USAID | DELIVER PROJECT

HEALTH COMMODITY MANAGEMENT INFORMATION SYSTEM (HCMIS) ACCEPTANCE TEST PLAN

FOR FACILITY EDITION

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HEALTH COMMODITY MANAGEMENT INFORMATION SYSTEM (HCMIS)

ACCEPTANCE TEST PLAN

FOR FACILITY EDITION

USAID | DELIVER PROJECT, Task Order 1

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1 INTRODUCTION

1.1 Purpose

The overall purpose of testing is to ensure that the HCMIS FE performs at an acceptable level for the user and against the user requirements as defined in the HCMIS FE Software document.

In this document, therefore, detailed plan for HCMIS FE user acceptance testing will be briefly discussed. Moreover, the document will provide test plan and specification for the test team, project manager, developers and quality assurance team. It also provides detail information about tests with actual and expected results, list of all test items, lists of all features to be tested, test procedures and so on.

1.2 Approach

1.2.1 Introduction

This section describes the approach to the testing of HCMIS HE to ensure that it meets all requirements.

1.2.2 Objectives

The acceptance test will define how HCMIS HE is tested to ensure that it meets the requirements defined in the Requirements document by testing defined test cases

1.2.3 Structure

The tests are structured in a way so that each test checks to see if one requirement is met. This way we can ensure that all the requirements are met as listed in the Requirements Document. It is important that all test pass and to record all results of testing.

1.2.4 Assumptions

The Acceptance test assumes that all other tests are satisfactory. This test will cover the following.

- The functional requirements as defined in the Requirements Document
- Usability of the system

1.2.5 Exclusions

The acceptance test will not cover the following because they will be covered by others tests

- Integrity of the Source Code

1.3 Document Organization

This Acceptance Test Plan Document is divided into 5 chapters. Chapter 1 deals with the introduction with details on the purpose, approach, document organization, and intended audience.

Chapter 2 deals with Testing Overview which contains the goals and quality assurance approaches, organization, in scope, out of scope, test case specifications, test case identification, pass/fail criteria, defect classification, testing schedule, and training needs.

Under chapter 3, the test environment and its components will be briefly discussed.

Chapter 4 addresses the test execution guidelines where as Chapter 5 deals with the additional sections including the definitions, acronyms, and abbreviations that are used in the document

1.4 Intended Audience

Intended target audience for this performance test plan document consists of the following groups:

- Test team
- Development team
- Project Manager/PM
- Quality Assurance
- Stakeholders

2 TESTING OVERVIEW

2.1 Quality Assurance Approach

The Development Test (DT) and User Acceptance Test (UAT) will be reviewed with senior management in HCMIS FE management meetings, and with the development team in review meetings. In addition, the testing process will be subject to QA reviews and audits.

2.2 Organization

The personnel that are involved in acceptance test management include the Project Manager, IT Analyst, System and Database Designers, Testing Coordinator, developers and other stakeholders.

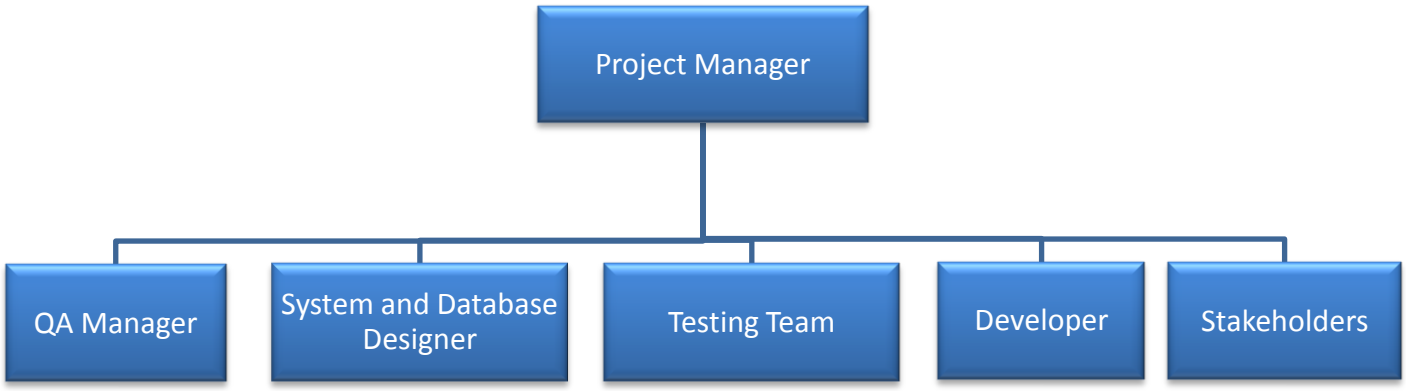

Figure 1: Personnel structure for the acceptance test process

2.3 Scope

This document encompasses the acceptance tests that have to be done by checking whether all functional and non-functional requirements are supported and functions correctly together with the results of the tests performed.

2.4 Test Case Specifications

A test case document is derived from the functional requirement document and system documents. The document provides specifications for the construction of test cases and includes list of test case

areas, inputs, actions, predicted results, actual result and test objectives for each of the components to be tested. The template that will be used for designing the test cases is showing in Table 2-1.

Table 2-1: Test case specifications

Test Case ID:				
Test Case Name:				
Description:				
Data Requirements:				
Step No.	Step Description	Expected Result	Actual Result	User Think Time

2.5 Test Case Identification

Table 2-2 describes how the test case will be identified and each will be classified in the user acceptance test.

Table 2-2: Test case identification

Test Case Id	ST
ATC1	N, X
ATC2	X
ATC3	X
ATC4	X
ATC5	X
ATC6	X
ATC7	X
ATC8	X
ATC9	X
ATC10	X
ATC11	X
ATC12	X
ATC13	X
ATC14	X
ATC15	X
ATC16	X
ATC17	X

ATC18	X
ATC19	X
ATC20	X
ATC21	X
ATC22	X
ATC23	X
ATC24	X
ATC25	X
ATC26	X
ATC27	X
ATC28	X
ATC29	E

N = Stages entry criteria

E = Stages exit criteria

X = to be run in the stage

2.6 Test Case Pass/Fail Criteria

Based on the requirement specifications, the different test cases can be executed in order to check the desired behavior of the application. When the preconditions were met and the inputs were carried out, based on the application's exhibited behavior, the test cases will be considered to have passed or failed.

2.7 Defect Classification

For each defect, the tracker will store (at a minimum) the information shown in Table 2-3.

Table 2-3: Classification of defects

Field	Description
Defect ID	A unique identifier for each bug.
Title	A one-or two-sentence summary of the failure observed.
Severity	The absolute severity of the failure range from 1 (worse) to 4 (least dangerous) scales

Priority	Priorities can be categorized as Critical, High, Medium or Low **Critical**: Any defect which completely halts the application from continuing the testing **High**: Any defect from a major requirement **Medium**: Any defect related to inconsistent results **Low**: Any defects which are cosmetic
Resolution Notes	Once the bug is inactive (see Activity field below, "Closed"), this should include a description of the final resolution
Submit Date	The date on which the bug report was opened
Assigned to	The person responsible for moving the bug report to its next, and ultimately terminal, state
Opened by	The name of the tester who identified the problem
Activity	To capture whether any action is pending on a bug, this field is either "Open" (further action is planned or needed at this time) or "Closed" (no further action will occur). Open bug reports are in a "Review," "Reported," "Assigned," "Can't Reproduce," "Test," or "Not Resolved" state, while closed bug reports are in a "Rejected," "Defer" or "Resolved" state
State	The state of the issue, as follows: **Review:** Awaiting a peer review by another tester **Rejected:** Review failed; behavior is not a bug **Reported:** The problem is deemed by the test engineer fully characterized and isolated. **Assigned:** The problem is accepted as fully characterized and isolated by development, and an owner, responsible for fixing the problem, is assigned. **Test:** Development has repaired the problem in some level of hardware or software, and someone owns testing the problem to evaluate the fix **Not Resolved:** The fix failed the retest **Defer:** Do not fix for this release **Resolved:** The fix passed the retest

2.8 Testing Schedule

This section summarize the planned schedule of user acceptance test, for the test activities all upgraded functionality and test data will be migrated to the test environment prior to the start of user acceptance test. The planned schedule of activities for Acceptance Testing is detailed in Table 2-4

Table 2-4: Schedule for Acceptance Test

Task	Effort	Finish
Prepare test design specifications	3 Days	April 05, 2008
Prepare test case specifications	3 Days	April 11, 2008
Prepare test procedure specifications	1 Days	April 12, 2008
Prepare test plan	2 Weeks	April 15, 2008
Prepare test environment	2 Days	April 20, 2008
Run tests	2 Days	May 12, 2008
Check out results	1 Day	May 15, 2008
Resolve test incident reports	1 Day	May 17, 2008
Prepare test report	2 Days	May 19, 2008

2.9 Training Needs

Once the tests are automated the major activities can be transferred to the test team who will provide routine maintenance. Training will also be required before the test team can assume the role. A total of one week will be sufficient for the team to learn about how the HCMIS FE performs its functions.

3 TEST ENVIRONMENT

In order to successfully and reproducibly conduct the system test, the following provisions and preconditions have to be established.

3.1 Overview

The upcoming sections will provide a description about performance test environment including the required hardware and software components that are essential to conduct the performance test. The test environment provides the hardware, software and facilities needed to support the proper execution of the test plan. Moreover, stand alone PC properly configured with Windows XP operating system running SQL server 2008 Express Edition and .NET Framework 4.0 will be used as a performance test environment.

3.2 Test Environment Management

The test environment that will be established to perform acceptance testing on HCMIS FE will be separated from the development environment and identical to the operational or production environment.

To establish the operational test environment, the following steps will be taken.

- **Review and expand technical environment**: The purpose of this step is to ensure that adequate computer hardware and the appropriate system software have been installed and available for the testing phase.
- **Inspect the test environment**: The purpose of this step is to ensure that an effective test environment has been established for the testing phase. The system developer, testing team, and project manager will review the test environments to make certain that the testing environment is available and operating properly.
- **Prepare system software to support testing**: The purpose of this step is to ensure that the system software in the test environment is ready for the testing effort. The testing team will confirm proper operation of the operating system and utilities software.

3.3 Components

The following section in acceptance test plan will define the required hardware and software.

3.3.1 Hardware

The testing effort requires a standalone desktop computer with 2.4 GHz Pentium IV Processor, 512MB RAM, and 20GB Hard Disk.

3.3.2 Software

In addition to the application and any other customer specified software, the following list of software should be considered a minimum.

- **Operating System**: Windows XP Service Pack 3
- **Database**: SQL Server 2005 Express Edition
- **Framework:** .NET Framework 4.0

4 TEST EXECUTION GUIDELINES

This section describes the general criteria by which testing commences, temporarily halted, resumed and completed within test cases.

4.1 Entrance

The Entrance criteria should be fulfilled before acceptance test can commence. The entrance criteria are:

- Acceptance Test plans must be signed off by IT Analyst and Test Manager
- All human resource must be assigned and in place
- All test hardware and environments must be in place, and free for system test use

4.2 Exit/Acceptance Criteria

Acceptance test will end when the following criteria are met:

- No crash, halt, unexpected process termination or other stoppage of processing has occurred during testing
- The Test Team has executed all the planned test cases
- The Development Team has resolved all must-fix bugs
- The Test has checked that all issues in the bug tracking system are fixed
- The Project Manager holds an acceptance test phase Exit meeting and agrees that these acceptance test ext criteria are met

4.3 Process

The following subsections define the activities of HCMIS FE system in acceptance test execution.

4.3.1 Conducting Test

Test scripts will be executed by qualified test team members not directly involved in developments of the HCMIS FE system. Tests will be performed in the environment established for the testing purpose. Specific test results will be indicated within the test script itself, but a test log may be

attached to the fulfilled test script if needed to document any comments, deviations from the test procedures, or anomalies discovered during the testing.

All formal comments during the test execution will be documented in test log and included as part of the test report. Software problem reports generated during the execution of the testing will be processed in accordance with the configuration management plan

4.3.2 Defect Resolution

Depending on the severity level, the estimated time for addressing a defect will vary as follows:

Critical – Addressed within 1 – 2 days

High – Addressed within 2 – 3 days

Medium – Addressed within 3 – 4 days

Low – As time permits

4.3.3 Test Type Planning

Tests can be run in any random order. There are no prerequisites for any tests except the preconditions that are mentioned under the statuses mentioned.

4.3.4 Suspension/Resumption Procedures

If the test team will found the major bug where further testing cannot be performed then there is need to pause testing. When the bug is fixed testing may performed from the beginning to check the fixing bug did not affect any other functionality. In case of miner bug during testing, we can continue the testing the application then can report the bug afterwards.

4.3.5 Test Metrics and Reporting

4.3.5.1 Test Metrics

Table 4-1 shows the acceptance test metrics that can be collected and reported.

Table 4-1: Test metrics

Metric Name	Description
Test Procedure Execution Status	Number of executed test procedures versus total number of test procedures. This metric will indicate the extent of the testing effort still outstanding.
Error Discovery Rate	Number of total defects found versus number of test procedures executed. It is used to analyze and support an intelligent product release decision.
Problem Reports by Severity	Open defects, sorted by severity, with a defect number and one line description for each defect. Each defect priority should also be shown
Problem Reports by Priority	Number of software problems reported, listed by priority

4.3.5.2 Report

The acceptance test team will deliver the Acceptance Test Report no later than an agreed upon number of days after the end of acceptance testing. This report will help concerned bodies take "accept" or "reject" decision.

The information within the report includes:

- Functional/Requirement area
- Total number of tests
- Number of tests executed
- Percentage completed
- Subtotal number of test failed
- Percentage Failed
- Number of tests not tested

For further reference on the layout of the report, look at the Appendix.

4.4 Roles and Responsibilities

In this section in acceptance test plan document shows the role and responsibilities for each personnel that are involved in acceptance test.

4.4.1 Test Specification and Execution

Table 4-2 depicts the test specification and execution of HCMIS FE System for acceptance test.

Table 4-2: Role and responsibility for each personnel

Function/Requirement	Test Specification and Execution	Estimate
Managing user accounts	Testing Team	30 Minutes
Managing system setting	Testing Team	1 Hour
Editing pipeline information	Testing Team	30 Minutes
Adding/editing/deleting supplies list	Testing Team	30 Minutes
Adding/edition/deleting drugs' information	Testing Team	30 Minutes
Customizing drug list	Testing Team	1 Hour
Maintain separate logical stores for different programs in the same warehouse	Testing Team	2 Hours
Generating pick list including the location, item name, batch number and expiry date of items to be issued	Testing Team	1 Hour
Handling loss/adjustment	Testing Team	30 Minutes
Managing pick face replacement	Testing Team	1 Hour
Handling inventory control	Testing Team	30 Minutes
Controlling receive transaction activity log	Testing Team	2 Hours
Controlling issue transaction activity log	Testing Team	1 Hours

Controlling loss/adjustment log	Testing Team	30 Minutes
Controlling inventory log information	Testing Team	1 Hour
Handling database backup and restore	Testing Team	1 Hour
Exporting data to PFSA in PDA, Server and Excel formats	Testing Team	30 Minutes
Generating reports regarding the stock status, over stock items, stock out items, issue by receiving unit, expired products, near expiry products, and storage status	Testing Team	1 Hour
Generating summary reports that include summary chart, stock expiry status and cost summary.	Testing Team	1 Hour

4.5 Deliverables

The following is a list of deliverables produced during the acceptance test phase:

- Acceptance Test Plan
- Acceptance Test Schedule
- Acceptance Test Report

5 ADDITIONAL SECTIONS

5.1 Definitions and Abbreviations

This document may contain terms, acronyms, and abbreviations that are unfamiliar to the reader. A dictionary of these terms, acronyms, and abbreviations can be found in the next sections.

5.1.1 Abbreviation

- DT – Document Test
- HCMIS FE - Health Commodity Management Information System Facility Edition
- PDA - Personal Digital Assistant
- PFSA - Pharmaceutical Fund and Supply Agency
- PM - Project Manager
- QA - Quality Assurance
- TC - Test Case
- UAT - User Acceptance Test

5.1.2 Definitions

- **Acceptance Test**: is a test process to obtain confirmation that a system meets mutually agreed-upon requirements.
- **Pass/Fail Criteria**: Decision rules used to determine whether a software item or software feature passes or fails a test.
- **Severity:** Refers to specific program or system behavior as a result of defects
- **Test Environment Management**: The process required to setup or coordinates all the necessary hardware and software for testing purpose.
- **Test**: An activity in which a system or component is executed under specified conditions, the results are observed or recorded, and an evaluation is made of some aspects of the system or component.
- **Test Case Specification**: A document specifying inputs, predicted results, and a set of execution condition for test item.

- **Test Case Identification**: An identification that is used to identify each test case and also to indicate classification of each test case.
- **Test Plan**: A document describing the scope, approach, resources, and schedule of intended testing activities. It identifies test items, the features to be tested, the testing tasks, who will do each task, and any risks requiring contingency planning.
- **Test Procedure**: A document containing a set of associated instruction and specifying a sequence of actions for the execution of a test.
- **Test Report**: A document summarizing testing activities and results. It also contains an evaluation of the corresponding test items.
- **Testing**:(1) The process of operation a system or component under specified conditions, observing or recoding the results, and making an evaluation of some aspect of the system or component. (2) The process of analyzing a software item to detect the differences between existing and required conditions (i.e., bugs) and to evaluate the features of the software items.

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