

Cold Chain Equipment Manager

CCEM 2

User Manual

Version 2.1.5.1



Acknowledgments

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Technical programming support for CCEM 1 was made possible with the generous assistance of Dr. Yang Baoping from WHO, Western Pacific Regional Office.

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Significant improvements have been made to the user interface of CCEM 2 to increase the user's ability to quickly model the multiyear impact on cold chain equipment requirements. This includes the ability to model the cold chain capacity impact of new vaccine introduction with a facility-level analysis.

Technical assistance to finalize CCEM 2 data collection materials was generously provided by Dr. Kibet Sergon (WHO/Kenya), Mr. Serge Ganivet (WHO/ESA/IST) and Dr. Oz Mansoor (WHO/HQ). Additional partner collaborators to CCEM development include:

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Cold Chain Equipment Manager (CCEM) Tool and User Manual

The Cold Chain Equipment Manager (CCEM) tool (version 2.1) is an interactive cold chain equipment database management system for immunisation program managers and public health officers.

The CCEM Tool was designed and developed as a planning tool to facilitate the strategic management of a national cold chain equipment inventory and to ensure the availability of sufficient cold chain equipment for safe vaccine storage and transport, when and where it is needed.

The CCEM Tool is in the public domain and freely available for use, copying, translation and distribution. It was originally developed by a joint effort of PATH/USAID, UNICEF (The Regional Office for Latin America and the Caribbean) and WHO (The Western Pacific Regional Office).

This CCEM user manual allows you to learn the basic to advanced features of CCEM. The guide steps the user through all of CCEM's five modules.

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Section 1 Introduction

The Cold Chain Equipment Manager (CCEM) software tool is designed to support the strategic management of cold chain equipment and to ensure the availability of adequate and well-functioning equipment for safe vaccine storage and transport.

In 2007, PATH began its collaboration with UNICEF, WHO, and the Uganda EPI team to design and develop the Cold Chain Equipment Manager (CCEM) software tool. Today CCEM 2.0 is available to manage and analyze datasets on health facilities and equipment inventories, giving users the ability to model the impact of vaccine introduction, equipment selection, and changes in supply intervals on multiyear equipment costs.

Modelling different decisions about when to remove equipment, which equipment to purchase when health facilities have storage capacity shortages, establishing policies around solar equipment, and phasing out of CFC-containing equipment are quick to implement in CCEM 2.0. Capital as well as operational costs can be easily compared between different planning scenarios. Analysis of an up-to-date national inventory of cold chain equipment with the CCEM Tool provides managers with the ability to easily build an informed multiyear equipment plan from an informed data baseline.

CCEM is a Microsoft (MS)-Access based application and provides users with three primary functional components:

- A geographic database of health facilities
- A data entry system targeting low-resource environments
- A modelling engine for generating cold chain equipment forecasts

With CCEM, cold chain managers can automatically analyze and assess the performance of the existing national cold chain and introduce interventions that will optimize the management of cold chain equipment.

1.1 Equipment Planning and the CCEM Tool

The CCEM Tool is available for free at <http://www.path.org/publications/details.php?i=1569>.

To achieve strategic cold chain equipment planning, the CCEM Tool is designed to meet following objectives:

- Establishing an accurate baseline inventory of existing equipment
- Analyzing inventory data and facility equipment requirements
- Multiyear forecasting of equipment needs to meet future requirements
- Generating an equipment procurement list and budget
- Routine updating of equipment inventory details to maintain database accuracy

The following business process diagram introduces the tasks involved with implementing CCEM for cold chain planning support.

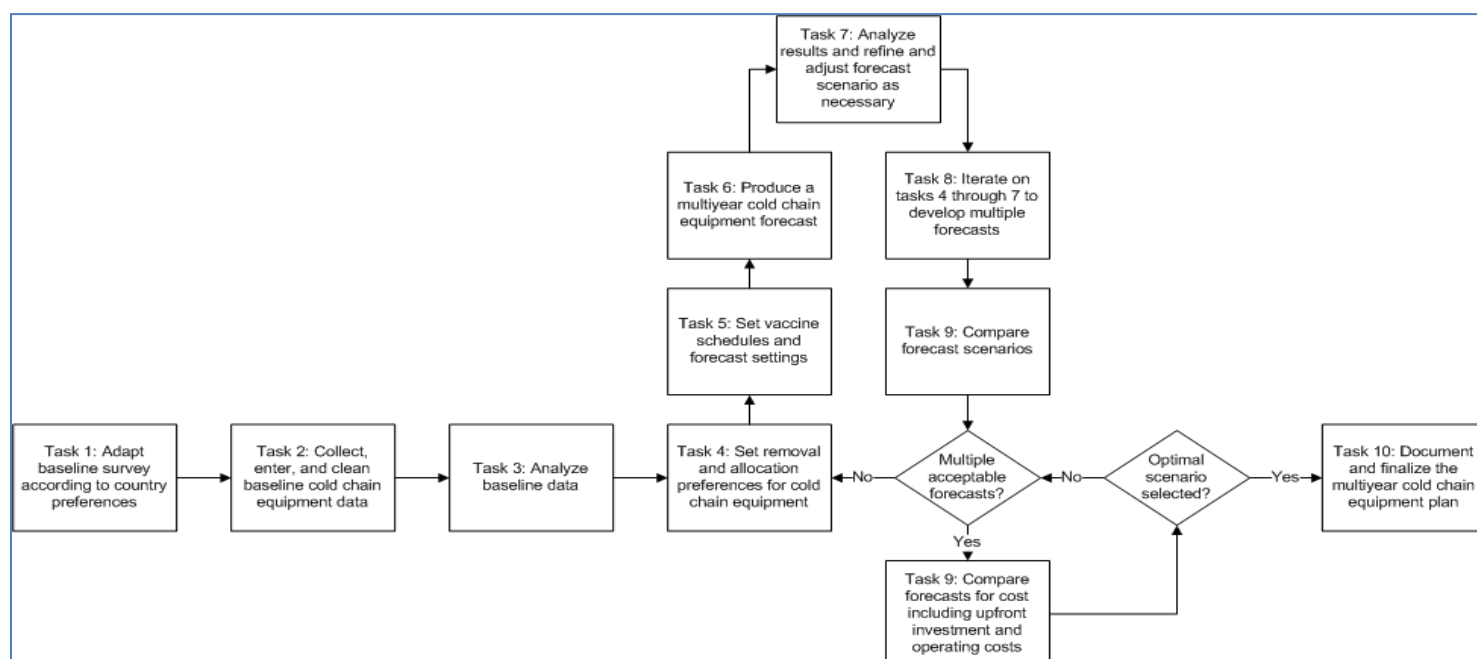


Figure 1: CCEM equipment planning process

Note:

CCEM currently requires manual updating of inventory data. To collect updated data, an updating system must be designed so that data is routinely sent to the CCEM data manager at either a central or regional level. An example of a country updating system described in Section 9 (Figure 2).

1.1.1 Establishing an accurate and up-to-date inventory of existing equipment

Before using the CCEM Tool, a well-planned and fully implemented data collection effort is needed in order to collect cold chain essential data from all health facilities that store vaccines or deliver immunisations. The following data collection tools have been developed, field-tested, and recommended for use with the CCEM Tool. These documents are available for download from <http://www.path.org/publications/details.php?i=1569>.

Cold Chain Equipment Inventory Questionnaires: Trained surveyors must collect inventory data from health facilities using a standard set of inventory questionnaires. A set of questionnaires that have received feedback from UNICEF, UNICEF, and MOH staff in several countries and which have been field validated is available for download.

Guide to Cold Chain Equipment Inventory Questionnaires: To help surveyors collect standardized and accurate health facility and cold chain equipment data, it is important that a detailed reference guide is available which describes the rationale for each survey question and guidance on

determining the best response. A guide matching the above questionnaires is available for download.

Equipment Identification Guide: To help surveyors correctly identify cold chain equipment, an Equipment Identification Guide must be available that references all refrigerators, freezers, cold boxes, and vaccine carriers included in the national cold chain equipment inventory. This guide will provide a picture, manufacturer, and model to help the surveyor accurately identify the reference catalogue ID, thereby reducing the potential for errors during identification and data entry. A model for this identification guide is available for download in MS Word so that country teams can edit it to reflect more accurately equipment in their country. The version available for download provides information for cold chain equipment found in the World Health Organization (WHO) Performance Quality and Safety (PQS) system. An example of the Equipment Identification Guide for modification by each implementing country is made available for Download.

Note:

Each country may have unique administrative terms or cold chain equipment. Before implementing the cold chain equipment survey, country teams must review and update the following documents:

1. Cold Chain Equipment Inventory Questionnaires (6)
2. CCEM Questionnaire Guide
3. Equipment Identification Guide

When you make changes to the CCEM paper questionnaires to reflect specific terms and administrative levels used in your country, these changes will not be reflected in the screens found in the CCEM Tool.

All changes to the paper questionnaires should be made only to help surveyors understand how to collect the most accurate data and should not change the essential data collected.

1.1.2 Calculating vaccine storage capacity requirements

Using up-to-date inventory data, the CCEM Tool calculates the existing vaccine storage capacity at each facility and can generate reports to compare existing capacity against the requirements of the national immunisation program.

To ensure that all health facilities have sufficient cold chain equipment, the vaccine and ice pack storage capacity at both +4°C and at -20°C must be calculated and compared to present and future requirements. [See Section 3.3](#) for more detail on how the national vaccine schedule is entered into the CCEM Tool. The vaccine storage capacity calculations in the CCEM Tool use data from the target population, national immunisation schedule, and national policies on vaccine wastage, reserve stocks, and resupply intervals.

See Annex 4 for a description on the algorithms used by CCEM Tool to calculate vaccine storage capacity requirements.

1.1.3 Analyzing the equipment inventory

CCEM generates automatic and custom reports, including data tables, line listings, bar graphs, and pie charts. Reporting categories include facility infrastructure, storage capacity, cold chain equipment, and energy for cooling. These reports help prioritize areas for supervision or training and

help users identify criteria for allocation or removal of equipment as part of the CCEM forecasting module. Refer to [section 5.1](#) for more information on these reports.

Managers can also create customized reports using the CCEM Custom Reports. See [section 5.2](#) for details on the Custom Report function.

1.1.4 Forecasting future equipment needs

Multiyear equipment forecasts can evaluate the impact of population increases, supplementary vaccine activities, new vaccine introduction, new vaccine formats, equipment standardization, and other parameters on equipment requirements as well as capital and recurrent costs of the cold chain.

CCEM generates equipment forecasts based on a number of parameters, including:

- National policies for replacing outdated or broken equipment.
- National recommendations for standardising refrigeration equipment.
- National recommendations for facilities without reliable electricity supply.
- National policies on reserve stocks, supply intervals, and vaccine wastage.
- Planned introduction of new and underused vaccines.

CCEM supports national cold chain managers to evaluate different planning decisions and to generate final equipment lists. See [section 6](#) for information on preparing forecasts for multiyear planning. Managers can quickly create planning scenarios and compare the cost impact of different decisions to develop an efficient and effective national multiyear equipment plan.

1.1.5 Generating multiyear equipment plans

As part of the development of a comprehensive multiyear plan (cMYP) for immunisation, countries must streamline immunisation planning at the national level into a single comprehensive plan with an associated budget. Using the CCEM Tool helps cold chain managers to contribute to the cMYP by providing:

- Estimates of existing vaccine storage capacity compared against current and future requirements.
- Impact analysis on the systematic removal of outdated and unreliable cold chain equipment.
- Information about the available energy sources at health facilities and specialized equipment needs such as solar equipment.
- Evaluation of changing resupply intervals to balancing storage needs against transport cost and availability.
- Equipment procurement lists and estimated capital and operation costs.

1.2 Before installing CCEM

System requirements for the CCEM Tool to operate on a personal computer include a minimum speed of 1.5 GHz, minimum RAM of 256 Mb or higher and at least 1.5 GB of free hard disk space. The CCEM Tool runs most efficiently with the Windows XP operating system (Service Pack 2 or later) or Windows Vista, and requires MS Access 2007.

It is important that all data are entered into the same CCEM 2.accdb file at a national or sub-national (decentralized) level. Therefore, all CCEM files must be installed into one central computer that is accessible to all necessary personnel. Decentralized implementation of CCEM can be accomplished while maintaining a single national database using the feed file forward functionality of MS Access described in [section 8](#).

The following six MS Access files are mandatory and must reside in the same folder for successful execution of the CCEM 2 tool:

File name	Description
CCEM 2.accdb	The main database file. This is the CCEM 2 Tool.
blank.accdb	Used to generate backups/feed forward files.
criteria.accdb	Holds the saved removal/allocation criteria.
pictures.accdb	Holds the pictures of the standard equipments.
Exception.accdb	CCEM-related exception details are logged in this database file.
WHO.accdb	Supports export to WHO Excel tools for cold chain planning.

For best results, create a single CCEM folder on a main computer that is assessable to all appropriate staff. This will ensure that all data is entered into a single CCEM database and that a complete national cold chain inventory database is achieved.

Note:

Users are advised to back up and save all data files at the end of each day—or more frequently. Weekly, a backup file should be copied to a flash drive for safekeeping.

1.3 Downloading CCEM from the Internet

CCEM files are available for download at <http://www.path.org/publications/details.php?i=1569>

Downloading CCEM from the Internet

CCEM files are available for download at <http://www.path.org/publications/details.php?i=1569>

Step 1: Create two folders on your computer or shared network drive:

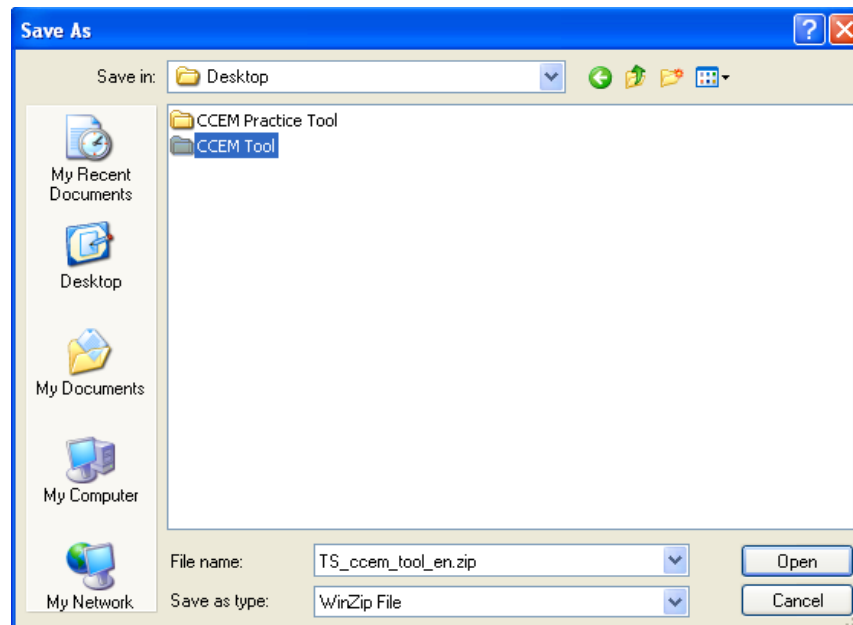
1. The first folder can be labelled “CCEM Tool” and will contain all six MS Access files for the CCEM 2 tool and all of the CCEM supporting documents (User Manual, Questionnaires, and Guides.)
2. The second folder, labelled “CCEM Practice Tool” will be used for the CCEM 2 practice files that contain sample data and must not be used to enter national cold chain equipment data.

Step 2: Save CCEM ZIP files to your computer:

1. Click the CCEM 2 Tool link and download a zipped folder with the six essential Access files required to operate CCEM 2.

2. Follow the on-screen instructions for file download:

- Click “Save” when asked “Do you want to open or save this file?”
- Choose the “CCEM Tool” folder that you created on your computer or shared drive and click “Open.”
- Click “Save” to download the self-extracting zip file to the “CCEM Tool” folder.



3. Click on the “Cold Chain Equipment Manager Supporting Documents” link and download to the “CCEM Tool” folder a zipped file with the following support documents:

- CCEM 2 User Manual
- Guide to Cold Chain Questionnaires
- Health Facility Questionnaire
- Refrigerator/Freezer Questionnaire
- Vaccine Cold Boxes, Carriers, and Ice Packs Questionnaire
- Cold Room Questionnaire
- Generator Questionnaire
- Voltage Regulator Questionnaire
- Cold Chain Inventory Equipment Identification Guide

4. Once finished, you should have two zip files in the “CCEM Tool” folder on your computer.

5. Repeat Step 2 to save the Cold Chain Equipment Manager (CCEM 2) Practice Tool in the “CCEM Practice Tool” folder.

Step 3: Unzip the three ZIP files:

If you do not have an unzip program, visit www.winzip.com.

1. Go to the “CCEM Tool” folder on your desktop. You will see the self-extracting zip files in the folder.

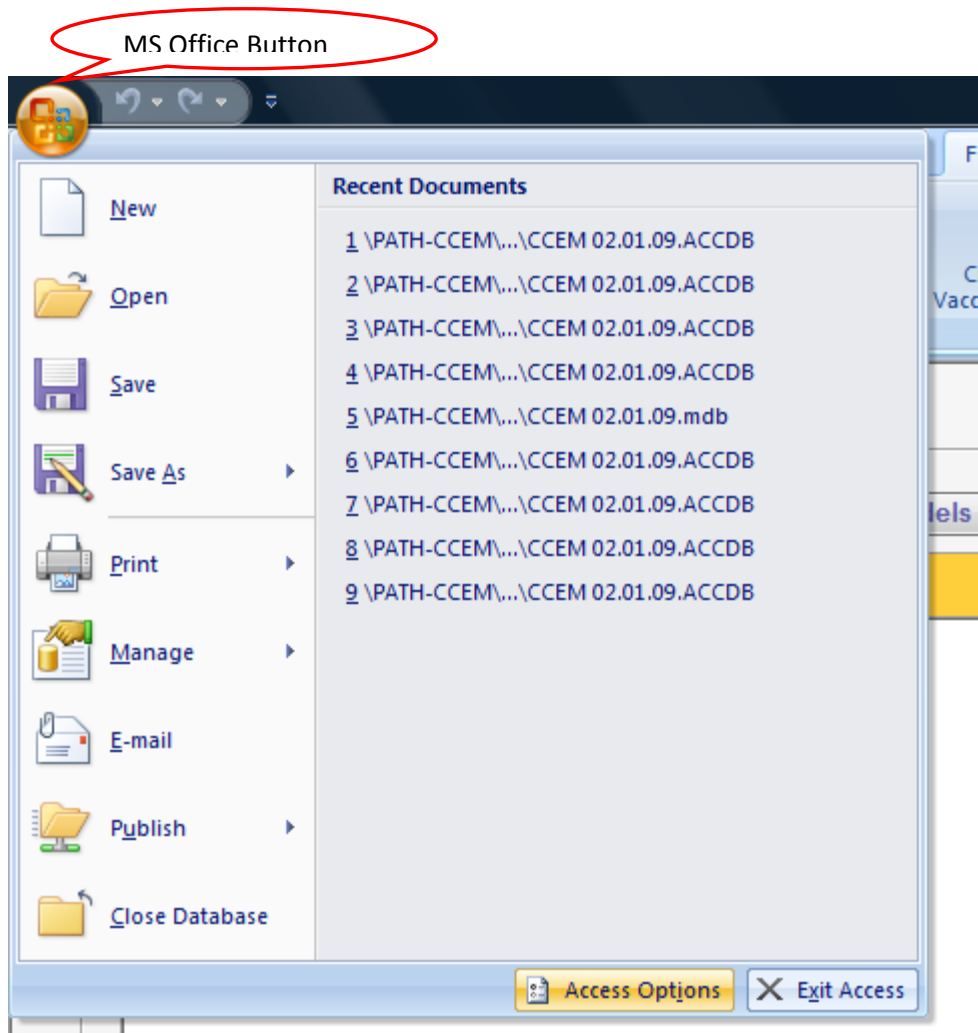
2. Double-click on the first file.

3. Click the “Browse” button and choose the “CCEM Tools” folder.
4. Click “Unzip.”
5. Click “Close” when the unzipping process is complete.
6. Repeat for each zipped file.

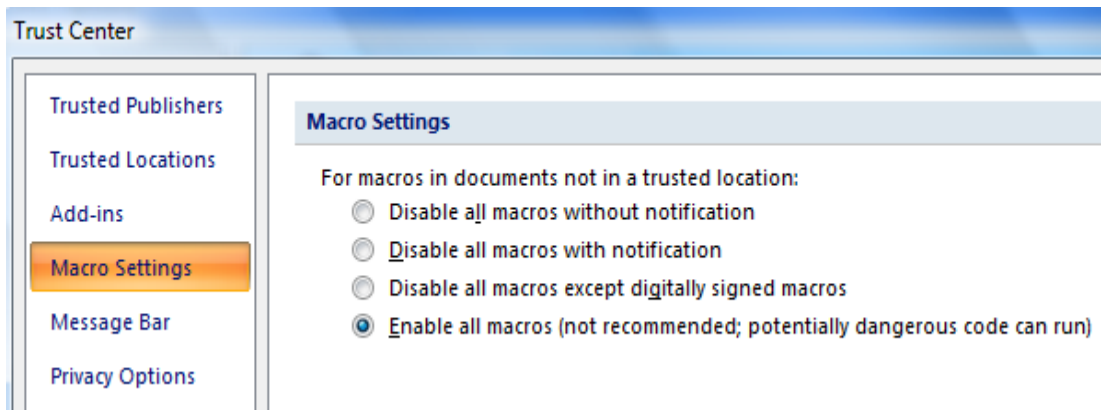
1.4 Removing unnecessary security warnings from MS Access 2007

The following setup has to be done for successful functioning of CCEM Tool without being interrupted by security warning:

1. Open CCEM
2. Click the Office button top left of MS Access 2007 menus and Click Close Database
3. Click the Office button top left of MS Access 2007 again (see following image)
4. Click Access options on the bottom panel (see following image)



5. Select Trust Centre from left menu and click Trust Centre Setting bottom right.
6. Select Macro Settings from left menu and select Enable all macro as shown below.



7. Click OK.

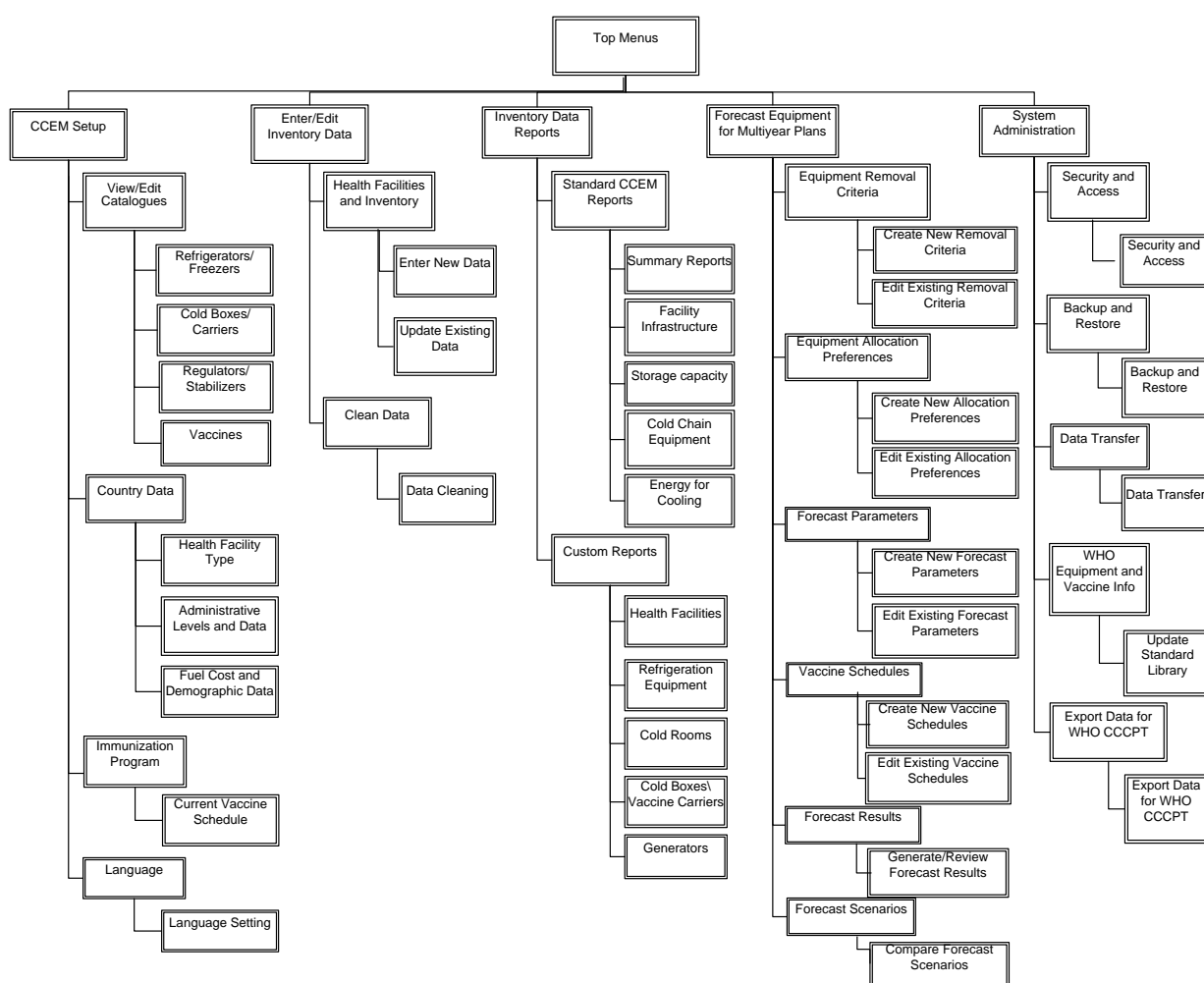
8. Reopen the CCEM Tool.

Section 2 Getting Started with the CCEM Tool

After installing the Cold Chain Equipment Manager (CCEM) tool on your computer, take some time to explore how the datasets and reporting functions can help you optimize the national vaccine cold chain for safe vaccine transport and storage as well and help prepare multiyear equipment plans.

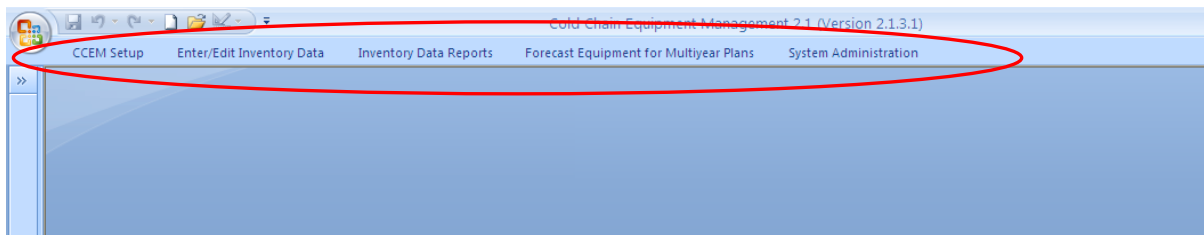
The CCEM 2 Practice.accdb file contains practice data to help users explore the applications described in the following pages. When you are ready to develop the national cold chain equipment database, remove this practice file from the main computer or move it to another folder to prevent accidental data entry into this practice file. It is important to use only the CCEM 2.accdb file when you enter the national cold chain equipment inventory and management details. Ensure that this file is saved in a folder containing all six essential files as noted in [Section 1.2](#).

Figure 1 below shows the high-level navigation flow of CCEM.



2.1 Main Menu

The following main menu appears at the top when the CCEM Tool is opened.



There are five main options appearing for your selection:

1. CCEM Setup

This selection allows users to enter country-specific information so that CCEM reflects the administrative areas, facility types, climate zones, vaccine schedules, language preferences, and fuel costs of each implementing country.

2. Enter/Edit Inventory Data

This selection provides users with an easy interface to enter facility data and inventory data.

3. Inventory Data Reports

This selection allows users to analyze and generate reports on the existing inventory and facility data. Reports focus on facility infrastructure, storage capacity, cold chain equipment, and energy for cooling. Custom reports are also available.

4. Forecast Equipment for Multiyear Plans

This selection accesses the modelling functions of CCEM, allowing users to create and generate multiyear equipment plans.

5. System Administration

This selection provides users with access to set CCEM security settings, implement backup and restore functions, and use CCEM data transfer utilities.

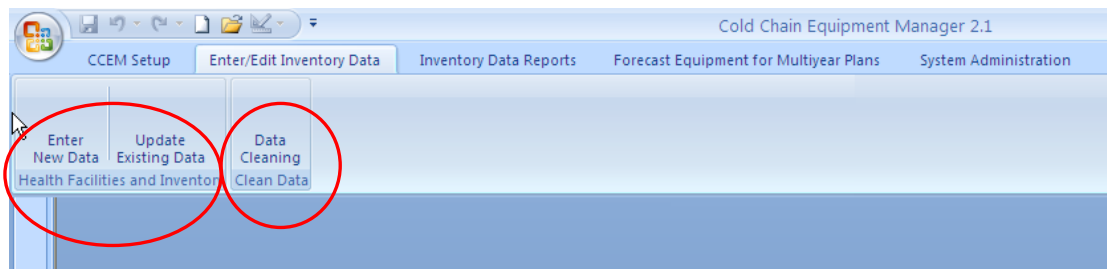
2.2 Navigating the CCEM Tool

When you select one of the five main menu options, different choices will appear.

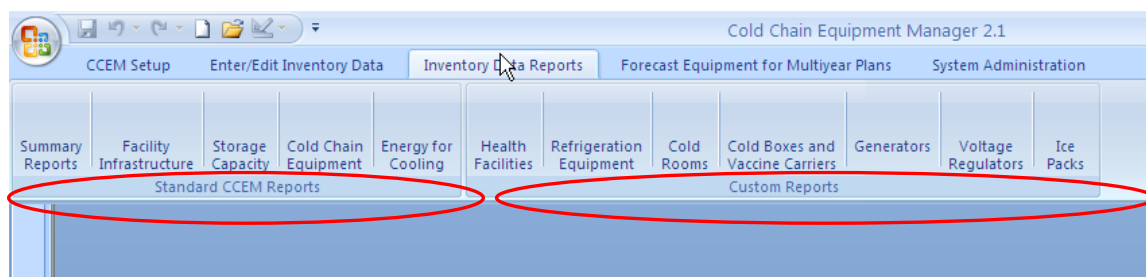
When you select **CCEM Setup** from the main menu, the following groups: **View/Edit Catalogues**, **Country Data**, **Immunisation Program**, and **Language** will appear (shown below).



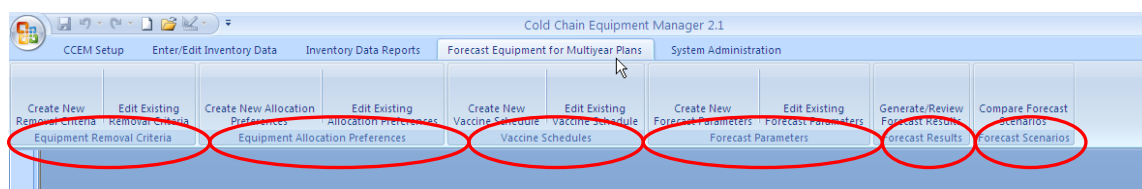
When you select **Enter/Edit Data** from the main menu, **Health Facilities and Inventory** and **Clean Data** groups are shown (see below.)



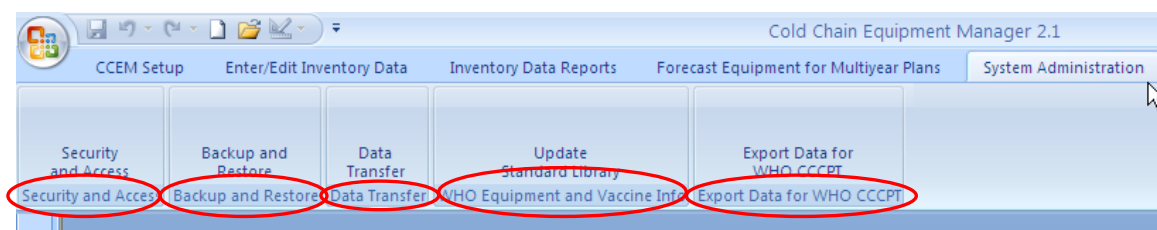
When you select **Inventory Data Reports** from the main menu, **Standard CCEM Reports** and **Custom Reports** will appear (shown below).



When you select **Forecast Equipment for Multiyear Plans** from the main menu, **Equipment Removal Criteria**, **Equipment Allocation Preferences**, **Vaccine Schedules**, **Forecast Parameters**, **Forecast Results**, and **Forecast Scenario** groups will appear (shown below).



When you select **System Administration** from the main menu, **Security and Access**, **Backup and Restore**, **Data Transfer**, **WHO Equipment and Vaccine Info**, and **Export Data for WHO CCCPT** will appear (shown below).



Returning to the Main Menu

A user can choose any of the main menu choices from the top of the CCEM Tool screen at any point in time while working in CCEM. The CCEM Tool automatically saves the data when users move to a new record or screen. In special cases, CCEM provides a warning to the user when data are not saved while navigating.

Section 3 CCEM Setup

It is necessary for users to set-up CCEM with data specific to the country of implementation. This set-up should be done before planning cold chain inventory activities and requires information on the administrative structure of the country, EPI policies, the national vaccine schedule, and local demographic and fuel cost information.

Four functional groups comprise CCEM Setup (shown below).



View/Edit Catalogues

The Refrigerator/Freezer, Cold Box and Vaccine Carrier, and Voltage Regulator catalogues are preloaded with WHO/UNICEF PQS information on products pre-qualified before August 2010. Common local cold chain equipment models not found in the WHO/UNICEF PQS/PIS standards must be added to the catalogues before the national cold chain equipment inventory survey.

Equipment added to the catalogues must also be added to the Equipment Identification Guide to support accurate equipment identification survey team administering the questionnaires. The Vaccine catalogue is preloaded with data from the WHO Logistics_Planning_Tool 2009. When vaccines are procured by a country are not found in this preloaded catalogue, they can be added.

County Data

Inform CCEM about specific country information such as health facility type, administrative areas, fuel costs, climate zones, national resupply/reserve stock policies, and demographic information.

Immunisation Program

Users must inform CCEM about the national vaccine schedule. By identifying the vaccines, required doses, wastage rates, target populations, and storage conditions of vaccine in the national schedule, users provide CCEM with the information required to calculate cold chain requirements.

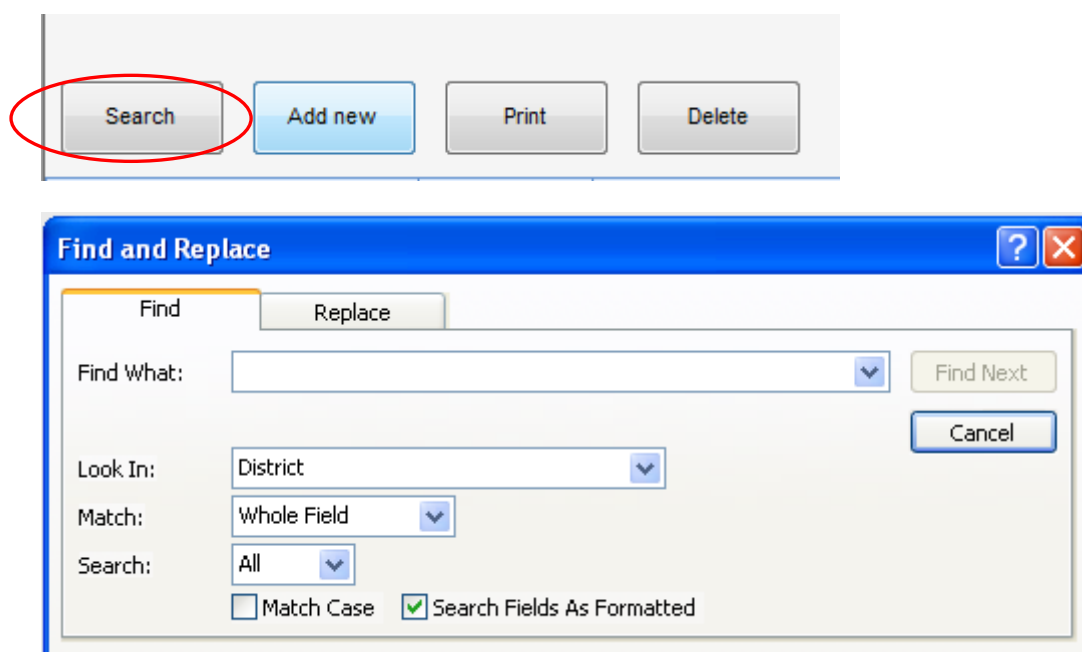
Language

CCEM is installed with English, French, and Spanish options. Additional language options are supported when users enter translated terms in the table presented by CCEM.

Four common user functional options are found in *View/Edit Catalogues, Country Data, and Immunisation Program* groups.

1. Search [Finding and replacing data]

Click **Search** and a **Find and Replace** pop-up box appears.



Use this function to search a specific field (for example, District) or the entire Health Facilities / Equipment Inventory. To find and replace data, select the **Replace** tab and follow the onscreen prompts.

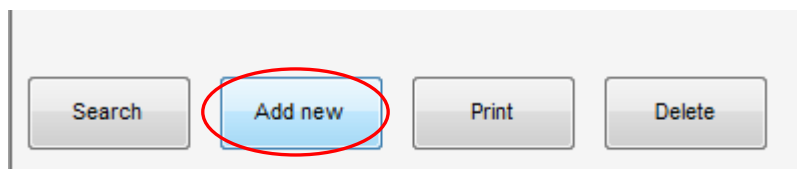
1. Open a form and position the cursor in the desired search field.
2. Click **Search** and select the **Find** tab in the pop-up box.
3. Enter the desired words or numeric value in the **Find What** field.
4. Use the **Look in** drop-down menu to search the selected field or the entire section.
5. Use the **Match** drop-down menu to select whether to search the “Any Part of Field,” “Whole Field,” or “Start of Field.”
6. Select the options in the **Search** drop-down menu to search “All records” or only the records “up” or “down” the one displayed onscreen.
7. When the search is complete, select **Close**.

2. Add new [Adding a new record]

Click **Add new** to add a new piece of equipment for all catalogue lists in **View/Edit Catalogue**.

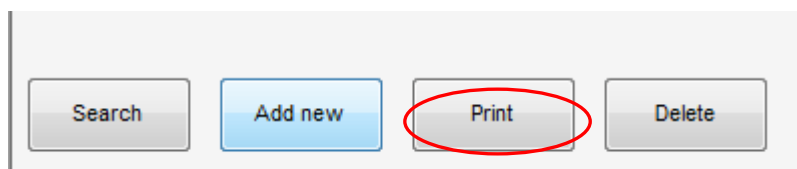
Click **Add new** to enter new records for **Health Facility Type** in **Country Data** group.

Click **Add new** to enter new vaccine to **Current Country Schedule** in **Immunisation Program** group.

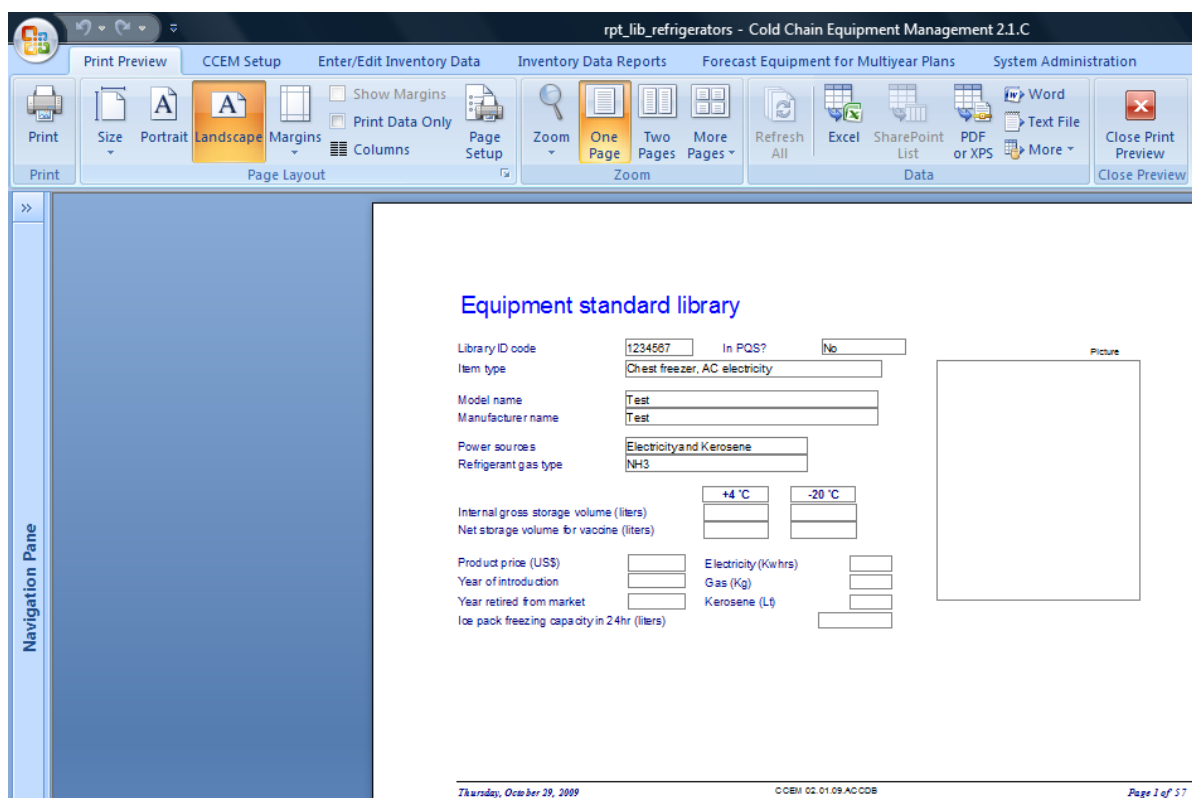


3. Print [Printing records]

Click **Print** to print records.



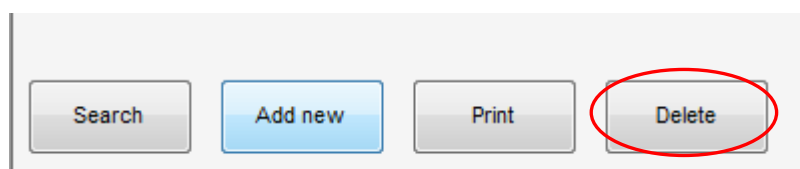
A print preview tab and print screen displaying the first record details will appear. Select **Print Preview** tab from the top main menu.

A screenshot of a software application window titled 'rpt_lib_refrigerators - Cold Chain Equipment Management 2.1.C'. The window has a menu bar with 'Print Preview', 'CCEM Setup', 'Enter/Edit Inventory Data', 'Inventory Data Reports', 'Forecast Equipment for Multiyear Plans', and 'System Administration'. Below the menu bar is a toolbar with various icons for printing, layout, and data management. The main area of the window displays a form titled 'Equipment standard library'. The form contains several fields for equipment details, including 'Library ID code' (1234567), 'In PQS?' (No), 'Item type' (Chest freezer, AC electricity), 'Model name' (Test), 'Manufacturer name' (Test), 'Power sources' (Electricity and Kerosene), 'Refrigerant gas type' (NH3), 'Internal gross storage volume (liters)' (+4 °C, -20 °C), 'Net storage volume for vaccine (liters)', 'Product price (US\$)', 'Year of introduction', 'Year retired from market', 'Ice pack freezing capacity in 24hr (liters)', 'Electricity (Kwhrs)', 'Gas (Kg)', and 'Kerosene (Lt)'. There is also a 'Picture' field with a placeholder image. The 'Print Preview' tab is selected in the top menu.

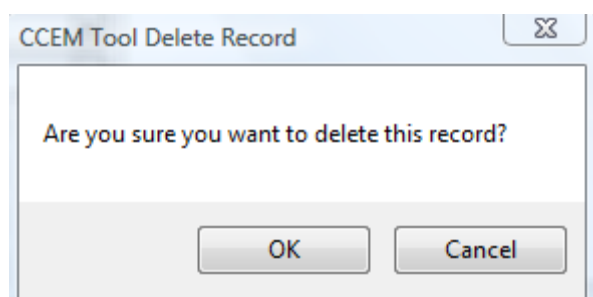
- 1) Click **Print** from the menu items of **Print Preview** options and change any setting required as per your printing needs in the pop-up screen and Click **OK**.
- 2) Click **Close Print Preview** in the **Print Preview** top menu to close print preview screen.

4. Delete [Deleting a record]

Click **Delete** to erase a record. Use caution with this button: Data are permanently deleted from the CCEM database.



After clicking the **Delete** button, a confirmation dialogue box appears shown below. Click **OK** to delete the record or **Cancel** to keep the record.



3.1 View/Edit Catalogues

The CCEM Tool draws information from four catalogues:

1. Refrigerators/Freezers Catalogue
2. Cold Boxes and Vaccine Carriers Catalogue
3. Voltage Regulators/Stabilisers Catalogue
4. Vaccines Catalogue

The CCEM Tool is preloaded with CCEM Catalogue records for Refrigerators/Freezers, Cold Boxes and Vaccine Carriers, and Voltage Regulators/Stabilisers sets for standard cold chain equipment obtained from the WHO/UNICEF Performance, Quality, and Safety (PQS) system and the preceeding Product Information Sheet (PIS) system.

The CCEM catalogue for Vaccines contains essential information on WHO prequalified vaccines, referenced from the WHO Logistics_Planning_Tool 2009. Updates will be made based on the WHO prequalified vaccines file at www.who.int.

These catalogues can be changed to best reflect the national immunisation program. The following information should be included in these catalogues:

1. Equipment models commonly found and procured by the national immunisation program that do not exist in the PQS prequalified equipment list.
2. Vaccine presentations purchased locally that are not on the WHO prequalified vaccine list.

3.1.1 Refrigerators/Freezers


From the top main menu, select the **CCEM Setup**. Then Select **Refrigerators/Freezers** from **View/Edit Catalogues** group as shown below:



The **Refrigerators** screen appears displaying the first record in the catalogue.

CCEM Setup >> View/Edit Catalogues >> Refrigerators/Freezers

Catalog ID	E3102M *	
In PQS?	Yes	
Type	Icepack freezer, electricity & kerosene	*
Model name	GR265	*
Manufacturer	Zero Appliances	*
Power source	Electricity and gas	*
Refrigerant gas type	NH3	*
	+4 °C	-20 °C
Calculated internal gross storage volume (liter)	0.00	215.00 *
Calculated and internal net storage volume (liter)	0.00	16.00 *
Ice pack freezing capacity in 24hr (liter)		4 *
Product price (US\$)	846.00	
Year of introduction		
Year retired from market		
Climate Zone	Hot *	
	Energy consumed per 24 hours	
	Electricity (Kwhrs)	6
	Gas (Kg)	0.66
	Kerosene (Lt)	0

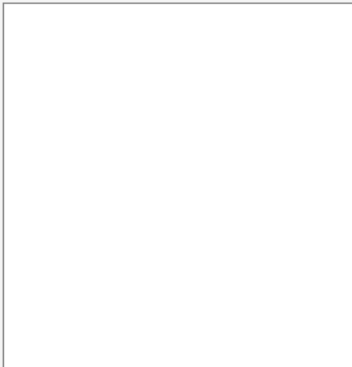


A digital picture taken locally should be saved as a *.bmp file and copied and pasted into the above space.

* marked fields are mandatory

To enter a new record into the catalogue, click **Add New** (see [Section 3](#)) at the bottom of the screen. A blank record appears on the **Refrigerators/Freezers** screen.

CCEM Setup >> View/Edit Catalogues >> Refrigerators/Freezers

Catalog ID	<input type="text" value=""/>	*	
In PQS?	No <input type="button" value="v"/>		
Type	<input type="text" value=""/>	*	
Model name	<input type="text" value=""/>	*	
Manufacturer	<input type="text" value=""/>	*	
Power source	<input type="text" value=""/>	*	
Refrigerant gas type	<input type="text" value=""/>	*	
	<input type="button" value="+4 °C"/> <input type="button" value="-20 °C"/>		
Calculated internal gross storage volume (liter)	<input type="text" value="0.00"/>	*	
Calculated and internal net storage volume (liter)	<input type="text" value="0.00"/>	*	
Ice pack freezing capacity in 24hr (liter)	<input type="text" value="0"/>	*	
Product price (US\$)	<input type="text" value=""/>		A digital picture taken locally should be saved as a *.bmp file and copied and pasted into the above space.
Year of introduction	<input type="text" value=""/>		
Year retired from market	<input type="text" value=""/>		
Climate Zone	<input type="text" value=""/>	*	
		Energy consumed per 24 hours	
	Electricity (Kwhrs)	<input type="text" value=""/>	
	Gas (Kg)	<input type="text" value=""/>	
	Kerosene (Lt)	<input type="text" value=""/>	

Search Add new Print Delete

* marked fields are mandatory

Fill in each field to ensure accurate analysis. When entering the **Catalogue ID**, follow the standard set by the cold chain manager using a unique modifier that does not start with the letter “E.” “E” is reserved for PIS/PQS qualified equipment. Use a different consistent letter for added equipment. Also be sure to enter ‘No’ for the ‘In PQS?’ data field when equipment is purchased from the domestic market and is not PQS pre-qualified. CCEM will prepare a report (ID 3.9) on distribution by model and facility type.

Note:

The energy consumption rates refrigerators and freezers are defaulted to rates reported for the highest temperature (32°C or 43°C) in order to overestimate, rather than underestimate, recurrent fuel costs

A picture of the added equipment can be included on this screen and to an expanded **Equipment Identification Guide** to support identification of standard equipment by the national equipment survey team. To add a picture to the **Equipment ID Guide** for **Refrigerator/Freezer, Cold Box and Vaccine Carrier**, or **Voltage Stabiliser/Regulator** a digital picture taken locally should be saved as a *.bmp file and copied and pasted into the space available in the new equipment record in the **Refrigerators** screen.

3.1.2 Cold Boxes and Vaccine Carriers

Select **CCEM Setup** from top main menu. Then select **Cold Boxes and Vaccine Carriers** from the **View/Edit Catalogues** group, the first record in the catalogue appears.

Cold Chain Equipment Management 2.1.C

CCEM Setup Enter/Edit Inventory Data Inventory Data Reports Forecast Equipment for Multiyear Plans System Administration

Refrigerators/Freezers **Cold Boxes and Vaccine Carriers** Voltage Regulators/Stabilizers Vaccines Health Facility Type Administrative Levels and Data Fuel Cost and Demographic Info Current Vaccine Schedule Language Settings

View/Edit Catalogues Country Data Immunization Program Language

CCEM Setup >> View/Edit Catalogues >> Cold Boxes and Vaccine Carriers

Catalog ID: E405M *

Type: Cold Box Long Range *

Manufacturer: Electrolux *

Model: RCW/25 *

Net vaccine storage capacity (litre): 21 *

External dimensions (cm): 71x55x50

Internal dimensions (cm): 50x34x27

Vaccine storage dimensions (cm): 42x26x19

Coldlife without openings (hours at +43°C): 130

Cost (US\$): 408

Volume of each ice pack used (litre):

Number of ice packs used:

Total volume of ice packs (litre):

Search Add new Print Delete * marked fields are mandatory

Record: 14 1 of 30 No Filter Search

Click **Add New** to add new equipment for this category. A blank record screen appears for **Cold Boxes and Vaccine Carriers**. Enter accurate data for each field to ensure accurate cold chain capacity analysis.

3.1.3 Voltage Regulators/Stabilisers

Select **CCEM Setup** from top main menu. Then select **Voltage Regulators/Stabilisers** from the **View/Edit Catalogues** group, the first record in the catalogue appears.

Cold Chain Equipment Management 2.1.C

CCEM Setup Enter/Edit Inventory Data Inventory Data Reports Forecast Equipment for Multiyear Plans System Administration

Refrigerators/Freezers Cold Boxes and Vaccine Carriers **Voltage Regulators/Stabilizers** Vaccines Health Facility Type Administrative Levels and Data Fuel Cost and Demographic Info Current Vaccine Schedule Language Settings

View/Edit Catalogues View/Edit Catalogues Country Data Immunization Program Language

Navigation Pane

CCEM Setup >> View/Edit Catalogues >> Voltage Regulators/Stabilizers

Catalog ID: E7/14 *

Manufacturer: Kelvin *

Model: DE2818 *

Nominal voltage (vAC): 240

Continuous power (watts): 120

Frequency (Hz): 60-140

Cost (US\$): 120

Phases: 1

Input voltage range (vAC):

Output voltage range (vAC):

Search Add new Print Delete * marked fields are mandatory

Click **Add New** to add new equipment for this category. A blank record screen appears for **Voltage Regulators/Stabilisers**. Enter accurate data for each field to ensure accurate cold chain capacity analysis.

3.1.4 Vaccines

Select **CCEM Setup** from top main menu. Then select **Vaccines** from the **View/Edit Catalogues** group, the first record in the catalogue appears.

Cold Chain Equipment Management 2.1.C

CCEM Setup Enter/Edit Inventory Data Inventory Data Reports Forecast Equipment for Multiyear Plans System Administration

Refrigerators/Freezers Cold Boxes and Vaccine Carriers Voltage Regulators/Stabilizers **Vaccines** Health Facility Type Administrative Levels and Data Fuel Cost and Demographic Info Current Vaccine Schedule Language Settings

View/Edit Catalogues View/Edit Catalogues Country Data Immunization Program Language

Navigation Pane

CCEM Setup >> View/Edit Catalogues >> Vaccines

Vaccine type: BCG *

Manufacturer trademark: BCG Vaccine SSI

Vaccine manufacturer/data source: Statens Serum Institut *

Vaccine presentation: boxes of 50 vials of 10-doses of vaccine + diluents *

Vaccine formulation: freeze-dried *

Mode of administration: ID *

Doses per vial (number): 10 *

Packed vaccine volume (cm3) per dose: 2.22 *

Packed diluent volume (cm3) per dose: 1.12 *

Search Add new Print Delete * marked fields are mandatory

Record: 2 of 156 Unfiltered Search

Click **Add New** to add new equipment for this category. A blank record screen appears for **Vaccine**. Enter accurate data for each field to ensure accurate cold chain capacity analysis.

3.2 Country Data

The next step in setting up the CCEM Tool is adding health facility types, administrative areas, and demographic information.

From the top main menu select **CCEM Setup**. The **Country Data** group has three options:

- 1) Health Facility Type
- 2) Administrative Levels and Data
- 3) Fuel Cost and Demographic info

3.2.1 Health Facility Types

To add the types of health facilities found in your country to the CCEM Tool, select **CCEM Setup** from top main menu and select **Health Facility Type** from **Country Data** group.

Enter the types of health facilities found in the country and the national policies for **Frequency of resupply** and **Reserve stock**, specified in weeks.

CCEM Setup >> Country Data >> Health Facility Type

Health facility types	National Policy: Frequency of resupply (weeks)	National Policy: Reserve stock (weeks)	Select the source of resupply (weeks) and reserve stock (weeks) for storage requirements calculations
NGO Hospital	4	2	National policy by facility type
Public HCIV	4	2	National policy by facility type
Private HCIV	4	2	National policy by facility type
NGO HCIV	4	2	National policy by facility type
Public HCIII	4	2	National policy by facility type
Private HCIII	4	2	National policy by facility type
NGO HCIII	4	2	National policy by facility type
Public HCII	4	2	National policy by facility type
Private HCII	4	2	National policy by facility type
NGO HCII	4	2	National policy by facility type
National Store	12	12	National policy by facility type
District Store	4	2	National policy by facility type
Sub-district Store	4	2	National policy by facility type
Public Hospital	4	2	National policy by facility type
Private Hospital	4	2	National policy by facility type
*			National policy by facility type

Buttons: Search, Add new, Print, Delete

To enter a new health facility type click **Add new** (see [Section 3](#)) at the bottom of the screen shown above.

3.2.2 Administrative Levels and Data

Select **CCEM Setup** from top main menu and select **Administrative Level and Data** from the **Country Data** group. To enter information about the administrative structure for the country, use the two tabs as shown in the screen **Administrative Levels** and **Administrative Data**.

Cold Chain Equipment Management 2.1

CCEM Setup Enter/Edit Inventory Data Inventory Data Reports Forecast Equipment for Multiyear Plans System Administration

Refrigerators/Freezers Cold Boxes/Carriers Voltage Regulators/Stabilisers Vaccines Health Facility Type **Administrative Levels and Data** Fuel Cost and Demographic Info Country Data Current Vaccine Schedule Immunization Program Language Settings Language

Country Data >> Administrative Levels and Data

Administrative Levels Administrative data

Number of administrative divisions 5 Apply

Administrative levels	Name
1	National
2	District
3	Sub-district
4	Sub-county
5	Parish

Record: 1 of 5 No Filter Search

The **Administrative Levels** tab requires setting the administrative levels of the country. The first level is typically the Central level. Setting the administrative levels provides a hierarchy for the vaccine supply system. The CCEM 2 is designed for 5 administrative levels.

Note:

Setting administrative levels will not update the paper questionnaires. Make the same administrative level changes to the paper questionnaires manually.

From the **Administrative Data** screen, national cold chain managers enter associated data for all administrative areas in the country. Only experienced data managers should transfer country data from other sources (such as Excel) into the CCEM Tool. Take considerable time and care to enter this information using the most updated and comprehensive national administrative data.

CCEM Setup >> Country Data >> Administrative Levels and Data

Administrative Levels **Administrative data**

Admin code	District	Sub-district	Sub-country	Parish	Climate Zone
1000	ABIM	LABWOR	ABIM	ATUNGA	Hot
1001	ABIM	LABWOR	ABIM	KALAKALA	Hot
1002	ABIM	LABWOR	ABIM	KANU	Hot
1003	ABIM	LABWOR	ABIM	KIRU	Hot
1004	ABIM	LABWOR	ABIM	WIAWER	Hot
1005	ABIM	LABWOR	ALEREK	KOYA	Hot
1006	ABIM	LABWOR	ALEREK	LOYOROIT	Hot
1007	ABIM	LABWOR	ALEREK	WILELA	Hot
1008	ABIM	LABWOR	ALEREK	OTUMPILI	Hot
1009	ABIM	LABWOR	LOTUKEI	ACHANGALI	Hot

Search **Add new** Delete **Assign climate zones** Export to excel

Record: 1 of 56 Unfiltered Search

To enter new **Administrative data** click **Add new** (see [Section 3](#)).

Assigning Climate Zone for each admin area can be done by choosing any one choice “hot,” “moderate,” or “temperate” from the drop-down column **Climate Zone** in the table shown above.

Climate zones
Hot zone: +43°C ambient temperature and +43°C/+25°C day/night cycling
Temperate zone: +32°C ambient temperature and +32°C/+15°C day/night cycling
Moderate zone: +27°C ambient temperature and +27°C/+10°C day/night cycling

Assign climate zones for multiple admin areas by clicking **Assign climate zones**.

The following screen appears when **Assign climate zones** is clicked:

Province	Climate Zone
EASTERN PROVINCE	Moderate
NORTHERN PROVINCE	Temperate
SOUTHERN PROVINCE	Hot
WESTERN PROVINCE	Temperate

Tag selected areas with climate zone:

Hot Temperate Moderate **Done**

To assign the climate zone, select the areas from the list shown in the screen and then click on the desired climate zone button at the bottom of the screen. Click **Done** to apply the selected climate zone to the selected admin areas.

Note:

To accurately calculate cold chain equipment capacity requirements, the CCEM Tool must have access to a complete dataset, including all administrative data.

Do not leave any cells blank on the Administrative Levels or Administrative Data screen.

Each “Admin code” (column 1) must contain a unique identifier; do not repeat the code for other records.

3.2.3 Fuel Cost and Demographic Info

Choose the **CCEM Setup** from top main menu and select **Fuel Cost and Demographic Info** from **Country Data** group to enter the fuel data like national unit prices of energy sources such as electricity, bottled gas, and kerosene and population fractions against national total population. Only the national cold chain manager should complete this step.

Cold Chain Equipment Management 2.1

CCEM Setup
Enter/Edit Inventory Data
Inventory Data Reports
Forecast Equipment for Multiyear Plans
System Administration

Refrigerators/Freezers
Cold Boxes/Carriers
Voltage Regulators/Stabilisers
Vaccines

Health Facility Type
Administrative Levels and Data
Country Data

Fuel Cost and Demographic Info
Current Vaccine Schedule
Immunization Program
Language Settings
Language

Country Data >> Fuel Cost and Demographic Info

% freight, insurance, clearing cost
30

The following settings are used to calculate the fuel costs in the Running Costs Report

Description	Setting
Price of electricity for Running Costs report (Kwhrs)	0.278
Price of gas for Running Costs report (Kg)	0.85
Price of kerosene for Running Costs report (Lt)	0.96

Record: 1 of 3
No Filter
Search

The following settings are used in the automatic calculation of the number of births, pregnant women and child bearing age women.

Description	Setting
Live births as fraction of total population	0.048
Pregnant women as fraction of total population	0.054
Child bearing age women as fraction of total population	0.234

Record: 1 of 3
No Filter
Search

3.3 Immunisation Program

The next step in setting up the CCEM Tool is adding data about the national immunisation program.

From the top main menu, select the **CCEM Setup**. Select **Current Vaccine Schedule** from the **Immunisation Program** group. A country's Current Vaccine Schedule is programmed in CCEM using screen shown below.

The screenshot displays the 'Cold Chain Equipment Management 2.1.C' application. The top menu bar includes 'CCEM Setup', 'Enter/Edit Inventory Data', 'Inventory Data Reports', 'Forecast Equipment for Multiyear Plans', and 'System Administration'. Below this, a secondary menu bar shows categories like 'Refrigerators/Freezers', 'Cold Boxes and Vaccine Carriers', 'Voltage Regulators/Stabilizers', 'Vaccines', 'Health Facility Type', 'Administrative Levels and Data', 'Fuel Cost and Demographic Info', 'Current Vaccine Schedule', and 'Language Settings'. The 'Current Vaccine Schedule' option is circled in red. The main content area is titled 'CCEM Setup >> Immunization Program >> Current Vaccine Schedule'. It contains several input fields with red asterisks indicating mandatory fields: 'Vaccine type' (set to BCG), 'Doses to complete the schedule (number)' (set to 1), 'Target population' (set to Live Births), 'Usage on target population (%)' (set to 100), 'Wastage rate (%)' (set to 50), 'Doses per vial (number)' (set to 20), 'Packed vaccine volume (cm3) per dose' (set to 1.2), and 'Packed diluent volume (cm3) per dose' (set to 0.7). Below these fields are two columns of storage locations, each with a 'Select all' button. The left column is for 'Storage temperature +4C' and the right for 'Storage temperatures -20C'. Both columns list various facility types such as 'NGO Hospital', 'Public HCIV', 'Private HCIV', 'NGO HCIV', 'Public HCIII', 'Private HCIII', 'NGO HCIII', 'Public HCII', 'Private HCII', 'NGO HCII', 'National Store', 'District Store', 'Sub-district Store', 'Public Hospital', and 'Private Hospital'. At the bottom, there are 'Search', 'Add new' (circled in red), and 'Delete' buttons. A note at the bottom right states '* marked fields are mandatory'.

To add new vaccine to the schedule click **Add New** at the bottom the Current Vaccine Schedule screen.

The **Vaccine type** drop-down includes all of the vaccines in the **CCEM Vaccine Catalogue**. Vaccine products used in the national immunisation program but not found in the preloaded choices can be added to the **Vaccines catalogue**. (See [Section 3.1.4](#))

CCEM Setup >> Immunization Program >> Current Vaccine Schedule

Vaccine type *

Doses to complete the schedule (number)

Target population

Usage on target population (%)

Wastage rate (%)

Doses per vial (number)

Packed vaccine volume (cm3) per dose

Packed diluent volume (cm3) per dose

Storage temperature +4C

Storage temperature -20C

Vaccine	Doses per vial	Manufacturer	Formulation
DTP-HepB-Hib	1	Berna Biotech Kor	Liquid
DTP-HepB-Hib	1	Berna Biotech Kor	Liquid
DTP-HepB-Hib	1	Shantha Biotechn	Liquid
DTP-HepB-Hib	1	Panacea Biotec	Liquid
DTP-HepB-Hib	10	Shantha Biotechn	Liquid
DTP-Hib	1	Chiron	Liquid
DTP-Hib	10	WHO Intern. Ship	Liquid
DTP-Hib	10	Chiron	Liquid
DTP-IPV+Hib	1	Sanofi pasteur	Liquid+freeze-dried

Warning:
Select storage temperature settings of vaccines for all facility types.

Select all

Select all

Setting the current schedule for vaccines:

1. Select the **Vaccine initials** from the drop-down menu and select the specific product used in the EPI program.
2. Enter data for:
 - Doses needed to complete the schedule (determined by national immunisation policy).
 - Target population (choose from four target populations).
 1. Live births
 2. Pregnant women
 3. Total population
 4. Child-bearing age women
 - Usage on target population (%): This field by default is 100% or the user can enter a lower percentage of one of the four immunisation target populations. (For example, the female target population for HPV vaccine is 1.8% of the total population in some countries).
 - Wastage rate (%): This field sets the nationally observed wastage rates for specific vaccines and the maximum value can be 99%.
3. For each vaccine, select the health facility types where the vaccine will be stored at +4°C and where the vaccine will be stored at -20°C. All the health facility types should be assigned to only one of the temperatures.

Note:

In the **Forecast Equipment for Multiyear Plans** section of CCEM, users can add new and underused vaccines to the Current Vaccine Schedule and save this schedule as an alternative in modelling scenarios.

3.4 Language Setting

The next step in setting up CCEM Tool is setting the language. Select **CCEM Setup** from the top main menu and select **Language Setting** from the **Language** group as shown below.

Language >> Language Settings

English	French	Spanish	Language 4	Language 5
Allocation Summary by Adminis	nté périphériques uniquement)	rativo (sólo centros periféricos)		
Allocation Summary by Adminis	nté périphériques uniquement)	entro (sólo centros periféricos)		
You are attempting to add a d	identifiant unique bibliothèque.	tificador único para bibliotecas.		
Administrative Levels and Data	lux administratif et les données	s administrativos y de los datos		
Backup and Restore	Sauvegarder et restaurer	pia de seguridad y restauración		
Cold Boxes/Carriers	Glacières/Porte-vaccins	leveras portátiles/Portavacunas		
Cold Boxes/Vaccine Carriers	Glacières / porte-vaccins	de frío / portadores de vacunas		
Cold Chain Equipment	Chaîne du froid	Cadena de frío Equipos de		
Cold Rooms	Chambres froides	Cuartos Fríos		
Compare Forecast Scenarios	Compare Forecast Scenarios	parer les scénarios prévisionnels		
Create New Allocation Preferer	références nouvelle répartition	cias de la asignación de nuevos		
Create New Forecast Paramete	iveaux paramètres de prévision	evos parámetros de predicción		
Create New Vaccine Schedule	iveau calendrier de vaccination	n calendario de nuevas vacunas		

Search

Record: 1 of 2610 Unfiltered Search

Active language: English Apply

The **Language Setting** screen shows which languages currently are supported by CCEM. You can select the **Active Language** at the bottom of the screen. On release, English, French, and Spanish are available. Users can add additional languages for the application of CCEM in this table.

Section 4 Enter/Edit Inventory Data

After country information is complete using the CCEM Setup option, the next step is collecting and entering inventory data.

A health facility and cold chain equipment inventory generates the information needed for the CCEM Tool. This data collection will require time and planning to implement. It is important that survey teams receive proper training on how to collect data and that they are familiar with the **CCEM Questionnaire Guide**.

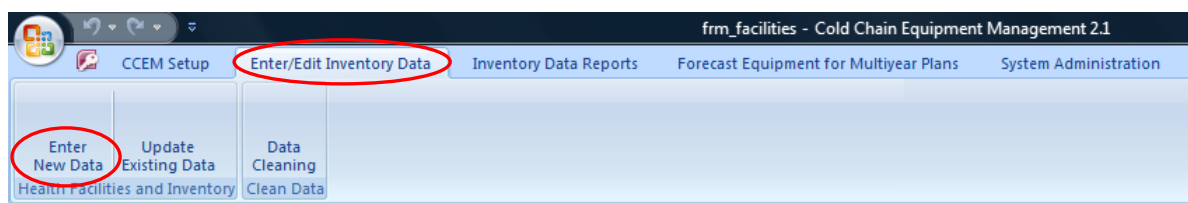
Data collection questionnaires can be found at <http://www.path.org/publications/details.php?i=1569> that corresponds to the seven screens containing inventory data in CCEM. Not every health facility will contain all cold chain equipment (refrigerators, cold rooms, cold boxes, generators, and voltage regulators/stabilisers). However, a **Health Facility Questionnaire** must be filled in for each health facility with equipment included in the inventory.

A pre-test of the paper questionnaires and data quality from the survey teams should be performed in a single district or region to identify data collection problems that must be resolved prior to a national-scale inventory survey. During the data collection process, surveyors will utilize several different questionnaires at each health facility. It is important to keep each facility's set of forms separate and secure.

After the paper questionnaires are checked for completeness by the surveyor and a team leader, return the completed forms to the national cold chain office for data entry into the CCEM Tool. This is an important element of data cleaning, as explained in [Section 4.3](#). It is important that the quality and completeness of data collection is verified by both the interviewer and team leader, as explained in [Section 4.3](#).

4.1 Entering Data

Select **Enter/Edit Inventory Data** from the top main menu; select **Enter New Data** from **Health Facilities and Inventory** group.



The **Enter new data** screen always appears with the first record available for health facilities or vaccine storage facilities. To enter a new record, click **Add new facility** at the bottom of the screen.

Facilities is the first tab that appears in the **Enter new data** screen followed by tabs for each type of equipment (**Refrigeration Equipment, Cold Boxes, Cold Room, Generators, Voltage Regulators, and Ice Packs**).

Users must enter information for a facility before entering any information on cold chain equipment (refrigerators, cold boxes/carriers, generators, cold rooms) found at this facility.

The data fields on each screens are numbered corresponding to applicable questions on the corresponding CCEM Questionnaires.

Note:

Each data field on the seven data entry tab screens is explained in the CCEM Questionnaire Guide (Annex 1).

4.1.1 Facilities

The **Facilities** screen captures attributes of a health facility's cold chain function, including populations served by this health facility, vaccine supply, and fuel availability. This information allows the CCEM Tool to match the preferred equipment models—determined by the national cold chain manager—to facilities (for example, according to fuel or vaccine availability).

Enter/Edit Inventory Data >> Health Facilities and Inventory >> Enter New Data

Facilities | Refrigerators/Freezers | Cold rooms | Generators | Cold boxes and vaccine carriers | Voltage regulators | Ice packs

Facility code: 5408-0000

1 State: OYAM
2 County: OYAM SOUTH
3 Sub-county: LORO
4 Township: AGULURUDE
5 Health facility name: AGULURUDENGO HEALTH POST
6 Type of health facility: NGO Health Post

11 Cold chain function:
☒ Storage ☒ Static delivery ☒ Outreach delivery ☐ None

12 Site of facility:
☐ Prone to floods ☐ Access difficult ☐ High altitude
☐ Equipment robbed (last 5 years) ☐ Heavy cloud for weeks
☐ Facility grounds shaded from sun (> 1 hr/day)

Fuel availability:
17 Grid electricity: None
18 Kerosene: Available and clean
19 Bottled gas: Available, unreliable
20 Number of gas bottles: 1

Population targets:
7 Total target population in area serviced by facility: 200
8 Live births per year in area serviced by facility: 220
9 Pregnant women in area serviced by facility: 4,000
10 Women of child bearing age in area serviced by facility: 1,000

Vaccine supply:
13 Frequency of resupply (weeks): 8
14 Reserve stock (weeks): 2
15 Mode of vaccine supply: Both
16 Type of transport:
☐ Public transport ☐ Bicycle ☒ Car or van
☐ By foot ☒ Motorcycle ☐ Boat
☐ Other

Volume of ice packs required:
21 Routine immunization (litres/week): 2.4
22 Supplementary immunization (litres/day): 5
23 How long is the response to equipment repair requests?
24 More than 1 month/never;

Search facility | Add new facility | Delete facility

* marked fields are mandatory

Entering data on the Facilities tab:

1. Begin by entering facility administrative information using the drop-down menus provided in fields 1–4. (This administrative data is entered by the cold chain manager in the **Enter/Edit Country Information** function as described in [section 3.2.2](#)) After these fields are entered, the CCEM Tool automatically generates a **Facility code**. Note this **Facility code** in the upper right corner for all CCEM questionnaires for this health facility.
2. Enter the name of the health facility in field 5.
3. Select the type of health facility (field 6) (This administrative data is entered by the cold chain manager in **CCEM Setup > Country Data > Health Facility Type** as described in [section 3.2](#))
4. In the **Population Targets** area of the screen (fields 7–10), enter the total target population (field 7) and press the Enter key on the keyboard. This number automatically generates estimates in the other target population cells according to preset national percentages. However, these estimates in fields 8–10 should be overwritten with more precise data provided by health facility staff on the Health Facility Questionnaire, if available.
5. Select the cold chain function (field 11) of the facility. It is important to note that the “Storage” field determines when a refrigerator or freezer is necessary at a facility. For example, if a facility is currently unable to store vaccines because it has a broken vaccine refrigerator, “Storage” should still be selected because a refrigerator is needed at this facility to store vaccines. CCEM will evaluate the impact of new vaccines on storage capacity

requirements at this facility and will allocate equipment to meet capacity shortages. However, for example, a remote health post uses cold boxes delivered from a higher facility level to keep vaccines cold for monthly immunization day(s), this facility should not be marked in CCEM as having a “Storage” cold chain function. This health post should, however, be determined to provide Static delivery or Outreach delivery of immunization services, as appropriate.

6. In the **Vaccine Supply** area of the screen (fields 12 - 17), enter the vaccine resupply interval in weeks (field 12) and reserve stock of vaccines in weeks (field 13.) Fields 14 and 15 request data on the volume of coolant packs needed for both routine and supplementary immunization activities (SIA.) Field 16 requests the distance to vaccine supply and field 17 the mode of vaccine supply in the drop-down menu.
7. In the **Fuel Availability** area of the screen (field 18-21), select availability options from the drop-down menu for each box describing the grid electricity, kerosene, and bottled gas as well as site characteristics relating to the availability of solar energy.

Note:

For the default version of CCEM, a facility code will be automatically generated by CCEM once all four administrative levels and health facility name are entered. This will be a unique identifier for this facility. After the facility code appears, note this number on the top of all CCEM questionnaires completed for this health facility. This unique numeric code will help staff match the questionnaires with a specific health facility during follow-up by the immunisation program.

If an official, unique national facility code is available from the Ministry of Health, this automated function can be turned off by going to **CCEM Set-up >> Country Data >> Administrative Levels and Data** and choosing “No” to the following question at the bottom of the screen:

*Use automatic admin-based facility codes

No

4.1.2 Refrigerators/Freezers

When the **Facilities** data entry screen is complete, you will be taken automatically to the **Refrigerators /Freezers** screen. You can also click on the **Refrigerators /Freezers** tab to navigate to this screen. This screen will record data from **Refrigerators /Freezers Questionnaire**.

If a health facility has multiple vaccine refrigerators or freezers, there will be several **Refrigerators/Freezers Questionnaires** (one questionnaire for each piece of refrigeration equipment). When this occurs, an entry must be made separately for each piece of refrigeration equipment and these will be linked to the facility data on the first screen. These multiple records will be reflected as several records (shown in the smaller circle below) found at the bottom of **Refrigeration Equipment** tab.

The CCEM Tool automatically completes the four fields describing the administrative location and name of the facility for each piece of equipment. This information appears in the larger circle at the bottom of the screen, shown below.

When there is a Catalogue ID:

When the survey team goes to a health facility and finds a vaccine refrigerator shown in the **Equipment Identification Guide** they will enter the correct **Catalogue ID** for question #6 on the paper form.

The data entry staff will enter this number in field #6 of the **Refrigeration/Freezer Equipment** tab and CCEM will automatically enter equipment characteristics found in the refrigerator/freezer catalogue in fields 6-11. Users will need to fill-in data in fields 2-5. Field 12 is optional.

The use of **Catalogue ID** on the **Refrigerators/Freezers** screen is shown below.

Enter/Edit Inventory Data >> Health Facilities and Inventory >> Enter New Data

Facilities **Refrigerators/Freezers** Cold boxes and vaccine carriers Coolant packs Cold rooms Generators Voltage regulators

Equipment ID: R-000000

1 Catalog ID: **E0030210** *

2 Serial number: 789658

3 Year of supply: 2004

4 Working status: Working well *

5 Equipment utilization: In use *

6 Model name: MK 074 *

7 Manufacturer: Vestfrost *

8 CFC Free?: Yes

9 Type: Ice-lined refrigerator

10 Internal storage dimensions (cm)

	+4 °C			-20 °C		
	L	W	H	L	W	H
11 Calculated internal storage volume(litre)	Gross 54.00			10.00		
	Net 16			0		

12 Temperature monitor: [v]

Add new refrigerator/freezer Delete

Record: 1 of 1 | Unfiltered Search

Facility code: 1235-0099 Province: WESTERN PROVINCE

Facility name: PATAGONIA DISTRICT VACCIN District: PATAGONIA

Search facility Add new facility Delete facility * marked fields are mandatory

Example of selecting equipment from drop-down menu using the Catalogue ID:

Enter/Edit Inventory Data >> Health Facilities and Inventory >> Enter New Data

Facilities **Refrigerators/Freezers** Cold rooms Generators Cold boxes and vaccine carriers Voltage regulators Ice packs

Equipment ID 5 Type Solar photovoltaic refrigerator

1 Catalog ID 6 Refrigerant gas type R134a compression refrigerant gas (Non-CFC)

2 Model name

3 Manufacturer

4 Serial number

9 Internal storage dimension

10 Calculated internal storage

11 Fridge storage?

12 Working status

13 Source of supply

ft_library	ft_item_type	ft_model	ft_manuf	ft_power_s	ft_refrigera	fn_gross_v	fn_net_voli	fn_gross_v	fn_net_voli	fi_prod_pr	fi_QOS
E3101M	SPR	PVR150	Solamatics	S	R134A	105.00	30.00	38.00	12.00	2000	1
E3102M	IFEK	GR265	Zero Appli	EG	NH3	0.00	0.00	215.00	16.00	846	1
E3103M	CRDC	VC65F	Dulas	S	R134A	68.00	38.00	25.00	16.00	1999	1
E3104M	CRDC	VaccPakXL	Kyocera	S	R134a	39.00	21.00	22.00	24.00	2985	1
E3105M	CRDC	XL6000	Kyocera	S	R134A	114.00	60.00	26.00	16.00	4985	1
E3106M	SPR	PS65	Bright Ligh	S	R134A	66.00	38.00	24.00	16.00	1400	1
E3107M	ILR	TCW3000	Dometic	E	R134A	278.00	126.00	0.00	0.00	1855	1
E3108M	CREK	Not availa	Zero Appli	EK	NH3	179.00	38.00	32.00	10.00	1038	1
E3109M	SPR	PS40	Bright Ligh	S	R134A	35.00	18.00	24.00	4.00	1300	1
E3110M	CRAC	DOVLIN	PT Dillhan	E	R134A	42.00	16.00	16.00	0.00	1000	1
E3111M	ILR	TCW2000	Dometic Sa	E	R134A	118.00	76.00	0.00	42.00	1855	1
E313	UREG	RA1300	Electrolux	EG	NH3	213.00	70.00	48.00	44.00	1	1
E321	CREG	RCW42EG	Electrolux	EG	NH3	40.00	24.00	1.60	0.00	1	1
E321M	CREG	RCW42EGC	Electrolux	EG	NH3	40.00	10.00	2.00	0.00	898	1
E322M	CREK	RCW42EKC	Electrolux	EK	NH3	40.00	18.00	2.00	0.00	1063	1

17 Temperature reading (°C) Maximum 1.0 Minimum 3.0

Add new refrigeration equipment Delete

When there is not a Catalogue ID:

When equipment cannot be identified in the **Equipment Identification Guide** by the data collection team, a **Catalogue ID** will not be entered into question #6 on the paper form. In this circumstance, the data collection team will be required to collect additional information on this equipment (questions #11-17) on the paper data collection form.

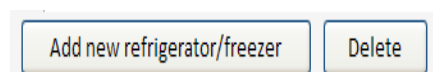
When the data entry team receives a questionnaire without a **Catalogue ID**, they will need to contact the cold chain manager to correctly identify the refrigerator model and manufacturer in the **Refrigerator/Freezer Catalogue**; if the equipment make and model is not identified in the catalogue then a new entry must be made by the cold chain manager into the Refrigerator/Freezer Catalogue in CCEM Setup. The cold chain manager will enter the new equipment model and its technical specifications in the **Refrigerator/Freezer Catalogue**, and assign a unique **Catalogue ID** ([Section 3.1.1.](#))

It is important that entries into the **Refrigerator/Freezer Catalogue** are made by a cold chain technical expert because CCEM uses the capacity, refrigerant type, and energy consumption data entered into the **Refrigerator/Freezer Catalogue** to forecast equipment needs and implement users' decisions regarding the removal and allocation of equipment.

Note

Efforts to correctly identify cold chain inventory and accurately record these data in CCEM are greatly assisted when the national cold chain manager updates information in the Refrigerators/Freezers Catalogue and the corresponding Equipment Identification Guide **prior to the cold chain equipment survey**. A comprehensive Refrigerator/Freezer Catalogue and Equipment Identification Guide make data collection and entry much easier and faster, and improve data quality.

After entering data for one piece of equipment, click **Add new refrigerator/freezer** to enter a new item of refrigeration equipment for the same facility.



Navigate various refrigerator equipment records using the navigation bar at the bottom of the tab:



To delete a refrigerator equipment record, click **Delete** at the bottom of the **Refrigeration/Freezers** tab.

4.1.3 Cold Boxes and Vaccine Carriers

Cold boxes and vaccine carriers are both entered under the **Cold boxes and vaccine carriers** tab. Only cold box or vaccine carrier equipment preloaded into CCEM will appear in the **Catalogue ID** drop-down. See [Section 3.1.2](#) for directions for adding additional cold boxes or vaccine carriers to the **CCEM Cold Boxes and Vaccine Carriers Catalogue**.

Enter/Edit Inventory Data >> Health Facilities and Inventory >> Enter New Data

Facilities Refrigerators/Freezers Cold rooms Generators **Cold boxes and vaccine carriers** Voltage regulators Ice packs

1 Catalog ID

2 Type

3 Manufacturer

4 Model

5 Net vaccine storage capacity (litre)

6 External dimensions (cm)

7 Internal dimensions (cm)

8 Vaccine storage dimensions (cm)

9 Coldlife without openings (Hours at +43°C)

10 Cost (US\$)

Add new cold box or vaccine carrier

fi_library	ft_manufacturer	ft_model	fn_net_storage	ft_ext_dim	ft_int_dim	ft_vac_store_dim
E469M	BlowKings	VDC-24-CF	0.9	22x15x25	13x10x17	6x10x17
E472M	Apex	ICB-11F	23.1	77x62x52	51x36x27	45x30x18
E475M	Apex	ICB-8F	5	79x41x43	58x18x20	50x10x10
E476M	BlowKings	CB/20/5U-CF	20	78x54x55	56x32x33	46x23x19
E477M	BlowKings	VC/42/MOD/2/CF	1.5	25x25x28	16x16x17	9x9x17
E478M	blowKings		7.2	82x36x38	65x19x18	50x12x12
E479	Promociones Lisa	Day carrier	0.7	28x21x25	18x12x14	12x7x8
E480M	Polyfoam	390	9.2	54x38x35	42x26x27	32x18x16
E481M	Nylex	CFC Free	1.4	37x25x35	22x13x20	12x6x20
E483M	BlowKings	BK-VC1.6-CF	1.7	27x26x28	17x17x17	10x10x17
E484M	CIP Industries	Frigivac	1.7	25x16x26	19x9x18	12x9x16
E485M	Electrolux	RCW8/CF	5.3	43x59x29	24x46x16	19x37x7
E486M	Apex	ICB-14F	15	72x43x40	57x28x24	49x20x16
E487M	Beijing Municipal	LCB-8A	1.6	31x21x26	23x13x16	16x6x16
E488M	BlowKings	CB/10-CF	10	57x56x53	37x37x29	25x20x20

Record: 1 of 1 No Filter Search

Once a **Catalogue ID** is entered, data on “Quantity present” of each item type and the “Quantity not working” must be entered.

Enter/Edit Inventory Data >> Health Facilities and Inventory >> Enter New Data

Facilities Refrigerators/Freezers Cold rooms Generators **Cold boxes and vaccine carriers** Voltage regulators Ice packs

1 Catalog ID	E004015 *
2 Type	Cold box long range
3 Manufacturer	AOV International
4 Model	ACB-503L
5 Net vaccine storage capacity (litre)	18
6 External dimensions (cm)	77*61*51
7 Internal dimensions (cm)	53*37.5*30.5
8 Vaccine storage dimensions (cm)	45.5*30.5*16.0
9 Coldlife without openings (Hours at +43°C)	126
10 Cost (US\$)	160
11 Quantity present	33 *
12 Quantity not working	2 *

Add new cold box or vaccine carrier Delete

To add a new cold box or vaccine carrier type to the inventory at a facility, click **Add a new cold box or vaccine carrier** at the bottom of the **Cold boxes and vaccine carriers** tab. To delete cold boxes or vaccine carriers record click **Delete** at the bottom of the **Cold boxes and vaccine carriers** tab.

4.1.4 Cold rooms

Cold rooms are designed for refrigeration (+4°C) or for freezing (-20°C) and storage dimensions are entered for only one temperature range for each individual cold room. When the internal storage dimensions are entered, the internal and net storage volumes are calculated automatically by the CCEM Tool.

Enter details for additional cold rooms at the facility using the **Add new cold room** button at bottom of the screen. To delete a cold room record click **Delete** at the bottom of the **Cold rooms** tab.

Facilities	Refrigerators/Freezers	Cold rooms	Generators	Cold boxes and vaccine carriers	Voltage regulators	Ice packs
------------	------------------------	------------	------------	---------------------------------	--------------------	-----------

Equipment ID			
1 Model name	Cold1234 *	4 Refrigerant gas type	NH3 absorption refrigerati
2 Serial number	New123	5 Number of phases	1
3 Manufacturer	Kelvin	6 Number of cooling systems	2
Temperature recording:		9 Temperature reading:	
7 Temperature recording system	Provided, operating	High	2.0
8 Type of temperature recording system	Chart recorder (clo	Low	1.0
		+4 °C	
10 Internal storage dimensions (m)	L 2 W 2 H 2		
11 Internal gross storage volume (m3)	8.0		
12 Net storage volume for vaccine/packs (m3)	2.7 *		
		-20 °C	
13 Year of supply	2003	17 Maintenance contract?	No
14 Source of supply	UNICEF supply divisi	18 Maintenance workshop?	Yes
15 Food and/or beverages stored?	No	19 Operating condition	Working well
16 Has backup generator?	Yes	20 Has voltage stabilizer?	Yes
Add new cold room		Delete	
Record: 1 of 1 No Filter Search			

Facility name	UDERU	District	ADJUMANI
Facility code	1026-0000	Sub district	FAST MOVO
Search facility		Add new facility	Delete facility

* marked fields are mandatory

Cold Room Planning

Although cold room manufacturers usually comply with the WHO/UNICEF PQS/PIS system, cold rooms are sized to the specific needs of a client. Unlike other cold chain equipment, cold rooms and freezer rooms are purpose-made and have to be assembled and commissioned on site. The buyer is responsible for selecting a space for the room and for preparing this space to make it suitable for the installation. The building housing a cold room needs to be accessible, in good condition, have suitable finishes, have adequate ventilation, and be fitted with the correct electricity supply.

Additional considerations when procuring cold rooms include contracting qualified cold room installers and maintenance contractors in your country. Standby generators and temperature monitoring devices must also be procured.

As part of its forecasting functionality, CCEM can be used to estimate storage capacity requirements at candidate facilities for cold rooms; however, allocation of cold rooms by CCEM is only the beginning of the required effort to carefully plan and budget for cold room equipment.

Representative data for cold room equipment has been entered for into the **Refrigerator/Freezer Catalogue**, however it is important that that a technical expert is consulted for the realistic and technically complete planning, budgeting, and procurement of cold rooms.

More information is available at:

http://www.who.int/immunization_standards/vaccine_quality/pqs_e01_coldrooms/en/index.html

4.1.5 Generators

Generators and their corresponding serial numbers are entered individually. The CCEM Tool does not have a catalogue for generators because this equipment is not in the PQS/PIS list. Enter details for additional generators at the facility using the **Add new generators** button at the bottom of the screen. To delete a generators record, click **Delete** at the bottom of the **Generators** tab.

Enter/Edit Inventory Data >> Health Facilities and Inventory >> Enter New Data

Facilities Refrigerators/Freezers Cold rooms **Generators** Cold boxes and vaccine carriers Voltage regulators Ice packs

Equipment ID: G-000000

1 Model name: GEN123 * 5 Power rating (kW): 120

2 Serial number: SD2324 6 Power source: Diesel

3 Manufacturer: Kelvin * 7 Automatic start mechanism: No

4 Number of phases: 3

8 Used for: Refrigerators ☒ Cold rooms ☐ Lighting ☒ Other ☐

9 Year of supply: 2008 11 Working status: Working well

10 Source of supply: Private donation 12 Equipment utilization: In service

Add new generator Delete

Record: 1 of 1 No Filter Search

Facility name: UDERU District: ADJUMANI

Facility code: 1026-0000 Sub district: EAST MOYO

Search facility Add new facility Delete facility

* marked fields are mandatory

4.1.6 Voltage regulators

Only voltage regulators preloaded into CCEM will appear in the **Catalogue ID** drop-down. See [Section 3.1.3](#) for directions for adding additional voltage regulators to the **CCEM Voltage Regulators Catalogue**.

Enter/Edit Inventory Data >> Health Facilities and Inventory >> Enter New Data

Facilities Refrigerators/Freezers Cold rooms Generators Cold boxes and vaccine carriers **Voltage regulators** Ice packs

1	Catalog ID	E7/38 *
2	Manufacturer	Claude Lyons
3	Model	MVC-2W S1775
4	Nominal voltage (vAC)	220
5	Continuous power (watts)	500
6	Frequency (Hz)	47-63
7	Cost (US\$)	378
8	Quantity present (vAC)	3
9	Quantity not working (vAC)	5
10	Phases	1
11	Input voltage range	144-277
12	Output voltage range	202-240

Add new voltage regulator Delete

Record: 1 of 1 No Filter Search

Facility name: UDERU District: ADJUMANI
Facility code: 1026-0000 Sub district: EAST MOYO

Search facility Add new facility Delete facility

* marked fields are mandatory

Record: 1 of 16 Unfiltered Search

To delete a voltage regulator record click **Delete** at the bottom of the **Voltage regulators** tab.

4.1.7 Ice packs

Use the **Ice Packs** tab to enter the quantity of Ice packs according to each size (0.3, 0.4, and 0.6) at each health facility.

Enter/Edit Inventory Data >> Health Facilities and Inventory >> Enter New Data

Facilities Refrigerators/Freezers Cold rooms Generators Cold boxes and vaccine carriers Voltage regulators **Ice packs**

	Ice packs size (litre)	0.3	0.4	0.6 *
1	Quantity present	<input type="text"/>	<input type="text"/>	<input type="text"/>

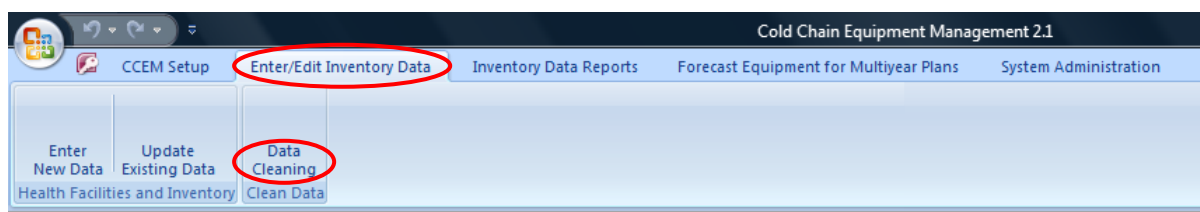
4.2 Data Cleaning

The **Data Cleaning** option provides a final check to locate missing data or issues associated with the classification of equipment data. Data accuracy is extremely important for the CCEM Tool to work properly. Several important data verification steps should be included as the inventory survey is carried out:

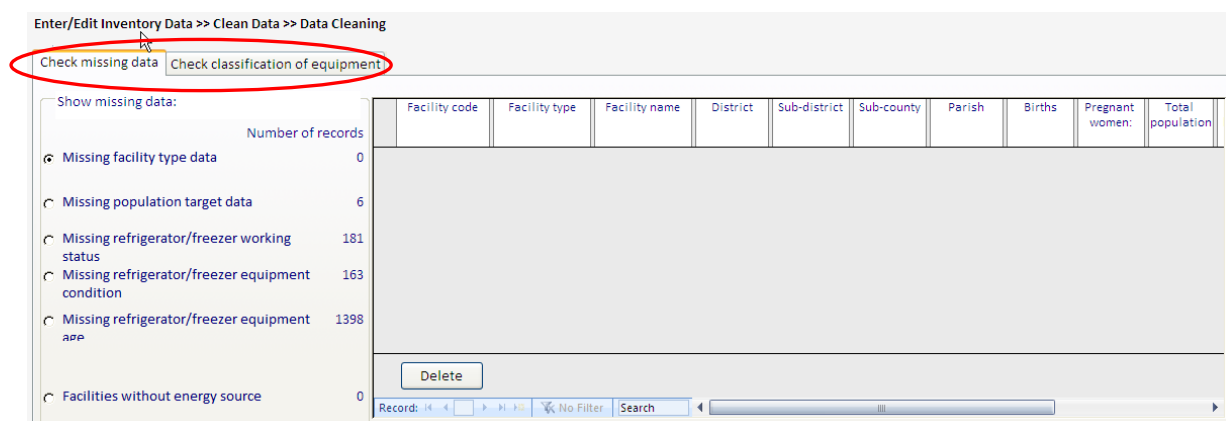
1. Survey teams must double check the data on the Health Facility Questionnaire, Refrigeration Equipment Questionnaire(s), Cold Boxes, Vaccine Carriers, and Ice Packs Questionnaire(s), Voltage Regulator Questionnaire, Generator Questionnaire, and Cold Room Questionnaire(s). Which questionnaires are completed at each facility depends on what equipment is found at the health facility.
2. Supervisors must check all questionnaires to ensure all fields are complete and data are correct (for example, look for numbers that do not fit the parameters of the question). Supervisors should also verify questionable handwriting to avoid data entry errors.
3. Data entry clerks should be extremely careful when entering data to ensure data quality. For example, data can be read out loud by one clerk and carefully entered by another clerk.

After the inventory survey, the team should also conduct a series of data cleaning verification steps within CCEM. In addition to previous data verification efforts detailed, these steps also identify essential missing data. All equipment entered manually without a Catalogue ID can be viewed to see if it is possible to standardize the data for consistency of classification.

Select **Enter/Edit Inventory Data** from the top main menu and then select **Data Cleaning** from the **Clean Data** group.



The screen shown below appears with two tabs: **Check Missing Data**, **Check Classification of Equipment**.



4.2.1 Checking missing data

The **Check Missing Data** option displays six parameters of missing data that are critical to the CCEM Tool. A list of buttons corresponds to these parameters:

- Missing facility type data.
- Missing population target data.
- Missing refrigerator/freezer working status.
- Missing refrigerator/freezer equipment condition.
- Missing refrigerator/freezer equipment age.
- Facilities without available energy sources

Select any of these parameters to display a table of missing data or facilities without energy sources on the right side of the screen. Alter and update information directly from this screen.

Checking the classification of equipment

Although most equipment found during the inventory survey should be found in the **Equipment Identification Guide**, it is likely that surveyors will identify equipment not in this guide and therefore without a **Catalogue ID**. When this occurs, surveyors must accurately complete all data in the **Refrigerator Questionnaire**. The inventory manager will enter this equipment into the catalogue prior to data entry. This data cleaning function allows any classification discrepancies need to be corrected.

Correcting equipment classification

To correct equipment classifications, follow these steps:

1. Select the **Check classification of equipment** tab.
2. To sort the equipment data by model name, click **Model name** column heading, and inspect the list looking for refrigerator models from the catalogue with similar model names. If a double entry exists, correct the entry by selecting from the drop-down list of **Standard catalogue ID** to correct the item in the CCEM inventory.

Enter/Edit Inventory Data >> Clean Data >> Data Cleaning

Check missing data Check classification of equipment

Equipment id	Standard library code	Item type	Model name	Manufacturer	Gas type	Power source	Gross volume +4C	Net volume +4C	Net volume -20C	Gross volume -20C
R-000000	E384M	electricity & gas	V170GE	Sibir	NH3	EG	170	55	47	36
R-000001	E384M	electricity & gas	V170GE	Sibir	NH3	EG	170	55	47	36
R-000002	E321	electricity & gas	RCW42EG (P)	Electrolux	NH3	EG	40	24	2	0
R-000003	E321	electricity & gas	RCW42EG (P)	Electrolux	NH3	EG	40	24	2	0
R-000004	E321	electricity & gas	RCW42EG (P)	Electrolux	NH3	EG	40	24	2	0
R-000005	E321	electricity & gas	RCW42EG (P)	Electrolux	NH3	EG	40	24	2	0
R-000006	E384M	electricity & gas	V170GE	Sibir	NH3	EG	170	55	47	36
R-000007	E384M	electricity & gas	V170GE	Sibir	NH3	EG	170	55	47	36
R-000008	E384M	electricity & gas	V170GE	Sibir	NH3	EG	170	55	47	36

Delete

Record: 1 of 2964 No Filter Search

Equipment to show:
☒ Equipment that are in the library ☐ Equipment not in the library

4.3 Updating Existing Data

To locate or update a particular health facility record, select **Enter/Edit Inventory Data** and then select **Update Existing Data** from the **Health Facilities and Inventory** group. Enter the Health Facility Code or administrative area and click **Find Health Facility**. The CCEM Tool generates and displays a list of facilities.

Enter/Edit Inventory Data >> Health Facilities and Inventory >> Update Existing Data

Health facility code:

Province:

District:

Sub-district:

Town:

Facility name:

Type of facility:

Find health facility

	Facility code	Province	District	Sub-district	Town	Facility name	Type of facility
Open	1000-0003	EASTERN PROVINCE	MAINLAND SOUTHEAST	CHIANG MAI	CHIANG MAI	MAINLAND SOUTHEAST DISTR	District vaccine stores
Open	1007-0001	EASTERN PROVINCE	MAINLAND SOUTHEAST	NAKHON SI THAMMARA	NAKHON SI THAMMARA	KIRU DISTRICT VACCINE STO	District vaccine stores
Open	1012-0000	EASTERN PROVINCE	MAINLAND SOUTHEAST	PHUKET	PHUKET	ORWAMUGE DISTRICT VACC	District vaccine stores
Open	1015-0000	EASTERN PROVINCE	MAINLAND SOUTHEAST	SAMUT SAKHON	SAMUT SAKHON	MORULEM DISTRICT VACCIN	District vaccine stores
Open	1021-0001	EASTERN PROVINCE	MARITIME SOUTHEAST	JAVA	SERANG	ADJUMANI DISTRICT VACCIN	District vaccine stores
Open	1023-0001	EASTERN PROVINCE	MARITIME SOUTHEAST	KALIMANTAN	NUSA TENGGARA BARAT	NYAKWAE DISTRICT VACCIN	District vaccine stores
Open	1035-0002	EASTERN PROVINCE	MARITIME SOUTHEAST	SUMATRA	LAMPUNG	SUMATRA DISTRICT VACCINE	District vaccine stores
Open	1039-0000	EASTERN PROVINCE	MARITIME SOUTHEAST	WESTERN NEW GUINEA	JAYAPURA	DZAIPI DISTRICT VACCINE ST	District vaccine stores
Open	1044-0000	EASTERN PROVINCE	MEKONG RIVER DELTA	DONG THAP	CAO LANH	MEKONG RIVER DISTRICT VA	District vaccine stores
Open	1048-0059	EASTERN PROVINCE	MEKONG RIVER DELTA	QUANG NINH	MONG CAI	DEXTER DISTRICT VACCINE S	District vaccine stores

In the figure above, “Province” and “Type of facility” were selected before clicking **Find Health Facility** to generate the onscreen list. Click **Open** (left of **Facility code**) to view a particular data entry screen to update. Return to the previous screen to begin a new search, or scroll through the list using the arrow button on the bottom of the screen.

Section 5 Inventory Data Reports

After setup and data entry are complete, CCEM reports can be generated for analysis.

The CCEM Tool **Inventory Data Reports** option provides two main groups: **Standard CCEM Reports** and **Custom Reports**. With this report information, national cold chain managers can analyze and document several aspects of the national cold chain equipment inventory and management system.

From the top main menu, select **Inventory Data Reports**.



5.1 Standard CCEM Reports

The **Standard CCEM Reports** group has five sets of reports:

- Summary Reports
- Facility Infrastructure
- Storage Capacity
- Cold Chain Equipment
- Energy for Cooling

5.1.1 Summary Reports

The Summary Reports section provides a list of frequently used reports that are generated quickly at the central level to help national cold chain managers analyze the cold chain. All of the summary reports can be found in other standard report sections which can be generated for a regional subset or a select health facility type.

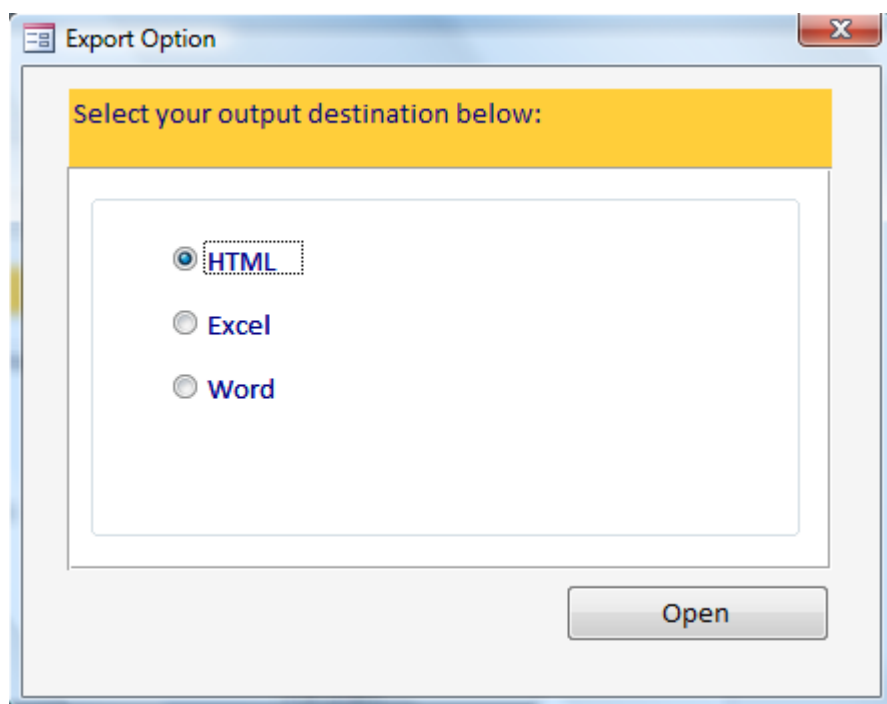
The following list of reports is currently available under Summary Reports:

- Total population by facility type (ID 1.1):** This table report displays the total population-related data based on the facility type available at the national level. This report also displays the maximum, minimum and the average total population present in a facility type.
- Electricity available by facility type (ID 1.8):** This pie chart report shows the percentage of facilities with four different categories of electricity availability (<8/24 hrs, 8 to 16/24 hrs, more than 26/24 hrs, none). By default this report shows the electricity available for all facility type at a national level. To view the results based on single facility type, choose the desired facility type from the drop-down and click **Update chart**.
- Energy availability at facilities (ID 1.12):** This bar chart report displays facility types on the X-axis and number of facilities on the Y-axis. This bar chart report displays six different categories of energy available in each facility type by national level (**Electricity <8 hrs, Electricity 8/16 hrs, Electricity >16 hrs, Gas Available, Clean, Kerosene, Reliable, Potential for Solar**).

d) Vaccine Storage capacity at +2° C to + 8° C against requirement (ID 2.1a): This bar chart report displays facility types in X-axis and number of facilities in Y-axis. This bar chart report displays six different category (Surplus > 30%, Surplus 10-30 %, Match +/-10%, Shortage 10-30%, Shortage >30%) of storage capacity available in each facility type at national level.
e) Vaccine Storage capacity at -20° C against requirement (ID 2.2a): This bar chart report displays facility types in X-axis and number of facilities in Y-axis. This bar chart report displays six different category of storage capacity available in each facility type at national level (Surplus > 30%, Surplus 10-30 %, Match +/-10%, Shortage 10-30%, Shortage >30%).
f) Refrigerators/freezers by type (ID 3.1): This pie chart report displays the number of refrigerators and freezers available for each type of refrigerator/freezer available at national level.
g) Working status by refrigerators/freezers model (ID 3.3): This bar chart report displays refrigerator/freezers models on the X-axis and number of equipment on the Y-axis. This bar chart report displays three different category of working status of equipment at national level (working well, working need service, not working).
h) Refrigerators by working status (ID 3.4): This pie chart report shows the number of refrigerators and freezers available by different working status at national level (working well, working need service, not working).
i) Refrigerator/freezer model by age group (ID 3.5a): This pie chart report shows the number and percentage of refrigerators and freezers available by different age groups at the national level (0-5 years, 5- 10 years, > 10 years, and unknown age).
j) Refrigerator/freezer utilization by model (ID 3.6a): This pie chart report displays the number of refrigerators and freezers available by utilization at the national level (in use, in store, not used, unknown).
k) Refrigerator/freezer utilization by model (ID 3.6b): This bar chart report displays refrigerator/freezer models on the X-axis and number of equipment on the Y-axis. This bar chart report displays three different categories of utilization for each equipment model at the national level (In use, in store, Not used, Unknown).
l) Distribution of refrigerator/freezers by model and facility type (ID 3.7): This table report displays a list refrigerator/freezer models for each facility type at the national level. It includes totals and percentage of the national inventory in the final two columns.
m) Annual cold chain running cost by facility type (ID 4.2): This table report displays the details of running cost per facility type for each of kind of energy like gas, kerosene, and electricity. This report also shows the average cost per facility for each energy type at the national level.

Selection and exporting summary reports:

1. Select the report you want to generate.
2. If the type of report selected is a **Table** or **Line List**:
 - Click **Export option** shown in the bottom right corner.
 - Select any one of the options from the export pop-up box, then click **Open**.



The report generated will open up in the selected output. The figure shown below shows a report exported in HTML.

Total population by facility type(National)

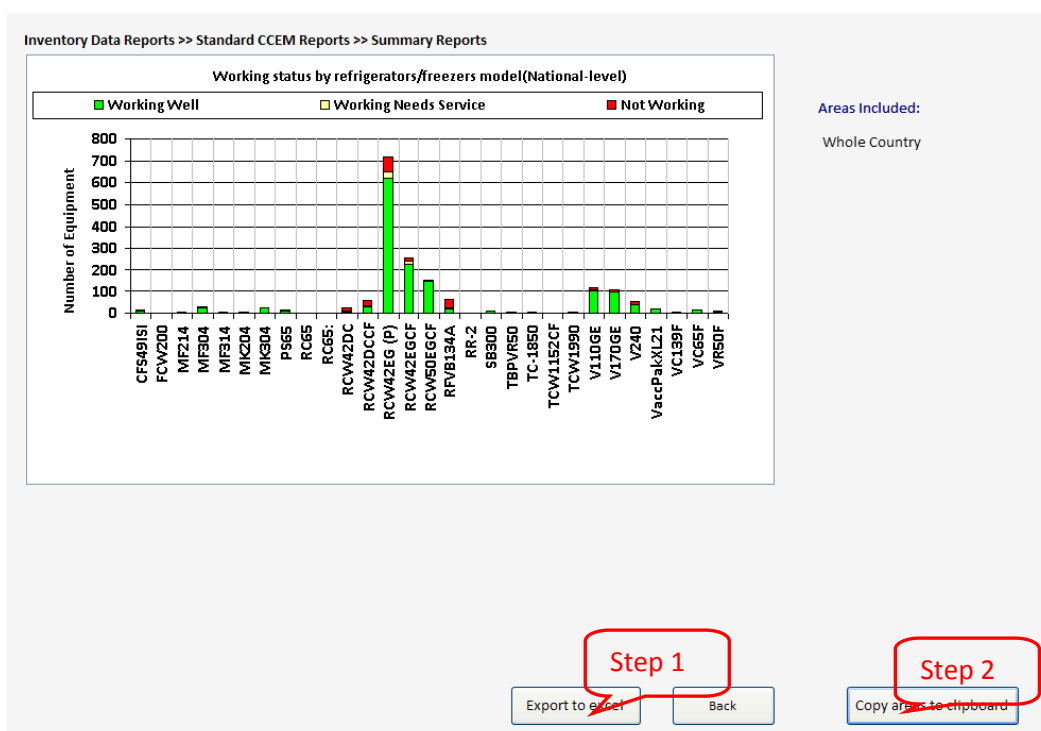
Admin Area	Facility Type	No. Facilities	Minimum	Maximum	Mean
National		3	49,807	49,807	49,807
National	District Store	80	2,977	1,189,142	291,336
National	Health Center 2	1202	200	212,173	10,726
National	Health Center 3	989	708	809,837	18,428
National	Health Center 4	184	2,145	303,171	33,854
National	Hospital	126	1,288	2,000,000	52,429
National	National Store	1	28,653,578	28,653,578	28,653,578
National	Sub-district store	32	4,665	479,663	108,236
TOTAL			38,019		

Areas included:
Whole Country

3. If the type of selected report is either a **Bar Chart** or **Pie Chart**:

Click **Open chart** shown in the bottom right corner.

The chart screen opens up with the generated chart and also displays the areas included as shown below.



Click **Export to excel**: This opens the chart in a new Excel spreadsheet.

To copy **Areas included**, click **Copy area** to clipboard (step 2 in the above picture) and return to the Excel spreadsheet with the exported chart content and click the cell you want to “paste” the **Areas included** from the clipboard. (“Paste” or “Ctrl + V” the Areas included into the cell.)

4. Name and Save the report.

5.1.2 Facility Infrastructure

This group of standard CCEM reports provides reports related to **Facility Infrastructure**:

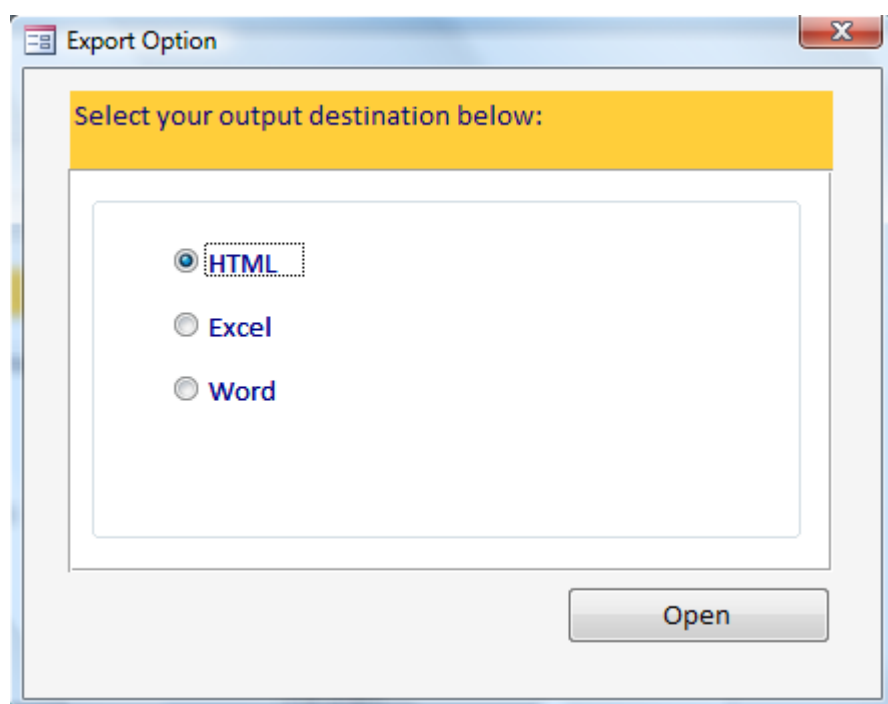
- Total population by facility type (ID 1.1)**: This table report displays the total population related data based on the facility type according to the level and area selected. This report displays the maximum, minimum and the average total population present in each facility type.
- Live births by facility type (ID 1.2)**: This table report displays the live birth population data based on each facility type according to the level and area selected. This report displays the maximum, minimum and the average Live birth population present in each facility type.
- Facility function by facility type (ID 1.3)**: This bar chart report displays the number of health facilities in X-axis and facility type in Y-axis. This bar chart report displays four different category of facility function in each facility type (**neither storage nor service delivery, service delivery (Static or outreach) only, storage & service delivery (Static or outreach), Vaccine storage only**) according to the level and area selected.
- Mode of vaccine supply by facility type (ID 1.4)**: This pie chart report displays number of health facilities available in four different categories of mode of vaccine supply (**Collected, Delivered, Both, unknown**) according to the level and area chosen.

e)	Mode of vaccine transport by facility type (ID 1.5): This bar chart report displays the number of health facilities in Y-axis and facility type in X-axis. This bar chart report displays six different categories of mode of vaccine transport for each facility type (Public Transport, by car, by motorcycle, by bicycle, by foot, by boat) according to the level and area selected.
f)	Vaccine resupply intervals and reserve stocks by facility type (ID 1.6): This table report displays the resupply interval and reserve stock information for each facility type based on the level and area selected. This report also displays the maximum, minimum and the average, national policy value for resupply interval and reserve stocks in weeks for each facility type.
g)	Electricity availability (ID 1.7): This table report displays the electricity availability for each facility type based on the level and area selected. This table report displays number of health facilities with electricity availability in four different category (<8hrs, 8 to 16hrs, >16 hrs, none) along with their percentage value for each facility type within the level selected.
h)	Electricity availability by facility type (ID 1.8): This pie chart report displays the percentage of facilities with four different categories of electricity availability (<8hrs, 8 to 16/24 hrs, more than 16/24 hrs, none). By default this report shows the electricity available for all facility type at a national level. To view the results based on single facility type choose the desired facility type from the drop-down list and click Update chart .
i)	Kerosene availability by facility type (ID 1.9): This pie chart report displays the number/percentage of facilities in four different categories (Clean, Dirty, No kerosene supply, Unknown) of kerosene availability. By default this report shows the kerosene available for all facility type at a national level. To view the results based on single facility type choose the desired facility type from the drop-down list and click Update chart .
j)	Gas availability by facility type (ID 1.10): This pie chart report displays the number/percentage of facilities in four different categories (LP gas reliable supply, LP gas unreliable supply, no gas bottles supplied, Unknown) of gas availability. By default this report shows the gas availability for all facility type at a national level. To view the results based on single facility type, choose the desired facility type from the drop-down list and click Update chart .
k)	Facilities with 0 to 8 hours per day electricity and suitable for solar energy (ID 1.11): This table report displays the number of facilities suitable for solar energy based on the level and area selected. This report also displays the total number of facility in each facility type.
l)	Energy availability at facilities (ID 1.12): This bar chart report displays facility types in X-axis and number of facilities in Y-axis. This bar chart report displays six different category of energy available in each facility type (Electricity <8 hrs, Electricity 8/16 hrs, Electricity >16 hrs, Gas Available, Clean, Kerosene, Reliable, Potential for Solar) by the level and area selected.
m)	Physical access and other attributes (ID 1.13): This table report displays the number of health facilities available in each facility type based on the physical access and other attributes like prone to floods, access difficult, equipment robbed, shaded from sun, heavy clouds for weeks, none, climate hot and climate cold . These results can be filtered based on the level and area selected.

- n) Number of facilities by type and climate zones (ID 1.14):** This table report displays the number of health facilities in each facility type based on the climate zone assigned in the CCEM set-up for the administrative area where each facility is located. These results can be filtered based on the level and area selected.

Selection and exporting reports:

1. Select the report you want to generate.
2. Select the **Level** from **Set geographic parameters** (right side of screen). When “Central” is the selected **Level**, all areas in the country are selected.
3. When a specific administrative level is selected, users can select or deselect multiple areas listed by clicking on the desired areas. (Administrative areas can be customized in **CCEM Setup > Country Data > Administrative Levels and Data.**)
4. Select the **Facility Type** to include in these reports. The default will be <All> facility types except when pie reports must be restricted by design to single facility type.
5. If the type of report selected is a **Table** or **Line List**:
 - Click **Export option**.
 - Select any one of the options from the export pop-up box, Click **Open**.

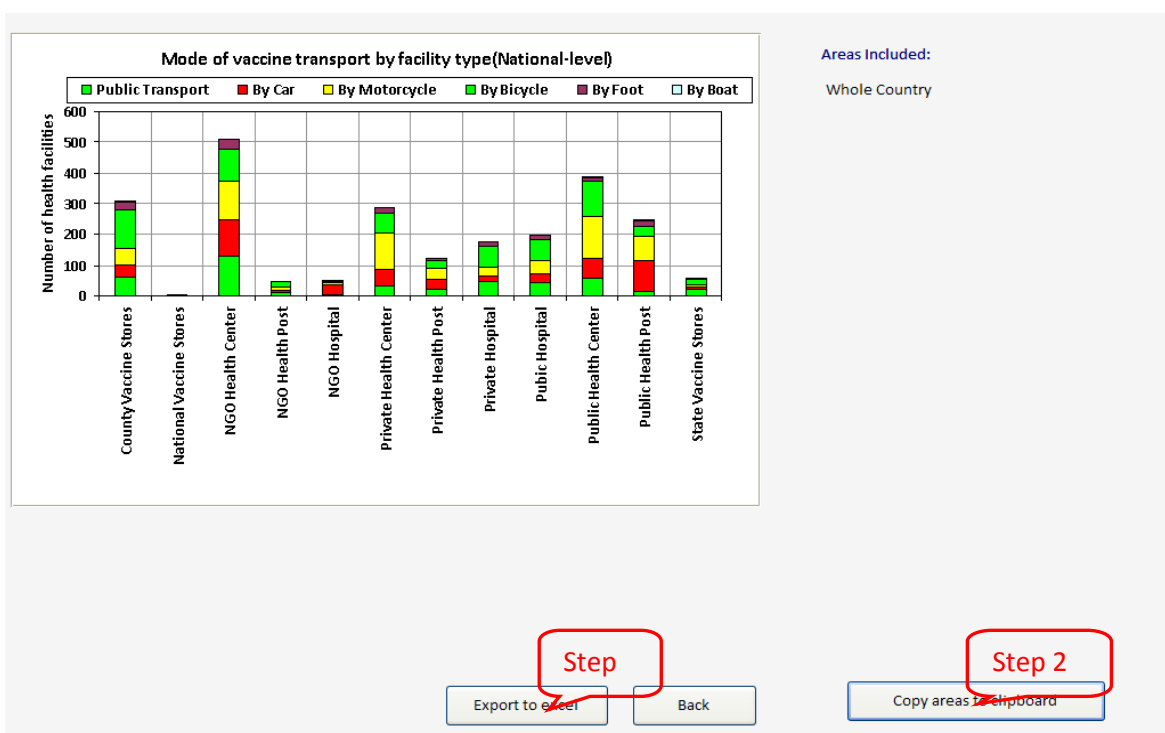


- The report generated will open up in the selected output. The figure shown below shows a report exported in Excel.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Electricity Availability (District)											
2												
3			Total Facilities	Availability of Electricity								
4	Admin Area	Facility Type		None	%	< 8 hours	%	8 to 16 hours	%	> 16 hours	%	
5	ADJUMANI		1	0	0	0	0	0	0	0	0	
6	ABIM	District Store	1	1	100	0	0	0	0	0	0	
7	ADJUMANI	District Store	1	0	0	1	100	0	0	0	0	
8	ABIM	Public Hospital	1	1	100	0	0	0	0	0	0	
9	ADJUMANI	Public Hospital	1	0	0	1	100	0	0	0	0	
10	ADJUMANI	NGO Hospital	1	0	0	0	0	0	0	0	0	
11	ABIM	NGO HCIV	1	1	100	0	0	0	0	0	0	
12	ADJUMANI	NGO HCIV	1	1	100	0	0	0	0	0	0	
13	ADJUMANI	Public HCIV	4	0	0	1	25	0	0	0	0	
14	ADJUMANI	Private HCIII	1	1	100	0	0	0	0	0	0	
15	ABIM	Public HCIII	3	2	67	0	0	0	0	0	0	
16	ADJUMANI	Public HCIII	5	5	100	0	0	0	0	0	0	
17	ADJUMANI	NGO HCIII	4	4	100	0	0	0	0	0	0	
18	ABIM	Public HCII	9	9	100	0	0	0	0	0	0	
19	ADJUMANI	Public HCII	9	9	100	0	0	0	0	0	0	
20	ADJUMANI	NGO HCII	13	13	100	0	0	0	0	0	0	
21	Total		56	47	84	3	5	0	0	0	0	
22												
23	Areas included:											
24	Filtered for the following District(s):											
25	ABIM											
26	ADJUMANI											

6. If the type of selected report is either a **Bar Chart** or **Pie Chart**:

- Click **Open chart**.
- The Chart Screen opens up with the generated chart and also displays the areas included as shown below:



- Click **Export to Excel** to open the Chart in a new Excel Spreadsheet.
- Return to CCEM.
- To copy Areas included, click **Copy area to clipboard** (step 2 in the picture above).
- Open the Excel spreadsheet with the exported chart content and click the cell you want to “paste” the Areas included from the clipboard.
- “Paste” or “Ctrl + V” the areas included into the cell.

7. Save the report.

5.1.3 Storage Capacity

This group of Standard CCEM reports helps in analyzing storage capacity of vaccines:

- | |
|---|
| <p>a) Vaccine Storage capacity at +2⁰ C to +8⁰ C against requirements (ID 2.1a): This bar chart report displays facility types in X-axis and number of facilities in Y-axis. This bar chart report displays six different category of storage capacity available at +2⁰ C to +8⁰ C in each facility type (Surplus > 30%, Surplus 10-30 %, Match +/-10%, Shortage 10-30%, Shortage >30%) based on the level and area selected.</p> |
| <p>b) Vaccine Storage capacity at +2⁰C to +8⁰C against requirements (ID 2.1b): This line list report shows the net storage capacity at +2⁰C to +8⁰C available along with the surplus, match, shortage in number of facilities for each facility type based on the level and area selected.</p> |
| <p>c) Vaccine Storage capacity at -20⁰ C against requirements (ID 2.2a): This bar chart report displays facility types in X-axis and number of facilities in Y-axis. This bar chart report displays six different category of storage capacity available at – 20⁰C in each facility type at national level (Surplus > 30%, Surplus 10-30 %, Match +/-10%, Shortage 10-30%, Shortage >30%).</p> |
| <p>d) Vaccine Storage capacity at -20⁰C against requirements (ID 2.2b): This line list report shows the net storage capacity at -20⁰C available along with the surplus, match, shortage in number of facilities for each facility type based on the level and area selected.</p> |
| <p>e) Ice pack freezing capacity against routine requirements (ID 2.3a): This bar chart report displays facility types in X-axis and number of health facilities in Y-axis. This bar chart report displays three different category of ice pack freezing capacity for routine vaccine requirements available in each facility type (Surplus > 20%, Match +/-20%, Shortage >20%) based on level and area selected.</p> |
| <p>f) Ice pack freezing capacity against SIA requirements (ID 2.3b): This bar chart report displays facility types in X-axis and number of health facilities in Y-axis. This bar chart report displays three different category of ice pack freezing capacity for SIA vaccine requirements available in each facility type (Surplus > 20%, Match +/-20%, Shortage >20%) based on level and area selected.</p> |
| <p>g) Ice pack freezing capacity against routine and SIA requirements (ID 2.3c): This line list report displays the routine and SIA vaccine ice pack freezing capacity with the values for freezing storage volume, requirement per day and the difference in capacity requirement for each facility type based on level and area selected.</p> |

h)	Cold box and vaccine carrier capacity by facility (ID 2.4): This line list report displays the net storage, quantity present and quantity not working for the cold box and vaccine carriers in each facility based on the level and area selected.
i)	Storage capacity shortages (+4C) by area (ID 2.5): This table report displays shortages in vaccine storage capacity for each facility type based on level and area selected.
j)	Ice pack freezing (production) capacity shortages for routine immunisation by area (ID 2.6): This table report displays by facility type the number of facilities with >30% shortage in production capacity for ice packs to meet the requirements for routine immunization services.
k)	Storage capacity shortages (-20C) by area (ID 2.7): This table report displays shortages in vaccine storage capacity for each facility type based on level and area selected.
l)	Ice pack freezing (storage) capacity shortages for SIAs by area (ID 2.8): This table report displays by facility type the number of facilities with >30% shortage in storage capacity for ice packs to meet the requirements for routine immunization services.
m)	Facilities with insufficient cold box transport capacity for vaccine resupply (ID 2.9): This table report displays shortages in vaccine transport capacity for resupply for each facility type based on level and area selected. Only facilities where vaccine is collected or the mode of vaccine supply is unknown will be included in this report.
n)	Shortages of cold box transport capacity for resupply by area (ID 2.10): This table report displays shortages in vaccine transport capacity for resupply for each facility type based on level and area selected. Only facilities where vaccine is collected or mode of vaccine supply is unknown will be included in this report.

Selection and exporting reports:

Refer to the [Facility Infrastructure](#) selecting and exporting reports section for steps involved in exporting reports.

5.1.4 Cold Chain Equipment

This group of **Standard CCEM reports** provides reports related to Cold Chain Equipments.

These reports are categorized into six (6) different sections **Refrigerator and Freezers, Cold rooms, Cold boxes and vaccine carriers, Standby generators, Voltage stabilisers** and **All cold chain equipment**.

Standard CCEM Reports >> Cold Chain Equipment

Refrigerators and Freezers Cold rooms Cold boxes and vaccine carriers Standby generators Voltage stabilizers All cold chain equipment

Select the report you wish to view

Id	Report Title	Type
4.1a	Equipment by type	Pie Chart
4.1a2	Equipment type by working status, facility type and area	Table
4.1b	Working status by equipment model	Bar Chart
4.1c1	Equipment models by age group	Pie Chart
4.1c1a	Equipment by working status	Pie Chart
4.1c2	Equipment models by age group	Bar Chart
4.1c3	Equipment model by age group	Table
4.1c3a	Equipment model by working status	Table
4.1d1	Utilization of equipment by equipment type	Pie Chart
4.1d2	Equipment utilization by model	Bar Chart
4.1d3	Equipment utilization by model	Table
4.1e1	Distribution of CFC-free equipment by facility type	Bar Chart
4.1e2	Distribution of CFC-free equipment by facility type	Table

Set geographic parameters

Level

Select the administrative area:

Export Option

Refrigerators and Freezers

This tab provides the following list of report for analyses:

- a) **Refrigerators/freezers by type (ID 3.1a):** This pie chart report displays the number of refrigerators and freezers available for each type of refrigerator/freezer item based on the level and area selected.
- b) **Refrigerators/freezers by working status, facility type and area (ID 3.2):** This table report displays the number of refrigerators/freezers and the percentage value available in each working status (**working well, working needs service, not working**) for each facility type based on the level and area selected.
- c) **Working status by refrigerator/freezers model (ID 3.3):** This bar chart report displays Refrigerator/freezers model in X-axis and number of equipment in Y-axis. This chart report displays the number of equipments in three different category of working status (**working well, working needs service, not working**) in each model at the selected level and area.
- d) **Refrigerator/freezers model by working status (ID 3.3b):** This table report displays the number of refrigerators available in each working status category (**working well, working needs service, not working**) for each refrigerator or freezing models within the selected level and area.
- e) **Refrigerator/freezers by working status (ID 3.4a):** This pie chart report displays the number of the refrigerator/freezers available in each category of working status (**working well, working needs service, not working**) at the selected level and area.
- f) **Refrigerator/freezers model by age group (ID 3.5a):** This pie chart report displays the number of the refrigerator/freezers available in each category of age group (**0 to 5 yrs, 5 to 10 yrs, > 10 years, unknown**) at the selected level and area.
- g) **Refrigerator/freezers model by age group (ID 3.5b):** This bar chart report displays the number of the refrigerator/freezers in Y- axis and refrigerator/freezers model in X-axis. This report shows the number of refrigerator/freezers available in different age group (**0-2 years, 3-5 years, 6-10 years, > 10 years, unknown age**) at the selected level and area in each model.

h)	Refrigerator/freezers model by age group (ID 3.5c): This table report displays number of the refrigerator/freezers and their percent value in each different age group (0-2 years, 3-5 years, 6-10 years, > 10 years, unknown age) at the selected level and area for each model.
i)	Refrigerator/freezers utilization by model (ID 3.6a): This pie chart report displays the number of the refrigerator/freezers available in each category of equipment utilization (in use, in store, not used, unknown) at the selected level and area.
j)	Refrigerator/freezers utilization by model (ID 3.6b): This bar chart report displays the number of the refrigerator/freezers in Y- axis and refrigerator/freezers model in X-axis. This report shows the number of refrigerator/freezers available in different equipment utilization category (in use, in store, not used, unknown) at the selected level and area in each model.
k)	Refrigerator/freezers utilization by model (ID 3.6c): This table report displays number of refrigerator/freezers and their percent value in each different equipment utilization category (in use, in store, not used, unknown) at the selected level and area for each model.
l)	Distribution of Refrigerator/freezers utilization by model and facility type (ID 3.7): This table report displays the number of refrigerator/freezers of each model installed in each of the different facility types, including the total and percentage of the entire inventory.
m)	Distribution of CFC-free equipment by facility type (ID 3.8): This table report displays the number of refrigerator/freezers and their percent value in each different category like CFC-free, not CFC-free, unknown at the selected level and area for facility type.
n)	Non-PQS refrigerators/freezers by model and facility type (ID 3.9): This table report displays the number of refrigerator/freezers not pre-qualified by the WHO PQS system.

Cold Rooms

This tab provides the following list of report for analyses:

a)	Cold rooms (+4⁰ and -20⁰ C) by model and working status (ID 3.10): This table report displays the number of cold rooms available in each different working status (working well, working needs service, not working) for each model based on the level and area selected.
b)	Listing of cold room facilities and working status (ID 3.11): This table report displays the list of cold rooms available in each different working status (working well, working needs service, not working) for each model based on the level and area selected.
c)	Cold rooms equipped with generator and temperature recording system (ID 3.12): This bar chart report displays the model of cold rooms in X-axis and number of cold rooms in Y-axis. The results shows three different category of cold rooms equipped with generator and temperature recording system (Yes, No, unknown) for each model based on the level and area selected.

Cold Boxes and Vaccine Carriers

This tab provides the following list of report for analyses:

- a) Cold boxes and vaccine carriers by model and working status (ID 3.13a):** This bar chart report displays the number of equipments available in X-axis and equipment model in Y-axis. The different working status (**working, not working**) for each model based on the level and area selected will be displayed in the chart.
- b) Cold boxes and vaccine carriers by model and working status (ID 3.13b):** This table report displays the number cold boxes available in each different working status (**working, not working**) for each model per facility type based on the level and area selected.
- c) Quantity of Cold boxes/carriers per facility by facility type (ID 3.14a):** This bar chart report displays the model of cold rooms/carriers in Y-axis and number of cold rooms in X-axis. The results show number of cold boxes/carriers available in each different model based on the level and area selected.
- d) Quantity of Cold boxes/carriers per facility by facility type (ID 3.14b):** This table report displays the number of cold boxes/carriers available in each facility by facility type based on the level and area selected.

Stand-by Generators

This tab provides the following list of report for analyses:

- a) Standby generators by facility type and working status (ID 3.15):** This table report displays the number of standby generator available in each different working status (**working, working needs service, not working**) per facility type based on the level and area selected.
- b) Working status of standby generators by model (ID 3.16):** This bar chart report displays the number of equipment in X-axis and generator models in Y-axis. The results show the different category of working status (**working, working needs service, not working**) based on the level and area selected.
- c) Standby generator models by age group and working status (ID 3.17):** This report displays a frequency chart based on the input value given for age range. Select this report, click **Open Chart** and a pop-up box appears as shown below. Choose the number of age bracket you wish to display the report results in. Enter age range. Click **OK**. The bar chart displays the number of generators in different working status (**working, working needs service, not working**) with age group entered on the X-axis and number of equipments on the Y-axis based on the level and area selected.

frm_repchart_generator_agebra...

Number of age brac 3

0 to less than 25

25 to less than 50

50 to less than 75

Ok

Voltage Stabilisers

This tab provides the following list of report for analyses:

- a) **Voltage stabilisers and regulators by model and working status (ID 3.18):** This table report displays the number of voltage stabilisers and regulators available in each different working status (**working, not working**) per model based on the level and area selected.
- b) **Electric refrigerators equipped with voltage stabilisers (ID 3.19):** This pie chart report displays the number of refrigerators **with regulators** or **without regulator**.
- c) **Working Status of voltage stabilisers and regulators by equipment model (ID 3.20):** This bar chart report displays different working status of equipment (**working, not working**) with number of equipment in Y-axis and model of voltage stabilisers in X-axis.

All Cold Chain Equipment

This tab provides the following report for analyses:

- a) **Inventory list of all cold chain equipment by facility (ID 3.21):** This line list report displays the details of all cold chain equipment like refrigerator/freezers, cold rooms, cold boxes, ice packs, voltage regulators, ice packs, generators available in each facility within the level and area selected.

Selection and exporting reports:

Refer the [Facility Infrastructure](#) selecting and exporting reports section for steps involved in exporting reports.

5.1.5 Energy for Cooling

This group of **Standard CCEM Report** provides reports associated to analyze equipment's energy for cooling:

- | |
|--|
| a) Equipment by availability of electricity (ID 4.1): This table report displays the number of refrigerator/freezer available in different energy availability (electricity, bottled gas, kerosene, solar) for each refrigerator type within the level and area selected. |
| b) Annual cold chain running cost by facility type (ID 4.2): This table report displays the annual running costs of refrigerators/freezers and the cost average per facility in different energy category (electricity, gas, kerosene) for each facility type within the level and area selected. |
| c) Summary of absorption refrigerators existing in facilities with 0 to 8 hours electricity per day (ID 4.3): This table report displays the number of refrigerators/freezers available with absorption refrigerators gas type and their percentage value in each facility type within the level and area selected. |
| d) Annual energy cost for refrigerator energy-types (ID 4.5): This table report displays the annual energy costs for all refrigerators/freezers in each facility type within the level and area selected. |
| e) Energy availability at facilities (ID 4.6): This table report displays the number refrigerators/freezers in different type of energy availability (Electricity, Gas, Kerosene) in each facility type within the level and area selected. |

Selection and exporting reports:

Refer to the [Facility Infrastructure](#) selecting and exporting reports section for steps involved in exporting reports.

Note:

The energy consumption rates entered into the Refrigerator/Freezer Catalogue are defaulted to the highest value/temperature (either 32°C or 43°C) recorded on the PQS data sheet, when available (e.g., PQS pre-qualified equipment). These consumption rates can be changed by the cold chain manager when ambient conditions are less severe. New entries to this catalogue should be careful to not underestimate energy consumption so that operational budgets are able to cover true costs of cold chain operation.

5.2 Custom Reports

Select **Inventory Data Reports** from top main menu, and then select one of the 7 options listed in the **Custom Reports** group to create customized reports:

- Health Facilities
- Refrigeration Equipment
- Cold Rooms
- Cold Boxes/Vaccine Carriers
- Generators
- Voltage Regulators
- Ice Packs



Each of the **Custom Reports** option screens provides control over filtering, grouping, and presenting data.

Inventory Data Reports >> Custom Reports >> Health Facilities

Set filter 1	Facility(ies) in facilities where 'Sub-country' is : ADROPI	Remove
Set filter 2		Remove
Set filter 3		Remove
Set filter 4		Remove
Set filter 5		Remove

Apply filter

Creating a customized report with the Custom Reports Group options:

1. Select any of the custom report options from the **Custom Reports** group.
2. Define the filter using the **Set Filter** button. A pop-up screen appears requesting the following information:
 - Choose data field.
 - Choose the logical operator (= equal to, <> not equal to, > greater than, < less than).
 - Choose a value.

Set filter for custom reports

Field

- District
- Sub-district
- Sub-county
- Parish
- Type of facility
- Population Targets: Live births per year
- Population Targets: Pregnant women
- Population Targets: Total Target Popula
- Population Targets: Child-bearing-age v
- Cold chain function: Storage
- Cold chain function: Static Delivery
- Cold chain function: Outreach Delivery
- Mode of vaccine supply
- Fuel availability: Grid Electricity
- Fuel availability: Kerosene
- Fuel availability: Bottled Gas
- Volume of Icepacks required (litre): Rou
- Volume of Icepacks required (litre): Sup
- Frequency of re-supply (weeks)
- Reserve stock (weeks)
- Siting of the facility: Prone to floods

Operator

- =
- <
- >
- <=>

Value

Accept Cancel

3. Click **Accept** (to define the filter) or **Cancel** (to redefine the filter).
4. Continue defining additional filters following steps 2 and 3, which build on the previously defined filter(s).
5. After defining the filters, click **Apply Filter**.
6. The next screen has the following options: **Frequency Table**, **Frequency Chart** and **Cross Tabulation**. The **Export to Excel** button provides the option of exporting the results data.

There are 9 facility(ies) in the dataset. Export to excel

What would you like to generate?

- [Frequency Table](#)
- [Frequency Chart](#)
- [Cross Tabulation](#)

Back

5.2.1 Frequency Table

To generate a custom frequency table report for the field selected in the filter records, choose **Frequency Table**. The following screen opens:

Field for frequency: Choose any number of fields

District
Sub-district
Sub-county
Parish
Type of facility
Population Targets: Live births per year
Population Targets: Pregnant women
Population Targets: Total Target Population
Population Targets: Child-bearing-age women
Cold chain function: Storage
Cold chain function: Static Delivery
Cold chain function: Outreach Delivery

Group totals (Choose 1 only)

Sub-district
Sub-county
Type of facility

Generate frequency

Please choose a field at the left and click 'Generate frequency'.

Review filterBack

- Select the **Frequency** fields from the top left table list.
- Select the group total (only one field choice is allowed) from the bottom left table list.
- Click **Generate Frequency** to generate the frequency table.
- The result appears in left window of the screen.
- Click **Review Filter** to get a quick glance on the filters selected in the previous screen.

5.2.2 Frequency Chart

To generate a custom frequency chart based on the fields set in the filter records, choose **Frequency Chart**. The following screen opens up:

Custom Reports >> Health Facilities

Field for frequency (Choose only 1)

District
Sub-district
Sub-county
Parish
Type of facility
Population Targets: Live births per year
Population Targets: Pregnant women
Population Targets: Total Target Population
Population Targets: Child-bearing-age women
Cold chain function: Storage
Cold chain function: Static Delivery
Cold chain function: Outreach Delivery
Mode of vaccine supply
Fuel availability: Grid Electricity
Fuel availability: Kerosene
Fuel availability: Bottled Gas
Volume of Icepacks required (litre): Rout imm/
Volume of Icepacks required (litre): Supp imm/
Frequency of re-supply (weeks)
Reserve stock (weeks)
Siting of the facility: Prone to floods
Siting of the facility: Access difficult
Siting of the facility: Equipment robbed
Type of transport: Public Transport
Type of transport: Car or Van
Type of transport: Motorcycle
Type of transport: Bv foot

Generate frequency chart

Review filter

Copy to clipboard

Back

- Select the **Frequency** fields from the left table list. Only one field can be chosen
- Click **Generate Frequency chart** to generate the frequency chart.
- The result appears in left window of the screen.
- Click **Review Filter** to get a quick glance on the filters selected in the previous screen.
- Click **Copy to clipboard** to copy the chart to clipboard and this content can be pasted in any desired document like Excel or Word
- Click **Back** to navigate back to the options screen.

5.2.3 Cross Tabulation:

To generate a cross table where you select a column (group totals) and rows (max up to 3), choose **Cross Tabulation**. The following screen opens up:

Inventory Data Reports >> Custom Reports >> Health Facilities

To generate the Cross Tabulation, select field (s) for the table columns and rows:

Columns: Choose only 1 field:

Rows: Choose only 1-3 fields:

- District
- Sub-district
- Sub-country
- Parish
- Type of facility
- Population Targets: Live births per year
- Population Targets: Pregnant women
- Population Targets: Total Target Populatio
- Population Targets: Child-bearing-age wor
- Cold chain function: Storage
- Cold chain function: Static Delivery
- Cold chain function: Outreach Delivery
- Mode of vaccine supply
- Fuel availability: Grid Electricity
- Fuel availability: Kerosene

Data:
Count of facility(ies). N = 9
Click on 'Review filter' below to review the filters in effect.

Generate cross tab Review filter Back

- Select the fields for the rows from the bottom left table list shown in the screen above. A maximum of only three fields are allowed for selection. Select the Column (group) field from the top left table list. Only one field choice is allowed.
- Click **Generate cross tab** to generate the cross table.
- The result appears in new screen as shown below.

Section 6 Forecast Equipment for Multiyear Plans

CCEM provides managers with the ability to model cold chain equipment decisions by allowing users to create and compare equipment forecasts. All inventory data and facility data (energy sources and catchment target populations) should be loaded and up to date.

By creating different sets of equipment removal criteria, equipment allocation preferences, and vaccine schedules, a user will be able to model cold chain planning decisions by building customized sets of forecast parameters.

From the top main menu, select **Forecast for Multiyear Plans** to generate forecasts for multiyear plans of vaccines and equipment storage capacity by using the steps described below.



Forecasts for multiyear planning involves following six (6) main steps which are represented as groups shown under **Forecast for Multiyear Plans** selection tab.

1. Equipment Removal Criteria – Create and edit removal criteria set
2. Equipment Allocation Preferences – Create and edit allocation preferences
3. Vaccine Schedules – Create and edit vaccine schedules
4. Forecast Parameters – Select removal, allocation, vaccine schedules for multiyear plans
5. Forecast Results – Generate forecasting reports
6. Forecast Scenario –Compares equipment needs and costs from 2-3 forecast scenarios

6.1 Equipment Removal Criteria

Equipment Removal Criteria under **Forecast Equipment for Multiyear Plans** has two main options, **Create New Removal Criteria** and **Edit Existing Removal Criteria**.



6.1.1 Create New Removal Criteria

Select the **Create New Removal Criteria** option from the **Equipment Removal Criteria** group. This opens the screen shown below which helps the national cold chain manager create different sets of removal criteria.

Equipment Removal Criteria >> Create New Removal Criteria

Refrigerators meeting the following criterias will be removed:

Steps to create equipment removal criteria:

1. Click **Specific models** to add a criterion to remove specific models of equipment. The following pop-up screen appears:

Specific model

Select models for removal:

Model	Manufacturer	Equipment Type
NON STANDARD IGNIS		Upright refrigerator, AC electricity
NON STANDARD PHILLIPS A		Upright refrigerator, AC electricity
NON STANDARD	BOSCH	Upright refrigerator, AC electricity
VR50F	BP Solar Ltd	Chest refrigerator, DC electricity
Refrigerator/Icepack freez	BP Solar Systems Ltd	Chest refrigerator, DC electricity
PS65	Bright Light Solar	Upright refrigerator, DC electricity
NON STANDARD HOT POIN	BRITAIN	Upright refrigerator, AC electricity
NON STANDARD RF180 ELE	BRONKHORTPRUN	Chest refrigerator; electricity & gas
NONO STANDARD DPV 39	DENMARK	Solar photovoltaic refrigerator
NON STANDARD RF 180 GE	DOMESTIC SOUTH AFRICA	Upright refrigerator; electricity & gas
RCW42DCCF	Dometic	Chest refrigerator, DC electricity
TCW1990	Dometic	Ice-lined refrigerator
VC65F	Dulas	Chest refrigerator, DC electricity

2. Select the model(s) that need to be included in the removal criteria by clicking on the list displayed and click **Apply**. **Clear all** clears all the current selection made to the list and **Cancel** cancels the current operation.

The selected criterion displays in the main removal criteria screen.

Equipment Removal Criteria >> Create New Removal Criteria

Specific models Specific models by age Models that are not CFC-free Define custom criterion Set geographic limit

Refrigerators meeting the following criteria will be removed:

These specific models will be removed:
VR50F, PS65, RCW42DCCF, TCW1990, VC65F

Clear Clear all Continue to save

3. Click **Specific models by age** to add a removal criterion based on age. The following pop-up screen appears:

Specific models by age

Select models for removal:

Model	Manufacturer	Equipment Type
VR50F	BP Solar	Solar photovoltaic refrigerator
FCW 200	Dometic	Chest freezer, AC electricity
RCW 42 EG	Dometic	Chest refrigerator; electricity & gas
RCW 42AC	Dometic	Chest refrigerator, AC electricity
RCW 50 AC	Dometic	Chest refrigerator, AC electricity
TCW 1152	Dometic	Icelined refrigerator
TCW 2000 DC	Dometic	Solar photovoltaic refrigerator
TCW 3000	Dometic	Icelined refrigerator
TFW 800	Dometic	Icepack freezer, AC electricity
VC-150 F	Dulas	Solar photovoltaic refrigerator
HBC-200	Haier	Icelined refrigerator
HBC-70	Haier	Icelined refrigerator
HBD-116	Haier	Chest freezer, AC electricity

Selected models over this age will be removed: 10

Select All Clear all Cancel Apply

4. Select the models from the list and choose the age of equipment to be removed from the drop-down provided at the bottom of the screen and click **Apply**. This criterion gets added to the main remove criteria screen shown in step 2.
5. Click **Models that are not CFC-free**. This condition adds the list of all models that are not CFC-free to the removal list as shown below:

Models that are not CFC-free will be removed:
MK 4010,
NON STANDARD,
NON STANDARD 22F121003,
NON STANDARD PHILLIPS ARB 400/PH,

6. To add a custom criteria to the removal set click **Define custom criterion**. Select the fields necessary based on “Health Facilities” or “Refrigerators” followed by operators and values.

Create custom removal criteria

Select: Refrigerators

Field: CFC Free?
Equipment utilization
Internal gross storage volume (+4 degrees C)
Internal gross storage volume (-20 degrees C)
Internal storage dimensions (+4 degrees C) - H
Internal storage dimensions (+4 degrees C) - Le
Internal storage dimensions (+4 degrees C) - W
Internal storage dimensions (-20 degrees C) - H
Internal storage dimensions (-20 degrees C) - L

Operator: =

Values: In store for allocation

Add this condition

Summary of the custom criterion:
Equipment that meet following criteria will be removed
Equipment utilization = In store for allocation

Cancel **Apply**

7. Click **Add this condition**. The selected condition appears in the right side of the screen for review. Once satisfied with all selections click **Apply**. This adds the defined criterion to the removal list. Click **Cancel**. This cancels the current operation.

8. From the main Equipment Removal screen, Click **Set Geographic Limit** to limit removal criteria to one or more administrative levels and areas.

Forecast Equipment for Multiyear Plans >> Equipment Removal Criteria >> Create New Removal Criteria

Specific models Specific models by age Models that are not CFC-free Define custom criterion **Set geographic limit**

Refrigerators meeting the following criterias will be removed:

- Models that are not CFC-free will be removed:
- Equipment from refrigerator that meet the following criteria will be removed:
Equipment utilization = In store for allocation

Clear

Set geographic limit

1. Choose the geographic level you want to set the filter:
Level: **Province**

2. Choose the areas you want to apply the removal criteria:

EASTERN PROVINCE
NORTHERN PROVINCE
SOUTHERN PROVINCE
WESTERN PROVINCE

Cancel Apply geographic criteria

- Select from the list of areas shown in the screen and click Apply geographic criteria to add the condition to the removal criterion list. The default Level is Central, which selects all areas in the country for the removal criteria.
- A summary of the removal criteria will be listed in the removal screen. If you want to make changes to these criteria, use the **Clear All** or **Clear** buttons to delete a specific criterion or set of criteria.

Forecast Equipment for Multiyear Plans >> Equipment Removal Criteria >> Edit Existing Removal Criteria

Removal criteria chosen to edit: CFC and EG when electricity

Specific models **Specific models by age** Models that are not CFC-free Define custom criterion Set geographic limit

Refrigerators meeting the following criterias will be removed:

- Models that are not CFC-free will be removed:
- Equipment from refrigerator that meet the following criteria will be removed:
Power source = EG
Fuel availability: Grid Electricity = More than 16hrs/24hrs
- Equipment over these age limits will be removed:
RCW 42AC, TCW 1152, TCW 2000 DC, TCW 3000, TFW 800, VC-150 F, HBC-200, HBC-70 more than 10 years old.

Clear Clear all Continue to save

11. Click **Continue to save** to save the removal set by giving a name and description as shown in the screen below. Click **Save** to successfully save the removal set.

The screenshot shows a 'Save' dialog box with the following components:

- Enter name for the new criteria set**: A text input field containing 'CFC and EG when electricity and 10 yr plus equipment'. Above the field is a warning: 'Please do not use the following characters in the name - : ; , " ' '.
- Description**: A text area containing 'Models that are not CFC-free are removed and equipment with EG power source are removed when the facility has electricity >16 hrs per day'.
- Existing Criterion**: A table listing existing criteria.
- Buttons**: 'Cancel' and 'Save' buttons at the bottom right.

Criteria name	Date last modified
CFC and EG when electricity	11/18/2010 2:28:53 PM
Domestic refrigerators	11/18/2010 2:29:43 PM
Fridges over 10 years	11/21/2010 5:53:34 PM

In order to create another set of new removal criteria follow step 1 to 8.

6.1.2 Edit Existing Removal Criteria

Select **Edit existing removal criteria** option from the **Equipment removal criteria** group to edit an existing set of removal criteria.

Steps:

1. On selecting **Edit Existing Removal Criteria** option, the edit screen will be displayed with the list of saved removal criteria as shown below:

Forecast Equipment for Multiyear Plans >> Equipment Removal Criteria >> Edit Existing Removal Criteria

Select the removal criteria set you wish to edit:

Criteria name	Date last modified
CFC and EG when electricity	11/18/2010 2:28:53 PM
Domestic refrigerators	11/18/2010 2:29:43 PM
Fridges over 10 years	11/21/2010 5:53:34 PM

Description:

Delete

Cancel

Continue

2. Select the criteria name that you wish to edit and click **Continue**. The detailed criteria screen will be displayed.

Forecast Equipment for Multiyear Plans >> Equipment Removal Criteria >> Edit Existing Removal Criteria

Removal criteria chosen to edit: CFC and EG when electricity

Specific models

Specific models by age

Models that are not CFC-free

Define custom criterion

Set geographic limit

Refrigerators meeting the following criterias will be removed:

Models that are not CFC-free will be removed:

Equipment from refrigerator that meet the following criteria will be removed:
Power source = EG
Fuel availability: Grid Electricity = More than 16hrs/24hrs

Clear

Clear all

Continue to save

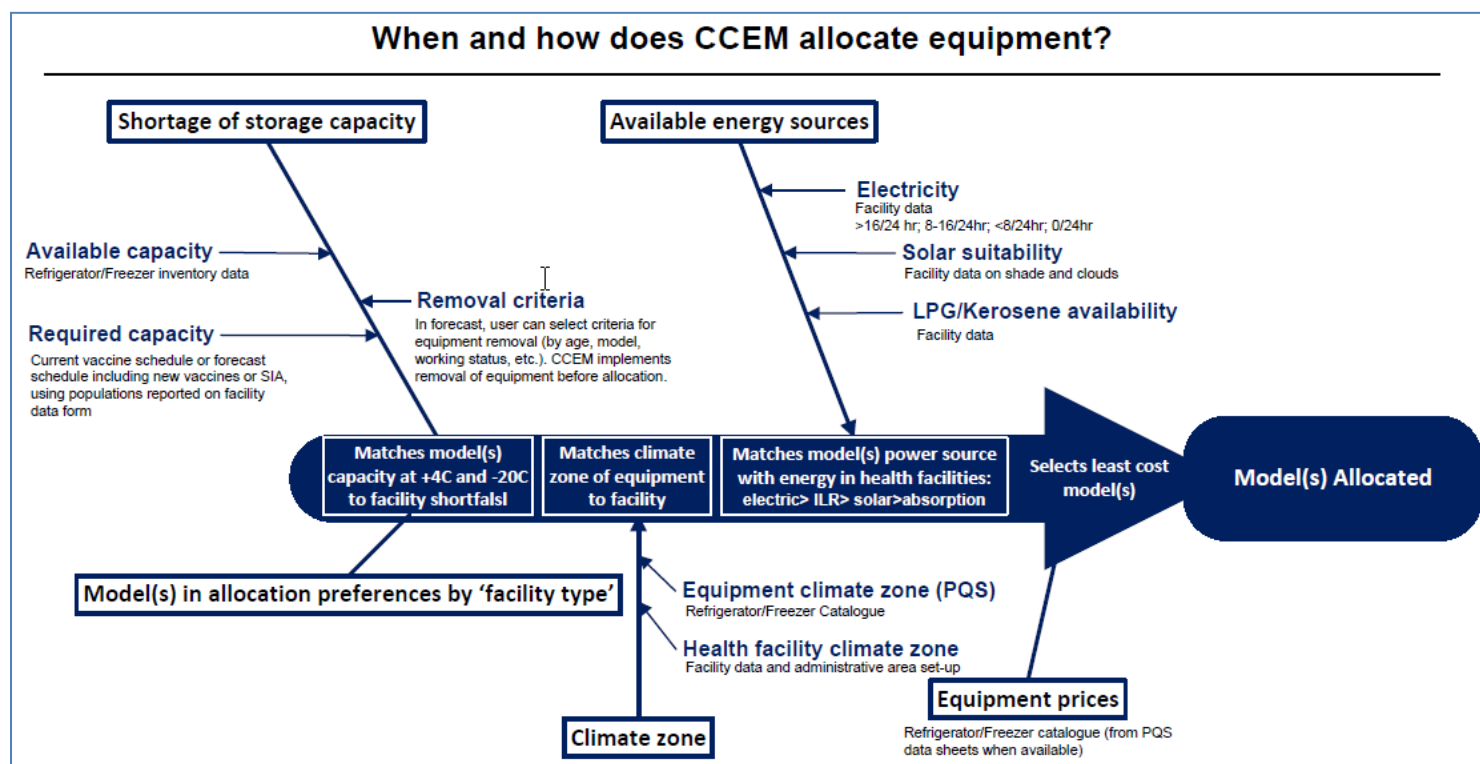
- Follow steps 6 and 7 described in [Section 6.1.1](#) Create new removal criteria.

6.2 Equipment Allocation Preferences

Equipment Allocation Preferences under **Forecast Equipments for Multiyear Plans** has two main options **Create New Allocation Preferences** and **Edit Existing Allocation Preferences**.



Users will decide on which models of refrigerators and freezers CCEM should consider for a facility, based on this facility's "facility type." Therefore, when selecting models for the allocation preferences file, users must consider equipment suitable for the anticipated capacity shortages, energy availability, and climate zones of all facilities in a facility type. CCEM will allocate as shown in the diagram in the following diagram:



Some considerations when setting allocation preferences include:

- For facilities with total net capacity requirements greater than 1,200 litres, consult a technical expert for cold room allocation.
- Set sufficient models in the allocation preferences to meet the different energy source availabilities, climate zones, and capacity needs (+4°C and -20 °C) of all facilities with this facility type designation.

3. Set allocation preferences for gas, kerosene, or combination absorption equipment only when there is <8 hours of electricity per day and solar equipment is not an option because they have higher energy consumption, lower efficiency, and lower performance
4. Multiple (or all) facility types can have the same models set as allocation preferences
5. This is an opportunity to standardize the national cold chain equipment inventory to models with a history of reliable performance and easy access to spare parts.
6. CCEM does not allocate equipment to meet ice pack or cool pack capacity requirements at a facility. This allocation will need to be made manually by consulting reports ID 2.6 and ID 2.7.
7. When there are no equipment models in the allocation preferences by “facility type” that match a facility’s specific energy availability, required capacities (+4°C and -20°C), and climate zone, no equipment is allocated to this facility.
8. Multiple (or all) facility types can have the same models set as its allocation preferences

6.2.1 Create New Allocation Preferences

Select **Create New Allocation Preferences** option from the **Equipment Allocation Preferences** group. This opens the screen shown below which helps the national cold chain manager to create different sets of allocation preferences.

Forecast Equipment for Multiyear Plans >> Equipment Allocation Preferences >> Create New Allocation Preferences

List of facility types with model preferences added:		Model preferences for selected health facility Type:		
Facility type	Model preferences added?	Catalog ID	Model	Manufacturer

The left table provides the summary of model preferences assigned for each facility type. The right table provides the list of models added as preferences based on the selected facility type.

Steps to create new allocation preferences:

1. Click **Add model preferences** to add model preferences for multiple facility type. Follow the steps shown in the following screen. Click **Add preference** to complete this allocation preference for these health facility types and models.

The screenshot shows the 'Add model preferences' dialog box with three steps:

- Step1: Choose facility type(s):** A list of facility types with checkboxes for selection. The 'Model Pref' column shows 'No' for all selected types.
- Step2: Choose model preference(s):** A table of model preferences with columns for Library ID, Model, and Manufacturer. The 'Model' column shows 'Domestic' for all selected models.
- Step3: Set geographic limit:** A dropdown menu showing 'Central' as the selected geographic limit.

Buttons at the bottom: Clear all, Cancel, Add preference.

STEP 1:
Choose the facility types by clicking on the facility type names in the list (multiple selection is allowed, also to de-select a model, click on the facility type selection again).

STEP 2:
Choose the model preferences by clicking on the models in the list (multiple selection is allowed, also to de-select click on the **Model Preferences** selection again).

STEP 3:
If needed, **set the geographic limit** of this allocation preference by choosing the level from the drop-down box and selecting desired areas from the list.

2. Geographic limits are set by identifying the level of this geographic limit and then the specific administrative areas for this limit as seen below:

The screenshot shows the 'Add model preferences' dialog box with three steps:

- Step1: Choose facility type(s):** A list of facility types with checkboxes for selection. The 'Model Pref' column shows 'Yes' for all selected types.
- Step2: Choose model preference(s):** A table of model preferences with columns for Library ID, Model, and Manufacturer. The 'Model' column shows 'Domestic' for all selected models.
- Step3: Set geographic limit:** A dropdown menu showing 'Province' as the selected geographic limit.

Buttons at the bottom: Clear all, Cancel, Add preference.

You can modify preferences by health facility type from the main allocation preferences screen that follows. When you select a facility type, the model preferences for the selected facility type will be displayed on the right table.

Add model preferences
View/edit geographic limit for selected model preference
Verify equipment preferences available for all facility types

List of facility types with model preferences added:

Facility type	Model preferences added?
Dispensary – NGO	Yes
Dispensary – Other	Yes
District vaccine stores	Yes
Maternity Center – MOH	Yes
Maternity Center – NGO	Yes
Maternity Center – Other	Yes
Maternity Center – Private	Yes

Model preferences for selected health facility Type:

Catalog ID	Model	Manufacturer
E003004	TFW 800	Dometic
E003005	HBC-70	Haier
E394M	RCW 50 AC	Dometic

Clear
Clear All
Continue to Save

- Select a specific model from model preferences and press **Clear** to remove this model or **Clear All** to remove all model preferences for this health facility type.
- To review, delete or modify any geographic limit for a selected model preference by facility type, click View/Edit geographic limit for selected model preference.

List of facility types with model preferences added:

Facility type	Model preferences added?
Dispensary – NGO	Yes
Dispensary – Other	Yes
District vaccine stores	Yes
Maternity Center – MOH	Yes
Maternity Center – NGO	Yes
Maternity Center – Other	Yes
Maternity Center – Private	Yes

Model preferences for selected health facility Type:

Catalog ID	Model	Manufacturer
E003004	TFW 800	Dometic
E003005	HBC-70	Haier
E003008	TCW 3000 DC	Dometic
E3111M	TCW 2000 AC	Dometic
E388M	RCW 50 EG	Dometic
E391M	RCW 50 EK	Dometic
E394M	RCW 50 AC	Dometic

View/Edit geographic limit for selected preference

Province	District	Sub-district	Town
EASTERN PROVINCE	MAINLAND SOUTHEAST		
EASTERN PROVINCE	MARITIME SOUTHEAST		
EASTERN PROVINCE	MEKONG RIVER DELTA		
NORTHERN PROVINCE	APPENNINE		
NORTHERN PROVINCE	BALKAN		
SOUTHERN PROVINCE	EAST PLATEAU		
SOUTHERN PROVINCE	SAHARA		

Delete
OK

- Select the area you wish to delete and click **Delete**. Models with geographic limit as “Central” cannot be deleted from this screen, but they can be deleted from the main allocation preferences screen.

7. Once all the allocation preference is done for all desired facility types. Click **Verify equipment preferences available for all facility types**. The pop-up screen shown below provides a summary of verified equipment preference availability.

The screenshot shows a window titled "Verify equipment preferences available for all facility types". It contains three tables:

Number of facilities without model preferences by health facility type:

Facility type	Facilities #
Dispensary – Oth	4
Dispensary – Priv	49
Hospital – NGO	6
Hospital – Other	3
Hospital – Private	3
Maternity Center	5
Maternity Center	54
Medical Clinic – I	10
Medical Clinic – II	43
National vaccine	1

Number of facilities without model preferences matching available power source or climate zone:

Facility type	Facilities #
Dispensary – MO	75
District vaccine s	10
Maternity Center	44
Medical Clinic – I	61
Provincial vaccine	1

Details of selected facility type

Facility code	Province	District	Sub-district	Town
---------------	----------	----------	--------------	------

A "Close" button is located at the bottom right of the window.

The table on the top left shows the number of facilities without model preference by different health facility types.

The table on the top right shows the number of facilities without model preferences matching available power source or climate zones.

The table on the bottom shows the details of facilities chosen in the top left table (number of facilities without model preferences by health facility type).

8. Click **Close** after reviewing the details.

Note:

In **Data Cleaning**, users can identify those facilities without any available energy sources. Because these facilities will not receive allocations of equipment, regardless of allocation preferences, this list should be reviewed to verify the accuracy of these data.

9. To complete this allocation preferences set, click Continue to save to save the allocation preferences with a unique file name as shown in the screen below. Click **Save** to successfully save this file.

Save equipment allocation preferences

Enter file name for equipment preferences

Please do not use the following characters in the criteria name
: , ; " ' "

Allocation scenario 1

Description

HBC-70, RCW 50 AC, RCW 50 EG, MK S044 to MOH and NGO facilities and HBC-200 and 5m3 WIC to DVS and PVS

Existing preferences files

Preference name	Date last modified
Allocation scenario 1	11/18/2010 2:36:51 PM

Cancel

Save

In order to create another set of new Allocation preferences repeat step 1 to 4.

6.2.2 Edit Existing Allocation Preferences

Select the **Edit existing allocation preferences** option from the **Equipment Allocation Preferences** group to edit existing allocation preferences set.

Steps:

1. After selecting the **Edit Existing Allocation Preferences** option, the edit screen will be displayed with the list of previously saved allocation preferences files as shown below.

Equipment Allocation Preferences >> Edit Existing Allocation Preferences

Select the allocation criteria set you wish to edit:

Criteria name	Date last modified
A1	10/15/2009 5:11:23 PM
A2	10/15/2009 5:39:23 PM
Allocation-2009	10/22/2009 4:38:55 PM
DelAlloc	10/15/2009 4:17:31 PM
MyAllocation1	10/12/2009 5:27:11 PM
MyAllocation2	10/12/2009 5:27:27 PM
MyAllocation3	10/12/2009 5:25:48 PM
Mytestalloc	10/12/2009 4:00:43 PM

Description:

2. Select the allocation file name that you wish to edit and click **Continue**.
3. The detailed allocation preference screen for the selected preference will be displayed.

Equipment Allocation Preferences >> Edit Existing Allocation Preferences

Summary of model Preference added:

Facility Type	Model Pref Added?
District Store	No
National Store	No
NGO HCII	No
NGO HCIII	No
NGO HCIV	No
NGO Hospital	Yes
Private HCII	No
Private HCIII	No
Private HCIV	Yes
Private Hospital	No
Public HCII	No
Public HCIII	No
Public HCIV	Yes
Public Hospital	No

Model preferences for selected health facility Type:

Library ID	Model	Manufacturer
E308	RC65: 920:23:07	Electrolux
E310	TC-1850	Electrolux
E3100M	FCW200	Electrolux
E3101M	PVR150	Solamatics
E3102M	GR265	Zero Appliances

4. Follow steps 1 to 4 described in [section 6.2.1](#) to create new Allocation preferences criteria or edit existing criteria and geographic limits. This edited file should be saved with a new unique name or the new preferences can replace the original file preferences by saving the file with the original name.

Note:

When selecting solar equipment for allocation preferences, the cost of the equipment in the forecasting cost reports does not include solar system costs. Much like the allocation of cold rooms, a technical expert in these equipment types should be consulted to prepare complete systems requirements and costs for equipment plans.

6.3 Vaccine Schedules

Vaccine Schedules under **Forecast Equipment for Multiyear Plans** has two main options, **Create New Vaccine Schedule** and **Edit Existing Vaccine Schedule**.



6.3.1 Create New Vaccine Schedule

Select the **Create New Vaccine Schedule** option from the **Vaccine Schedules** group. This opens the screen shown below which helps the national cold chain manager to create alternative vaccine schedules, such as schedules including new and underused vaccines or supplementary immunisation activities (SIA.)

These new vaccine schedules will be used when modelling different forecast scenarios, including the impact on storage capacity requirements and equipment procurement to meet capacity shortages.

Forecast Equipment for Multiyear Plans >> Vaccine Schedules >> Create New Vaccine Schedule

Create new schedule based on current country schedule Add routine vaccine Add SIA vaccine Modify selected vaccine

The Following vaccines are included in this schedule:

Vaccine type	Doses per vial (number)	Doses in schedule	Target population	Usage on target population (%)	Wastage rate (%)	Packed vaccine volume (cm3)	Packed diluent volume (cm3)

Print Clear Clear all Continue to Save

Create a new vaccine schedule based on the current country schedule

Click **Create new schedule based on current country schedule**. The vaccines identified as the Current Vaccine Schedule during CCEM Set-up will appear. (CCEM Set-up is introduced in [Section 3.3.](#))

[Create new schedule based on current country schedule](#)
[Add routine vaccine](#)
[Add SIA vaccine](#)
[Modify selected vaccine](#)

The following vaccines are included in this schedule:

Vaccine type	Doses per vial (number)	Doses in schedule	Target population	Usage on target population (%)	Wastage rate (%)	Packed vaccine volume (cm3)	Packed diluent volume (cm3)
BCG	20	1	Live Births	100	50	1.2	0.7
DTP-HepB+Hib	2	3	Live Births	100	10	11	0
Measles	10	2	Live Births	100	40	3.5	4
OPV	20	4	Live Births	100	25	1	0
Td	10	2	Live Births	100	25	3	0

[Print](#)
[Clear](#)
[Clear all](#)
[Continue to Save](#)

Add routine vaccine to the current schedule:

Click **Add routine vaccine**, a pop-up screen appears. Enter information for all fields in order to add the routine vaccine.

Add routine vaccine

Enter the details for the routine vaccine:

Vaccine type: DT-IPV *
 Doses to complete the schedule (number): *
 Target population: *
 Usage on target population (%): 100 *
 Wastage rate (%): *
 Packed vaccine volume (cm3) per dose: 78.2772
 Packed diluent volume (cm3) per dose: 0

Storage temperatures +4C

- District vaccine stores
- Hospital – MOH2
- Hospital – NGO
- Hospital – Other
- Hospital – Private
- Maternity Center – MOH
- Maternity Center – NGO
- Maternity Center – Other
- Maternity Center – Private
- Medical Clinic – MOH
- Medical Clinic – NGO
- Medical Clinic – Other
- Medical Clinic – Private
- National vaccine stores
- Provincial vaccine stores

Select all

Storage temperatures -20C

- District vaccine stores
- Hospital – MOH2
- Hospital – NGO
- Hospital – Other
- Hospital – Private
- Maternity Center – MOH
- Maternity Center – NGO
- Maternity Center – Other
- Maternity Center – Private
- Medical Clinic – MOH
- Medical Clinic – NGO
- Medical Clinic – Other
- Medical Clinic – Private
- National vaccine stores
- Provincial vaccine stores

Select all

Warning:
 Select storage temperature settings of vaccines for all facility types.

[Cancel](#)
[Add to schedule](#)

1. Select the **Vaccine type** from the drop-down list
2. Enter the number of **Doses needed to complete the schedule**
3. Select **Target population** from the drop-down list
4. Enter a number between 0 - 100 for **Usage on Target population (%)**

5. Enter a number between 0 - 100 for **Wastage rate %**
6. Select the **Storage temperatures** for facility types
7. Click **Add to schedule**
8. Click **Cancel** to abort the current operation of adding routine vaccine at any point of data entry in the given screen.

Add SIA vaccine

Click **Add SIA vaccine** to add vaccines delivered as part of a campaign strategy to the routine vaccine schedule. Enter information for all fields in order to add the SIA vaccine.

Add SIA vaccine

Enter the details for the supplementary vaccine:

Vaccine type

<SIA> OPV

*

No. of doses needed to complete the schedule

*

Target population

*

Usage on target population (%)

100

*

Wastage rate (%)

*

Doses per vial (number)

10

Packed volume (secondary packing) per dose (cm3)

2

Diluent volume per dose (cm3)

0

Storage temperature

Facility Type	Temp Stored	Cycles per year	Reserve (%)
District Store	+4 degrees	1	20
National Store	-20 degree:	1	25
NGO HCII	No Storage	1	
NGO HCIII	No Storage	1	
NGO HCIV	No Storage	1	
NGO Hospital	No Storage	1	
Private HCII	No Storage	1	
Private HCIII	No Storage	1	
Private HCIV	No Storage	1	
Private Hospital	No Storage	1	
Public HCII	+4 degrees	1	25
Public HCIII	+4 degrees	1	25
Public HCIV	+4 degrees	1	25
Public Hospital	No Storage	1	
Sub-district Store	+4 degrees	1	

Record: 1 of 16

No Filter

Search

Geographic areas included

Level

Central

Cancel

Add to schedule

1. Select the **Vaccine type** from the drop-down list
2. Enter number of **No. of doses needed to complete the schedule**
3. Select **Target population** from the drop-down list

4. Enter a number between 0 - 100 for **Usage on Target population (%)**
5. Enter a number between 0 - 100 for **Wastage rate %**
6. Select the **Storage temperatures** for facility types, number for SIA per year, and reserve stock (%)
7. If necessary, select the geographical area for the SIA or keep the default of a “Central” level SIA (national) implementation
8. Click **Add to schedule** to add to the current list of vaccines in schedule
9. Click **Cancel** to abort the current operation of adding SIA vaccine at any point of data entry in the given screen.

To add any new routine or SIA vaccine to a vaccine schedule developed to forecast different scenarios as part of multiyear equipment planning repeat the steps described above.

Modify Selected Vaccine

To modify a vaccine added to the list. Select the vaccine from the list and click **Modify selected vaccine**. In the pop-up screen edit the value you wish to change and click **Save modifications**.

Forecast Equipment for Multiyear Plans >> Vaccine Schedules >> Create New Vaccine Schedule

Create new schedule based on current country schedule
Add routine vaccine
Add SIA vaccine
Modify selected vaccine

The Following vaccines are included in this schedule:							
Vaccine type	Doses per vial (number)	Doses in schedule	Target population	Usage on target population (%)	Wastage rate (%)	Packed vaccine volume (cm3)	Packed diluent volume (cm3)
BCG	20	1	Live Births	100			
Measles	10	1	Live Births	100			
OPV	20	4	Live Births	100			
Penta	2	3	Live Births	100			
TT	20	2	Live Births	200			

[Print](#)

Modify selected vaccine

Enter the details for the routine vaccine:

Vaccine type: Measles

Doses to complete the schedule (number): 1

Target population: Live Births

Usage on target population (%): 100

Wastage rate (%): 40

Packed vaccine volume (cm3) per dose: 3.5

Packed diluent volume (cm3) per dose: 4

Storage temperatures +4C

- District Store
- National Store
- NGO HCII
- NGO HCIII
- NGO HCIV
- NGO Hospital
- Private HCII
- Private HCIII
- Private HCIV
- Private Hospital
- Public HCII
- Public HCIII
- Public HCIV
- Public Hospital
- Sub-district Store

[Select all](#)

Storage temperatures -20C

- District Store
- National Store
- NGO HCII
- NGO HCIII
- NGO HCIV
- NGO Hospital
- Private HCII
- Private HCIII
- Private HCIV
- Private Hospital
- Public HCII
- Public HCIII
- Public HCIV
- Public Hospital
- Sub-district Store

[Select all](#)

[Cancel](#)
[Save modifications](#)

Save Vaccine Schedule:

Once all the desired vaccines are added to the list, click **Continue to Save**.

Forecast Equipment for Multiyear Plans >> Vaccine Schedules >> Create New Vaccine Schedule

Create new schedule based on current country schedule Add routine vaccine Add SIA vaccine Modify selected vaccine

The Following vaccines are included in this schedule:

Vaccine type	Doses per vial (number)	Doses in schedule	Target population	Usage on target population (%)	Wastage rate (%)	Packed vaccine volume (cm3)	Packed diluent volume (cm3)
BCG	20	1	Live Births	100	70	1.2	0.7
Measles	10	1	Live Births	100	40	3.5	4
OPV	20	4	Live Births	100	20	1	
Penta	2	3	Live Births	100	10	12.2	
TT	20	2	Live Births	200	20	2.5	
BCG	20	1	Live Births	100	20	1.3056	1.55

Print Clear Clear all **Continue to Save**

Enter a unique name for the new vaccine schedule and a description before clicking **Save** to successfully save the newly created schedule.

Save

Enter name for the new vaccine schedule
Please do not use the following characters in the name - : ; "

DTP Schedule

Enter Description

Sample DTP Schedule

Existing vaccine schedules

Name	Date last modified
<Current Country Schedule	
MyVaccSchedule1	10/9/2009 8:43:58 PM

Cancel **Save**

Click **Print** on the main screen to open the current vaccine schedule as a HTML report which can be save or printed.

6.3.2 Edit Existing Vaccine Schedule

Select **Edit existing vaccine schedule** option from the **Vaccine Schedules** group to edit an existing vaccine schedule.

Steps involved

1. On selecting **Edit Existing Vaccine Schedule** option, the edit screen will be displayed with the list of saved vaccine schedules as shown below:

Forecast Equipment for Multiyear Plans >> Vaccine Schedules >> Edit Existing Vaccine Schedule

Select the vaccine schedule you wish to edit:

Schedule name	Date last modified
Current plus OPV SIA	11/21/2010 4:56:58 PM
Current plus PCV7	11/21/2010 4:49:51 PM
Current plus PCV7 and rota	11/21/2010 4:53:00 PM

Description:

OPV 1-dose for 25% of total population, stored only at CVS, PVS, DVS and MOH Dispensaries, Medical Clinics, and Medical Centers.

2. Select the vaccine schedule that you wish to edit and click **Continue**.
3. The detailed Vaccine Schedule screen with the list of vaccines added for the selected vaccine schedule will be displayed.

Forecast Equipment for Multiyear Plans >> Vaccine Schedules >> Edit Existing Vaccine Schedule

Vaccine schedule chosen to edit: Current plus OPV SIA

The Following vaccines are included in this schedule:

Vaccine type	Doses per vial (number)	Doses in schedule	Target population	Usage on target population (%)	Wastage rate (%)	Packed vaccine volume (cm3)	Packed diluent volume (cm3)
<SIA> OPV	10	1	Total Population	25	20	2	0
BCG	20	1	Live Births	100	70	1.2	0.7
DTP-HepB+Hib	1	3	Live Births	100	5	22	0
Measles	10	1	Live Births	100	50	3.5	4
OPV	20	4	Live Births	100	20	1	
TT	20	2	Live Births	100	20	2.5	0
YF	10	1	Live Births	100	50	2.5	6

- Follow steps 1 to 6 described in [Section 6.3.1](#) to edit this vaccine schedule or modify vaccines.
- Save the edited vaccine schedule with a unique file name.

6.4 Forecast parameters

Forecast parameters under **Forecast Equipment for Multiyear Plans** have two main options, **Create New Forecast Parameters** and **Edit Existing Forecast Parameters**.



6.4.1 Create New Forecast Parameters

Select **Create New Forecast Parameters** option from the **Forecast Parameters** group. This function area in CCEM helps the national cold chain manager create Forecast Parameters sets (this includes Equipment Removal Criteria, Equipment Allocation Preferences, Vaccine Schedules, and range of years in the multiyear plan, etc.) Users can create many different forecast parameter sets to quickly model and evaluate the impact of new vaccines or different equipment decisions on storage capacity requirements and equipment requirements and costs.

Steps to create new forecast parameters:

- Select the **Start year** and **End year** for the multiyear forecast. A maximum difference of five years will be accepted between the start and end year. Click **Continue**.

- Enter the file names for the **Removal Criteria**, **Allocation Preferences**, and **Vaccine Schedule** in effect for this forecast parameter set by double clicking on the **<none>** boxes to bring up a pop-up screen for loading files.

Set forecast parameters below:

Years of forecast: 2009 to 2010
(Please double-click on the <none> boxes to edit)

Year:	Removal Criteria in Effect:	Allocation Preference in Effect:	Vaccine schedule:
2009	<none> Details	<none> Details	<Current Country Schedule> Details
2010	<none> Details	<none> Details	<Current Country Schedule> Details

All Facilities with Shortfall. Threshold (%)	<input type="text" value="10"/>	Energy cost for running cost reports:	<input type="text" value="0.278"/>
Annual population growth rate (%)	<input type="text" value="0"/>	Price of electricity (Kwhrs)	<input type="text" value="0.85"/>
% freight, insurance, clearing cost	<input type="text" value="30"/>	Price of gas (Kg)	<input type="text" value="0.96"/>
Include SIA's in capacity requirement calculation	<input type="text" value="No"/>	Price of kerosene (Lt)	<input type="text" value="0.96"/>

STEP 1: To enter a removal criteria for a year, double click <none> displayed in the column field “Removal Criteria in effect” for the desired year (see screen shot shown above).

Select the desired removal criteria from the list displayed in the pop-up screen as shown below and click **Load** to successfully assign the removal criteria.

Load removal criteria

Select the removal criteria you want to load:

Criteria Name	Date Last Modified
MyWithDraw1	10/8/2009 4:51:14 PM
MyWithDraw2	10/23/2009 11:27:02 AM
MyWithDraw3	10/7/2009 12:42:46 PM
newtest	10/23/2009 11:11:47 AM

Description:

Once back on the main **Set forecast parameters** screen, click **Details** to review the details of chosen removal criteria.

STEP 2: To enter an Allocation Preferences for a year, double click **<none>** displayed in the column field “Allocation preference in effect” for the desired year. Select the desired allocation criteria from the list displayed in the pop-up screen and click **Load** to successfully assign the allocation preferences.

Once back on the main Set forecast parameters screen, click **Details** to review the details of chosen Allocation Preferences.

STEP 3: To enter a vaccine schedule for a year, double click **<none>** displayed in the column fields “Vaccine Schedule” for the year. Select the desired vaccine schedule from the list displayed in the pop-up screen and click **Load** to successfully assign the vaccine schedule.

Once back on the main **Set forecast parameters** screen, click **Details** to review the details of chosen vaccine schedule.

STEP 4: Enter the threshold percentage for all facilities with shortfall. CCEM will allocate equipment in the allocation preferences file for health facilities with a shortage of storage capacity greater than this threshold.

STEP 5: Enter annual population growth rate from value between 0 and 100. Default is “0”. As an example, France and Albania have an annual growth rate of 0.55 and Liberia has an annual growth rate of 4.5.

STEP 6: Enter a number 0 to 100 for “% freight, insurance, clearing cost”. By default, it will display the value entered in the field “% freight, insurance, clearing cost” in **CCEM set-up’s Fuel Cost and demographic information** under **Country data** group in the **CCEM set-up** section.

CCEM Setup >> Country Data >> Fuel Cost and Demographic Info

% freight, insurance, clearing cost

The following settings are used to calculate the fuel costs in the running costs report.

Description	Setting
Price of electricity for Running Costs report (Kwhrs)	0.278
Price of gas for Running Costs report (Kg)	0.85
Price of kerosene for Running Costs report (Lt)	0.96

STEP 7: Select **Yes** or **No** for “Include SIA’s in capacity requirement calculation” field. By default value is No.

STEP 8: Review or edit the values for energy cost for running cost report fields. By default the price of electricity, kerosene, gas will be filled by the values enter in **CCEM setup’s Fuel Cost and demographic information** under **Country data** group in the **CCEM Setup** section. Refer to the screen in STEP 6.

- Click **Continue to save**. Enter a unique forecast parameter name and description and click **Save** to successfully save the forecast parameters.

Save

Enter name for new forecast parameters

Please do not use the following characters in the name: - ; , " ' '

MyNewSet

Enter Description

Sample

Existing forecast parameters

Name	Date last modified
MyForecastParam1	10/23/2009 10:58:37 AM
MyForecastParam2	10/9/2009 8:14:31 PM
MyForecastParam3	10/9/2009 8:14:42 PM

Cancel Save

For creating another new forecast parameter repeat the steps above.

Note:

Only one set of removal criteria, allocation preference, and vaccine schedule can be selected for each year. Any geographic limits set for the criteria/preference/schedule selected will limit forecast results to that geographic area.

6.4.2 Edit Existing Forecast Parameters

Select the **Edit existing forecast parameters** option from **Forecast Parameters** to edit the existing forecast parameters set.

Steps Involved

1. On the selecting **Edit Existing Forecast Parameters** option, the edit screen will be displayed with the list of saved Forecast Parameters as shown below:

Forecast Equipment for Multiyear Plans >> Forecast Parameters >> Edit Existing Forecast Parameters

Select the forecast parameters you wish to edit:

Name	Date Last Modified
MyForecastParam1	10/23/2009 10:58:37 AM
MyForecastParam2	10/9/2009 8:14:31 PM
MyForecastParam3	10/9/2009 8:14:42 PM

Description

2. Select the name of the Forecast Parameters file name that you wish to edit and click **Continue**.
3. The first data entry screen for the setting New Forecast Parameters will be displayed, allowing you to adjust the duration of the forecast (shown in [Step 1](#) of Create new Forecast Parameter) using the start and end year values.
4. Follow steps 1 to 3 described in Create new Forecast Parameters ([section 6.4.1](#)) to successfully modify and save the Forecast Parameters.

6.5 Forecast Results

Select the **Forecast Equipment for Multiyear Plans** from the top main menu. Select **Generate/Review Forecast Results** option in **Forecast Results** group.



The **Generate/Review Forecast Results** option generates forecast results for different forecast parameter sets. Many different result reports are generated for each scenario described by the different forecast parameter files. These reports describe vaccine capacities, equipment allocation results, equipment removal results, and energy cost for a selected year. In addition, a multiyear equipment plan and budget is generated from the forecast parameters.

Steps to Generate a Forecast and Review Results

1. Select **Generate/Review Forecast Results** from the **Forecast Results** group. The following screen appears:

Forecast Equipment for Multiyear Plans >> Forecast Results >> Generate/Review Forecast Results

Select one:

- Alloc test 1
- Alloc test 2
- Alloc test 2 modified**
- Alloc test 2 modified again
- Alloc test 2 modified again RCW42EG
- Alloc test 2 modified E372M
- Alloc test 3
- Alloc test 4
- BCG only no allocation 1 year
- Current plus rota with RCW42 allocation
- Current schedule RCW42 allocation
- Current schedule w no allocation 1yr
- DPT Hib Heb only no allocation 1 year
- Measles only no allocation
- Mod Current plus rota with RCW42 allocation
- MyForecastParam1
- MyForecastParam2
- MyForecastParam3
- OPV only no allocation
- repeat Alloc test 2
- Td only no allocation
- WithdrawTest

Summary of forecast parameter set: **Alloc test 2 modified**

Years in the forecast: 2009 to 2009

Year	Removal criteria in effect	Allocation preferences in effect	Vaccine schedule
2009	<none>	MK 204 electric plus RCW42EG	Current plus rota

All Facilities with Shortfall. Threshold (%) 10

Annual population growth rate (%) 0

% freight, insurance, clearing cost 30

Energy cost for running cost reports:

Price of electricity (Kwhrs) 0.278

Price of gas (Kg) 0.85

Price of kerosene (Lt) 0.96

Include SIA's in capacity requirement calculation **No**

Storage requirements will be calculated using frequency of resupply (weeks) and reserve stocks (weeks) as specified by Health facility type in CCEM setup.

Generate forecast

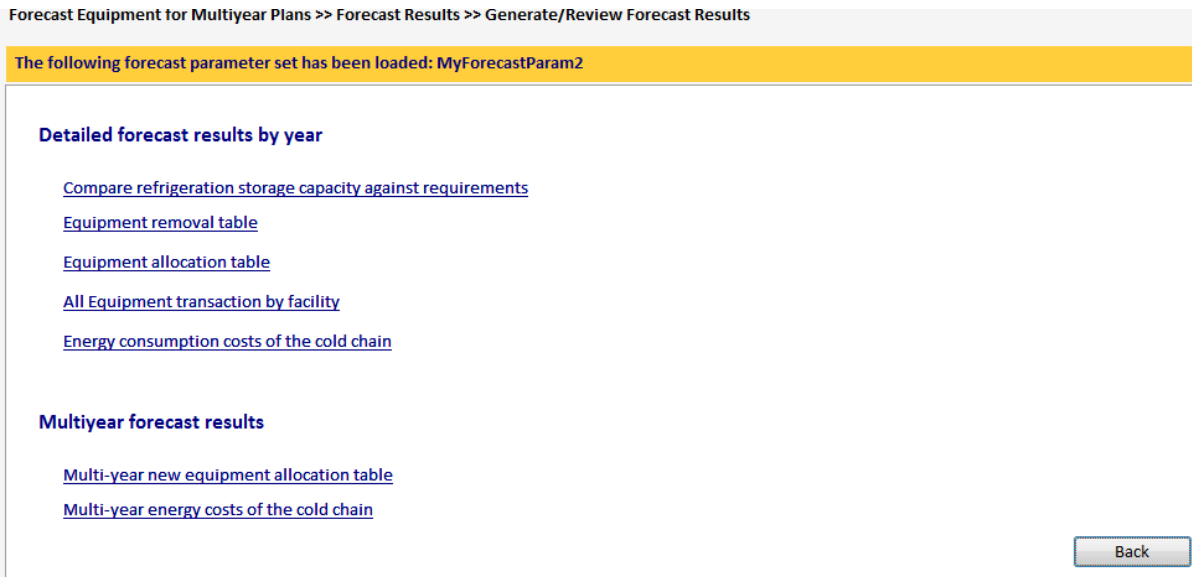
- Select the relevant Forecast parameter set file from the list shown on the left of the screen. The summary of the chosen forecast parameters set will be displayed in the summary (right) section of the screen. The only editable field in this screen is **Include SIA's in capacity requirement calculation**. A user can change the option between **Yes** or **No** in this field.
- Click **Generate Forecast** to generate the forecast for the chosen parameter set.
- The following options will be displayed once the forecast has been generated (see screen shot shown below).

Detailed Forecast by Year

- Compare refrigeration storage capacity against requirements
- Equipment removal table
- Equipment allocation table
- All equipment transaction by facility
- Energy consumption costs of the cold chain

Multiyear Forecast Results

- Multiyear new equipment allocation table
- Multiyear energy costs of the cold chain

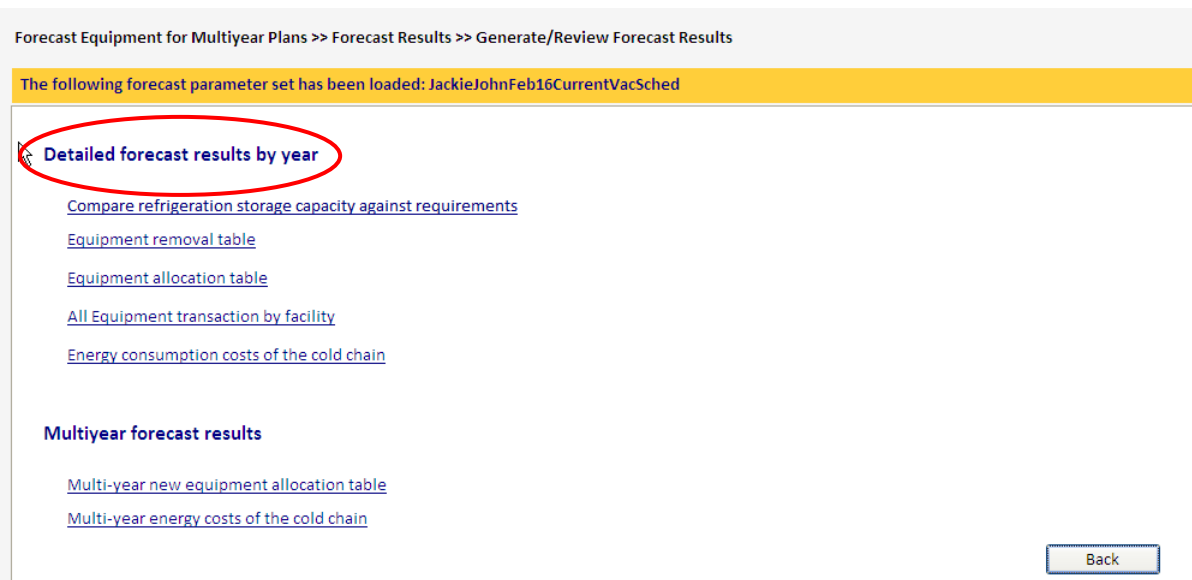


Chose any of the options listed above and review the forecast results based on the selection. Click **Back** to navigate back to Generate Forecast main screen.

The following section will describe each option in Review Forecast Results.

6.5.1 Compare Refrigeration Storage Capacity against Requirements

This is the first option for reviewing forecast results under the “Detailed forecast results by year” category.



On selecting this option the **Compare Refrigeration** screen will be displayed. By default the first review option, “Vaccine capacity forecast results without removal criteria and allocation preferences applied for the selected year” is selected. By default “Select the year” is the first year of the forecast.

Forecast Equipment for Multiyear Plans >> Forecast Results >> Generate/Review Forecast Results >> Compare refrigeration

You selected: Compare refrigeration storage capacity against requirements: JackieJohnFeb16YF

What would you like to review ?

☒ Vaccine capacity forecast results with removal criteria and allocation preferences applied for the selected year Select the year: 2010

☐ Ice pack freezing capacity with removal criteria and allocation preferences applied for the selected year

Table Chart Storage capacity summary(2010): JackieJohnFeb16YF

Admin Area/Facility Type	Total	No. facilities with +2C to +8C storage					No. facilities with -20C storage				
		Surplus		Match		Shortage	Surplus		Match		Shortage
		>30%	10-30%	+/-10%	10-30%		>30%	>30%	+/-10%	10-30%	
District Store	80	71	2	1	5	75	0	5	0	0	
National Store	2	1	0	0	1	1	0	1	0	0	
NGO HCII	241	128	1	1	111	6	0	235	0	0	
NGO HCIII	201	155	2	2	41	15	0	186	0	0	
NGO HCIV	16	10	1	0	5	5	0	11	0	0	
NGO Hospital	41	34	0	1	6	18	0	23	0	0	
Private HCII	94	38	0	0	56	5	0	89	0	0	
Private HCIII	61	41	0	0	19	3	0	58	0	0	
Private HCIV	14	13	0	0	1	4	0	10	0	0	
Private Hospital	22	19	0	1	2	5	0	17	0	0	

Record: 1 of 16 No Filter Search

View details Edit grouping and sorting parameters Back Export options

Features of the Compare refrigeration screen

View Facility List

In table report, double click on any of the surplus, match or shortage cells to open the **facility list** for this cell.

Forecast Equipment for Multiyear Plans >> Forecast Results >> Generate/Review Forecast Results >> Compare refrigeration

You selected: Compare refrigeration storage capacity against requirements: JackieJohnFeb16

What would you like to review ?

☒ Vaccine capacity forecast results with removal criteria and allocation preferences applied for the selected year Select the year: 2010

☐ Ice pack freezing capacity with removal criteria and allocation preferences applied for the selected year

Table Chart Storage capacity summary(2010): JackieJohnFeb16

Admin Area/Facility Type	Total	No. facilities with +2C to +8C storage		No. facilities with -20C storage	
		Surplus		Match	
		>30%	10-30%	>30%	10-30%
District Store	80	71	2		
National Store	2	1	0		
NGO HCII	241	128	1		
NGO HCIII	201	155	2		
NGO HCIV	16	10	1		
NGO Hospital	41	34	0		
Private HCII	94	38	0		
Private HCIII	61	41	0		
Private HCIV	14	13	0		
Private Hospital	22	19	0		

Record: 9 of 16 No Filter Search

View details Edit grouping and sorting parameter

Vaccine storage status in facilities of type : Private HCIV

Facility Code	Facility name	District	Sub-district	Sub-county	Parish	Cold Room Capacity (Litres)	Refrigeration
						+2C/+8C	-20C
1130-0001	KAPELEBYONG	AMURIA	KAPELEBYONG	KAPELEBYONG	KAPELEBYONG		
1620-0002	BUKWO HC IV	BUKWO	KONGASIS	BUKWA	MUIMET		
1635-0001	BULIISA	BULIISA	BULIISA	BULIISA	KISYABI		
2681-0001	MARTYR'S FAMIL	KAMPALA	MAKINDYE DIVISI	MAKINDYE DIVISI	GGABA		
2698-0000	NSAMBYA GENER	KAMPALA	MAKINDYE DIVISI	MAKINDYE DIVISI	NSAMBYA CENTR		
2736-0005	BUSABALA NURS	KAMPALA	RUBAGA DIVISIO	RUBAGA DIVISIO	RUBAGA		
3078-0001	HIMA IAA	KASESE	BUSONGORA NOR	KITSWAMBA	HIMA		
3246-0000	ST.AMBROSE CH	KIBAAL	BUYAGA	KAGADI	KAGADI		
4145-0001	LAMBU HC II	MASAKA	BUKOTO EAST	BUKAKATA	BUKIBONGA		

Record: 1 of 13 Filtered Search

Close

View Details

Clicking **View Details** provides users the ability to review the forecast parameters details selected for a given year, opening a pop-up screen similar to the one shown below.

Record: 14 of 16

View details **Edit grouping and sorting parameters**

View details

Year: 2007

Removal criteria name: MyWithdraw3

Allocation criteria name: MyAllocation1

Refrigerators meeting the following criteria will be removed:

- Geographic areas: AGAGO, AMURIA, ARINGA, ARUA MUNICIPALITY, AR
- The following were manually un-tagged for withdrawal: CFC Equipment Untagged
- These specific models will be removed: GR265, GR-H35UT, M/S TRIAL PLUS

Model preferences by facility type:

- These models will be allocated to : NGO Hospital
RC65: 920:23:07 Electrolux CFEK
TC-1850 Electrolux CFAC
FCW200 Electrolux CFAC
PVR150 Solamatics SPR
GR265 Zero Appliances IFEK
- These models will be allocated to : Public HCIV
RC65: 920:23:07 Electrolux CFEK
TC-1850 Electrolux CFAC
FCW200 Electrolux CFAC
PVR150 Solamatics SPR
GR265 Zero Appliances IFEK
- These models will be allocated to : Private HCIV
RC65: 920:23:07 Electrolux CFEK
TC-1850 Electrolux CFAC

Record: 1 of 3

Vaccine schedule name: <Current Country Schedule>

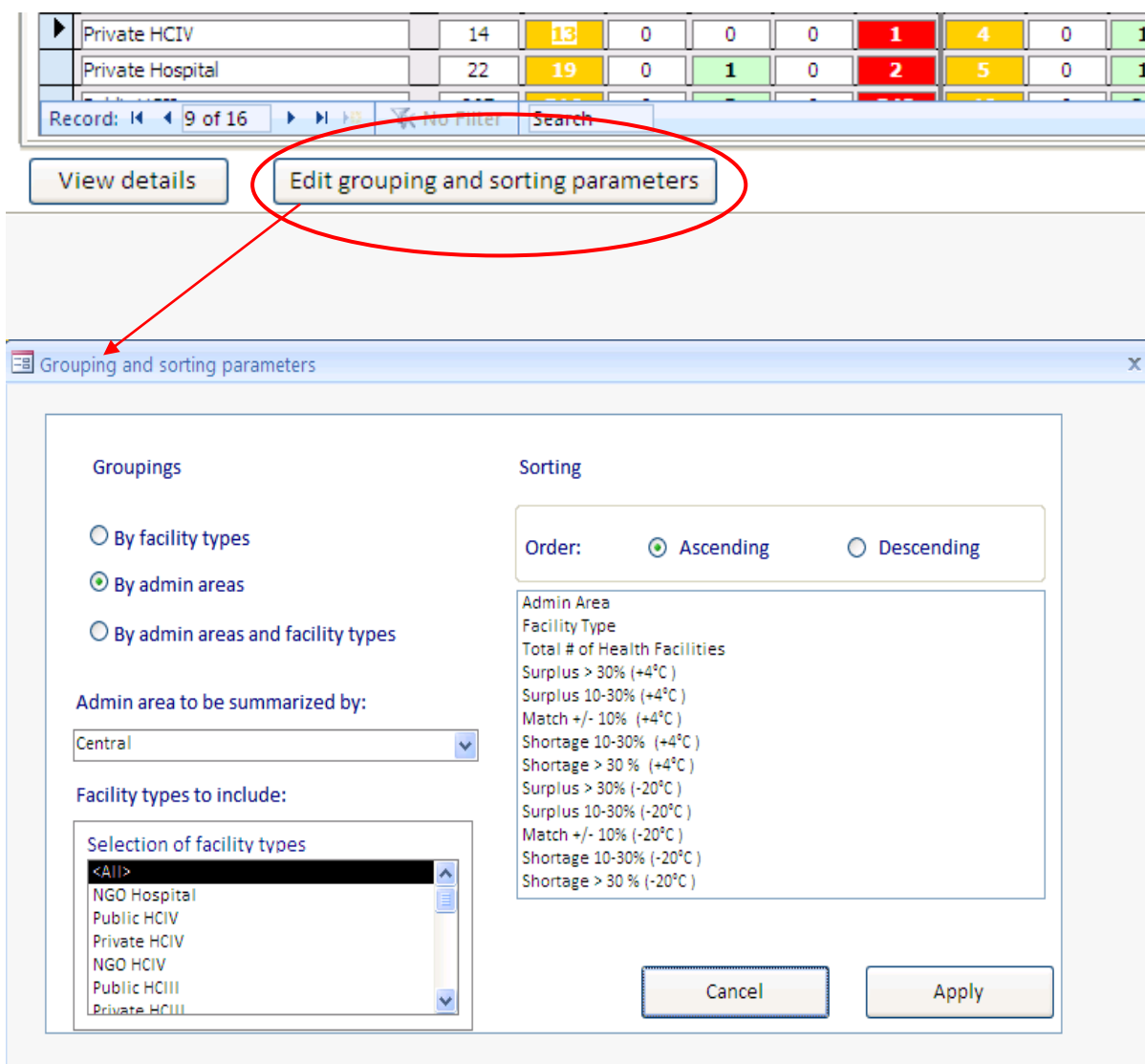
The following vaccines are included in the schedule. Double click on the vaccines to show which facility types store the vaccine.

Vaccine Type	Vial Size	Pack Volume	Doses in Schedu	Multiplier	Wastage Rate	Pack Diluent Volume
BCG	20	1.2	1	100	50	0.7
DTP-HepB+Hib	2	11	3	100	10	0
Measles	10	3.5	2	100	40	4
OPV	20	1	4	100	25	0
Td	10	3	2	100	25	0

Close

Edit grouping and sorting parameters:

Clicking **Edit grouping and sorting** parameters opens a pop-up screen similar to the one shown below:



The default grouping will be by facility types and the default admin area will be Central Level. This sorting/grouping option is available only for the first option of the “Compare Refrigeration” screen:

Vaccine capacity forecast results with removal criteria and allocation preferences applied for the selected year

This option displays vaccine storage capacity for all facilities (by Administrative Area/Facility Type) in the national inventory with the removal and allocation preferences applied for the particular year. This report is divided into two types of calculations: one for refrigerated (+2°C to +8°C) vaccine storage and one for freezing (-20°C) vaccine storage. Health facilities are displayed in one of three categories:

Surplus: Vaccine storage capacity at the health facility exceeds cold chain requirements. This category is displayed in two columns, one for >30% and one for >10–30%.

Match: Vaccine storage capacity at the health facility meets cold chain capacity requirements (within +/- 10%).

Shortage: Vaccine storage capacity at the health facility is less than cold chain requirements. This category is displayed in two columns, one for >10–30% and one for >30%.

As seen below, the forecast results for vaccine capacity can be viewed in two different formats: table report (click the **Table** tab) and bar chart (click the **Chart** tab).

Forecast Equipment for Multiyear Plans >> Forecast Results >> Generate/Review Forecast Results >> Compare refrigeration

You selected: Compare refrigeration storage capacity against requirements: JackieJohnFeb16

What would you like to review ?

☒ Vaccine capacity forecast results with removal criteria and allocation preferences applied for the selected year

Select the year

2010

☐ Ice pack freezing capacity with removal criteria and allocation preferences applied for the selected year

Table

Chart

Storage capacity summary(2010): JackieJohnFeb16

Admin Area/Facility Type	Total	No. facilities with +2C to +8C storage					No. facilities with -20C storage				
		Surplus		Match		Shortage	Surplus		Match		Shortage
		>30%	10-30%	+/-10%	10-30%	>30%	>30%	10-30%	+/-10%	10-30%	>30%
District Store	80	71	2	1	1	5	75	0	5	0	0
National Store	2	1	0	0	0	1	1	0	1	0	0
NGO HCII	241	128	1	1	0	111	6	0	235	0	0
NGO HCIII	201	155	2	2	1	41	15	0	186	0	0
NGO HCIV	16	10	1	0	0	5	5	0	11	0	0
NGO Hospital	41	34	0	0	1	6	18	0	23	0	0
Private HCII	94	38	0	0	0	56	5	0	89	0	0
Private HCIII	61	41	0	0	1	19	3	0	58	0	0
Private HCIV	14	13	0	0	0	1	4	0	10	0	0
Private Hospital	22	19	0	1	0	2	5	0	17	0	0

Record: 1 of 16

No Filter

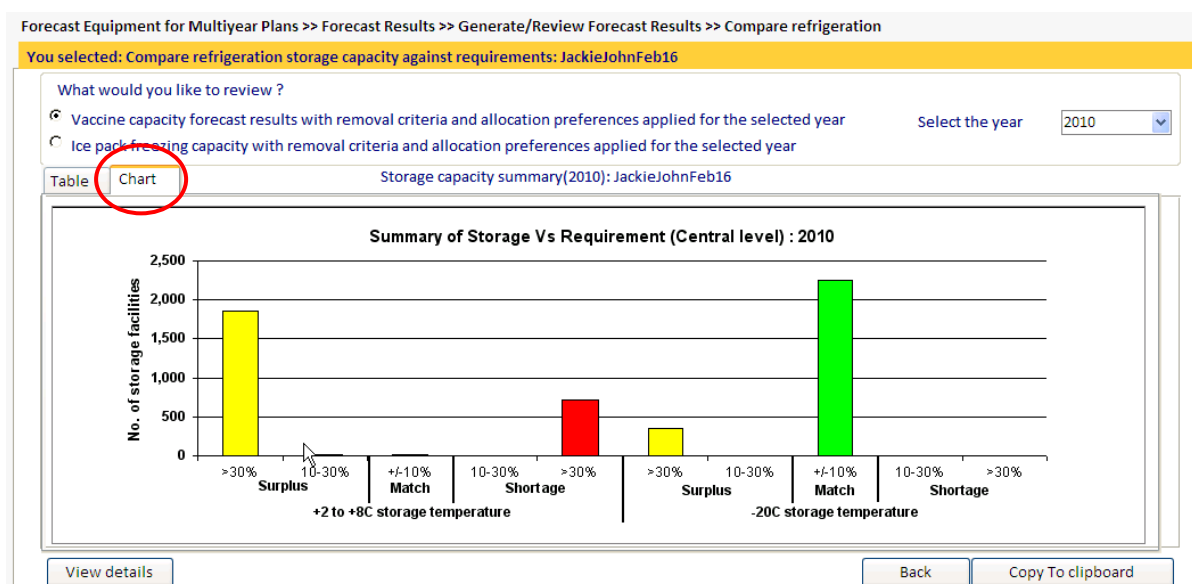
Search

View details

Edit grouping and sorting parameters

Back

Export options



Ice pack freezing capacity with removal criteria and allocation preferences applied for the selected year

These results provide the option to assess the sufficiency of ice-pack freezing capacity in the cold chain system. The CCEM Tool takes into account two requirements for ice-pack freezing capacity:

Rate of freezing capacity for routine immunisation services: The total available freezing rate in litres per 24-hour period at a facility is calculated by summing the freezing capacity for each equipment item, found in the Refrigerator/Freezer Catalogue. This is compared to the requirement of Litres per day at facilities for routine services, based on a need reported by facilities as an average per week.

Volume of ice pack freezing capacity available for supplementary immunisation: The total volume of ice packs storage capacity in litres compared to the total volume needed per 24 hours of Supplemental Immunisation Activities (SIAs).

6.5.2 Equipment Removal Table

This is the second set of forecasting results under the “Detailed forecast results by year” category.

On selecting this option, the results of applying the equipment removal criteria for this year will be displayed. By default the first review option, “Equipment removal table for the selected year” is selected for the first year of the forecast.

You Selected: Equipment removal table: MyForecastParam1

What would you like to review?

☒ Equipment removal table for the selected year
 ☐ List of equipment for removal by facility for the selected year
 ☐ List of equipment for removal by model and area for the selected year

Select the year: 2009

Admin Area/Facility Type	CFS49IS 1	VC65F	VR50F
▶ NGO HCIV	0	1	0
Public HCIII	1	0	0
Public Hospital	0	0	2

Record: 1 of 3

No Filter Search

View details
 Edit grouping parameters
 Un-Tag CFC equipment
 Back
 Export options

Equipment removal table for the selected year

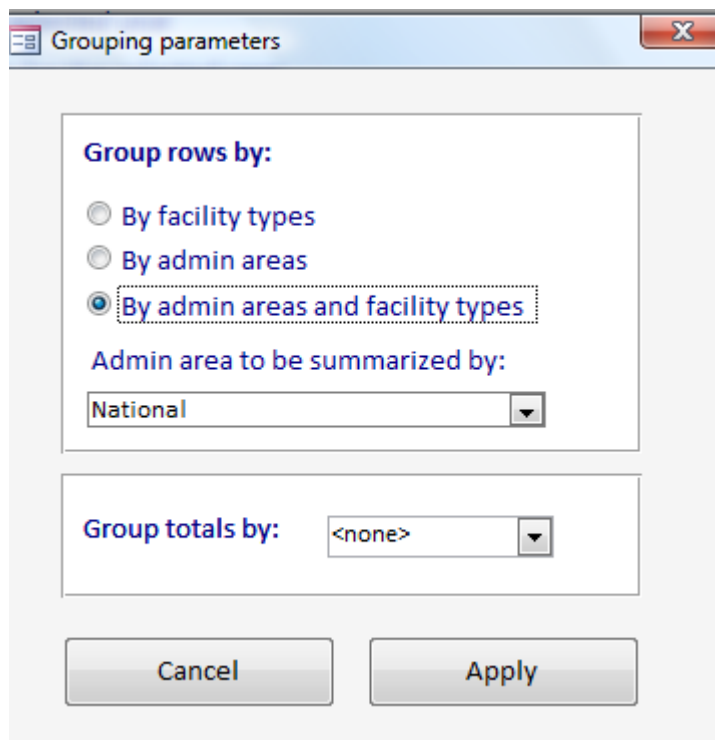
This option displays removal equipment quantity for a facility type by equipment model for the given year. This calculation is based on the removal criteria chosen for the selected year in the forecast parameter set. At the bottom screen, users have the following options:

View details:

This option provides details of removal criteria. If not removal criteria are in effect, CCEM will display this information in a message box.

Edit grouping parameters:

This option provides the grouping parameter available for equipment removal table reports as shown below:



Grouping parameters

Group rows by:

- ☐ By facility types
- ☐ By admin areas
- ☒ By admin areas and facility types

Admin area to be summarized by:

National

Group totals by: <none>

Cancel Apply

Click **Apply** to apply the conditions chosen to the reflect in the removal report

Un-tag CFC equipment:

Clicking this button means that CFC-containing equipment will be returned to the inventory calculations if the user had requested that CFC equipment is tagged for removal. You can view the criteria list by clicking **View details**. This manually alters the assigned removal criteria for a given year and results in recalculating the forecasting reports.

Tagging and un-tagging of equipment

Double clicking on any of the data cells displayed in this option opens a pop-up screen which displays the details of tagged and untagged equipments.

Forecast Equipment for Multiyear Plans >> Forecast Results >> Generate/Review Forecast Results >> Equipment Removal

You Selected: Equipment removal table: removal test

What would you like to review?

- ☒ Equipment removal table for the selected year
- ☐ List of equipment for removal by facility for the selected year
- ☐ List of equipment for removal by model and area for the selected year

Select the year: 2010

Admin Area/Facility Type	FCW200	RCW42DC	RCW42DCCF	RCW42EG (P)	RCW42EGCF	RCW50EGCF	TC-1850	TCW1152CF	TCW1990
County Vaccine Stores	0	0	1	106	42	13	0	0	0
National Vaccine Stores	0	0	0	0	1	0	0	0	0
NGO Health Center	0	3	11	175	57	44	2	0	1
NGO Health Post									
NGO Hospital									
Private Health Center									
Private Health Post									
Private Hospital									
Public Hospital									

Manual removal

These are equipment tagged for removal – un-tag to exempt from removal

Sort by: [dropdown]

Model Name	Type	Manufacturer	Facility Code	Facility Name	Admin Code	Equipment ID	Tagged
RCW42EG (P)	CREG	Electrolux	1012-0000	Clarence NGO Health	1012	R-050103	Yes
RCW42EG (P)	CREG	Electrolux	1162-0001	Parkville NGO Health	1162	R-050593	Yes
RCW42EG (P)	CREG	Electrolux	1268-0000	Pleasant Valley NG	1268	R-030058	Yes
RCW42EG (P)	CREG	Electrolux	1271-0001	Emel NGO Health C	1271	R-020244	Yes
RCW42EG (P)	CREG	Electrolux	1345-0000	Hollister NGO Health	1345	R-020251	Yes
RCW42EG (P)	CREG	Electrolux	1380-0000	Lewis and Clark Vill	1380	R-020210	Yes
RCW42EG (P)	CREG	Electrolux	1400-0000	Amity NGO Health C	1400	R-020276	Yes
RCW42EG (P)	CREG	Electrolux	1416-0000	Breckenridge NGO H	1416	R-020263	Yes
RCW42EG (P)	CREG	Electrolux	1466-0000	Marshall NGO Health	1466	R-000311	Yes
RCW42EG (P)	CREG	Electrolux	1656-0000	Lexington NGO Health	1656	R-000477	Yes
RCW42EG (P)	CREG	Electrolux	1673-0000	Independence NGO	1673	R-000485	Yes
RCW42EG (P)	CREG	Electrolux	1703-0000	Raytown NGO Health	1703	R-000545	Yes
RCW42EG (P)	CREG	Electrolux	1731-0001	Lake Waukomis NG	1731	R-000515	Yes
RCW42EG (P)	CREG	Electrolux	1739-0000	Albany NGO Health	1739	R-000537	Yes
RCW42EG (P)	CREG	Electrolux	1757-0000	Hamilton NGO Health	1757	R-040429	Yes
RCW42EG (P)	CREG	Electrolux	1763-0001	Arrow Rock NGO He	1763	R-050623	Yes
RCW42EG (P)	CREG	Electrolux	1780-0000	New Cambria NGO	1780	R-000521	Yes
RCW42EG (P)	CREG	Electrolux	1815-0000	Dardenne Prairie N	1815	R-000517	Yes
RCW42EG (P)	CREG	Electrolux	1925-0000	McFall NGO Health	1925	R-050123	Yes

Tag All Remove All Tags Tag Selected Un-tag Selected Accept

The **Sort by** option on the top right corner sorts the records on the desired column. The buttons on the bottom of the screen provide the option of tagging or un-tagging a selected record. The **Tag all** button tags all the equipments listed in the screen. The **Remove all Tags** button removes all the tags on the tagged equipments listed in the screen. This functionality allows CCEM users to tailor results.

Manual removal

These are equipment tagged for removal – un-tag to exempt from removal

Sort by: [dropdown]

Model Name	Type	Manufacturer	Facility Code	Facility Name	Admin Code	Equipment ID	Tagged
123456789012345	CFEG	123456789012345	1026-0000	UDERU	1026	R-000000	Yes

Tag All Remove All Tags Tag Selected Un-tag Selected Accept

Export option:

This button provides the output options to save the generated report. Main options are HTML, Excel and Word.

List of equipment for removal by facility for the selected year

This option generates a line listing of equipment meeting removal criteria by facility type for the selected year.

Step to generate this report:

1. Select **List of equipment for removal by facility for selected year**.
2. Select a year from the drop-down menu.
3. Click **Open**.
4. Select the **Level and admin areas** (default level is national) and the desired output option from the pop-up screen as shown below and click **Open Report**.

List of equipment for removal by model and area for the selected year

This option of equipment removal table generates the report of removal equipment by model and area for the selected year.

Steps to generate this report:

1. Select **List of equipment for removal by facility for selected year**.
2. Select a year from the drop-down menu.
3. Click **Open**.
4. Select the **Level and admin area** (default level is national) and the desired output option from the pop-up screen and click **Open Report**.

6.5.3 Equipment Allocation Table

This is the third set of forecasting results under the “Detailed forecast results by year” category.

On selecting this option, the equipment allocation table screen will be displayed. By default the first review option, “Allocation table for the selected year” is selected for the first year of the forecast.

You Selected: Equipment allocation table: MyForecastParam1

What would you like to review?

☒ Allocation table for the selected year Select the year 2009

☐ List of equipment allocated by facility for the selected year

☐ List of equipment allocated by model and area for the selected year

Admin Area/Facility Type	PVR150
▶ INGO Hospital	41
Private HCIV	5
Public HCIV	265

Record: 1 of 3 No Filter Search

View details Edit grouping parameters Back Export options

Allocation table for the selected year

This option displays allocation results for the forecast scenario by equipment model, quantities, and admin area/facility type for a selected year.

View Details:

Clicking this button opens a pop-up screen with the details of allocation set chosen for the selected year.

The screenshot shows a user interface with a table of records. The table has a header row with 'Records: 14' and '1 of 3'. Below the table, there are two buttons: 'View details' and 'Edit grouping and sorting parameters'. The 'View details' button is circled in red, and a red arrow points from it to a pop-up window titled 'Allocation preferences: MyAllocation1'. The pop-up window has a yellow header 'Model Preferences by Facility Type:' and contains three rows of allocation data.

Model Preferences by Facility Type:	
▶	These models will be allocated to : NGO Hospital RC65: 920:23:07 Electrolux CF EK TC-1850 Electrolux CFAC FCW200 Electrolux CFAC PVR150 Solamatics SPR GR265 Zero Appliances IFEK
	These models will be allocated to : Public HCIV RC65: 920:23:07 Electrolux CF EK TC-1850 Electrolux CFAC FCW200 Electrolux CFAC PVR150 Solamatics SPR GR265 Zero Appliances IFEK
	These models will be allocated to : Private HCIV RC65: 920:23:07 Electrolux CF EK TC-1850 Electrolux CFAC FCW200 Electrolux CFAC PVR150 Solamatics SPR GR265 Zero Appliances IFEK

Edit Grouping parameters:

This option provides the grouping parameter available for allocation table reports as shown below.

Record: 1 of 3 No Filter Search

View details Edit grouping and sorting parameters

Group rows by:

- ☒ By Facility Types
- ☐ By Admin Areas
- ☐ By Admin Areas and Facility Type

Admin area to be summarized by:

National

Group columns by:

- ☒ By Model Names
- ☐ By Equipment Type
- ☐ By Equipment Type and Model Name

Group totals by: <none>

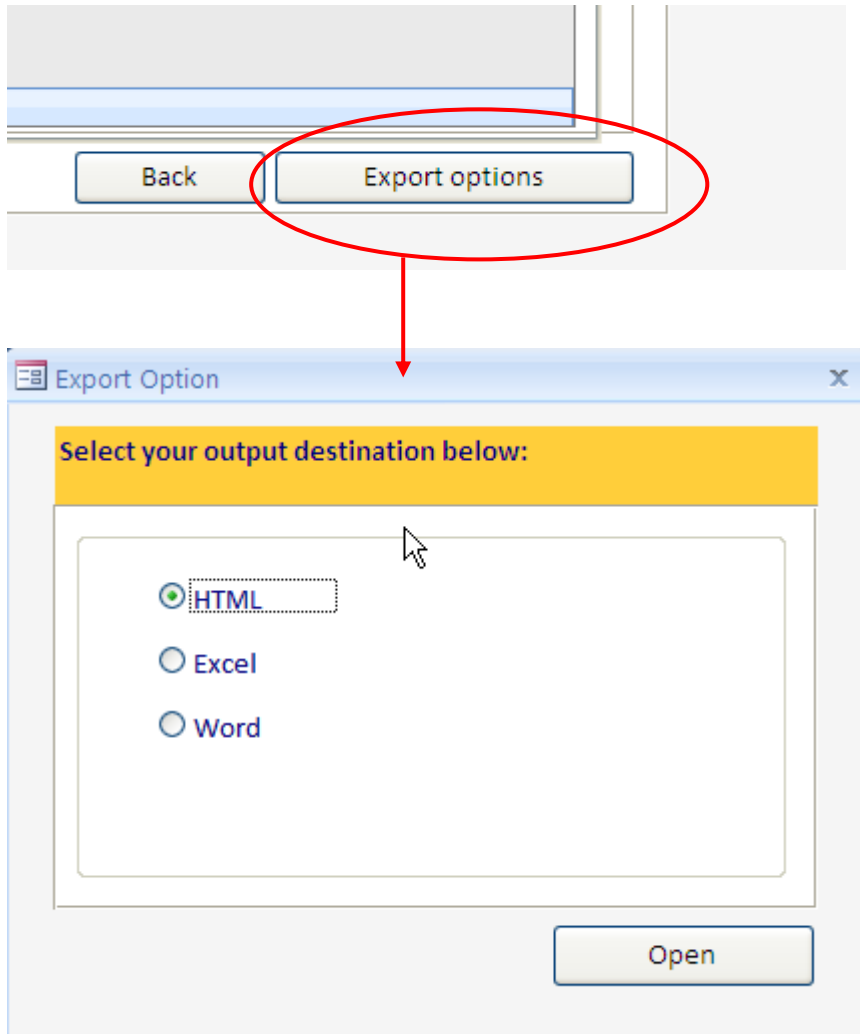
Show quantity or price: Quantity

Cancel Apply

Click **Apply** to apply the conditions chosen to reflect in the allocation report.

Export option:

This option provides the output options to save the generated report. Main options are HTML, Excel and Word.



How to manually exclude and include equipment in the allocation forecast results

In the **Allocation table by year**, double click any of the equipment cells to open a pop-up screen displaying the details of equipment allocation, seen below.

List of equipment allocated by model and area for the selected year

This option provides users the ability to review allocation results as a list of equipment allocated by model and area for the selected year.

Steps to generate this report:

1. Select **List of equipment allocated by model and area for the selected year**.
2. Select a year from the drop-down menu.
3. Click **Open**.

CCEM will present users with the following screen before generating the report. If needed, users can select the lower level and specific administrative area. CCEM will default to central-level reporting for all facilities.

6.5.4 All equipment transactions by facility

This is the fourth results viewing option for forecasting under the “Detailed forecast results by year” category.

On selecting this option, the “All equipment transactions by facility” screen will be displayed. By default the first review option, “List of all equipment transactions by facility for the selected year” is selected. By default “Select the year” is the first year of the forecast.

You selected: All equipment transactions by facility : MyForecastParam1

What would you like to review ?

☒ List of all equipment transactions by facility for the selected year

☐ List of all equipment transactions by facility up to the selected year

Select the year: 2010

Facility Code	District	Sub-District	Sub-County	Parish	Facility Type	Library ID	Model Name	Refriger
1002-0000	ABIM	LABWOR	ABIM	KANU	Public HCII			
1004-0000	ABIM	LABWOR	ABIM	WIAWER	Public Hospital	E321	RCW42EG (P)	
1004-0000	ABIM	LABWOR	ABIM	WIAWER	Public Hospital	E388M	RCW50EGCF	
1004-0000	ABIM	LABWOR	ABIM	WIAWER	Public Hospital	E384M	V170GE	
1004-0000	ABIM	LABWOR	ABIM	WIAWER	Public Hospital	E337M	VR50F	
1004-0001	ABIM	LABWOR	ABIM	WIAWER	District Store			
1005-0000	ABIM	LABWOR	ALEREK	KOYA	Public HCII	E321	RCW42EG (P)	
1007-0000	ABIM	LABWOR	ALEREK	WILELA	Public HCII			
1007-0001	ABIM	LABWOR	ALEREK	WILELA	Public HCIII			

Record: 1 of 10 Unfiltered Search

Edit geographic parameters Back Export options

List of all equipment transaction by facility for the selected year

This option displays all the refrigeration equipment transaction details like existing equipment quantity and number of equipment tagged for removal and number of allocated equipments for each facility by models for the selected year.

Edit geographic parameters:

This option provides the ability to apply geographic filter for the report results by choosing level and admin area. By default the level will be displayed as central. Click **Apply** to apply the filter selected to the report generated.

Export options:

This option provides the output options to save the generated report. Options are HTML, Excel, and Word.

List of all equipment transaction by facility up to the selected year

This option displays all the refrigeration equipment transaction details like existing equipment, quantity, and number of equipment tagged for removal and number of allocated equipments for each facility by models up to the selected year.

This option also has the **Edit geographic parameters** and **Export** option as described above.

6.5.5 Energy consumption cost of cold chain

This is the fifth, and last, option for forecasting under “Detailed forecast results by year” category.

On selecting this option the energy consumption costs of the cold chain table screen will be displayed. By default the first review option, “Equipment running cost by facility for the selected year” is selected. By default, “Select the year” is the first year of the forecast.

Note:

The energy consumption rates refrigerators and freezers are defaulted to rates reported for the highest temperature (32°C or 43°C) in order to overestimate, rather than underestimate, recurrent fuel costs.

Forecast Equipment for Multiyear Plans >> Forecast Results >> Generate/Review Forecast Results >> Energy Consumption

You selected: Energy consumption costs of the cold chain: MyForecastParam1

Equipment running cost:

☐ by facility for the selected year Select the year: 2009

☐ by administrative area for the selected year Admin area: Sub-district

☒ by administrative area and facility type for the selected year

Admin Area	Facility Type	Cost of Gas consumption	Cost of Kerosene consumption	Cost of Electricity consumption
NTENJERU NORTH	Public Hospital			
OYAM NORTH	NGO HCIII			
BUHAGUZI	Sub-district Store			
EAST MOYO	NGO Hospital			
BUIKWE NORTH	Sub-district Store			
BUNYARUGURU	District Store			
SOROTI MUNICIPALITY	Public Hospital			
BUIKWE WEST	NGO Hospital			
Total		\$92,003.89	\$0.00	\$117,547.02

Record: 1 of 1001 No Filter Search

Edit grouping and sorting parameters Back Export options

Equipment running cost by facility for the selected year

This option displays all the equipment cost categorized by gas, kerosene and electricity by facility type for the selected year.

Edit grouping and sorting parameters:

This option provides the ability to apply the grouping and sorting condition to the displayed report. Sorting can be done based on three energy source listed in the sort section and grouping can be done either by admin area or the facility type.

Sort:

Energy Source	Included
Gas	Yes
Kerosene	Yes
Electricity	Yes

Move up

Include

Move down

Exclude

Group totals by:

<none>

Cancel

Apply

Export option:

This option provides the output options to save the generated report. Options are HTML, Excel, and Word.

Equipment running cost by administrative area for the selected year

This option displays all the equipment cost categorized by gas, kerosene and electricity by admin area (choose **Admin area** from the drop-down on the right of the screen) for the selected year.

Edit grouping and sorting parameters:

This option provides the ability to apply the grouping and sorting condition to the displayed report.

Click **Apply** to apply the sorting and/or grouping chosen to the report generated.

Export option:

This option provides the output options to save the generated report. Options are HTML, Excel and Word.

Equipment running cost by administrative area and facility type for the selected year

This option displays all the equipment cost categorized by gas, kerosene and electricity by facility type and admin area (choose **Admin area** from the drop-down on the right of the screen) for the selected year.

Edit grouping and sorting parameters:

This option provides the ability to apply the grouping and sorting condition to the displayed report.

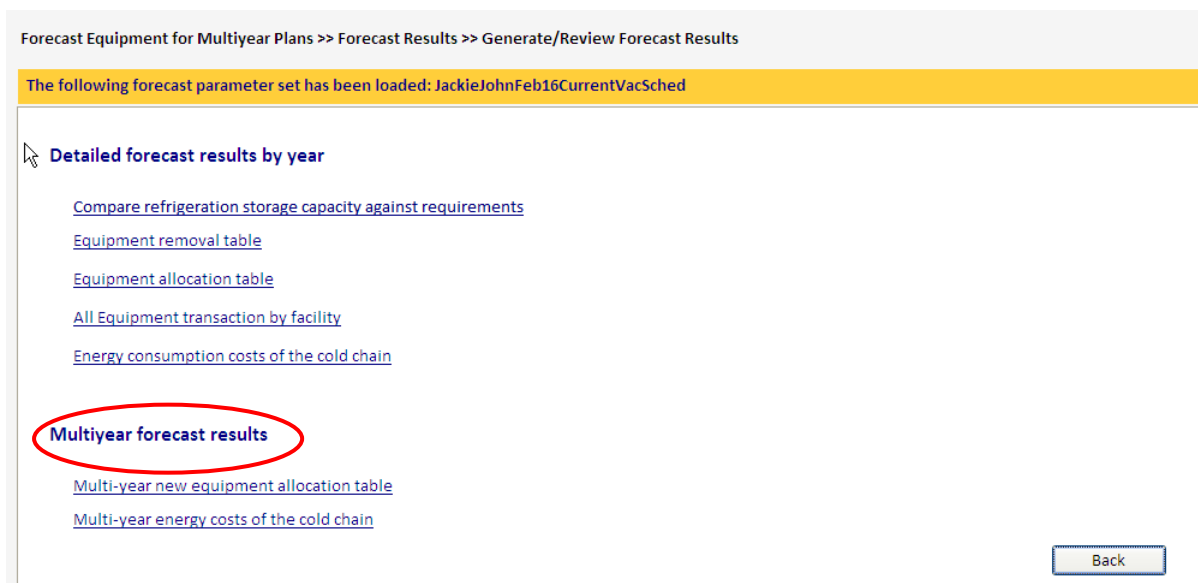
Click **Apply** to apply the sorting and/or grouping chosen to the report generated.

Export option:

This option provides the output options to save the generated report. Options are HTML, Excel and Word.

6.5.6 Multiyear new equipment allocation table

This is the first option under the “Multiyear forecast results” category.



On selecting this option the “Multiyear new equipment allocation table” screen will be displayed. By default the first review option, “Review multiyear new equipment allocation table by equipment types” is selected.

You selected: Multi-year new equipment allocation table: MyForecastParam1

Review multiyear new equipment allocation table by:

☒ equipment types

☐ equipment types and models

Equipment Type	2009		2010		2011		5-Year Totals	
	Qty	Cost \$US	Qty	Cost \$US	Qty	Cost \$US	Qty	Cost \$US
▶ Chest freezer, AC electricity					196	229,712	196	229,712
Ice-lined refrigerator					146	270,830	146	270,830
Solar photovoltaic refrigerator	311	622,000					311	622,000
Upright refrigerator, DC electricity			46	58,328			46	58,328
Upright refrigerator; electricity & gas			31	19,065			31	19,065

Record: 1 of 5

No Filter

Search

Group totals by:

<none>

Back

Export options

Review multiyear new equipment allocation table by equipment types

This option displays the multiyear allocation report based on the equipment type. The year displayed will be based on the years chosen in forecast parameter set.

Group totals by:

The report can be grouped by equipment type by selecting “equipment type” from the Group total by drop-down displayed at the bottom of the screen. By default group totals by option will be none.

Export option:

This option provides the output options to save the generated report. Options are HTML, Excel and Word.

Review multiyear new equipment allocation table by equipment types and models

This option displays the multiyear new equipment allocation report based on the equipment type and model. The years displayed will be based on the years chosen in forecast parameter set.

Group totals by:

The report can be grouped by equipment type by selecting “equipment type” from the group total by drop-down displayed at the bottom of the screen. By default group totals by option will be **none**.

Export option:

This option provides the output options to save the generated report. Options are HTML, Excel, and Word.

6.5.7 Multiyear energy costs of the cold chain

This is the second and last option for the “Multiyear forecast results” category.

On selecting this option the **Multiyear energy costs of the cold chain** screen will be displayed.

You selected: Multi-year energy costs of the cold chain: MyForecastParam1

Year	Gas Consumption		Kerosene Consumption		Electricity Consumption		
	Quantity (Kg)	Cost	Quantity (Lt)	Cost	Quantity (KwHrs)	Cost	
2009	108,239.87	\$92,003.89	0.00	\$0.00	422,831.00	\$117,547.02	
2010	95,718.29	\$81,360.55	0.00	\$0.00	358,464.89	\$99,653.24	
2011	95,404.39	\$81,093.73	0.00	\$0.00	504,715.87	\$140,311.01	
Total	299,362.56	\$254,458.18	0.00	\$0.00	1,286,011.76	\$357,511.27	

Record: 1 of 3 No Filter Search

Back Export options

This option displays the energy consumption cost for each year available in the chosen forecast parameter. The report displays the total quantity and cost associated for each energy type like gas, kerosene, and electricity for each year.

Export option:

This option provides the output options to save the generated report. Options are HTML, Excel and Word.

6.6 Compare Forecast Scenarios

Select **Forecast Equipment for Multiyear Plans** from the top main menu. Select **Compare Forecast Scenarios** option in **Forecast Scenarios** group.



The **Compare Forecast Scenarios** option compares forecast results generated with different forecast parameters sets.

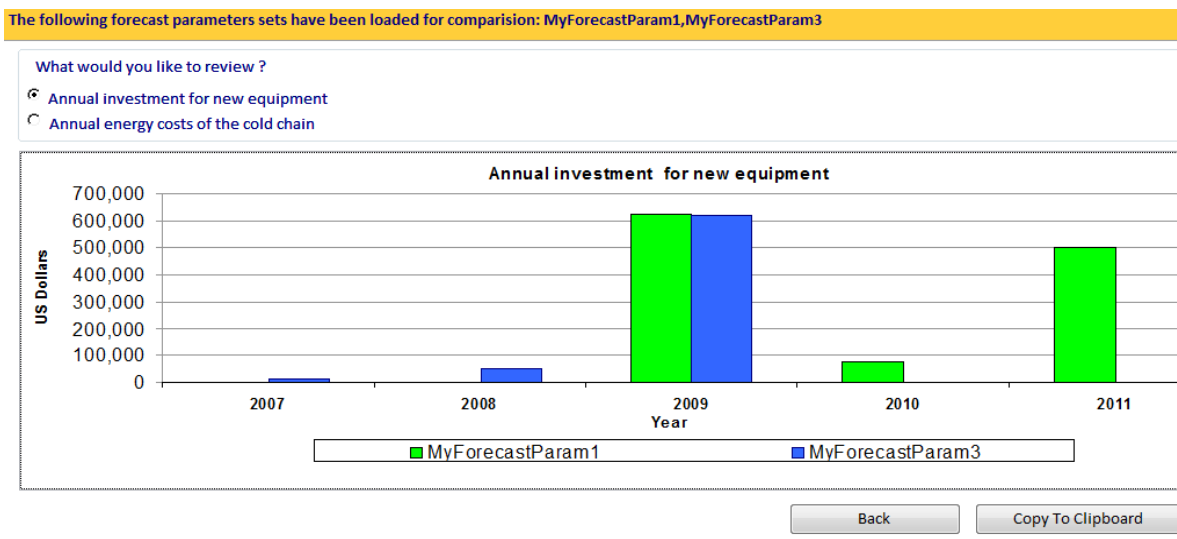
Select the forecast parameters sets you wish to load: MyForecastParam1

Name	Years	Withdrawal 1	Withdrawal 2	Withdrawal 3	Withdrawal 4	Withdrawal 5	Allocation 1	Allocation 2	Allocation 3	Allocation 4	Allocation 5
MyForecastParam1	2009 to 2011	MyWithdraw;	MyWithdraw;	MyWithdraw;	<none>	<none>	MyAllocation	MyAllocation	MyAllocation	<none>	<none>
MyForecastParam2	2011 to 2013	MyWithdraw;	MyWithdraw;	MyWithdraw;	<none>	<none>	MyAllocation	MyAllocation	MyAllocation	<none>	<none>
MyForecastParam3	2007 to 2009	MyWithdraw;	MyWithdraw;	MyWithdraw;	<none>	<none>	MyAllocation	MyAllocation	MyAllocation	<none>	<none>

Generate Comparison

Steps to Compare Forecast Scenarios:

1. Select **Compare Forecast Scenarios** from the **Forecast Scenarios** group.
2. Select the forecast parameter sets you wish to compare. The forecast parameters list will be displayed as shown in the screen above.
3. Click **Generate Comparison** to generate the comparison.
4. The following screen will display once the comparison is generated.



The comparison result screen provides two different options:

a) Annual investment for new equipment

This report displays a bar chart with the results for annual investment cost against each year in the chosen forecast parameter sets.

b) Annual energy cost for cold chain

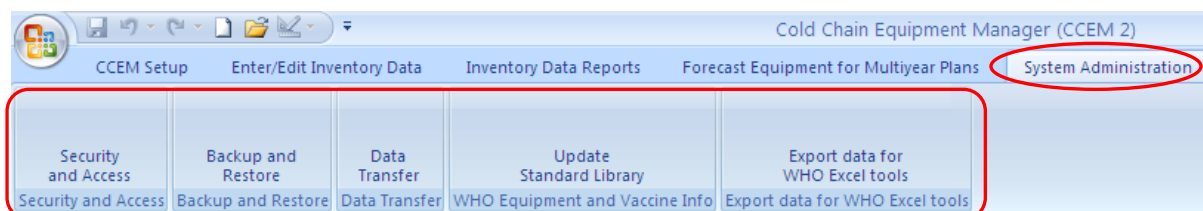
This report displays a bar chart with the results for annual energy cost against each year in the chosen forecast parameter sets.

These bar chart reports can be copied to any of the desired document like Word or Excel by using **Copy to clipboard** option.

Section 7 System Administration

The CCEM Tool comes equipped with several administrative functions to ensure accuracy of the tool and security of information.

The top main menu option **System Administration** provides access to five different functions as shown in the image below:



1. Security and Access
2. Backup and Restore
3. Data Transfer
4. Update Standard Library
5. Export Data for WHO Excel Tools

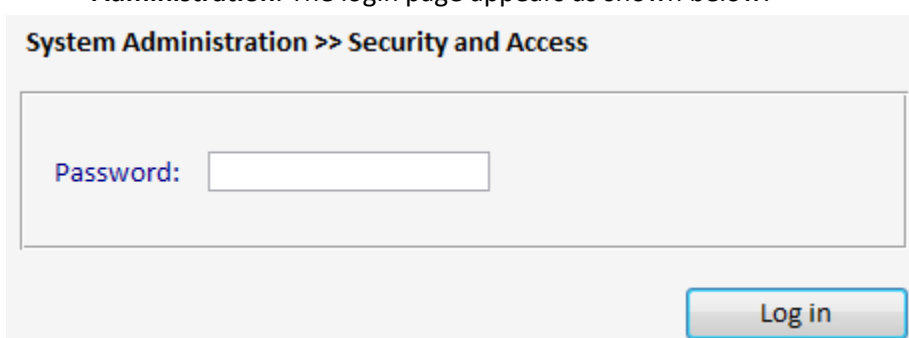
7.1 Security and Access

This option in **System Administration** adds password protection for some critical CCEM data and settings. Password protection can be added to four different categories of CCEM data and settings:

- Facility and Inventory Data
- Administrative Levels and Demographic Data
- Facility Types
- Country Vaccine Schedule

Steps to set the Security and Access

1. Select **Security and Access** option from **Security and Access** group of **System Administration**. The login page appears as shown below:



2. Enter the default password "admin0001" when initially setting the security access and click **Log In**. the four data categories along with change password option will appear.
3. Change the password by clicking **Change Admin Password**.

Check to lock in the data. Once checked records can not be edited or deleted.

☐ Facility and Inventory Data

☐ Administrative Levels and Demographics Data

☐ Facility Types

☐ Country Vaccine Schedule

Change Admin Password

4. Enter "admin0001" as the Current password and enter the <new password> in both the New Password text box and Confirm New Password text box and Click **Change Admin Password** to apply the changes.

Change password

Current Password:

New Password:

Confirm New Password:

Change Admin Password

5. Select which of the four data categories to lock with this password. Once locked, this data cannot be edited, added, or deleted without the selected password.

Check to lock in the data. Once checked records can not be edited or deleted.

☐ Facility and Inventory Data

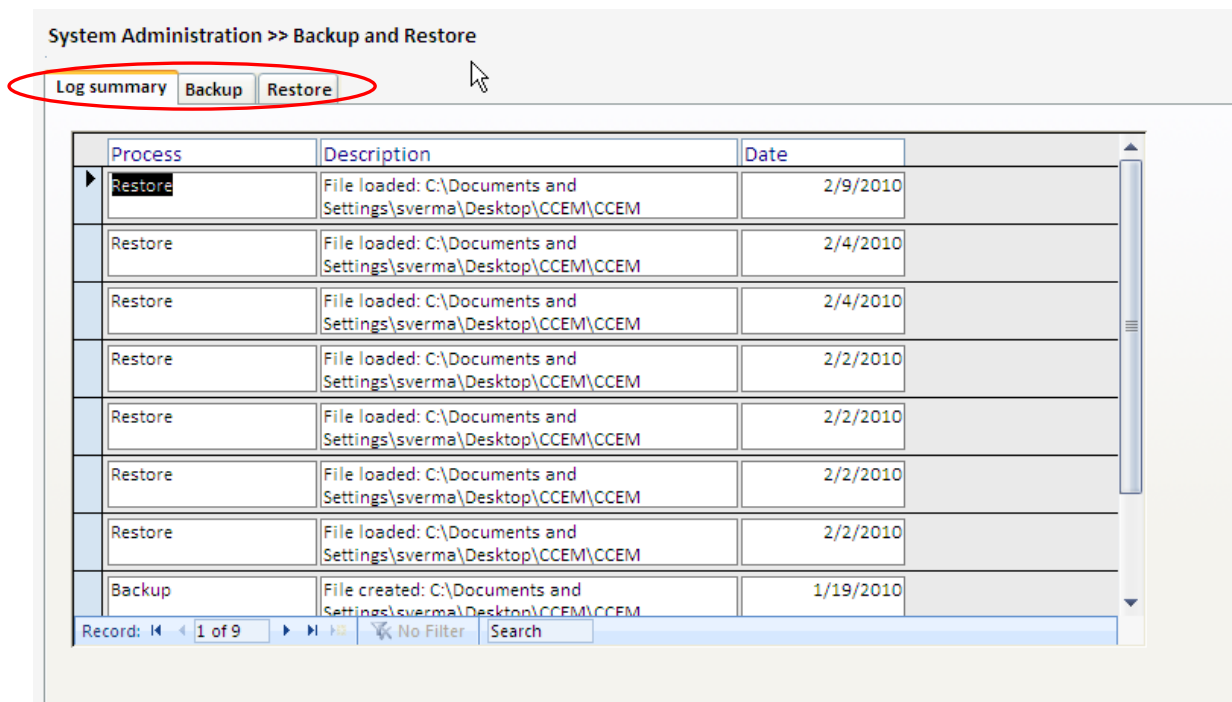
☐ Administrative Levels and Demographics Data

☐ Facility Types

☐ Country Vaccine Schedule

7.2 Backup and Restore

Select **Backup and Restore** option from the **Backup and restore** group. The screen below will appear.



There are three tabs (options) for the **Backup and Restore** utility: **Log summary**, **Backup**, and **Restore**.

Log Summary: This option provides a report of the previous backups including descriptions and dates.

Backup: This option provides a list of information to identify the current copy of CCEM 2 Tool in use.

Log summary Backup Restore

Date	10/009	Description	This is a test backup for the log file.
Vaccine: county schedule	8		
Facility types	15		
Admin levels	5213		
Facilities	2618		
Refrigerators/Freezers	2972		
Cold rooms	4		
Tools/Spare parts	22		
Voltage regulators	4475		
Cold boxes	2237		
ice packs	50		
Generators			

Create backup file

Creating a Backup File:

1. Fill in the date of the backup (default is today's date).
2. Fill in a description of the backup for later retrieval.

3. Click **Create Backup File**.
4. Enter a file name and click **Save**.

Restore: This option allows users to load a backup file of CCEM 2.accdb:

1. Click **Load Backup File**.
2. Find and click on the backup file (this has to be a CCEM.accdb file) to restore
3. Click **Continue**.

WARNING!

CCEM will begin using the restored file. Remember to backup older CCEM accdb files if needed for future use.

7.3 Updating CCEM Catalogues

The following catalogues in **CCEM Setup** can be updated using the **Update Standard Library** option:

- Refrigerators/Freezers (PQS pre-qualified equipment)
- Vaccine cold boxes and carriers (PQS pre-qualified equipment)
- Vaccines (WHO prequalified vaccines)

The Patchfiles.accdb file will be located on <http://www.path.org/publications/details.php?i=1569> and should be downloaded periodically to keep the system up to date and allow for access to new equipment and vaccine options. After downloading a new Patchfiles.accdb, follow these installation steps:

1. Select **Update Standard Library** from the **System Administration** top main menu.
2. Click **Browse** and select the Patchfiles.accdb file.
3. Confirm that the file information reflects the latest update by reviewing the details displayed in the screen.

System Administration >> WHO Equipment and Vaccine Info >> Update Standard Library

Library to include:

<input checked="" type="checkbox"/> Refrigerators/Freezers	Patch Version Number	<input type="text"/>
<input checked="" type="checkbox"/> Cold Boxes/Carriers	Patch Date	<input type="text"/>
<input checked="" type="checkbox"/> Voltage Regulators/Stabilisers		
<input checked="" type="checkbox"/> Vaccines		

Number of records in library:

Refrigerators/Freezers:	55
Cold Boxes/Carriers:	30
Voltage Regulators/Stabilisers:	2
Vaccines:	41

Check on the boxes for the catalogues that you wish to be updated from the selected patch. The number of records available in each catalogue and patch Information can be seen in the screen as well.

4. Click **Load patch** to update the selected catalogue table with the latest patch data.

7.4 Export Data for WHO Excel Tools

This option of **System Administration** helps to export CCEM data to the WHO Logistics_Planning_Tool 2009 and other WHO Excel-based cold chain planning tools.



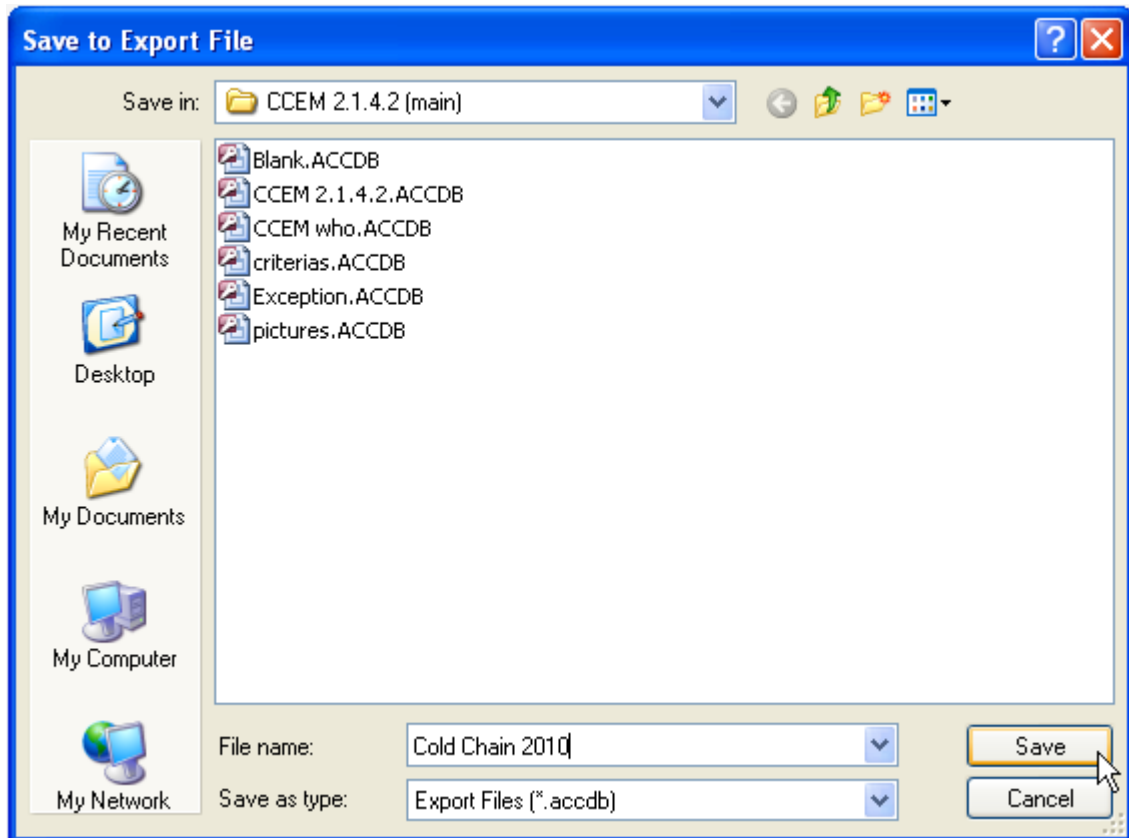
Steps to export data for WHO Excel Tools:

1. Select **Export Data for WHO Excel tools** option from the **System Administration** main menu.

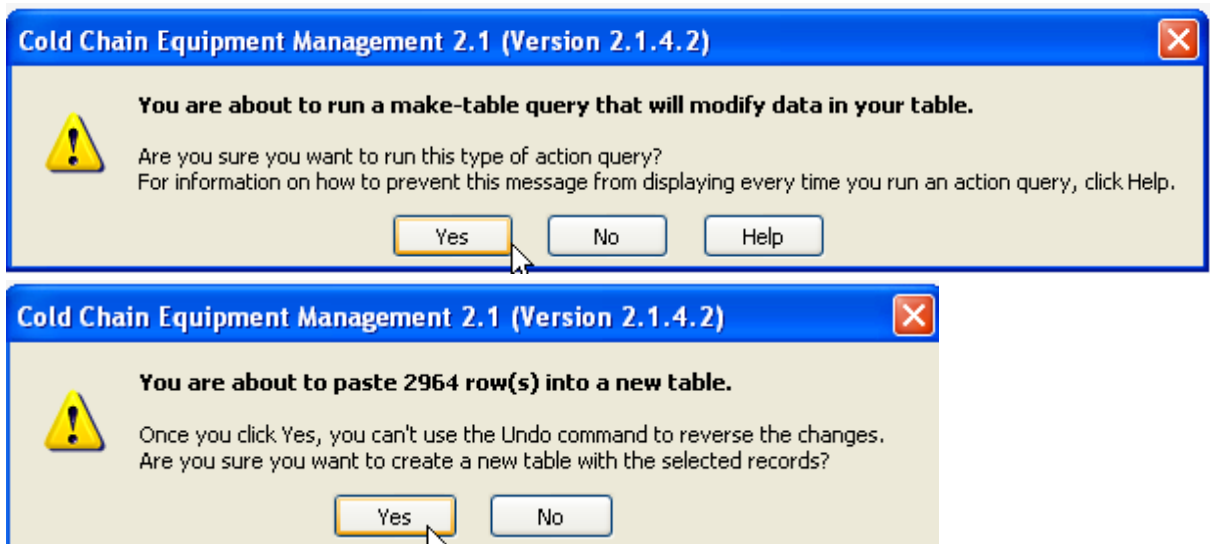
System Administration >> Export data for WHO Excel tools

Please click on the browse button to export data for WHO spreadsheet tool

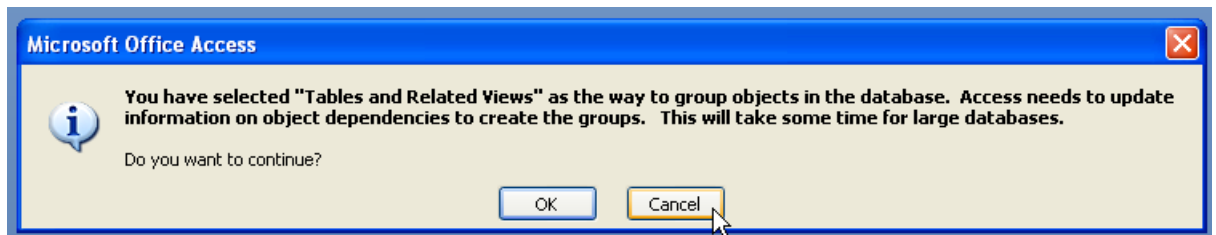
2. Click **Browse**. Enter a name for the new accdb to be created and click **Save**.



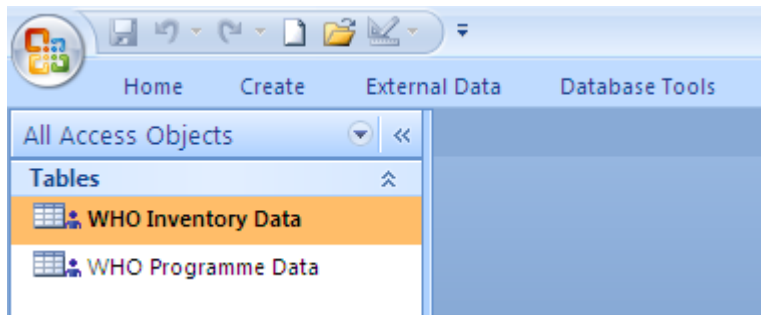
3. When the following messages appear, click **Yes** twice.



4. Close CCEM 2 and go to the CCEM files folder with the core six CCEM files (see [section 1.2](#)). Open the newly created accdb MS Access export file name.
5. When you see the following message, click **Cancel**.



6. The following screen will appear with two tables containing inventory the data and fields compatible with the WHO spreadsheet tool.



7. From this database, export the two tables into Excel.

Section 8 Deployment and data updating

How to install CCEM 2 in a specific location on your computer can be referred to in [section 1.4](#).

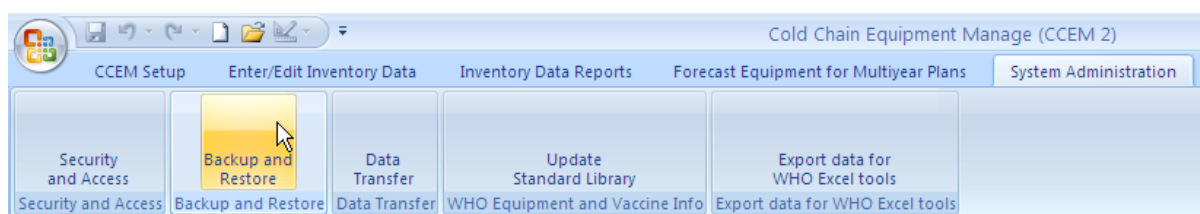
The following sections detail the steps involved in updating CCEM data tables such as Health Facility Types (Setup), Administrative areas (Setup) and Inventory data (Facilities and Equipment) from Excel files.

8.1 Importing data into a blank CCEM 2 Tool

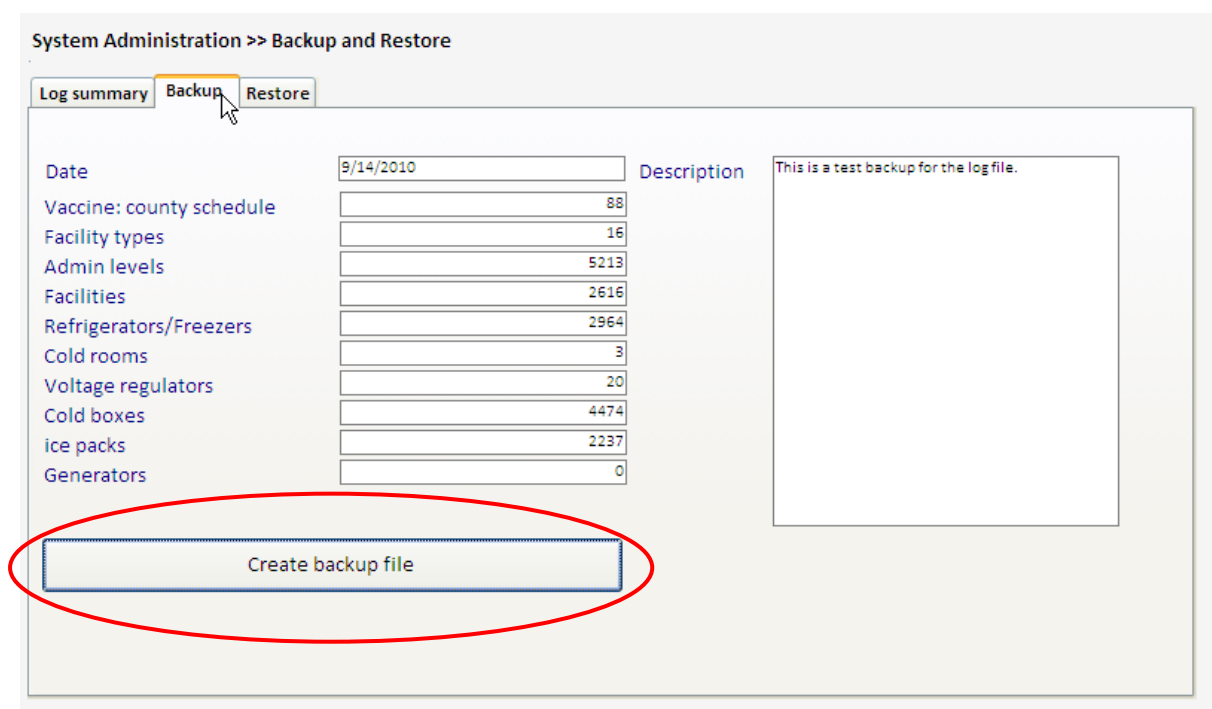
This section explains how a user can create a backup file from a blank CCEM 2 file as a means to import data for current country vaccine schedule, health facility types, administrative levels, facility data, and inventory data.

The **Backup and Restore** option on system administration helps in importing data into CCEM 2. The following section explains the steps to import or update data into initial/blank CCEM Database.

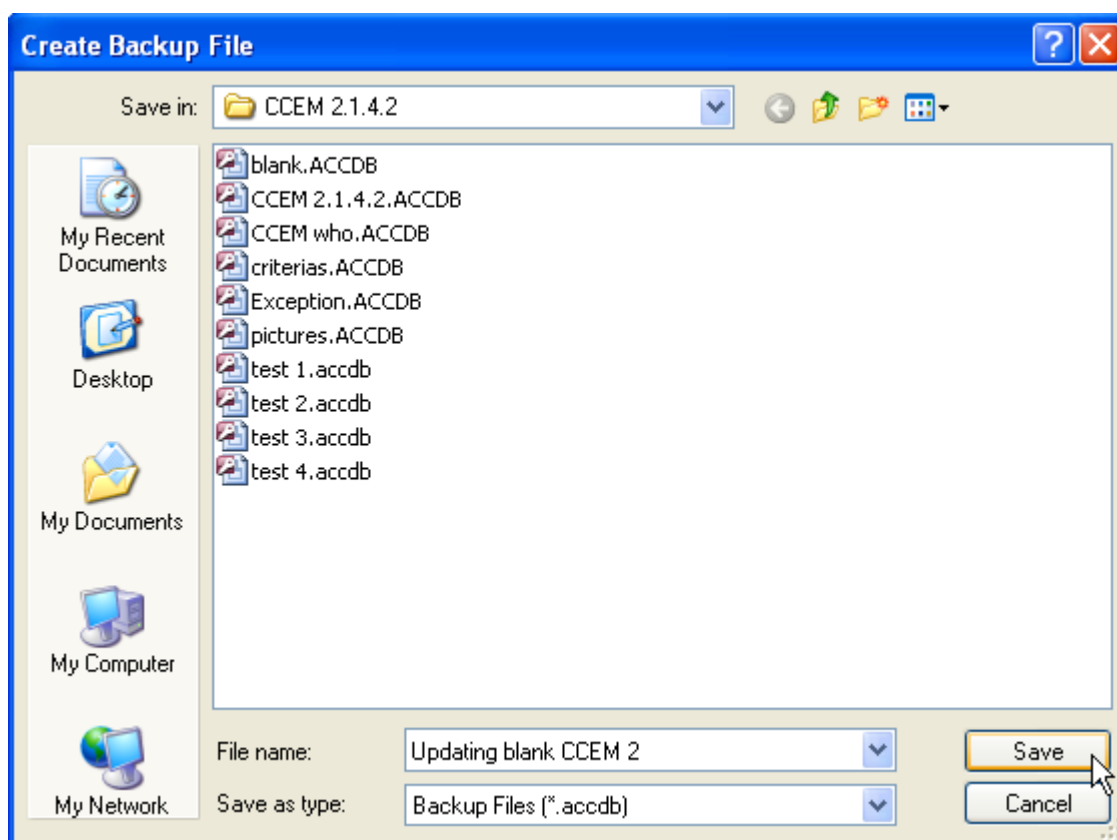
Step 1: Click **Backup and Restore** under **System Administration**



Step 2: Select the **Backup** tab and click **Create backup file**. A dialog box will open to create the backup file.



Step 3: Name the backup file with a unique name and click **Save**.



Step 4: The following tables will be created in the backup file.

TBL_ADMIN_AREAS: Contains administrative data in CCEM setup

TBL_FACILITIES: Contains facility information in enter/edit inventory data

TBL_FACILITY_TYPE: Contains Health facility type data in CCEM Setup

TBL_INV_COLD_BOXES: Contains cold boxes data in enter/edit inventory data

TBL_INV_COLD_ROOM: Contains cold room data in enter/edit inventory data

TBL_INV_GENERATORS: Contains generators data in enter/edit inventory data

TBL_INV_ICE_PACKS: Contains Ice packs data in enter/edit inventory data

TBL_INV_REF: Contains refrigerator data in enter/edit inventory data

TBL_INV_REGULATORS: Contains regulator data in enter/edit inventory data

TBL_INV_SPARE_PARTS: Contains spare parts data in enter/edit inventory data

TBL_UTILITY_BACKUP_INFO: Contains backup information

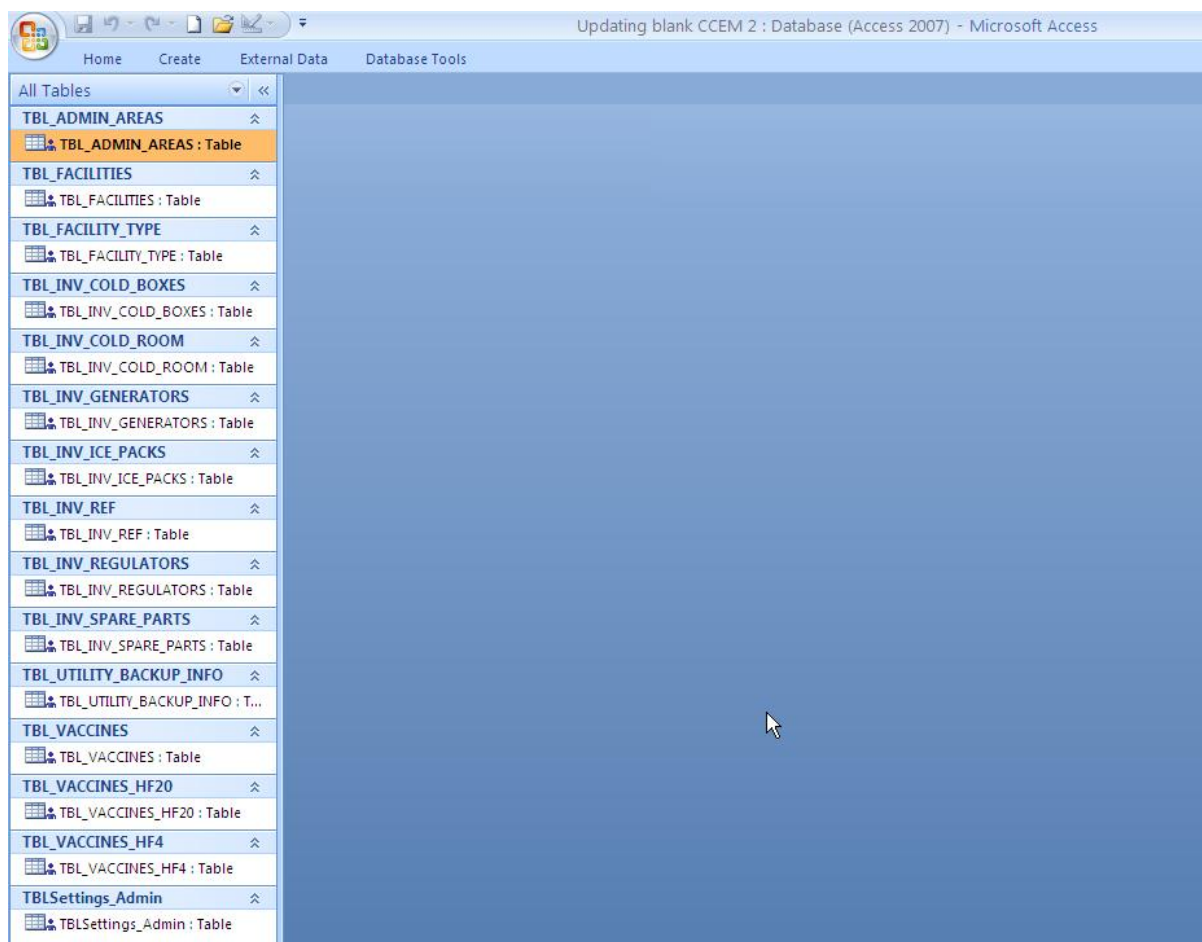
TBL_VACCINES: Contains vaccine schedule information

TBL_VACCINES_HF20: Contains vaccine schedule information corresponding to -20⁰ C

TBL_VACCINES_HF4: Contains vaccine schedule information corresponding to +4⁰ C

TBLSettings_Admin: Contains admin level data

Step 5: Open the backup file using MS Access 2007. When you open this backup file the following screen will appear:



Since the backup file is created from an empty CCEM tool, all the tables will be empty except the **TBLSettings_Admin** table.

Step 6: Open the Excel sheet containing the data and copy the data from the Excel sheet and paste it into the respective table in the access table.

Note:

Structure and data type of Access table and imported Excel sheet should be same.

Step 7: **Save** and **Close** the updated MS Access backup file.

Step 8: Open the main CCEM 2 file.

Step 9: Select the **Restore** tab of **Backup and Restore** in the **System Administration** module of the current CCEM version.

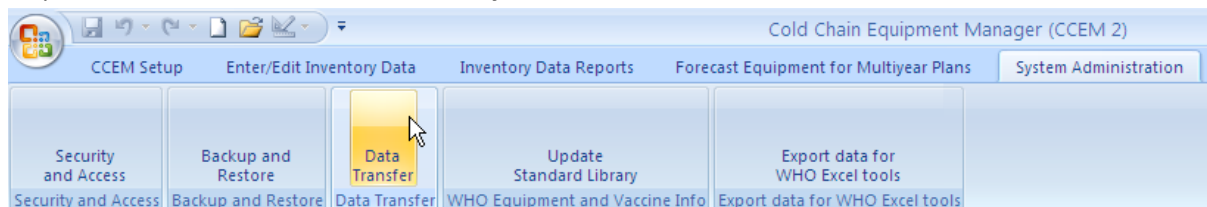
Step 10: Click **Load backup file**. The tool will open a dialog box to select backup file to restore. Select the backup file saved in step 7.

Step 11: Click **Continue** and all the data in the tables from Step 3 will be erased and inserted from the backup file (except backup information).

8.2 Data transfer for decentralized deployment of CCEM

Add introduction on application for decentralized implementation

Step 1: Select **Data Transfer** under the **System Administration** tab.



Step 2: Select the **Create Feedforward File** tab and click **Create feedforward file**.

The screenshot shows the 'System Administration >> Data Transfer' window. The 'Create Feedforward File' tab is selected. The window contains a form with the following fields:

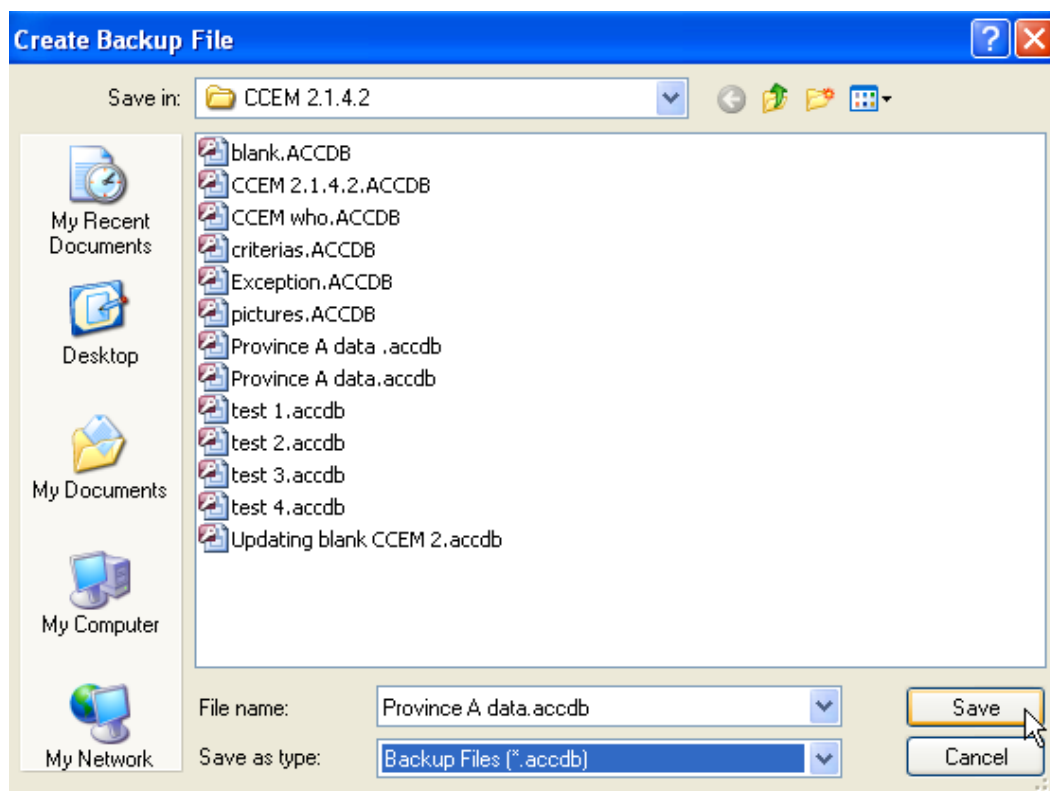
- Date:** 9/14/2010
- Description:** This is a test backup for the log file.
- Equipment List:**

Equipment Type	Count
Vaccine: county schedule	88
Facility types	16
Admin levels	5213
Facilities	2616
Refrigerators/Freezers	2964
Cold rooms	3
Voltage regulators	20
Cold boxes	4474
Ice packs	2237
Generators	0

At the bottom of the form, there is a button labeled 'Create feedforward file'.

The tool will open a dialog box to create the feedforward file.

Step 3: The following dialogue box will open allowing you to name this file:



Step 4: The following tables will be created in the feedforward file.

TBL_ADMIN_AREAS: Contains administrative data in CCEM setup

TBL_FACILITIES: Contains facility information in enter/edit inventory data

TBL_FACILITY_TYPE: Contains health facility type data in CCEM setup

TBL_INV_COLD_BOXES: Contains cold boxes data in enter/edit inventory data

TBL_INV_COLD_ROOM: Contains cold room data in enter/edit inventory data

TBL_INV_GENERATORS: Contains generators data in enter/edit inventory data

TBL_INV_ICE_PACKS: Contains ice packs data in enter/edit inventory data

TBL_INV_REF: Contains refrigerator data in enter/edit inventory data

TBL_INV_REGULATORS: Contains regulator data in enter/edit inventory data

TBL_INV_SPARE_PARTS: Contains Spare parts data in enter/edit inventory data

TBL_UTILITY_BACKUP_INFO: Contains backup information

TBL_VACCINES: Contains vaccine schedule information

TBL_VACCINES_HF20: Contains vaccine schedule information corresponding to -20 C

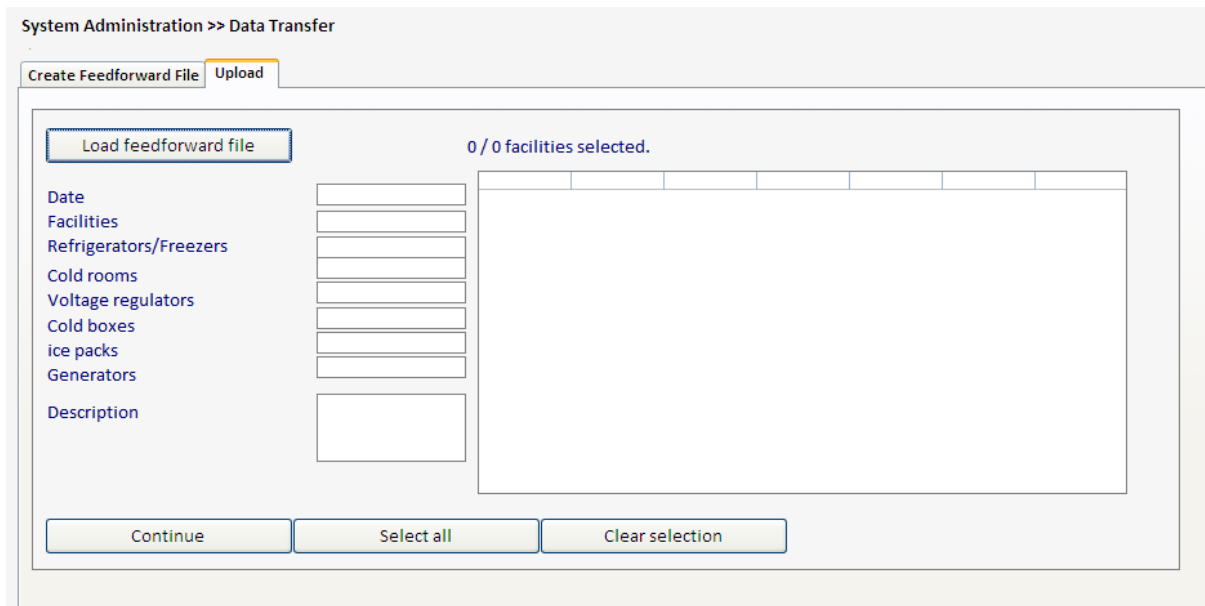
TBL_VACCINES_HF4: Contains vaccine schedule information corresponding to +4 C

TBLSettings_Admin: Contains admin level data

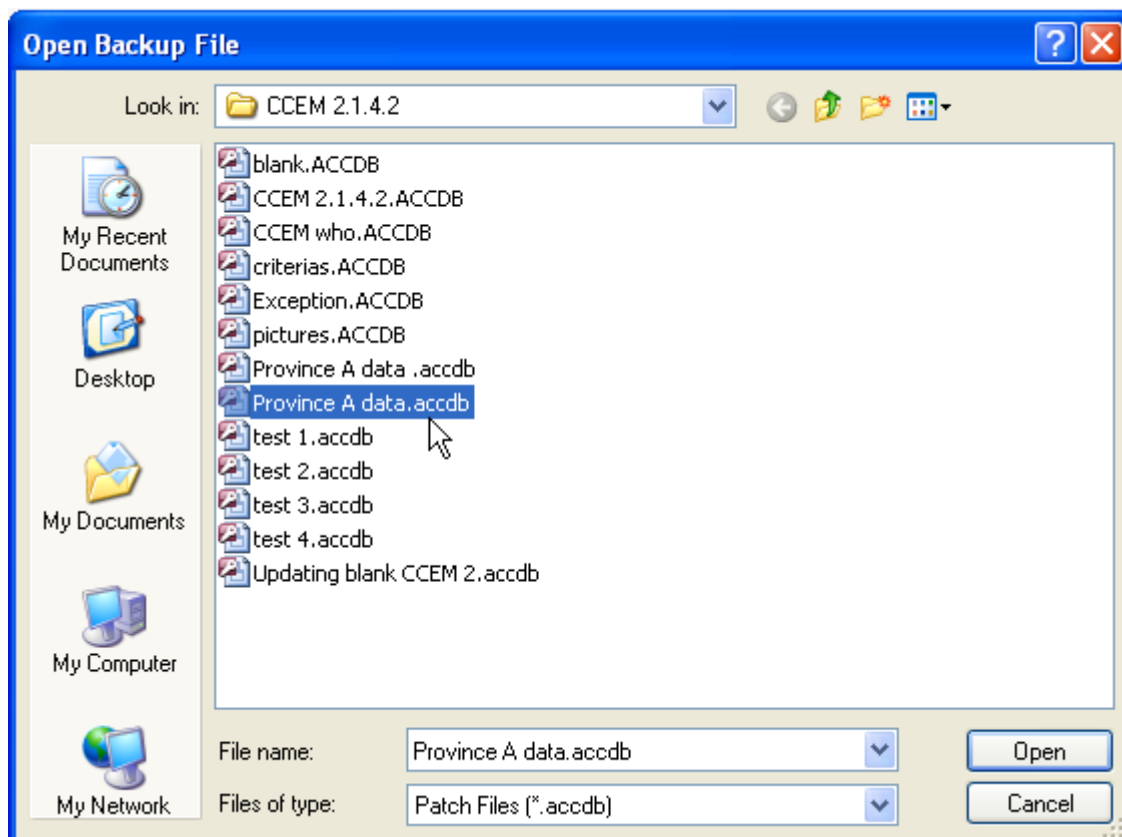
Step 5: Send this CCEM data transfer file to the recipient data manger

Step 6: The recipient data manger will save this file in a safe location, making sure to backup the original CCEM 2 file and working with a copy of this database tool for this updating.

Step 7: The recipient data manger will select the **Upload** tab of **Data Transfer** in the **System Administration** module of current CCEM version.



Step 9: Click **Load feedforward file**. The tool will open a dialog box to select the backup file to upload. Select the feedforward file saved in step 3.



Step 10: Select the specific facilities to be uploaded or **Select all** and click **Continue**.

System Administration >> Data Transfer

Create Feedforward File Upload

Load feedforward file

2616 / 2616 facilities selected.

Date: 9/14/2010

Facilities: 2616

Refrigerators/Freezers: 2964

Cold rooms: 3

Voltage regulators: 20

Cold boxes: 4474

ice packs: 2237

Generators: 0

Description: This is a test backup for the log file.

Facility Code	Type	ft_level2	ft_level3	ft_level4	ft_level5	Facility Name
6181-0000	NGO HCIII	YUMBE	ARINGA	DRAJANI	YIBA	LODONGA
6182-0000	Public HCII	YUMBE	ARINGA	KEI	AWOBA	LOBE
6184-0000	Public HCII	YUMBE	ARINGA	KEI	GIMERE	MATUMA
6185-0000	NGO HCIII	YUMBE	ARINGA	KEI	PALAJA	KEI
6189-0000	Public Hospital	YUMBE	ARINGA	KURU	LOMUNGA	YUMBE HO
6193-0000	Public HCIII	YUMBE	ARINGA	KURU	YOYO	YOYO
6195-0000	Public HCIV	YUMBE	ARINGA	MIDIGO	MIGO	MIGO HC
6200-0000	NGO HCII	YUMBE	ARINGA	ODRAVU	NYOKO	OKUYO
6201-0000	Public HCIII	YUMBE	ARINGA	ODRAVU	OLUBA	KULIKULIN
6202-0000	Public HCIII	YUMBE	ARINGA	ODRAVU	RIGBONGA	ARIWA
6203-0000	NGO HCII	YUMBE	ARINGA	ODRAVU	WOLO	ABIRIAMA
6204-0000	Public HCII	YUMBE	ARINGA	ROMOGI	BARINGA	BARAKALA
6205-0000	Public HCIII	YUMBE	ARINGA	ROMOGI	KOCHI	KOCHI
6210-0000	District Store	YUMBE	ARINGA	YUMBE T.C	CHARANGA	YUMBE DIS
6210-0001	Public HCIII	YUMBE	ARINGA	YUMBE T.C	CHARANGA	YUMBE 1
6212-0000	District Store	SIRONKO	BUDADIRI WE	SIRONKO T.C	BUNANIMI	SIRONKO

Continue Select all Clear selection

Step 11: CCEM will replace the selected facilities records in the original CCEM file with the selected facility records from feed forward file. New facility records will be created when the new facilities records are transferred. Unselected facilities will remain unchanged.

Note: Tool will not make any addition/Modification to the below tables)

TBL_ADMIN_AREAS

TBL_FACILITY_TYPE

TBL_VACCINES

TBL_VACCINES_HF20

TBL_VACCINES_HF4

TBL_UTILITY_BACKUP_INFO

TBLSettings_Admin

Step 12: Open the tables in the current CCEM version tool and compare the record against the records from the Excel sheet.

8.3 Updating the Cold Chain Equipment Inventory

A national inventory survey is conducted with considerable investment of human effort and financial resources. The inventory survey provides a picture of the cold chain system that is valid only on the day of the survey. From this day forward, the inventory data begins to change. Equipment is moved, withdrawn, or supplied and the database gradually ceases to be accurate.

Typically, inventories have been allowed to age and fall out of use, and perhaps 5-10 years later the necessary resources are mobilized again and the entire exercise is repeated. This is neither economical nor is it an acceptable way to manage cold chain equipment, plan for expansion of immunization services, or prepare for the introduction of new vaccines. The cold chain equipment inventory should be routinely updated as equipment is moved, retired, or added to facility stores. It is of prime importance that a routine system of updating be implemented as soon as possible after the national cold chain equipment survey to enable the following processes to occur in an efficient way:

- Micro-planning of equipment changes in facilities at sub-national levels
- Tracking of repairs requiring withdrawal and return of equipment
- Monitoring of working status and requests for service
- National planning to correct MYPs annually
- Assessment of impact of supplementary immunization or disease outbreak response

The update system for CCEM is currently limited to a paper-based reporting system. Paper forms must be designed, then completed and sent from the health facilities to the key administrative level, region, or district. At this level the data can be summarized onto sub-national reports and sent to the central level for incorporation of the data into CCEM.

Section 9 Exception Handling

Exception handling is an important part of CCEM Tool. The exception handling database, (Exception.accdb) present along with the CCEM Tool, will log all the exceptions that occurred during the run time of CCEM Tool. Exception handling is designed to handle special conditions that change the normal flow of CCEM Tool execution.

The table **TBL_Exception** in the **exception.accdb** database holds the exception information. The following fields will be logged for any exception that occurs in CCEM.

- a) **Module:** This field gives the description of the module where the exception occurred.
- b) **Method:** This field logs the information of functions or method in which the exception got raised.
- c) **Error Description:** Provides the actual detailed information on the exception occurred.
- d) **Error Number:** Provides the number associated with the exception for administrator reference.
- e) **Captured Date:** This field provides the date and time the exception occurred.

The exception handling mechanism helps to provide friendly custom information to the user during the real time of exception occurrence, and the logged information provides detailed information to the administrator who would troubleshoot the issue later.