Monitoring and Evaluation Database System Requirements and Specifications : Phase 1

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Contribution, Review and Approval List

Role	Name	Position/Title
Approval	Rebecca Palumbo	ND Program Manager, ACC
Contribution/Review	Tim Gamblin	Co-author of M&E framework
Contribution/Review	Paul Gioia	Principal Research Scientist (Information), DEC
Approval	Chris Curnow	WWF
Approval	Anne Smith	GA
Approval	Brett Beecham	Regional Ecologist, DEC
Approval	Alan Kietzmann	District Manager, DEC
Contribution/Review		(Several) allocated champion from WWF, DEC, GA

Definition

A software requirements specification is a complete and detailed description and of the behavior of the system to be developed. It describes what data is stored and retrieved, and how the interface looks and behaves.

Context

The requirements analyst* for this system shall gather comments and requests from a variety of users and stakeholders (listed in table 1). This document reflects their comments. [Interviewing of Delivery Organisations is still required. However the requirements analyst is aware of some of their issues and needs and included in the current document.]
Stake holders' requests have been recorded in a separate Use_r Requests document. These requests form the basis for this specification document. [More shall be gathered from all stakeholders] It should be noted that the requirements analyst has interpreted these requests [of those gather so far], eliminated conflicting requests, considered business processes, and IT best practices to write this specification document. It is normal that the document itself will require review and refinement before being accepted as the system's design document.

Users and stakeholders need to check that their primary needs are met in this specification document.

Successful software development depends greatly on a collaborative and open approach by all parties and stakeholders. It also requires a solid commitment of time and thought by many individuals – including champions in the user organisations, stakeholders and developers. Input throughout the system's development is essential to create a useful and usable system.

The accepted specification document forms a detailed plan for the system.

* A requirements analyst acts a liaison between the business users and the software development team. They also guide people through the maze of options and points to consider. They can also be regarded as a translator and documenter.

[Important Readers Note:

Text in square brackets [] anywhere in this document are points that are in flux. Stake holders are invited to consider them and make comments where required. Any text in these square brackets shall be modified and included in specification or removed.]

Purpose:

The system will enable storage and retrieval of site conservation actions and outcomes of the Natural Diversity projects of the Avon NRM region. It shall store them in a single data repository and use standardised data entry methods. The system will record where and when the Delivery Organisations (D.O.'s) have performed on-ground conservation work. The system will also record the Monitoring and Evaluation (M&E) Framework components: objectives for the site, the actions to be taken, assumptions made about the actions, and monitoring planned. All records will be at a site or patch level. The Avon Catchment Council will be able to retrieve activity reports for informal and promotional purposes. D.O.'s will be able to enter data and retrieve summary information of their activities and the site locations.

Table 1: Examples of Stakeholders and Champions

Stakeholder	Manager	Champions
Avon Catchment Council (ACC)	Rebecca Palumbo, Project Delivery Manager	Rebecca Palumbo, Michelle Kidman
Greening Australia (GA)	Anne Smith	Julia Murphy
World Wildlife Fund (WWF)	Chris Curnow	Helena Mills
Species and Communities, DEC	Brett Beecham	Joel Collins
Ecoscapes project, DEC	Alan Kietzmann	Jill Symington

User Types:

Users are categorized into levels of access e.g. what can be viewed and what can be edited. User Types approximate those in the business situation.

The following user types have been identified:

1. ACC project manager

a. Can view all data, can edit none.

2. D.O. manager

    a. Can view data for own organisation, can edit none. Can add users in own org.

3. D.O. officer

    a. Can view data for own organisation, can enter and edit all these data. [View all in spatial viewer?]

4. View only officer

    a. View all simplified data in spatial viewer? (Would need to ring D.O. champion or similar for further details).

5. System Administrator (normally an IT specialist)

    a. Can view all data, can turn system off (??), can edit all data using database tools but this is only for exceptional circumstances such as a work around for functionality not yet available in system e.g. transferring ownership of record to a different organisation, placing dates in future, entering nulls when not allowed by front part of system.

    b. Can add Project and D.O. managers to system

    c. Can make backups of data

    d. Can add or edit values for drop down lists e.g. objectives, assumptions etc.

Principle system architecture (i.e. system components and dependencies):

The principle components of the system shall be: a suite of web pages for viewing and entering text data; a single database to store all text; [and perhaps a spatial viewer for locating sites spatially]. [Currently it is not feasible to determine whether a custom built system OR a generically built system is possible. This will need to be decided after more details and priorities are gathered.]

Spatial Viewer:

Users have expressed a need to see or find work spatially.

[At this stage, it is unknown whether a viewer will be included. Hence an unknown amount of time could be required to build one or adapt an existing one. It should be realized at the onset that spatial viewers can be time consuming to make. Due to this and that resources are limited it is suggested that requirements for a spatial viewer be discussed and clarified, and then a decision

made whether the viewer is included. Without negating the above, two options currently appear to be contenders: Google Earth and NatureMap.]

Amount of data:

We expect about 30-100 new site records per D.O. per year to be entered. For a system the data amount can be considered comparatively low though it is valuable.

Data coverage:

Data for sites shall be entered in the system by D.O.'s where monies will be spent on the sites from July 2009. Hence M&E objectives can be entered for these sites. It shall include all D.O.'s for the Natural Diversity program.

Owner of system and data:

The ACC shall be the owner of the system. This implies that the ACC will be responsible for data, system availability, system maintenance and security after hand over from the development team.

Use Case List:

Use cases describe the system from the users' point of view. Each use case describes how the user will interact with the system to achieve a narrow and specific business goal. They describe the steps the user follows to perform a task and the system's response. It is written in the language of the end user and avoids technical jargon. They are deceptively simple yet describe the entire system. Use cases are also used for verification of requirements and system testing.

A list of Use Cases is provided here. See a later section for the Use Cases detail.

1. Run the Quarterly summary report of activity – ACC project manager
2. Run the Quarterly summary report of D.O. activity – D.O. manager
3. Add/Edit a site – by D.O. Officer.
4. Find if work has been done near site being given initial consideration by this D.O. – D.O. officer
5. Add/Edit an Objective for a site – by D.O. Officer.
6. Add/Edit an Action for an objective – by D.O. Officer.

7. Add/Edit an Assumption for an action – by D.O. Officer.
8. Add/Edit a Monitoring Plan for an action – by D.O. Officer.
9. Add/Edit a Monitoring Result for a monitoring plan – by D.O. Officer.
10. Delete an Objective – by D.O. Officer.
11. Delete an Action – by D.O. Officer.
12. Delete an Assumption – by D.O. Officer.
13. Delete a Monitoring Plan– by D.O. Officer.
14. Delete a Monitoring Result – by D.O. Officer.
15. Add a user of type "ACC project manger" – by System Administrator
16. Add a user of type "D.O. manger" – by System Administrator
17. Add a user of type "D.O. officer" – by D.O. manager
18. Add a user of type "View Only officer" – by D.O. manager
19. Archive/disable a user of type "ACC project manger" – by System Administrator
20. Archive/disable a user of type "D.O. manger" – by System Administrator
21. Archive/disable a user of type "D.O. officer" – by D.O. manager
22. Archive/disable a user of type "View Only officer" – by D.O. manager
23. Archive/disable previous "System Administrator" – by new System Administrator (would be done outside of system)

Data Relationships:

1. Each D.O. can have several Sites.
2. Each Site can have several Objectives (from a drop down list)
3. Each Objective can have several Actions (from a drop down list)
4. Each Action can have several Assumptions (from a drop down list)
5. Each Action can have several Monitoring Plans [name??] (from a drop down list)
6. Each Monitoring Plan can have several Monitoring Results [name??] [free text or doc attachment ??]

Timeline:

TBA

System's longevity:

The system is intended to be used by D.O's and ACC for several years at least. ACC to regularly review appropriateness, maintain functionality, maintain data security, review user list and consider new functionality.

Out of Scope:

"Out of Scope" items will not be included in the system. These include functionality that was not proposed originally (contract) or cannot be accommodated due to resource limitations. "Out of Scope" items could be made In Scope if they were considered necessary and there is an extension of resources allocated to building and testing the system.

1. Data imports from previous or existing systems. This means that either, officers enter previous data [how many years??] OR other resources be allocated to do this. It also could mean that D.O.'s may duplicate data and systems i.e. they have their own system with similar data.
2. A web based, spatial viewer incorporated into and available within the system that can rapidly display work as dots with up to the minute data from the database, is excluded. It is a difficult requirement to fill. Hence a simpler alternative is required.
3. Polygons (all work to be recorded with respect to a point).
4. A spatial viewer that allows queries specific to the M&E framework (??).
5. Allow this system to fit other programs in ACC (MK). Excluded due to its potential size of work and not being in the contract.
6. Document attachments (??)
7. Picture attachments (??)
8. Audit trail – system would record which user did what and when. Excluded due to its complexity.
9. Owner or property name for a site.

10. Taxa list. Complicated to setup and keep up to date. A text taxa name will do in most cases.
11. Financial records.

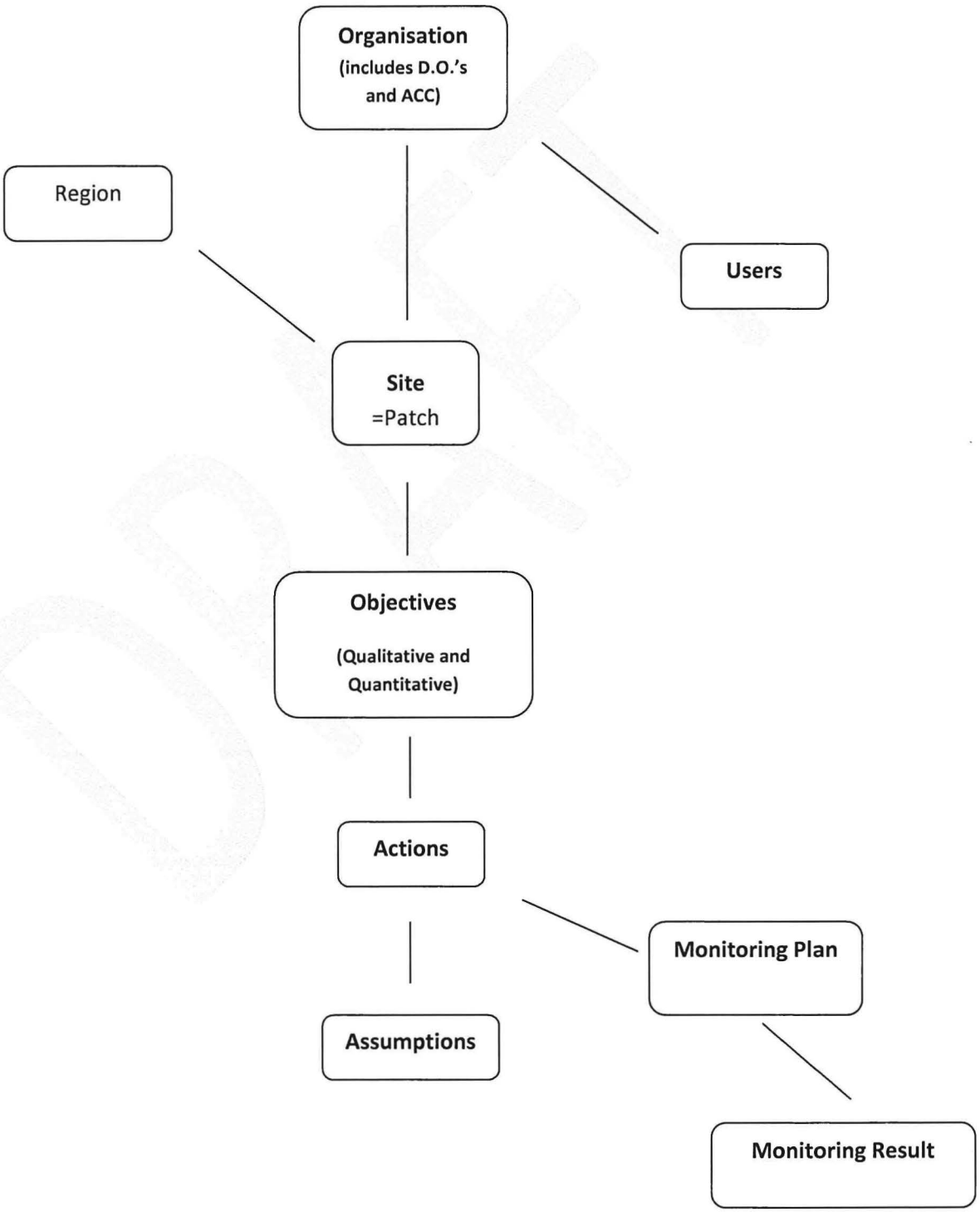
[Concerns:

Items not covered elsewhere that could influence the acceptance, usability or longevity of the system. These shall be removed or reworded and placed in the main document.

1. Double entry (same info entered in 2 systems) (MK)
2. Confidentiality: Restrict users to details of their sites only (BG)
   (Other things like this?)
3. Spatial viewer, where? Appropriateness? Ease of use? Time to make and load?
4. Migration of some of WWF's current database? Alternative is to re-enter some data fields.
5. NatureMap may be too complicated for users – a 'simple' query to find sites in a shire could take considerable time and be tricky to get all necessary layers showing.
6. Which sites are to be entered? New one only? WWF – ones with signed, new adjusted, privacy agreement?
7. Backup procedure and frequency.
8. Australian Government M&E reporting needs are sketchy.
9. Possibility that the Australian Government will produce a M&E system and force others to use.
10. Use HTPPS communications? [Easy enough to enable if host makes available]

]

Entity Diagram



Reports:

"Summary Page at ACC/program level" like CatchPlan's home page (RP/MK) Totals of fencing and hectares protected etc. Need for 'wow' factor and brochures. (Place on home page? BG)

"Summary of Actions at ACC/program level" Totals of each action achieved (sum overall plus D.O. breakdown) for selectable quarters or YTD (BG)

"Summary of Actions at D.O. level" Totals of each action achieved (sum overall plus region or staff? breakdown) for selectable quarters or YTD (BG)

[More reports are likely to be required]

Use Cases

Use cases describe the system from the users' point of view. Each use case describes how the user will interact with the system to achieve a narrow and specific business goal. They describe the steps the user follows to perform a task and the system's response. It is written in the language of the end user and avoids technical jargon. They are deceptively simple yet can describe the entire system. Use cases are also, importantly, used for verification and testing of system requirements.

Log-in to M&E System and View M&E Site List (M&E-UC-001)

This use case allows a user to access the system by supplying valid log-in details and then displays the M&E Site List appropriate to the specific user type.

Pre-Condition/s

For successful log-in a valid user account must exist.

Primary Flow:

	Step	Rule
1.	**=> Start: A user attempts to access the M&E system.**	
2.	The user is asked to login with their username and password. - If the username is unknown then Alternate Flow Username Unknown occurs. - If the user has entered an incorrect password then Alternate Flow Incorrect Password occurs.	
3.	If the login is successful the system retrieves the user's type and organisation information and appropriately displays the M&E Site List screen.	
4.	If the user type is: **D.O. Manager or D.O. Officer** then Alternate Flow User Type = D.O. staff occurs. **ACC user** then Alternate Flow User Type = ACC staff occurs.	
5.	**For All Users:** The M&E Site List is displayed showing the Fields: - Site Number - Organisation (abbreviated) - Work Initiation Date - Flag shown to indicate if the site is confidential	
6.	*<At any time the list can be filtered[??] or resorted [??].>*	
7.	End of Use Case.	

Alternate Flow/s

	User Type = D.O. Staff	Rule

1. The M&E Site list displayed contains all M&E Sites for all sites for the D.O. that the user is registered with.
2. The list is sorted by M&E Site creation date in descending order.

	User Type = ACC staff	Rule

1. The M&E Site list displayed contains all M&E Sites for all sites for the D.O. that the user is registered with.
2. The list is sorted by M&E Site creation date in descending order.

	Username Does Not Exist	Rule

1. The user is advised that the Username doesn't exist and is invited to enter a valid log-in and try again.

A2	Incorrect Password	Rule

1. The user is advised that the password is incorrect and is invited to enter a valid password and try again. If this is the fifth consecutive attempt with an incorrect password then that user account will be locked out of the system for five (5) minutes before allowing another log-in attempt. (??) 1

Business Rules

1. Only current, registered users are permitted to access the system.

Screen Flow

Splash/Logon form

User invited to enter username and password and then log-in.

Main M&E Site List screen

A list of M&E Site records as appropriate:

- If user is D.O. Staff: then only M&E Site records for their particular D.O. are viewable.
- If user is ACC staff then **all** M&E Site records are viewable.

See use case M&E-UC-002 for details of screen.