

DEVELOPMENT OF ASEAN FOOD SECURITY INFORMATION
SYSTEM OF MALAYSIA (AFSIS-MY)
SOFTWARE REQUIREMENTS, TESTING AND USER TRAINING.

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DEVELOPMENT OF ASEAN FOOD SECURITY INFORMATION SYSTEM OF
MALAYSIA (AFSIS-MY)
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ABSTRACT

ASEAN Food Security Information System of Malaysia (AFSIS-MY) Project is implemented to support for data collection process which involves four category of user which are District, State, Head Quarters, and Ministry. The main functionalities that the system should offer are Provide Data, Verify Data and Retrieve Report. In a limited time given, it is difficult to include all categories of users or their representatives which spreading over the country to participate in the requirements gathering, held during the requirements analysis phase. Only generic requirements of the main functionalities could be gathered through the discussion with the Ministry users, while another or additional requirements may come in from others but could not be discussed. However, at the end of the project, the goal to produce AFSIS-MY that satisfied all the users, is achieved. This paper discusses about how the developer strategies the Software Requirements, the Testing, and Training activities in order to produce the quality AFSIS-MY software in terms of conforming and satisfying user's needs and usability.

ABSTRAK

Projek Asean Food Security Information System (AFSIS-MY) dilaksanakan bagi membantu dalam proses pengumpulan data yang melibatkan empat kategori pengguna iaitu Daerah, Negeri, Ibu Pejabat dan juga Kementerian. Fungsi utama yang disediakan dalam sistem ini adalah Membekalkan Data, Menyemak Data dan juga Menyediakan Laporan. Dalam masa yang begitu terhad diberikan bagi membangunkan sistem ini, adalah amat sukar untuk melibat semua kategori pengguna yang berada di setiap negeri dalam sesuatu mesyuarat atau perbincangan tentang keperluan sistem.

Walaubagaimanapun maklumat tentang keperluan-keperluan bagi fungsi-fungsi utama kepada sistem dapat juga diperolehi hasil mesyuarat atau perbincangan dengan pengguna-pengguna peringkat kementerian. Maklumat-maklumat tambahan yang diperolehi dari masa kesemasa dari pengguna-pengguna yang lain juga diambil kira sebagai input kepada sistem. Walaupun begitu, pada akhirnya matlamat untuk menghasil atau membangunkan sistem AFSIS-MY yang memberi kepuasan kepada semua kategori pengguna dapat dicapai. Dalam kertas laporan ini, penulis atau pembangun sistem membincangkan bagaimana dalam masa yang begitu terhad, kita dapat mengatur strategi terutama dalam melengkapkan keperluan sistem, mengadakan sesi ujian kepada sistem dan juga menyediakan latihan kepada pengguna. Ini adalah diantara faktor-faktor yang menyebabkan sistem AFSIS-MY yang dihasilkan dapat memenuhi kepuasan semua pengguna-penggunanya.

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CHAPTER 1

INTRODUCTION

This chapter explained about the company and the project background, team structure, project involvement and the project plan that had been identified during attachment with the project.

1.1 Company Background

Ministry of Agriculture & Agro-based Industry Malaysia (*Kementerian Pertanian & Industri Asas Tani Malaysia*) was formed in 1955 with responsibilities to the portfolios of agriculture, forestry and veterinary services. From 1957, the ministry several times changed their name began with “*Kementerian Pertanian & Kerjasama*” (1957), followed by “*Kementerian Pertanian & Tanah*”(1970), “*Kementerian Pertanian & Perikanan*”(1972), and “*Kementerian Pertanian & Pembangunan Luar Bandar*” (1974) with the additional portfolios such as fisheries, food technology, Federal Agriculture Marketing Association (FAMA) and Malaysian Agriculture Research

Development Institute (MARDI). By 1978, “*Kementerian Pertanian*” was fully formed as a ministry and has responsibilities to the eleven (11) departments / agencies under them. Those departments / agencies are as follows:

1. Agriculture Department (*Jabatan Pertanian*)
2. Fisheries Department (*Jabatan Perikanan*)
3. Department of Veterinary (*Jabatan Perkhidmatan Haiwan*)
4. *Jabatan Parit & Tali air*
5. *Lembaga Pertubuhan Peladang (LPP)*
6. *Lembaga Kemajuan Ikan Malaysia (LKIM)*
7. *Bank Pertanian Malaysia (BPM)*
8. *Institut Penyelidikan dan Pembangunan Pertanian Malaysia (MARDI)*
9. *Lembaga Pemasaran Pertanian Malaysia (FAMA)*
10. *Lembaga Kemajuan Pertanian Muda (MADA)*
11. *Lembaga Kemajuan Pertanian Kemubu (KADA)*

After new cabinet was setting up in 2004, the name of this ministry was changed to the “*Kementerian Pertanian & Industri Asas Tani Malaysia*” and remains until now.

Previously located at *Jalan Sultan Salehuddin*, Kuala Lumpur, they were moved to Presint 4, *Pusat Pentadbiran Kerajaan Persekutuan*, Putrajaya since middle of 2005. This ministry is one of the government ministries which are responsible in developing the agriculture industry for the country. The vision of this ministry is to be a leader in agricultural transformation. In order to achieve this vision, ministry has a mission which is to lead in various processes involved in the transformation of the agricultural sector by a planned, integrated and comprehensive approach through mobilization of minds and effort in realizing the Third National Agricultural Policy.

The ministry also has three (3) main objectives as follow:

to maximize the income of the farmers livestock breeders and fisherman through the optima utilization of resources in the sector.

to maximize agriculture's contribution to national income and export earnings.

to diversify agricultural, livestock breeding and fishing activities and its downstream activities in view of the vast marketing opportunities present locally as well as abroad.

This ministry has their own IT Division which is head by the high level of IT personnel and support by the several numbers of system analysts and the programmers. IT Division here consists of three (3) main units. There are Networking System, System Development and System Administration.

Pengurusan Statistik & Antarabangsa (PSA) is one of the divisions in this ministry. PSA has given the task by ministry to be a project secretariat and responsibility in monitoring the project until the project end. Most of the input for the project came from this division.

1.2 Project Background

Asean Food Security Information System of Malaysia (AFSIS-MY) is a project that was initiated by the Ministry of Agriculture and Agro-based Industry (MOA). The

idea of developing this project arise because Malaysia is one of the user of Asean Food Security Information System (AFSIS) which is the project sponsored by Government of Japan. As per today Thailand is the leader or coordinator of the project. The main agenda of this project is collecting and sharing the food information within the Asean countries + 3 countries which are Japan, China and Korea. The overall objectives of the project include facilitating food security planning, implementation, monitoring and evaluation through the systematic collection, analysis and dissemination of food security data and information in ASEAN + 3 countries.

The Project was approved by the Ministers of Agriculture and Forestry of the ASEAN member countries plus China, Japan and Korea in their meeting held in Lao PDR in October 2002. The Project has the period of five years, from 2003 to 2007. It is led and coordinated by Thailand, in particular, the Office of Agricultural Economics (OAE), Ministry of Agriculture and Cooperatives. The Statistics and Information Department (SID), Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan is the donor through ASEAN Trust Funds.

The objectives of the AFSIS project are:

- To improve the systems and methods of collecting food security information, which includes: food production, imports and exports, market prices, consumption, stocks held by farmers and traders, and crop growth situation in each country;
- To develop more reliable methodologies and techniques for estimating and forecasting food supply/ demand situations in the region;
- To develop an information network system to exchange and disseminate statistical data and information related to food security in the region on a timely basis; and

- To develop and improve the capacity of human resources in order to operate the food security information system.

The project that was known as AFSIS-Bangkok is a web-based facility for storing and access of sub-national agricultural statistical data files from the country source. National focal points are responsible for maintaining the database.

As a user to the AFSIS project, Malaysia through Ministry of Agriculture & Agro-Based Industry has to obtain the data regarding paddy and cassava to the database that available in AFSIS-Bangkok. The source data is in Department of Agriculture (DoA). By manually data transfer now, the ministry got the data that already out of date and late in receiving the required data. Project AFSIS-MY is the project that proposed to overcome this problem using data flow concept where the data transfer is On-line.

Handled by Information Technology Division of MOA with infrastructure that available here, this is the Ad-Hoc project and has given priority by the users. With fully monitoring and observation by the project secretariat, it was starting from end of April 2006 this project must be complete by early August 2006.

1.3 Project Team Structure

This AFSIS-MY project was headed by Mrs Zubidah bte Ishak, from Statistical Management of Strategic Planning and International Division, as a Project Director. She was assisted by Mr Sulaiman bin Hassan (Senior Information System Officer) as a

Project Manager, Mrs Mariam bte Baba (Assistance Director) as a Project Coordinator. Under Project Coordinator, there are Statistician Assistance (3 peoples) and Focal Point Representatives. Mr. Zamani bin Mustaffa (Information System Officer) was assigned as a project leader and assistance to the project manager. Under the project leader there are two (2) persons, who are totally involved in software development of the system. One of them is an author. Author was assigned as a Quality Manager cum Second Developer and focusing on requirements elicitation, implementing system testing and end-user training. The first developer cum Work Packages Manager is focusing on the system designing, implementation / coding and some other work that related to the project. The Project Team Structure is in Figure 1.1 as below;

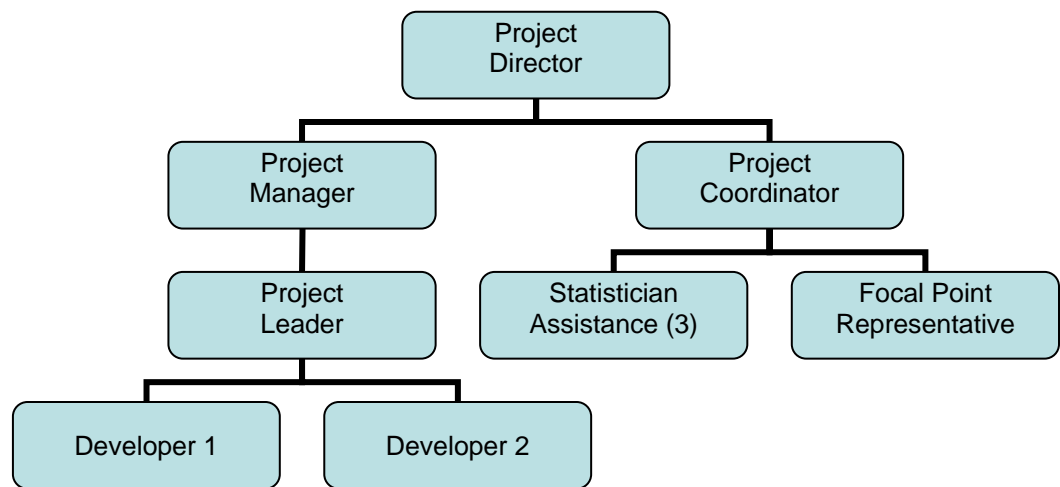


Figure 1.1: The Team Structure of AFSIS-MY project

1.4 Project Involvement

As mentioned in the project background as well as project team structure, author was involved as a second developer, who is responsibility in requirement analysis, system testing and provide the end-user training. For the purpose of that, the author focuses on how to omit the functional user requirement and satisfy the user needs through implementing the software testing. As an additional, author also involved in end-user training that was held immediately after the final User Acceptance Test (UAT) cause of limited time.

1.5 Project Plan

Refer to **APPENDIX A** to see a project plan for AFSIS-MY.

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Software Requirement Specification

for

**Asean Food Security Information System of Malaysia
(AFSIS-MY)**

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Prepared for
**MINISTRY OF AGRICULTURE AND AGRO-BASED INDUSTRY
(MOA)**

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Appendix I

Appendix II

Appendix III

1 INTRODUCTION

The introduction of the SRS provide an overview of the entire SRS. It contain the following subsections:

- a) Purpose;
- b) Scope;
- c) DePnitions, acronyms, and abbreviations;
- d) References;
- e) Overview.

1.1 Purpose

This subsection explained

- a) What is the purpose of the document?;
- b) Specify the intended audience for this document (SRS)

1.2 Scope

This subsection explained

- a) Identify the software product(s) to be produced;

Project: Development of Asean Food Security Information System of Malaysia

System: Asean Food Security Information System of Malaysia

Identification: AFSIS-MY.

Owner: Strategic Planing and International Division of Ministry of Agriculture and Agro-based Industry Malaysia.

- b) Explained the functionalities of the system such as

- Supply data from district level to ministry level;
- Check and verify the data that had been received from lower level;
- Correcting the data if necessary;
- Publish data and so on.

c) Explained some benefits of the system such as

- Online transfer of the data;
- Supply data to AFSIS-Bangkok and MTEN will be on time;
- System reminder in order to up data the data;
- Data always up to date
- Web based application and so on.

1.3 Definitions, Acronyms, dan Abbreviations

This subsection provides the definitions of all terms, acronyms, and abbreviations which are included in the SRS. Some Malay words also explained here because the system is in Malay. The terms such as;

AFSIS

AFSIS-MY

MTEN

SRS

Ministry / *Kementerian*

State / *Negeri*

Headquarters / *Ibu Pejabat*

and some other terms.

1.4 References

This subsection provides

1. Format AFSIS report table.
2. Format MTEN report table.
3. Minute of meeting with project secretariat.

1.5 Overview

This subsection explained the detail of the product that will produce by the system.

2 Overall Description

This section SRS describe the general factors that affect the product and its requirements. This section does not state specific requirements. Instead, it provides a background for those requirements, which are defined in detail in Section 3 of the SRS, and makes them easier to understand.

This section consists of six subsections, as follows:

- a) System Perspective;
- b) System functions;
- c) User characteristics;
- d) Constraints;
- e) Assumptions and dependencies;
- f) Apportioning of requirements.

2.1 System Perspective

This subsection of the SRS described the perspective of the system. Who are the users, where was the server located, how they can access to the system?, also explained here.

This subsection also describe some other matters as follow;

- a) System interfaces;
- b) User interfaces;
- c) Hardware interfaces;
- d) Software interfaces;
- e) Communications interfaces;
- f) Memory;
- g) Operations;
- h) Site adaptation requirements.

2.1.1 System Interface

This will list each system interface that the system interacts with the user such as;

1. List Data Screen
2. Supply Data Form.

Using MySQL database to store the data.

2.1.2 User Interface

This specify the following:

1. The browser
 - a. Internet Explore
 - b. Mozilla Firefox
 - c. Cascading Style Sheet (CSS) technique.

2. User interactive

Provide display message box using JavaScript

3. User menu

Provide some user menu in order to a user friendly system such as

- a. Link Menu – *Senarai, Bantuan, Laporan* and so on
- b. Button – *Tambah, Lulus, Pembetulan* and so on

2.1.3 Hardware Interface

This explained the interface between AFSIS-MY server and the networking system that available in ministry using Networking Interface Component (NIC).

2.1.4 Software Interface

This subsection explained the software that was required in developing the AFSIS-MY. How to use Apache 2.0 with the PHP ver 5 programming language and also MySQL was explained here.

2.1.5 Communication Interface

This explained how the users will access the AFSIS-MY. Using NIC and also dial-up modem.

2.1.6 Memory Constraints

This specifies any applicable characteristics and limits on primary and secondary memory.

2.1.7 Operations

This specify the normal and special operations required by the user such as

- a) The system response based on the user actions;
- b) For the reminder, user fixes the text, then the system display automatically;
- c) System Administrator will update the reference data when necessary;

2.1.8 Site Adaptation Requirements

This explained the site for the project. For this AFSIS-MY, we use the space in server room that available in the ministry.

2.2 System / Product Functions

This subsection described a major function that the software will perform.

2.2.1 Maintenance

How to maintain the system and user profile.

2.2.2 Supply Data

How the data will be key-in and transfer for checking and verifying. Who has an authority to key-in check and verify the data? How to publish the data?

Reminder System – What is the purpose and how to operate it.

2.3 User Characteristics

This explained who the users of the system are. For this SRS, users explained in following subsection;

2.3.1 User Level

2.3.2 Categories of User

2.4 Constraints

This subsection of the SRS provides a general description of any other items that will limit the developer such as

- a) Have to apply Object Oriented Approach;
- b) Web based application;
- c) Have to use PHP as a programming language;

2.5 Assumptions and dependencies

Not applicable

3 Specific Requirements

3.1 External Interface Requirements

This detailed description of all inputs into and outputs from the software system. It should complement the interface descriptions in the previous subsection. Also attach the Interface Diagram.

3.2 Functional Requirements

Functional requirements defined the fundamental actions that must take place in the software in accepting and processing the inputs and in processing and generating the outputs.

Described the important things that will take into the counter for each an every functions such as;

3.2.1 System Login

- Must limit to the registered user only
- System can authenticate the validity of the user
- Display message if any

3.2.2 Supply Data

- System can provide supply form
- Allowed the district user only can key-in or modify the data
- Provide the add record button

3.2.3 Check and Verify Data

- Give authority to the Stale level up to ministry level
- User can approve or reject the data

- User cannot edit or modify the data
- User can inform what type of correction.

3.2.4 Generate and Retrieve Report

- All categories of user can retrieve the report
- System provide the menu of the report
- Only the data that had been publish will appear in the report

3.2.5 Provide and Send Message / Reminder

- System have to provide the link to that function
- User can create and edit the message / reminder any time
- System can display automatically

3.2.6 Main Link Menu

- System will display to all the users
- Menu message / reminder for ministry users only

3.3 Performance Requirements

- Performance will depend to the traffic of the system;
- Response time not more than 5 minits;
- Support more than 100 users in the same time.

3.4 Logical Database Requirements

3.4.1 Data Entities and Their Relationships

Data entities in Appendix A, where as the relationships in Appendix B.

3.4.2 Main and Reference Data

This specifies the data that will be use by the system in order to make sure every function perform correctly. For this SRS, data can see in Appendix III.

3.5 Design Constraints

- What is the platform to run the system
- Have to practice the latest system development guideline
- Design using web based application.

3.6 Software System Attributes

3.6.1 System Availability

System running 24 hours and can be access any time depend to the networking line.

3.6.2 Security

This specify the factors that protect the software from accidental or malicious access, use, modification, destruction, or disclosure. For example

- Limited access
- Using the existing networking security in the ministry

3.6.3 Maintainability

This explained the approach of the system. For this SRS, it explained the Object Oriented Approach that had been applied in process development.

3.6.4 Portability

This should specify attributes of software that relate to the ease of porting the software to other host machines and/or operating systems. For this SRS system can run under operating system Unix/Linux or Windows.