the Warehouse Management System (WMS) is efficiently functioning to observe best practices
- Acquire CAPR storage as regional branches

➤ Optimization Activities Conducted

- Map the entire compound of the central warehouses and the rented storage at the Yaounde/Gare sites
- Take measurements to estimate the storage capacity of each of the warehouses
- Map and measure the internal shelving/racking of all the warehouses
- Review stock cards to determine the expired, expiring, and slow-moving, high-volume products
- Review the allocation of products in each of the warehouses and proposed realignment plan based on the category of products
- Develop/design shelf/rack coding system by isle and bay
- Identify and design key labels to be printed by products and donors for ease of product location in the warehouses (e.g., ARV drugs, tuberculosis (TB) drugs, medical supplies, etc.)
- Identify and print key cautionary labels to be used in the warehouses (e.g., No Smoking, Caution, Expired, etc.)

BACKGROUND

The goal of the USAID Systems for Improved Access to Pharmaceuticals and Services (SIAPS) program, which is implemented by Management Sciences for Health (MSH), is to ensure the availability of high-quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Health programs rely on a well-functioning pharmaceutical supply chain logistics system to effectively deliver medicines to the end user. Key components of a pharmaceutical supply chain logistics system are warehousing, inventory management, and distribution of commodities. Countries can reduce waste, improve availability of products, and save money by improving their storage, inventory, and distribution systems.

CENAME also manages the products of public health programs (PHPs) such as those that employ pharmaceuticals and health commodities to treat malaria, TB, and HIV and AIDS. According to CENAME, more than 40% of the value of pharmaceuticals it procures is dedicated to ARVs. The board of the Global Fund recently approved Cameroon's Round 10 request for \$133 million with grant agreements signed in late December 2011. Other key funding agencies for HIV and AIDS commodities in Cameroon include the Government of Cameroon, the US Government through the US President's Emergency Plan for AIDS Relief (PEPFAR), the World Bank, the French Cooperation, and UNITAID. Many of the funded products are distributed to the 159 treatment sites in Cameroon by the CAPRs based on requisitions from the treatment sites.

The Government of Cameroon owns almost all warehouses used by CAPRs and CENAME, and they do not pay rent or any other compensation to use them. To address its storage constraints, CENAME also rents warehouse space from Camrail in Yaounde and other locations. Most CAPRs/CENAME do not have consolidated big warehouses so they use smaller warehouses, rooms and freight containers, which are sometimes found in different locations. Storage space is sometimes improvised to accommodate the increased volumes of products.

In view of the existing space capacity and condition of the warehouses, and increasing volume of PHPs, it follows that the CAPRs and CENAME cannot manage the supply chain core functions (receiving, storage, distribution, and inventory control) effectively and efficiently.

To address the above challenges, SIAPS is supporting Cameroon's Ministry of Health (MOH) to improve the warehouse management systems in CENAME and six CAPRs in selected locations (Adamawa, South West, North West, Centre and Littoral) for management and accountability of the key health commodities used for HIV and AIDS. This support extends from basic warehouse operations management technical support to capacity building of warehouse staffs and infrastructure development (e.g., equipment, fixtures and fitting provision, installation, inventory management and distribution plans). In-country SIAPS technical staff have mainly provided this assistance. In the last several months, SIAPS/Cameroon has increased the storage capacity of the three rented warehouses of CENAME by installing 284 racks/shelves at a cost of \$80,000. SIAPS has also supported the six targeted CAPRs through the purchase of storage equipment at a cost of \$160,000.

The purpose of this technical assistance is to improve the warehouses' storage, inventory management, and distribution systems, and thereby improve availability of pharmaceuticals and supplies throughout the supply chain. Gaps in the entire logistics system, including warehousing and inventory management, and logistics reporting system and transportation, need to be addressed in the long term.

The main purpose of our visit in April 2014 was to assess the warehousing situation and storage optimization at central and Gare CENAME stores and provide the referenced technical assistance to improve the system.

GENERAL OBSERVATIONS OF CENAME WAREHOUSING

CENAME is the public sector agency responsible for the procurement, warehousing, and distribution of essential medical products and program products for Cameroon’s 20 million people. CENAME serves 60 active clients both in the public and private sectors, and includes 4 general hospitals, 11 regional hospitals, 180 health districts, 10 CAPRs, faith-based organizations (FBOs), nongovernmental organizations (NGOs), and private for profit distributors (30 products). In addition, 57% of CENAME’s work concerns priority program disease control products such as those used for HIV and AIDS, malaria, TB, cancer, and reproductive health (RH)/family planning (FP). CAPR management oversees the CAPR warehouses, which do not have a formal relationship with CENAME except as clients. Only 61-65% of orders issued by clients are met by CENAME. The agency has a central warehouse and office complex in Yaounde, a branch in Naoungondere (Antenne Regionale) serving three northern regions (Adamaoua, North, and Extreme North). Recently CENAME rented a large two-room warehouse from Camrail. The following shows the CENAME warehouse structure.

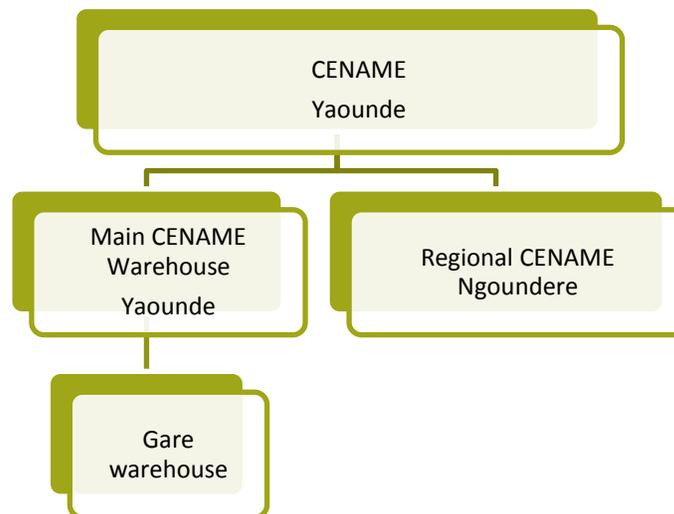


Figure 1. CENAME warehouse network

Structure

In addition to its core function storage facilities and its administrative, finance, and sales offices, CENAME also houses Expanded Programme on Immunization (EPI), Lanacome (which is in the process of moving out), and CAPR East. This makes expansion and effective use of the premises ineffective.

CENAME covers 10 blocks (warehouses) at its Yaounde main site. Each of the warehouses is alphabetically labeled/designated as AP, E/ARV, K, M, N, O, P, PP, Q, and R, of which three (AP, E/ARV, and M) are designated as program product stores. Despite CENAME’s practice of

maintaining a fluid storage system due to the fast “box-in box-out” nature of the main business, each of the warehouses serves a different purpose, (e.g., five are for CENAME products, three for public health programs supported by donors, one for inflammables etc.). At the central office one of the warehouses also doubles as a kitting/assembly facility for delivery kits. In practice, this allocation is not strictly followed due to the challenges that exist concerning space capacity. There is no designated holding space for obsolete and expired drugs. The dispatch area is shared with other stored products and does not contain adequate space for an efficient and secure packing and dispatch area. The stores are generally well maintained and clean, with products placed on the racks and on pallets. The bays and/or racks are not of standard dimensions. There are no labels on the racks to identify products.

Of the approximately 6,000 m² total area, the stock area is about 4,500 m², including 850 m² in the Ngoundere branch with a stock area of 600 m².

CENAME’s distribution transport fleet consists of five trucks and five pickups, which is inadequate for the volume of business it conducts.

CENAME’s location in the center makes logistics a challenge. Security can also be compromised due its location. There is little expansion opportunity due to the congested nature of the surroundings. The current structures are old and are not fit for renovation/expansion. The constraint in storage space has forced CENAME to rent additional space at Gare, which is congested again and is not close to the main CENAME premises. Personnel have to shuttle between CENAME and Gare at the time of new receipts or at the time of transactions/issues. Further, a stock monitoring system does not exist at the warehouse.

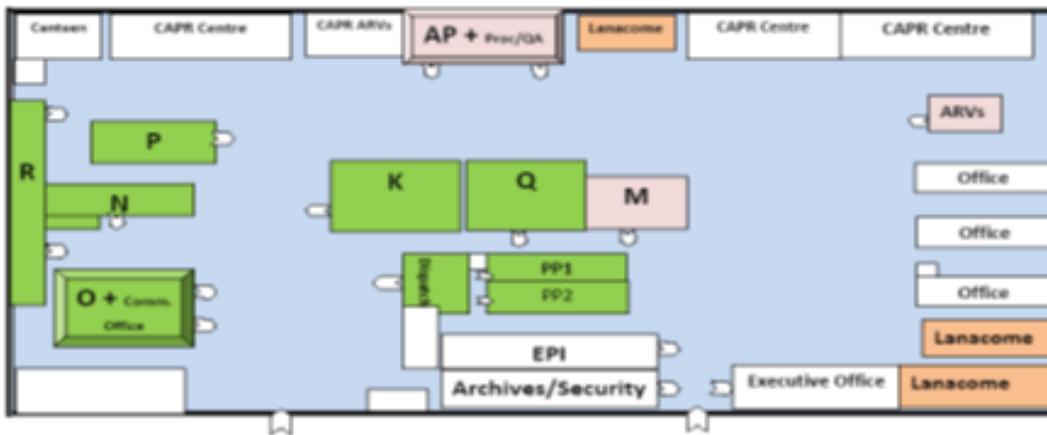


Figure 2. CENAME warehouse map

Shelving and Warehouse Dimensions

The two types of shelving described below are used at CENAME:

- Metal frame: The metal frame shelves are found in six *magasins* (AP, ARV, K, O, Q, and R). These cover three levels and their dimensions vary. They occupy about 25 aisles and a combined 343 bays in 1,799 m² of space.
- Wooden frame: The wooden racks are found in four *magasins* (Gare, M, N, and P) covering 1,528 m². These are one-level racks occupying 25 aisles and a combined 348 bays.

The way that the shelves are distributed and used does not provide for an efficient use of space. We found the wooden rack in one of the stores to be broken due to the heavy weight placed on it. Although such shelving can be considered good for bulk storage, it is not the best option for durability and strength. The narrow spaces between aisles makes movement difficult when using fork lifts and other material-handling equipment.

The utilization of all the available space is not optimal. The one-level rack system is not efficient. At times products are piled very high on such racks and the resulting weight could damage the lower-level boxes. Boxes are removed from these high levels manually and can present a danger to personnel. The absence of adequate space between aisles leaves no room for floor storage.

Table 1. Warehouses with 3-Level Metal Shelving

Current Status of the Magasins	# of Aisles	# of Bays	Magasin Area	Remarks
Q	8	79	400 m ²	Designated as antibiotics store
K	7	87	360 m ²	Designated as ED store
O	5	69	288 m ²	Designated as IV fluids and other supplies
R	5	60	540 m ²	Designated as medical supplies store
AP	3	48	239 m ²	Program products such as TB & Malaria
ARV	Na	Na	72 m ²	Temporarily congested with ARVs and hard to make observations
TOTAL	28	343	1,799 m²	

Table 2. Warehouses with 1-Level Wooden Racks

Current Status of the Magasins	# of Aisle	# of Bays	Magasin Area	Remarks
P	3	24	210 m ²	Doubles as kit preparation area
M	5	27	182 m ²	Program ARVs store
N	5	31	141 m ²	Designated as miscellaneous store
GARE-A	8	182	695 m ²	Rental store; designated as transit store; racks provided by USAID/SIAPS
GARE-B	4	84	300 m ²	
TOTAL	25	348	1,528 m²	

Table 3. Warehouses with 5-Level Wooden Shelves

Current Status of the Magasins	# of Aisles	# of Bays	Magasin Area	Remarks
PP ¹	9	8	312 m ²	Houses the cold rooms; shelves too narrow and ceiling low; dysfunctional
PP ²	3	24	156 m ²	
N ²	3	8	NA	Designated as alcohol store but empty
TOTAL	15	40	468 m²	
Grand Total	68	731	3,795 m²	Doesn't include the dispatch and the alcohol store

Temperature Control and Cold Chain

Although the temperature and humidity in Cameroon becomes high and not suitable for appropriate storage, there are no fans or air conditioners. There are thermometers in the warehouses but there is no active monitoring system in place. Further, there is no temperature tracking chart in the stores. Three cold rooms are located in *magasin* PP. They are relatively small, one of them was not functional at the time of our visit, and what is stored in them is not well organized. Also, there is no hygrometer in the warehouses to monitor humidity.

Store Management

The chief store manager oversees the operations of the warehouses. This manager is supported by *magasin* managers assisted by store assistants and orderlies.

We learned there is no formal system of receiving and transferring stock when it is received and space is not available at the designated store. This arrangement is considered an interim holding or parking arrangement. The only inventory system is the documentation that the product has been received at CENAME when it is entered into the SAGE computer system. Informal communication is the basis for information on what is located where under such interim arrangements.

Although in principle warehouses are designated to store specific products, in practice we learned that the warehouses were storing different products rather than consolidating the same types of products in a dedicated warehouse (e.g., five warehouses were storing essential drugs, four were storing intravenous (IV) fluids, three contained polyvidone iodine, four had oral rehydration salt (ORS)/zinc, three had radiological products, etc. Although this violates good storage practices, the reasons for such practices were neither apparent to nor even considered appropriate by the staff.

In addition, we found that expired, unusable, and near-term expiry products were scattered in several of the warehouses.

Although limitations and challenges exist with respect to storage space, some stores contain unused empty racks because items like IV fluids are too bulky and heavy to be put on those shelves. Also, lighting is inadequate and the wiring needs to be improved.

Product Storage/Distribution in the Warehouses

Table 4. Product Distribution in Magasins

Products	# of Magasins Carrying the Same Item
Antibiotics	5
Essential Drugs	5
IV Fluids	4
Polyvidone Iodine	3
ORS/Zn	4
Cotton/Bandage	5
X-Ray Film	3

Occupational Safety

The store personnel wear color-coded uniforms that identify them as store supervisors and assistants. We observed no other protective gear such as boots, work gloves, hard hats, and waist support belts. Logistics and safety training programs/heavy lifting, protection, etc., is an important aspect of store management that does not appear to be observed.

Material Handling and Moving Equipment

There is also a shortage of moving and handling mechanical devices/equipment. There is only one fork lift truck, and several non-functional pieces of manual equipment were observed lying around. We noticed that few that were operational were shared by warehouses.

The ground at CENAME is not smooth enough to move products from one store to another. At times the equipment is overloaded and products fall and are damaged. Due to a shortage of moving equipment, personnel have to move the equipment from one store to another. This is compounded by the narrow spaces between shelves that make use of mechanical moving equipment difficult.



Figure 3. Additional moving equipment can improve efficiency

Stock Status Analysis

A review of stock cards in six of the warehouses showed 301 active entries, of which 60% showed active stock, 18% had zero balances or stock-outs, 10% had expired products, and 11% had products with less than six months of shelf life.

Table 5. Stock Card Analysis of Stock at Magasins

Magasin	Stock card items	Active Stock	Zero balance	<6 months to expire	Expired
Q	60	25	15	9	11
K	66	40	15	7	4
P	24	20	0	1	3
N	46	35	7	4	0
O	59	40	12	1	6
PP	46	22	6	11	7
	301	182	55	33	31
		60%	18%	11%	10%

RECOMMENDATIONS FOR WAREHOUSE OPTIMIZATION

Table 6. Short-Term Recommendations

CENAME Reorganization	<ul style="list-style-type: none"> • Conduct feasibility study to reorganize CENAME warehouse so there are proper receiving and dispatch bays and quarantine area • Draft a zoning plan including labeling by: <ul style="list-style-type: none"> ○ Building ○ Aisle ○ Bay ○ Level/Shelf ○ Position/Bin • Re-align products according the existing CENAME store allocation plan • Identify fast-moving products so they are stored for expedited issue/distribution • Re-align products according the existing CENAME store allocation plan • Identify fast-moving products so they are stored for expedited issue/distribution • Inventory/register all: <ul style="list-style-type: none"> ○ Categorize cartons/pallets by type of product ○ Count the number of cartons/boxes ○ Estimate volume to determine space requirement in another assigned store ○ Segregate/separate the products ○ Document the products using a template prepared for that purpose ○ Number and label all cartons legibly and visibly as unusable ○ Identify potential storage area that can be dedicated to safe/secure storage of unusable products until disposal is conducted • Move well-labeled and documented unusable cartons/pallets to identified temporary storage until disposal • Storage staging plan helps avoid unplanned storage of received products in their unassigned location.
Inventory Management	<ul style="list-style-type: none"> • Update <i>magasin</i> stock cards based on new alignment • Strictly practice first expiring first out (FEFO)/first in first out (FIFO) • There is no paper trail for temporary storage when storing items. Technically any movement into and out of a store should be recoded even if stored for a short period of time for accountability reasons. • Develop receipt and issue memo/form for temporary and short-term parking of stock, if mandatory • Implement inventory tracking, transaction/movement, and control system for transit storage items in the event a space problem is manifested
Labeling Magasins	<p>The labels on the entrances of the majority of the warehouses are lost or old, some fading due to the effects of weather. Re-label all of them with more readable ones</p>
Product Locator Label and Feasibility for Bar Coding	<ul style="list-style-type: none"> • There is no system in place for labels to identify the location of products. SIAPS has developed label systems and the necessary quantities have been printed and need to be put in the right places in collaboration with CENAME. Aisle and bay labeling has also been developed for the Gare warehouse. • Explore the potential of a bar-coding system that can be linked to SAGE. This requires planning the whole warehousing system, including aligning products by warehouse and shelving. The locator label code system developed for the Gare stores could be a starting point for such an initiative.

Management of Inflammable Products	<ul style="list-style-type: none"> • Make sure all inflammables and hazardous liquids are stored in a separate store and not with pharmaceuticals • Remove inflammables and corrosive liquids such as alcohol, butane gas, and hydrochloric acid from Gare warehouse and locate to an appropriate store
Management of Expired and Unusable Products	<ul style="list-style-type: none"> • Clean up and create storage open space for storing expired, obsolete products • Identify the types of unusable/expired products • Estimate volume for determining space requirement in another assigned store; segregate/separate the products • Document the products using a template prepared for that purpose • Number and label all cartons as unusable • Identify potential storage area that can be dedicated to safe/secure storage of unusable products until disposal is conducted • Organize identified temporary store for unusable products so that no other active product remains • Move well labeled and documented unusable cartons/pallets to identified temporary storage until disposal • Assign a custodian of the goods and store and disallow entry of unauthorized persons to warehouses • Dismantle weak and unusable shelving in PP1 and PP2 warehouse as potential storage area that can be dedicated to safe/secure storage of unusable products until disposal is conducted. CENAME reported that this recommendation is already being pursued. CENAME plans to use it as an extension for storage. However, the consultancy found out that the building has low ceiling and can become too hot for storing pharmaceuticals. If all the shelves are removed it can be used for short-term storage of expired drugs before they are disposed. It can also serve as storage for non-heat-sensitive medical stores. • Develop a pharmaceutical waste management manual, including waste minimization, categorization and list of products that cannot be burned, incinerated etc. • Develop detailed disposal management plan with a time line, resource need and responsibility for disposal • Assign a focal person for pharmaceutical waste management and tracking as part of the Quality Assurance (QA) Department
Temperature Monitoring	<p>It is reported that the temperature is recoded twice a day. An earlier record of such practice was obtained from the files but was not available physically in the store. Using multi-page log books for recording such routine data is beneficial and the log book can be kept in the store. It will be cost-effective to use thermo-hygrometers, which can record temperature and humidity since humidity is a challenge in Cameroon.</p>
In-house Coordination and Collaboration	<ul style="list-style-type: none"> • There appears to be a lack of coordination/communication between procurement, distribution, and storage functions whereby space can be planned for storage to avoid crisis management when products are received without informing the stores in advance. • Ensure active and regular communication/coordination between procurement/clearance, storage and distribution • Develop/Implement an early warning and storage staging plan based on upcoming shipment delivery schedules to avoid unplanned storage of received products • Implement inventory tracking, transaction/movement, and control system for transit storage items in the event space problem is manifested
Material Handling	<p>Provide manual pallet jacks, plat form carts/dollies, and other basic material handling equipment for each of the warehouses. Add more fork lift trucks</p>
Training for Storekeeping Personnel	<p>Organize a store keepers practical training on the basics of pharmaceutical storage/handling, performance improvement, safety and protection, partner expectations, etc.</p>

Lanacome Space Use for Delivery/PMTCT Kit Assembly	<ul style="list-style-type: none"> • The space that will be available after LANACOME leaves its premises at CENAME can effectively be used as a potential kit preparation structure, making the existing P warehouse that is doubling as a kit preparation place available to be used for general storage. The kits that are being prepared include maternity kits and in the future prevention of mother-to-child transmission (PMTCT) kits. • Alternatively the LANACOME space can create more special storage space for CENAME (e.g., bulk liquid storage, reagents, etc.)
Inter-store Communication (Intercom)	<ul style="list-style-type: none"> • The distance between warehouses and officers moving from warehouse to warehouse results in an inefficient use of time. Introduction of simple hand-held communication devices that are inexpensive can add value. • Conduct a feasibility study to install inter-warehouse/CENAME intercom or a hand-held radio communication system. The introduction of simple hand-held communication devices that are inexpensive can add value.
Occupational Safety	Provide basic store worker safety and protection gear such as gowns, protective caps, boots, waist support, etc.

Table 7. Proposal for CENAME/Cameroon Warehouse Optimization

Product Category	Currently Stored in the Following Magasins	Proposed to be Stored in the Following Magasins	Remarks
Essential Drugs 1 Antibiotics/Antimalarials etc.	G/K/N/O/Q	Q/K	
Essential Drugs 2 Analgesics Gastrointestinal (GI) Respiratory/Cardiac EENT Etc.	G/K/O/P/Q	Q/K	
IV Fluids	G/N/O/R	R	
ORS/Zn	G/R/K/Q/R	P/R	
Medical Supplies Cotton Gauze/Bandage Suture Syringe Catheters Gloves Etc.	G/N/O/P/R	O/R/N	
X-Ray Films, Developers, Fixers etc.	N/O/R	R	
Alcohol, Chemicals, and other Flammables	G	N1	

In the long term, it would be advisable to undertake the ultimate comprehensive approach to addressing CENAME's challenges. This includes conducting an options analysis to critically look at the pros and cons, financial implications, etc. of alternative choices.

- One of the principal options could be relocating CENAME to a new location with structures constructed professionally with WMS, etc.
- Another option that does not fundamentally make a major difference could involve optimizing the current premises by locating all offices on the same side and reorganizing warehouses as well as expanding them by building new ones.

- Yet another option that could be considered for minimizing space and inventory management problems involves working toward absorbing all CAPR structures related to logistics of pharmaceuticals so they are hubs/branches of CENAME. This could enable CPARs to focus on their core competency of public health and management and capacity building of districts and health facilities.

Key Recommended MHE for CENAME

The following pictures show the types of MHE and protective gear that CENAME could consider to capacitate logistics management and to contribute to store personnel safety.



Figure 4. (top to bottom, left to right) forklift and counterbalance forklift, pallet jack and hand cart, dolly and ladder, and back brace and hard hat

ACTIONS TAKEN DURING THE STTA IN APRIL 2014

Labels for CENAME Warehouses

For proper accountability, efficiency, and management, and in order to locate inventory correctly and avoid confusion, it is essential to create a product/shelf locator labeling system.

No such system exists in CENAME stores. Although there were prior signs of shelf labels, they were simplistic and are not used anymore. It is understandable that the inadequacy of space, periodic congestion, and storage of one product in several warehouses makes labeling difficult and impractical.

It is important to define products that will be located at each Gare warehouse and ensure they have a catalogue. In addition, aisles and bays should be designated for specific products, (e.g., all ARVs and TB products) in specified warehouses, aisles, and bays. A uniform, comprehensive process/system is needed to identify warehouse storage locations.

Further, Gare storage should be organized at the aisle/bay level. Also, standard operating procedures (SOPs) should be developed for needed labeling/core logistics procedures.

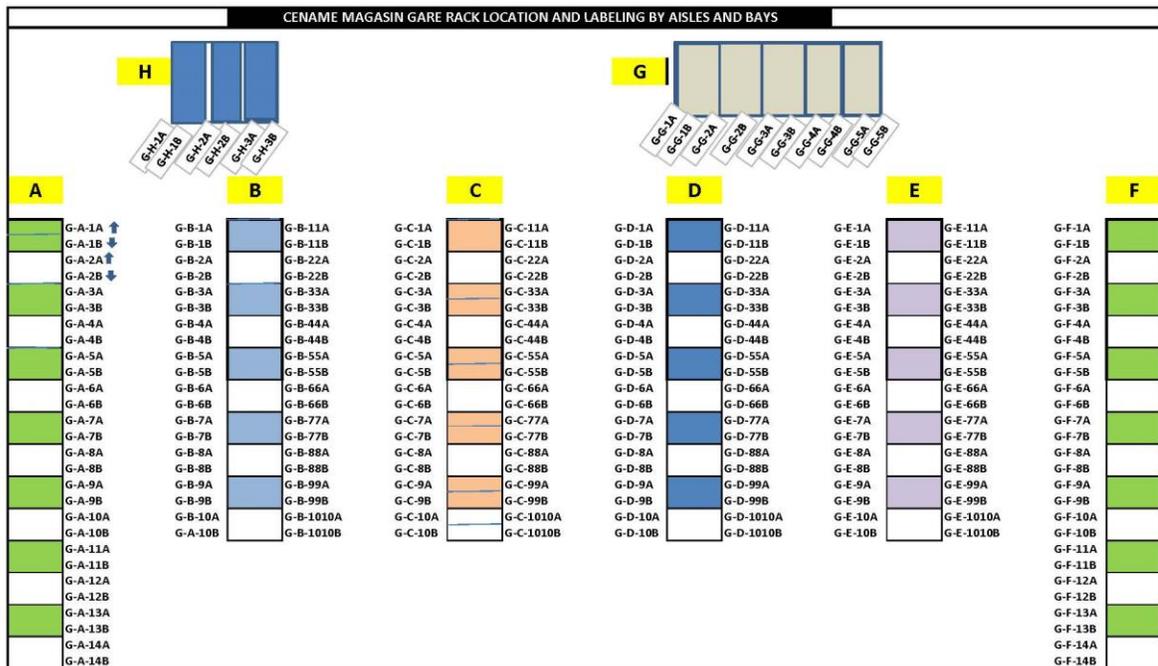
In support of the above measures to be taken, a coding system was developed during this STTA for the two Gare warehouses, where USAID/SIAPS/Cameroon funded the installation of racks. The labeling employs an alphanumeric coding system developed for storing/locating products in a designated building, aisle, bay and level/shelf. The bays against the walls are assigned upper- and lower-level label codes (e.g., GA1A, GA1B, GA2A, GA2B, etc.). Those that are free standing in the space between the walls consist of from one to three bay depths. The bays and depth vary in the aisles. The coding is assigned to the front and back of the racks.

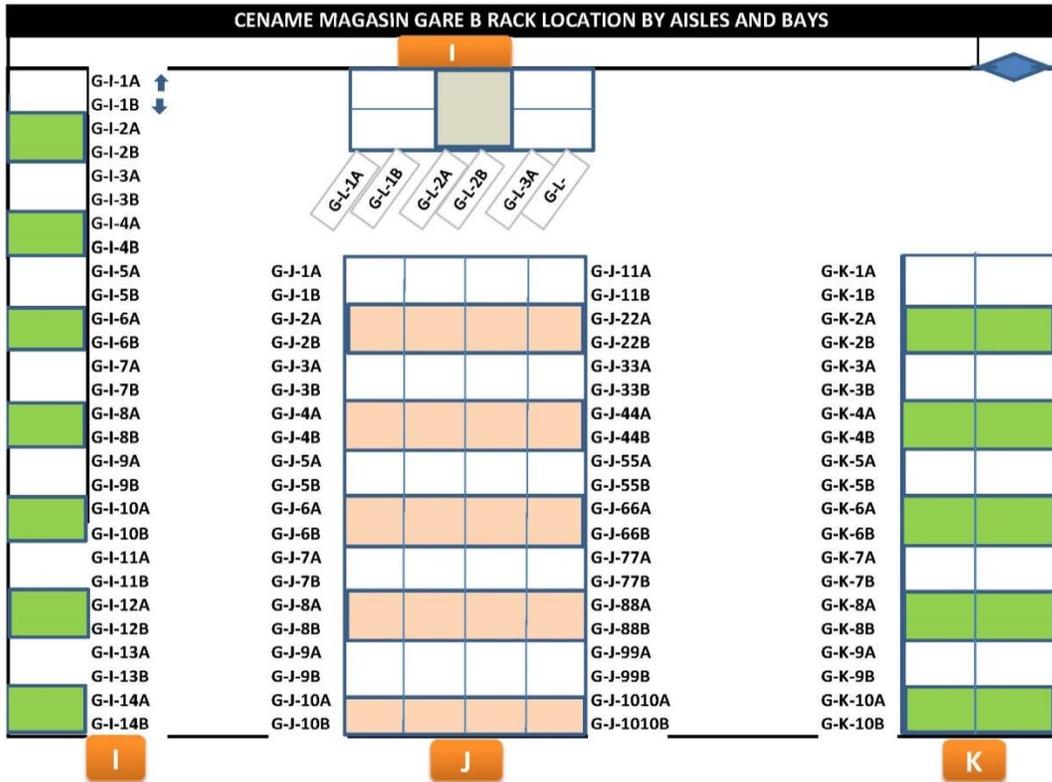
The coding system includes the following:

- Letters are assigned that correspond to the first letter of each warehouse (e.g., G for warehouse Gare).
- Letters are assigned to each aisle. In the case of the Gare warehouse, the aisles are labeled from A to L.
- The bays under each aisle are assigned numeric labels. The number of bays in an aisle depends on how long they are.
- The level of each bay is assigned a letter. In the case of Gare, the bays consist of only two levels and therefore the labels assigned to them are A (for upper shelf) and B (for lower level).

One-side bay system		Two or more sides bay system			
	G-A-1A ↑ G-A-1B ↓		G-B-1A ↑ G-B-1B ↓	G-B-11A ↓ G-B-11B ↓	
G-A-1A	G= Gare A= Aisle 1= Bay A=Level (Upper)	G-B-1A	G= Gare B= Aisle 1= Bay (1 st /front side) A=Level (Upper)	G-B-11A	G= Gare B= Aisle 11= Bay (2 nd /back side) A=Level (Upper)
G-A-1B	G= Gare A= Aisle 1= Bay B=Level (Lower)	G-B-1B	G= Gare B= Aisle 1= Bay (1 st /front side) B=Level (Lower)	G-B-11B	G= Gare B= Aisle 11= Bay (2 nd /back side) B=Level (Lower)
G-A-2A	G= Gare A= Aisle 2= Bay A=Level (Upper)	G-B-2A	G= Gare B= Aisle 2= Bay (1 st /front side) A=Level (Upper)	G-B-22A	G= Gare B= Aisle 22= Bay (2 nd /back side) A=Level (Upper)
G-A-2B	G= Gare A= Aisle 2= Bay B=Level (Lower)	G-B-1B	G= Gare B= Aisle 2= Bay (1 st /front side) B=Level (Lower)	G-B-22B	G= Gare B= Aisle 22= Bay (2 nd /back side) B=Level (Lower)

Figure 5. CENAME gare A and B aisles and bay labeling





Signage Developed and Provided as Part of the Technical Assistance

CENAME does not have durable and high-quality product location identifiers for key products in the stores. The advantage of attaching such signs to the shelves/racks is that it helps store personnel put them in their proper locations and prevents these products from being scattered in different locations. Such systematic storage contributes to good inventory management. Also, there were no signs informing personnel and clients of selected practices and storage locations of dangerous products. Standard prohibition and hazard caution signs were selected, printed, and issued while we were providing technical assistance.

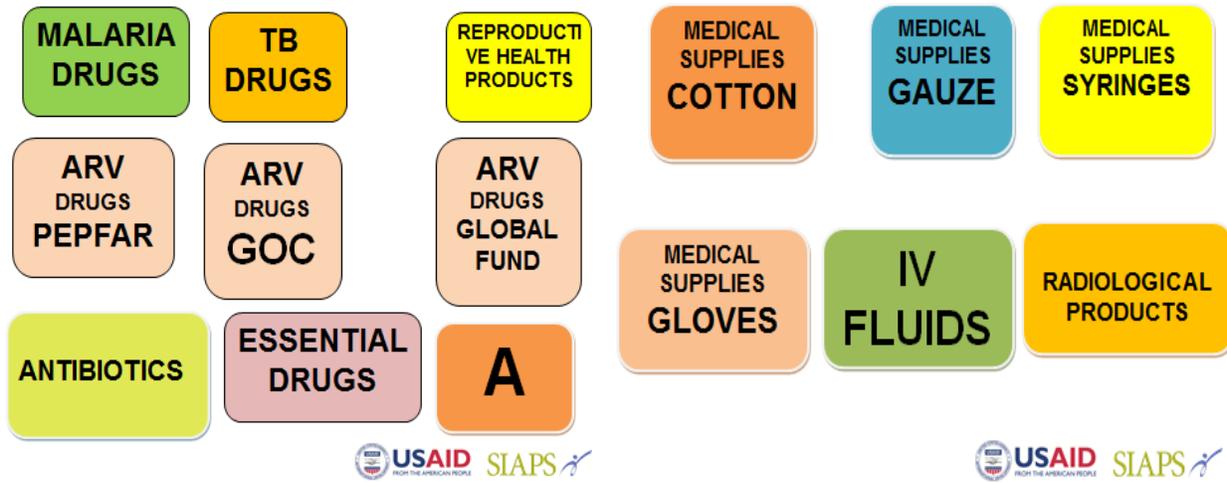


Figure 6. Examples of medical signage



Figure 7. Examples of hazard signage

DESCRIPTION OF *MAGASINS* WITH A DRAWING TO SHOW THE DIMENSIONS AND NUMBER/LOCATION OF AISLES/BAYS

Magasin K

Magasin K is one of the 10 stores of CENAME at the central location. It measures 20 m by 18 m for a total area of 360 m², making it the third largest in the compound. It consists of 7 aisles and 79 bays. All of the shelving is metal and contains 3 levels of shelving.

Although all of the stores are alphabetically labeled, some of the green metal label sheets in front of the gates to the stores are missing. *Magasin K* is one such store.

Magasin K is currently not dedicated to specific types of products. It formerly provided storage for antibiotics but currently stores many kinds of products. We were not given a satisfactory reason for this change.

The products stored there include essential medicines such as antibiotics, antimalarials, analgesics, and gastrointestinal (GI) drugs. ORS/zinc and polyvidone iodine in 125 ml bottles appeared to occupy much of the space in this *magasin*.

Magasin K contains 66 stock cards, of which 15 had zero balances, 4 had expired entries (not active products) and 7 had products with less than six months to expire. This amounts to about 29% of the total being stock-out and unusable products.

Although the volume of stock at any time varies in accordance with the quantity of the shipment received and distributed to the region, when it does arrive the store manager asks where space is available and determines the amount of storage on the basis of availability of space rather than allocation by product type. This results in the erratic availability of the same types of products in different stores.

Although there is a thermometer in the facility, there is no temperature chart where the products are located.

The door of the *magasin* at the time of our visit was hardly functional, probably as a result of rusted rails.

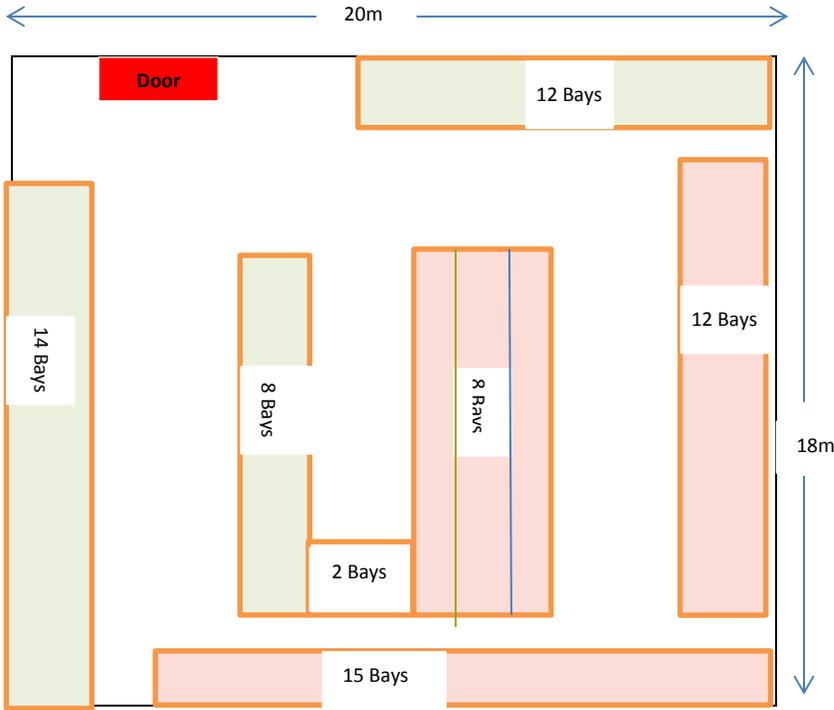


Figure 8. Magasin K –diagram showing dimension, number and location of aisles and bays (not to scale)

Magasin M

Magasin M is one of the 10 stores of CENAME at the central location. It measures 17 m by 12 m for a total of 204 m² (~2,196 ft²), making it one of the smallest stores in the compound. The shelving there is made of wood and consists of one level. It is currently dedicated to ARVs and related products provided by the Government of Cameroon (GOC), PEPFAR, etc. *Magasin M* is also dedicated to Clinton Health Access Initiative (CHAI)-provided ARVs with a focus on pediatric preparations. Although there is a thermometer there, there is no temperature chart in the store. There is also no label on the outer wall.

The facility consists of 5 aisles and 27 bays (9 bays of one row each and 9 bays of two rows each). All of the shelving is made of wood and consists of two levels (the floor plus one).

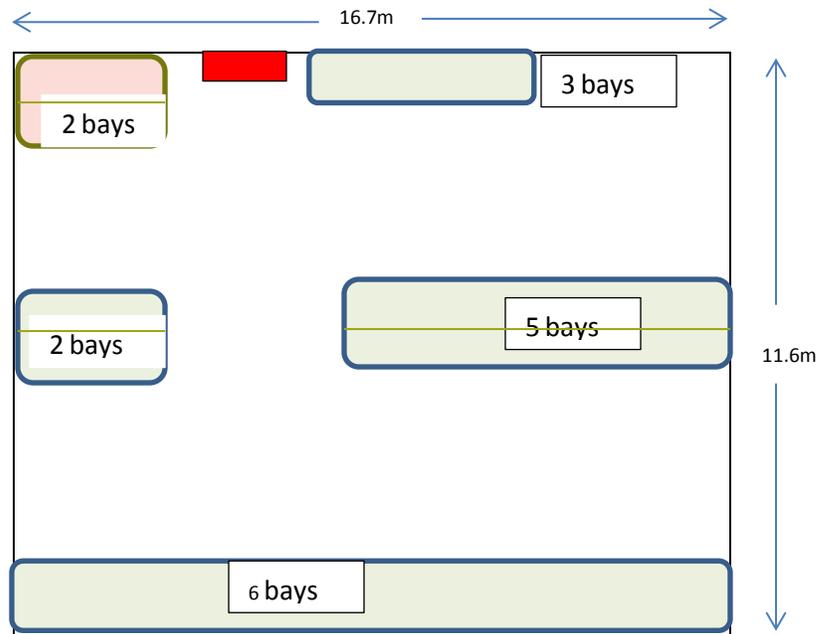


Figure 9. Magasin M – diagram showing dimensions, number and location of aisles and bays (not to scale)

Magasin Q

Magasin Q is one of the 10 stores of CENAME at the central premises. It measures 20.4 m by 19.7 m for a total area of about 402 m². It consists of 8 aisles and 79 bays (6 aisles and 55 bays with single rows in each and 2 aisles with 12 bays with double rows in each). All of the shelving is made of metal and consists of three levels.

The products stored there occupying significant space include essential drugs such as ORS/zinc, polyvidone iodine in 125 ml bottles, gentamycin eye drops, paracetamol tablets, and aspirin (ASAL). It also contained antibiotics such as amoxicillin, cloxacillin, erythromycin, and crystalline penicillin.

The *magasin* contains 60 stock cards, of which 15 had zero balances, 11 had expired entries (not active products), and 9 had products about to expire in less than six months. This amounts to about 58% stock out and unusable products.

Although the volume of stock at any time varies in accordance with the quantity of shipment received and distributed to the region, when a shipment arrives the store manager asks where there is space and determines its storage based on availability of space.

Although there is a thermometer in the store, there is no temperature chart where the products are located.

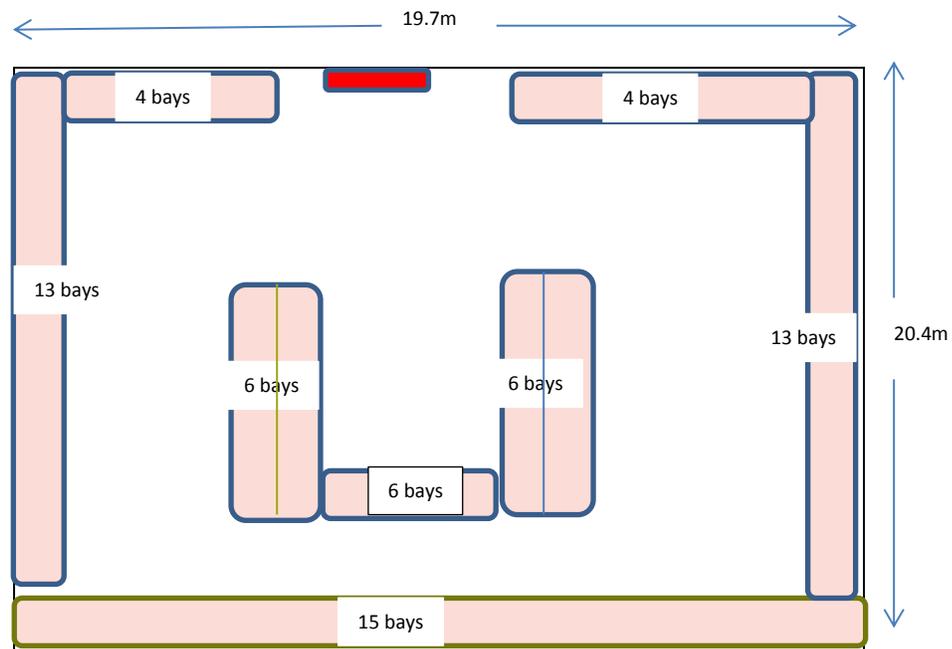


Figure 10. Magasin Q –diagram showing dimension, number and location of aisles and bays (not to scale)

Magasin P

Magasin P is one of the 10 stores of CENAME at the central location. It measures 21 m by 10 m for a total area of 210 m². It consists of 3 aisles and 19 bays (2 aisles with 14 bays with single rows in each and 1 aisle with 10 bays with double rows in each).

All of the shelving is made of wood and consists of ground and upper levels. The label on the door is missing.

Stored products occupying a significant amount of space there include polyvidon iodine in bottles and paracetamol tablets. Other medical supplies include cotton, gauze, syringes/needles, and bandages.

The facility has 24 stock cards, of which 3 listed expired entries (not active products) and one was due to expire in less than 6 months.

It serves as a preparation room for maternity kits, though there is no working table there for such activity. At the time of our visit almost all of the products stored were expired or near expiry.

Although the *magasin* contains a thermometer, it does not have a temperature chart where the products are located.

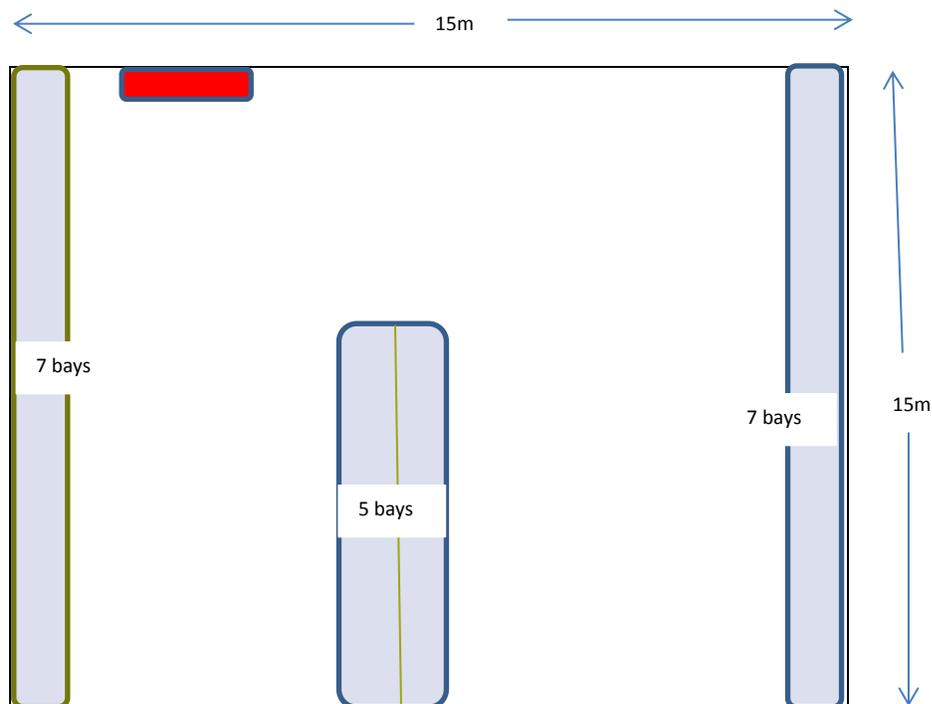


Figure 11. Magasin P – diagram showing dimensions, number, and location of aisles and bays (not to scale)

Magasin N

Magasin N is one of the 10 stores of CENAME at the central location. It measures 23 m by 7 m for a total area of about 161 m². It contains 5 aisles and 31 bays with single rows in each. All of the shelving is made of wood and consists of one level with a top shelf.

The stored products occupying significant space include medical supplies such as gauze, bandages, syringes, sutures, radiological supplies, IV fluids, antibiotics, antimalarial drugs, and potassium permanganate.

The *magasin* has 46 stock cards, of which 7 had zero balances and 4 covered products due to expire in less than 6 months.

A small store is attached to *Magasin N* and is designated as an alcohol store. It contains three aisles and eight bays. The wooden shelves cover five rows and were empty at the time of our visit except for obsolete products that were scattered about the store.

Although the facility contains a thermometer, there is no temperature chart where the products are located.

The stock card covered 66 entries. Of those, 15 showed zero balances, 4 showed expired drugs and 7 showed products due to expire in less than six months. These drugs included ORS/zinc and ED such as antibiotics.

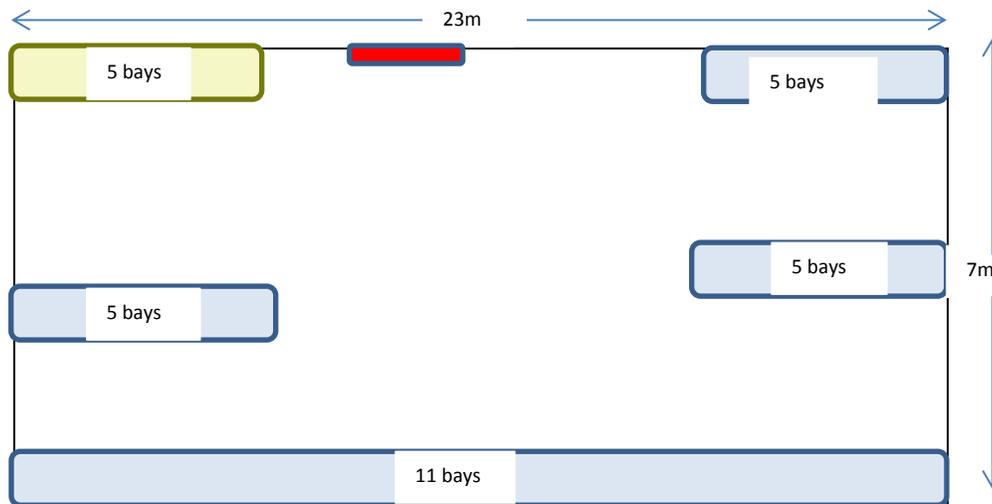


Figure 12. Magasin N – diagram showing dimension, number and location of aisles and bays (not to scale)

Magasin AP (Autre Program)

Magasin AP is one of the 10 stores of CENAME at the central location. It measures 25.4 m by 9.4 m for a total area of about 239 m². It contains 3 aisles and 40 bays (for a total of 141 bays). All of the shelves are metal and consist of three levels.

The *magasin* is dedicated to storage of program products. It maintains 84 stock cards, in accordance with the source of the products. At the time of the visit, it contained 16 entries for TB products, of which 4 cover expired entries and one is due to expire in less than 6 months. It also contains 2,544 boxes of 672 doses of adult TB multi-drug treatment (MDT) with an expiration date of November 2014 (which is unlikely to be used before it expires). The facility also stores onchocerciasis and lymphatic filariasis (LF) products, as well as 22 entries of United Nations (UN)-provided products, most of which are antimalarial products. It also stores 30 entries of VPP/ Commission Nationale de Lutte Contre le SIDA (CNLS)-provided products, including eight with zero balances and three that have expired. Most of these products are rapid diagnostic tests (RDTs). Of those, 16 are for miscellaneous cancer and hepatitis treatment.

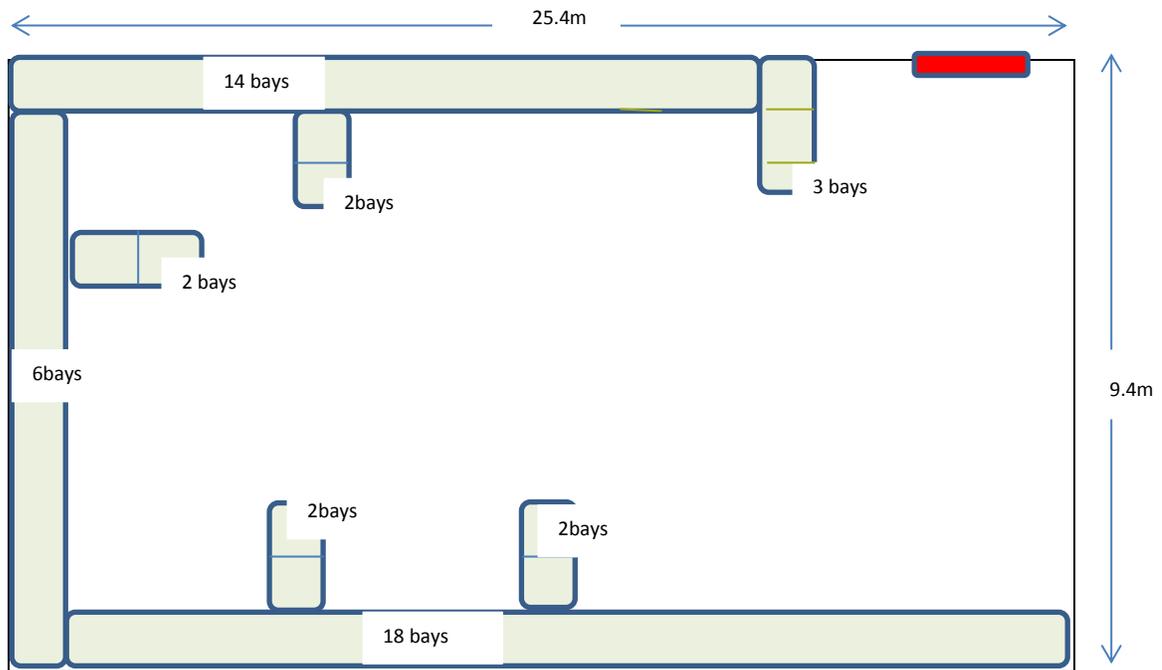


Figure 13. Magasin AP – diagram showing dimension, number and location of aisles and bays (not to scale)

Magasin O

Magasin O is one of the 10 stores of CENAME at the central location. It measures 18 m by 16 m for a total area of about 288 m². It consists of 5 aisles and 57 bays (totaling 225 bays). All of the shelving is metal and covers three levels.

Stored products there occupying significant space (like at *Magasin N*) are mainly medical supplies such as cotton, gauze, bandages, syringes, sutures, IV fluid, x-ray products, antibiotics, paracetamol, and ASAL.

The *magasin* contained 59 stock cards, of which 12 had zero balances, 6 had expired entries (not active products) and 1 had products about to expire in less than six months. This amounts to about 58% stock-out and unusable products.

Although the volume of stock at any time depends on the quantity of shipment received and distributed to the region, when a shipment arrives the store manager asks where there is space and determines its storage on the basis of availability of space rather than allocation by product type. This results in erratic availability of the same types of products in different stores.

Although there is a thermometer at this site, there is no temperature chart where the products are located.

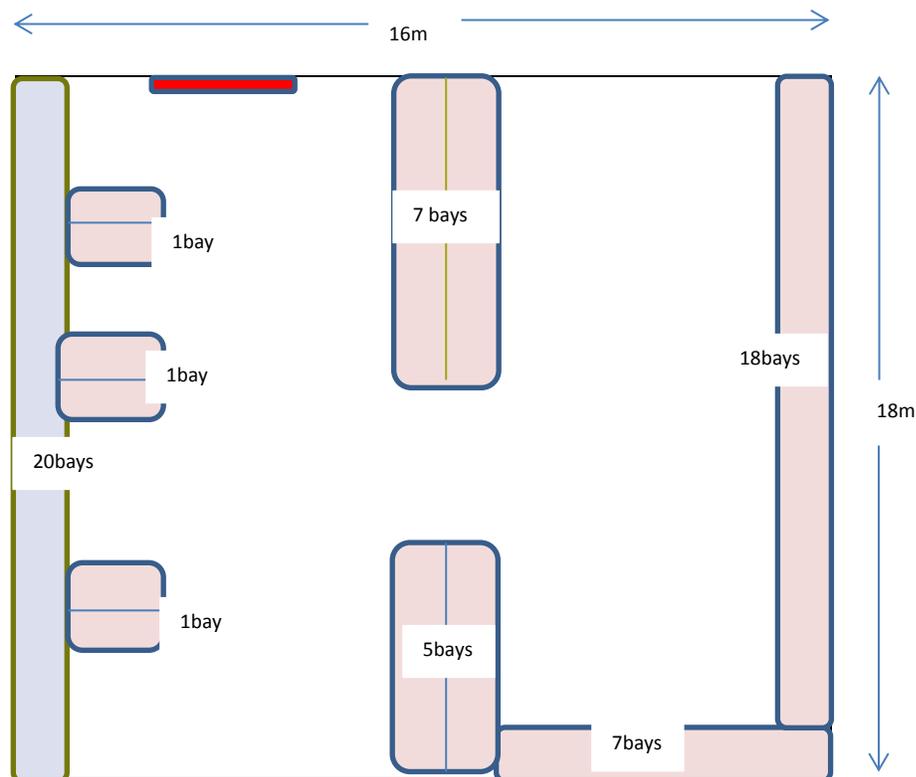


Figure 14. Magasin O –diagram showing dimension, number and location of aisles and bays (not to scale)

Magasin R

Magasin R is one of the 10 stores of CENAME at the central location. It forms a “T” with *Magasin N*. It measures 59.9 m by 8.9 m for a total area of about 533 m². It consists of 5 aisles and 42 bays (for a total of 168 bays). All of the shelving is metal and covers three levels.

The stored products occupying significant space there include medical supplies such as syringes and needles, IV fluids, X-ray films, gloves, catheters, and sels de réhydratation orale (SRO)-zinc.

Expired items are segregated but not portioned in a corner of the warehouse. Although the volume of stock at any time depends on the quantity of shipment received and distributed to the region, when a shipment arrives the store manager asks where there is space and determines its storage based on availability of space rather than allocation by product type. This produces an uneven availability of the same types of products in different stores.

Although there is a thermometer, there is no temperature chart in the store where the products are located.

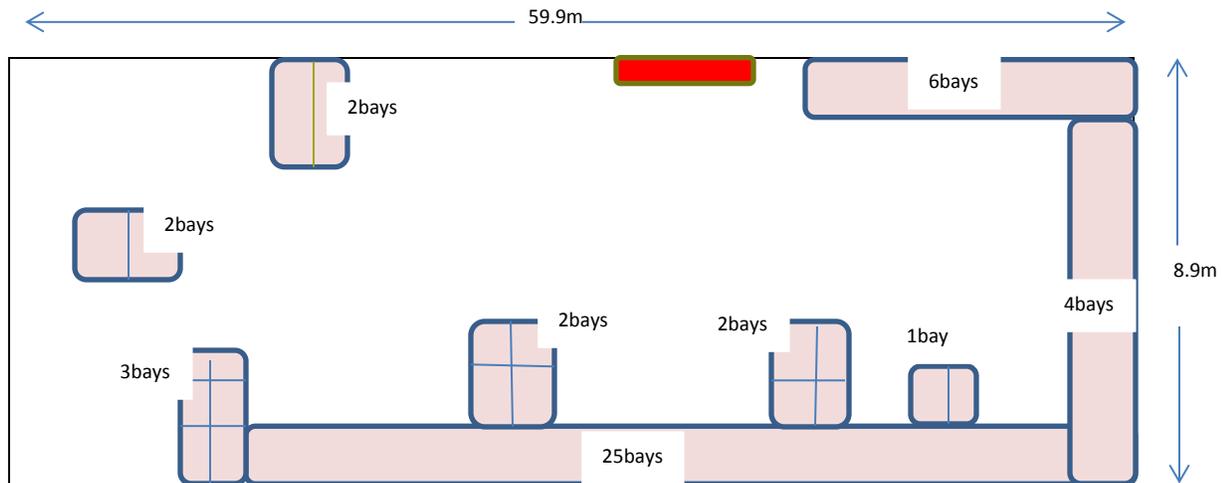


Figure 15. Magasin R –diagram showing dimension, number and location of aisles and bays (not to scale)

Magasin Gare

The Gare warehouses of CENAME consist of two rooms rented from the railway agency as a temporary measure to address constraints in storage space. Gare A measures 34.75 m by 19.95 m for a total area of about 693.3 m² while Gare B measures 20 m by 14.8 m for a total of 296 m². The total area of the two rented facilities is about 990 m².

Both storage rooms contain wooden racks that SIAPS provided. Gare A consists of 7 aisles and 78 bays (the total number of bays is 188, which is based on the number of rows, ranging from one to three). All of the shelving is made of wood and consists of a floor level and top shelf.

The stored products occupying significant space include ORS/zinc, paracetamol tablets, diclofenac, IV fluid, nystatin, erythromycin, gauze, bandages, syringes, and sutures. At the time of our visit it also included alcohol, hydrochloric acid, gas tanks, and RH products including Depo-Provera, and ARVs.

The *magasin* maintains a fluid storage system in which products are moved when space becomes available rather than containing a storage area dedicated to specific products. Although the volume of stock at any time depends on the quantity of shipment received and distributed to the region, when it arrives the store manager asks where there is space and determines its storage on the basis of availability of space rather than allocation by product type. This creates uneven availability of the same types of products in different stores.

Although there is a thermometer, there is no temperature chart in the store where the products are located. The stores are clean and products are placed on the racks and on pallets. However, there are no labels on the racks by which to identify products. There is not a full-time storekeeper stationed at the site but that person goes there whenever there are receipts/issues. Since the branch's inventory management activities are handled centrally by CENAME there are no stock cards or bin cards on site.

Description of Magasins

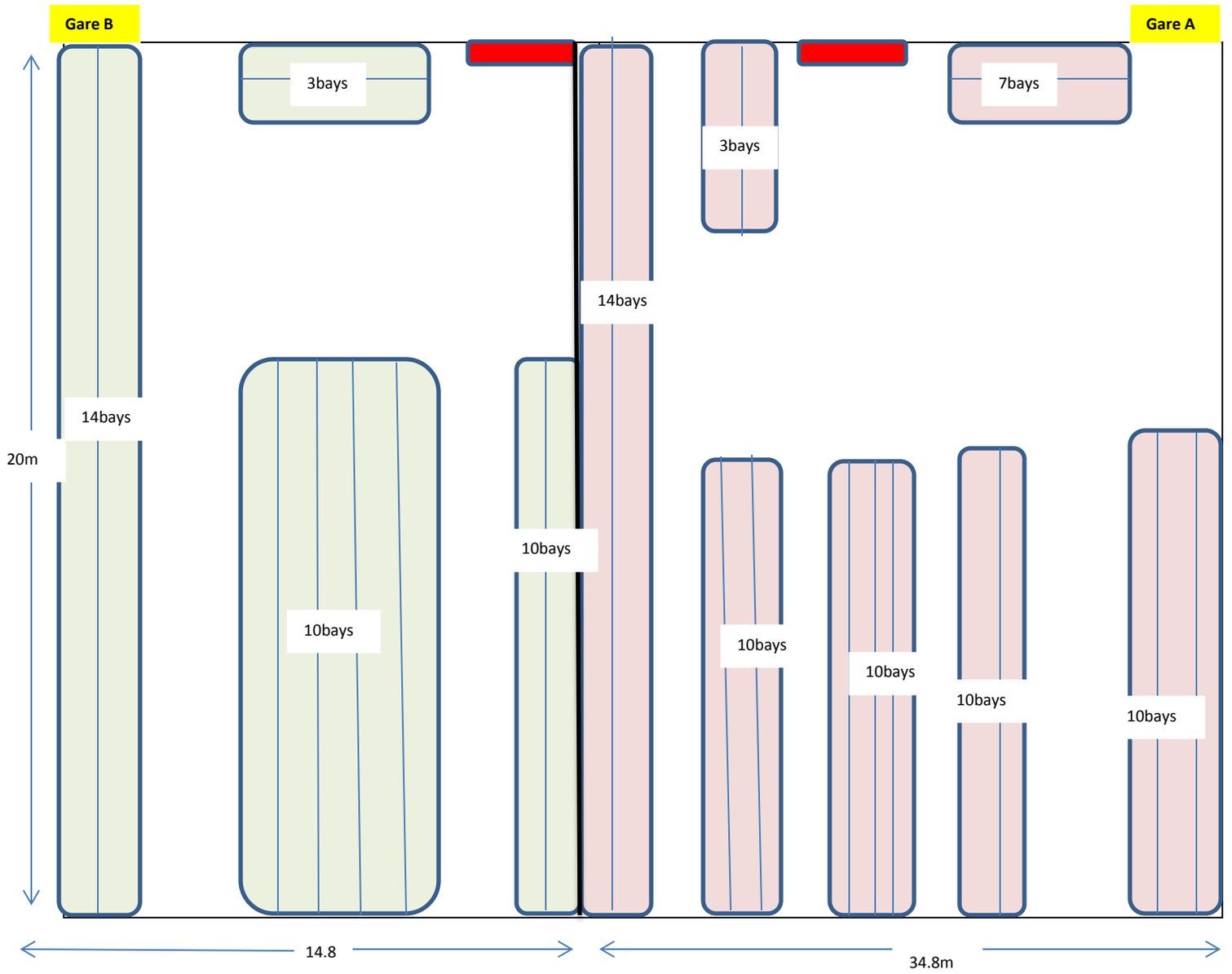


Figure 16. Magasin Gare – diagram showing dimension, number and location of aisles and bays (not to scale)