



**Ministry of State for Environmental Affairs
Egyptian Environmental Affairs Agency**

AFRICA ENVIRONMENT INFORMATION NETWORK

IMPLEMENTATION PLAN

PHASE 1: 2003 – 2004

FOR

**EGYPTIAN ENVIRONMENTAL INFORMATION SYSTEMS
EEIS
ESTABLISHMENT OF REGIONAL INFORMATION CENTERS**

Prepared By:

Eng. Moheeb Abdl-Sattar Ebrahim

General Director of Systems, Programs & Operation

Information & Computer Center, EEAA

November 2004

TABLE OF CONTENTS

INTRODUCTION	4
BACKGROUND	4
OUTLINE SYSTEM DESIGN	6
Scope of work within EEAA	6
Integration with the Egyptian Environmental Information Systems (EEIS).....	7
Project organization during the project life cycle.....	8
Future scope for implementation of Information Centers	13
PROJECT PHASES AND OUTPUTS	17
Phase 1: Description of Technical Specifications and organisational set-up	17
Activity 1.0: Inception period	17
Activity 1.1: Identification of data needs and data gaps	18
Activity 1.2: Workflow analysis	18
Activity 1.3: High Level Function Diagram	18
Activity 1.4: Detailed Level Function Diagram.....	19
Activity 1.5: Draft Entity Relation Model	19
Activity 1.6: Detailed agreed Entity Relation Model.....	19
Activity 1.7: System sizing and recommendations.....	19
Activity 1.8: Possible system architecture and phased development plan	19
Activity 1.9: Agreed Function details (Problem specs).....	19
Activity 2.0: Function/Entity Matrix Analysis	19
Activity 2.1: Data flow Model.....	20
Activity 2.2: Prototyping.....	20
Activity 2.3: Audit/control and Backup/recovery needs	20
Activity 2.4: User acceptance criteria	20
Activity 2.5: Constraints and assumptions	20
Activity 2.6: Organisation.....	21
Activity 2.7: Outline Data Exchange Formats, Procedures and Guidelines.....	22
Activity 2.8: System integration between distributed databases	23
Activity 2.9: User acceptance to proceed to design and implementation phase	23
Deliverables.....	24
Phase 2: System Design	25
Activity 2.1: Elaboration of System Architecture.....	25
Activity 2.2: Elaboration of Logical and physical schemas.....	25
Activity 2.3: Database design and sizing.....	25
Activity 2.4: Elaboration of Transition Strategy	26
Activity 2.5: Elaboration of system documents.....	26
Deliverables.....	26

Egyptian Environmental Information Systems EEIS

Phase 3: System Implementation	27
Activity 3.1: Procurement and installation of IT equipment in the RBOs and the EMUs.....	27
Activity 3.2: Programming of Regional and Local Databases	27
Activity 3.3: Testing of database	27
Activity 3.4: User Documentation	27
Activity 3.5: Transition	27
Activity 3.6: Production	28
Deliverables.....	28
Reporting.....	29
ASSUMPTIONS	29
MEETINGS	29
TIMING	30
TRAINING.....	30

FINAL DRAFT

INTRODUCTION

One of EEAA's mandates is to collect, process, produce, and distribute environmental information. In this regard, its potential suppliers and clients are many, diversified, and geographically distributed. Externally they may include international organizations, other Egyptian Ministries and Agencies, national institutes, and governorates. Internally they may include EEAA sectors, departments, units, Regional Branch Offices, Donor Funded Projects, plus private and public partners. In order to effectively meet its mandate, EEAA could benefit from an Environmental Information Strategic Plan (EISP), developed in a broad-based, participatory way, while maintaining a perspective of the Agency and its working environment.

BACKGROUND

The region branch offices have the following jurisdictions:

- Follow up on the implementation of the National Environmental Action Plan (NEAP) in the governorates.
- Supervise the environmental monitoring networks to get needed information and report to EEAA.
- Follow up on the implementation of the Environmental Law No. 4 from 1994 and its executive regulations in the governorates. This includes follow up in the field to ensure the implementation of standards and measures as stated in the Environmental Law No. 4 and its executive regulations. Furthermore it involves taking necessary actions against violators of these standards and measures.
- Raise environmental awareness and coordinate between public efforts and environmental offices in governorates based upon EEAA plans and guidelines.
- Implement EEAA CEO instructions in protecting the environment and ensure achieving EEAA aims in governorates.
- Prepare annual report of the environment status based on main indicators in governorates to be presented for the EEAA board of directors.
- Enforce the coordination and cooperation bonds between EEAA and governorates to achieve EEAA aims and goals in protecting the environment.

The preparation of a first version environmental EEISP aims at providing EEAA with a plan focused on the production and management of environmental information. It is by no means a plan for the entire Agency. Rather, it is directed at meeting that aspect of Law 4 of 1994 related to EEAA's mandate to collect, process, and disseminate environmental information for its use and use by its clients.

The production and management of environmental information influences a significant proportion of EEAA's activities and it is the main focus of the EEISP. The EEISP does not; however, address those activities that rely on the use of environmental information.

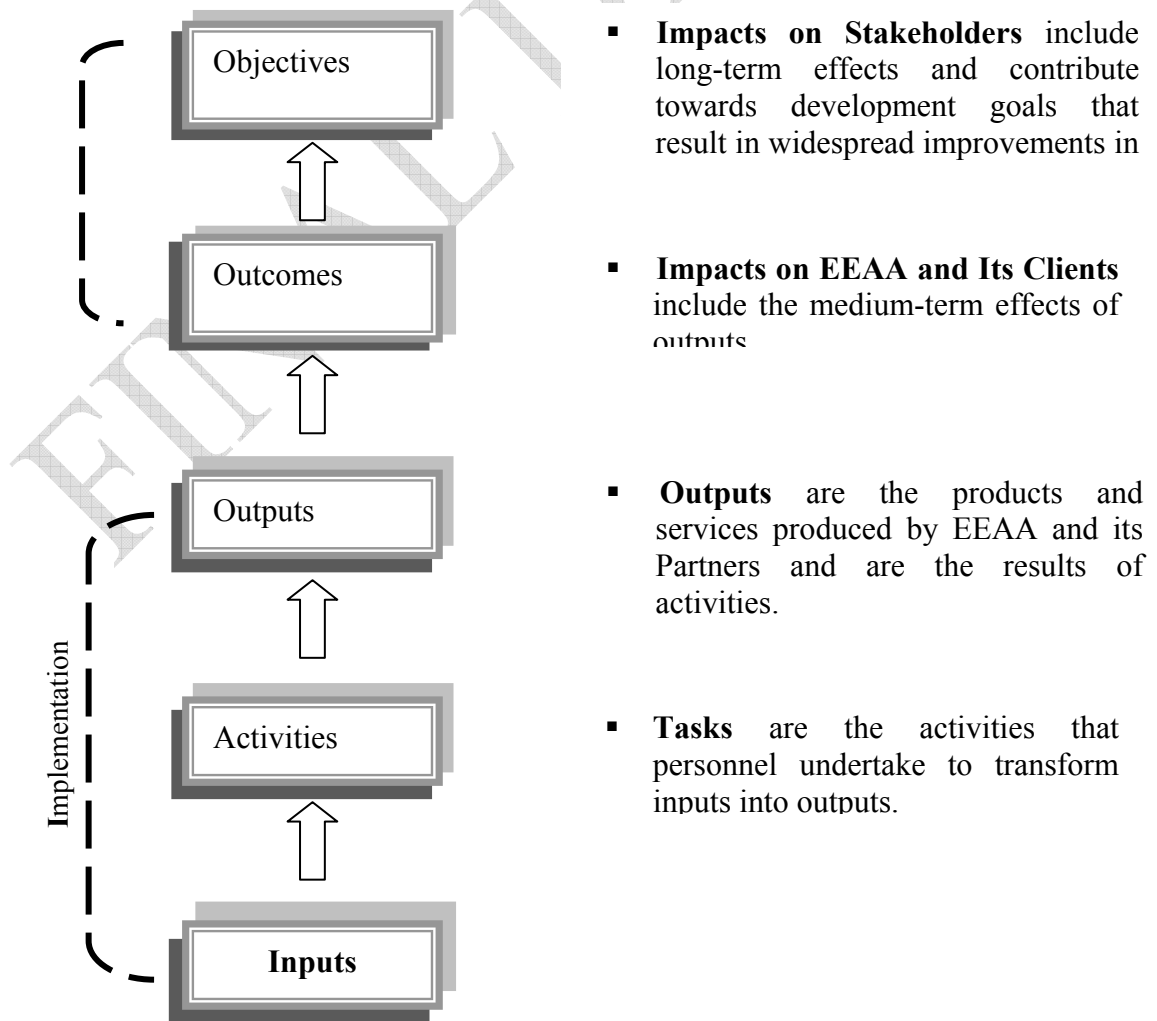
The EEIS Project has contributed to the first two phases through an information survey and a series of iterative, inter-departmental workshops. During the Problem Definition Phase a survey of environmental information needs was undertaken, and

existing and needed environmental information identified. Following the survey, the first participatory workshop was held to identify feasible options and to prioritize the most feasible. Two other workshops were held to complete the Direction Setting Phase.

The results of the first workshop were organized into an institutional framework suitable for development of a first version EEISP. This was accomplished using an objective, oriented planning system (Figure 1), which has been accepted by EEAA. This system sets out a cause and effect chain. The chain outlines a series of activities and expected outputs (products and services) that are needed to produce outcomes or changes that in turn will result in the achievement of strategic goals or objectives. The strategic objective or goal of the EISP was identified as:

“Efficient, collection, processing and dissemination of reliable environmental information.”

Figure 1.
Objective, Oriented Planning System.



OUTLINE SYSTEM DESIGN

Scope of work within EEAA

The scope of work within the framework of EEAA covers Greater Cairo RBO, Suez RBO and Assiut RBO. However no staffing or office facilities have been made available at present in Assiut.

It has therefore been decided to await the implementation of Information Centers in Assiut until the premises and staffing have been made available for the project.

The scope of work is hence limited to Greater Cairo RBO and Suez RBO.

The EMUs in the following administrative levels will be included in the project:

Greater Cairo RBO:

- Cairo Governorate
- Kaliobaia Governorate
- Shobra El Khima City
- Helwan District

Suez RBO:

- Suez Governorate
- Port Said Governorate
- Ismaalia Governorate
- Etaqa District

The above mentioned EMUs in Shobra El Khima City and Helwan District have been chosen as pilot areas and are therefore also included as pilot areas for implementation of Information Centers. Cairo and Kaliobaia governorates are both important political stakeholders and have therefore also been included as pilot areas for implementation of Information Centers.

The above mentioned EMUs under Suez RBO have been selected in order to represent the Suez Canal Region. Etaqa District has been chosen as pilot area and will therefore also be included as pilot area for the implementation of Information Centers.

The project will establish Information Centers in each RBO with Satellite Offices in each of the selected EMUs for data acquisition and data entry.

This comprises procurement of hardware and software for 5 locations in Greater Cairo RBO and for 5 locations in Suez RBO.

The following equipment will be needed in the Greater Cairo RBO and Suez RBO:

- 1 high capacity LAN Server
- 1 High capacity computer for GIS processing
- 5 high capacity Personnel Computers for data entry and data processing
- 2 HP LaserJet Printer
- 1 DeskJet Color Printer
- Modems (ISDN and Dial-up)
- 1 Data Show Projector and screen

The following equipment will be needed in the local EMUs:

- 3 high capacity Personnel Computers for data entry and data processing
- 1 HP LaserJet Printer
- Modems (Dial-up)
- 1 Overhead Projector and screen

Integration with the Information & Computer Center at EEAA in Cairo

The ICC in EEAA urgently needs to communicate with the involved project offices for the whole programme. These offices include:

- Greater Cairo RBO (DEM component)
- Suez RBO (DEM component)
- Assiut RBO (DEM component)
- Beni-Suef EMU (EMG component)
- Aswan EMU (EMG component)

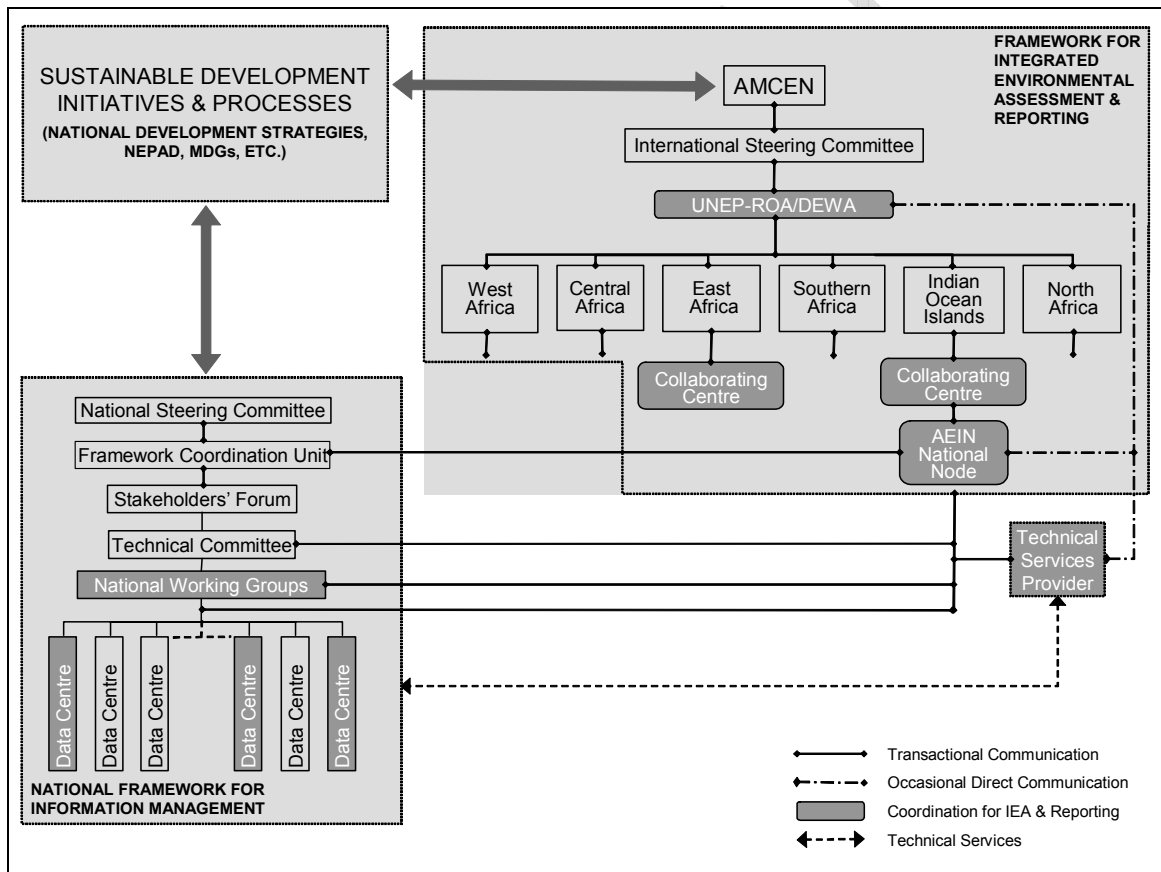
Computer equipment and communication links will be implemented in the first two offices as part ICC/EEAA as listed above (Assiut RBO has not yet been established).

There is therefore a need to coordinate the efforts made in the RBOS with the ICC/EEAA to obtain an integrated solution, which facilitates the needs for all parties. This will accelerate the Implementation process and it will make use of already ongoing processes. Training of staff will be carried out by the two Component, who are already established in the location.

It is hence recommended to make use of the planned IT and Communication equipment in the ICC/EEAA. Additional Communication equipment will be needed for the offices in Beni-Suef and Aswan.

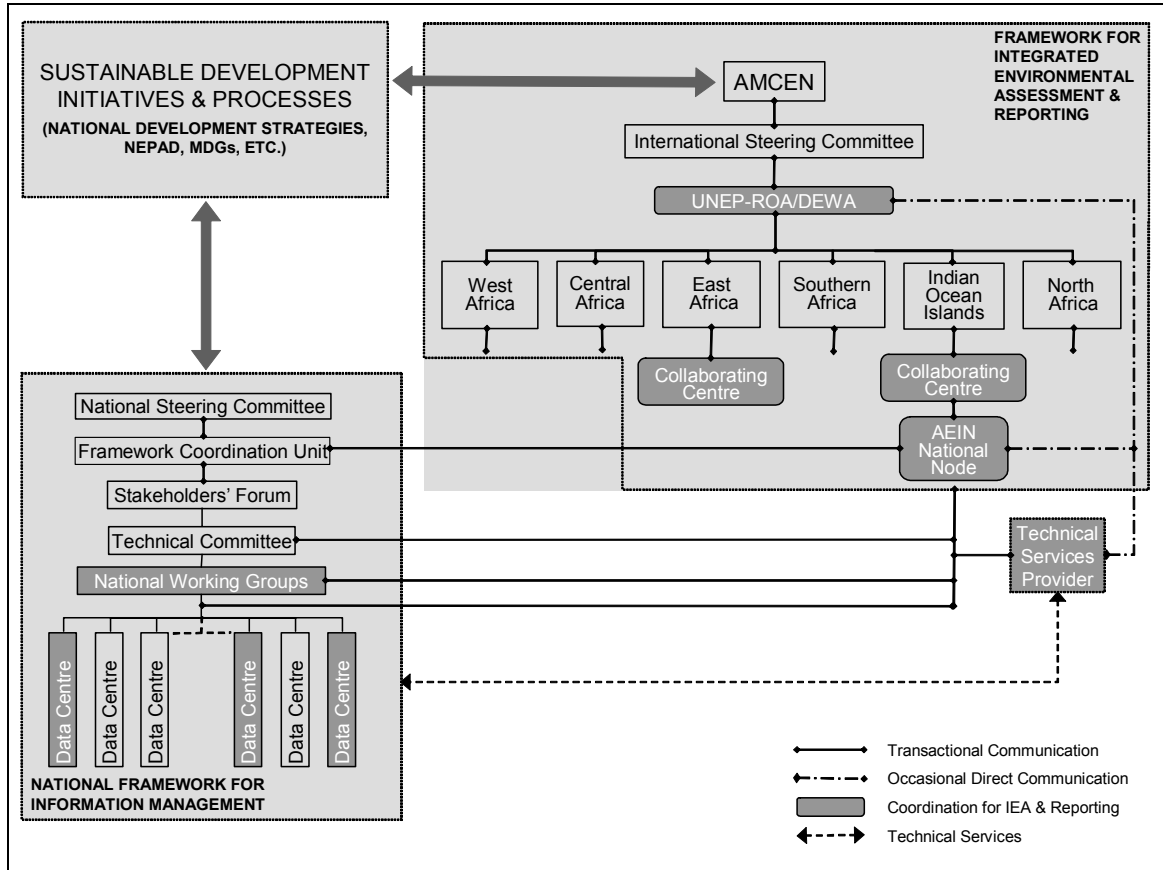
Project organization during the project life cycle

AEIN has been conceived as an integrated framework programme that will contribute to strengthening institutional capacities in managing and using *information related to sustainable development*. In this respect two aspects of the AEIN framework are recognised. The Figure illustrates the broad two sets of objectives of AEIN, and the linkages therein. The first set of objectives addresses *specific capacity building needs for the effective implementation of national, sub-regional, and regional assessment and reporting processes*. This refers explicitly to the AMCEN request and the AEO process for which AEIN has a specific “mandate”. This is represented by the “*framework for integrated assessment and reporting*” block, with AMCEN as the apex organ of the network. Clustered together in that block are the institutions directly involved in these processes, with an indication of the relationships among them. This is essentially the existing AEO/GEO structure, with the addition of a national AEIN node.



AEIN network structure and linkages to on-going initiatives

Egyptian Environmental Information Systems EEIS



AEIN network structure and linkages to on-going initiatives

FINAL D

Egyptian Environmental Information Systems EEIS

Project Steering Committee:

Position	Name	Responsibility
Project Director	Eng. Moheeb Abd El Sattar Ebrahim	Overall coordination between the ICC and EEAA. Furthermore responsible for allocation of EEAA staff to work with the RBO
Project Coordinator between ICC, CDBA and EEAA	Dr. Ali Abou Sedira	Coordination of efforts in CDBA and the DEM Project
RBO Project Manager, G. Cairo	Dr. Magdy Alam	Implementation of Information Centers under G. Cairo RBO
RBO Project Manager, Suez	Dr. Laila El-Khouli	Implementation of Information Centers under Suez RBO
RBO Project Manager, Assiut	Mr. Nader	Implementation of Information Centers under Assiut RBO
Technical Project Coordinator between EEAA and the RBO	Eng. Said Ebrahim	Coordination of technical issues between EEAA and the RBO
Technical Project Manager, Information Centers	Eng. Nagwa Ebrahim	Implementation of Information Centers in G. Cairo, Suez and Assiut according to the DEM Project Document and the given personal TOR.

Egyptian Environmental Information Systems EEIS

Technical Implementation staff Greater Cairo:

Position	Name	Responsibility
Project Manager, Information Centers	Eng. Said Ebrahim	Management of the technical implementation of Information Centers. Responsible to ICC/EEAA for the timing and technical implementation of Information Centers.
Information Centers Team leader and System Developer	Eng. Medhat Mostafa	Technical Team Leader for the implementing team. Responsible for establishment of regional and local databases as well as installation of IT Hardware, software and LAN according to the given contract between him and the EEAA.
EEAA Team leader	Eng. Kamal A. Talaat	Team Leader for the assigned EEAA staff. Responsible for the technical quality and timing of the work carried out by EEAA staff.
EEAA staff	2-4 assigned EEAA staff (Programmers and Database Administrator)	Programming of databases, Graphical User Interfaces (GUIs) and database reports.
Data Management Officer, Greater Cairo RBO	Mr. Sameh Moheb	Analysis of work flow and data needs for the RBO and selected EMUs. Assist in the implementation of Information Centers.
Data Management Officer, Greater Cairo RBO	Mr. Ahmed Tawfik	Analysis of work flow and data needs for the RBO and selected EMUs. Assist in the implementation of Information Centers.
Data Management Officer, Greater Cairo RBO	Mr. Khaled Soliman	Analysis of work flow and data needs for the RBO and selected EMUs. Assist in the implementation of Information Centers.

Egyptian Environmental Information Systems EEIS

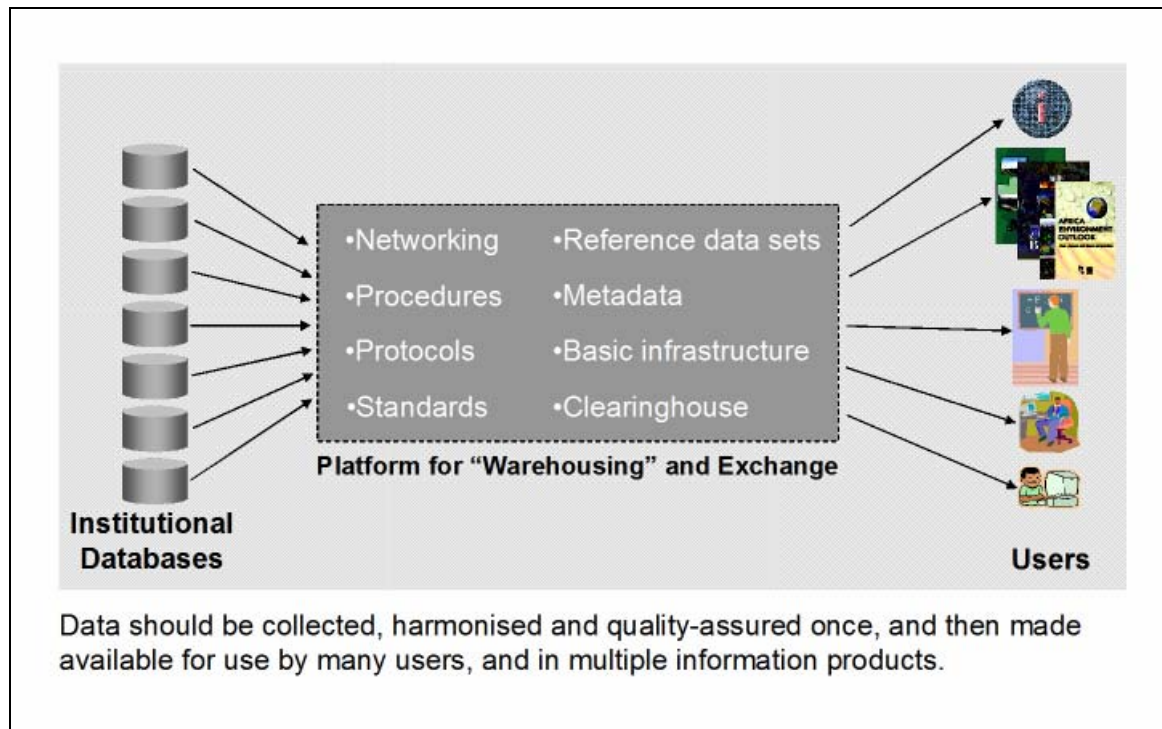
Technical Implementation staff Suez:

Position	Name	Responsibility
Project Manager, Information Centers	Eng. Said Ebrahim	Management of the technical implementation of Information Centers.
Information Centers Team leader and System Developer	Eng. Medhat Mostafa	Technical Team Leader for the implementing team. Responsible for establishment of regional and local databases as well as installation of IT Hardware, software and LAN according to the given contract between him and the EEAA.
EEAA Team leader	Eng. Kamal A. Talaat	Team Leader for the assigned EEAA staff. Responsible for the technical quality and timing of the work carried out by EEAA staff.
EEAA staff	2-4 assigned EEAA staff (Programmers and Database Administrator)	Programming of databases, Graphical User Interfaces (GUIs) and database reports.
Data Management Officer, Suez RBO	Mr. Saleh Ali Saleh	Analysis of work flow and data needs for the RBO and selected EMUs. Assist in the implementation of Information Centers.
Data Management Officer, Suez RBO	Mr. Ahmed El-Sayed Farag	Analysis of work flow and data needs for the RBO and selected EMUs. Assist in the implementation of Information Centers.

Coordinating working groups will be established in the target areas when necessary. These working groups will ensure a coherent working process when analyzing the data needs and work flow and when implementing the hardware and developed software.

The Information Centers Team Leader (Eng. Medhat) will chair these working groups in cooperation with the Information Centers Project Manager (Eng. Said Ebrahim).

Future scope for implementation of Information Centers

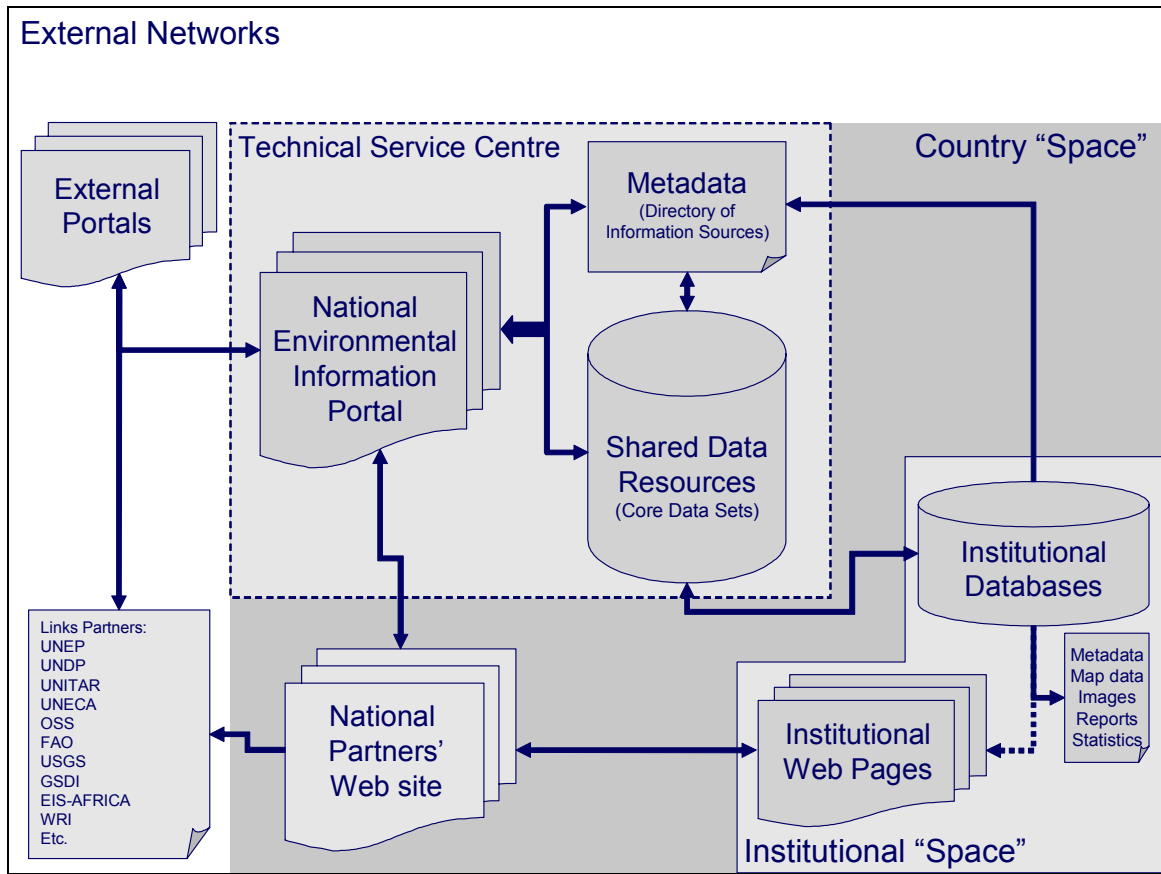


Data Exchange Platform — Vision

The first level of activity will be within the institutional “space” where the *capacity of partner institutions* that are identified as contributing directly to the integrated assessment and reporting process will be enhanced for the development and maintenance of operational databases that meet their own functional needs, as well as contributing to the *core data sets*. The second level of activities will support the development of a framework, or “*country space*”, within which institutional “spaces” will be linked, with underlying structures for harmonisation, to create a *common information portal*. Each collaborating partner institution will have its own dedicated “space” where they will post their information, either for restricted use, or for open public access. Institutions will have equal visibility, and establish an Internet presence with their own identity through the portal. The public “spaces” would contain institutional information, data resources, information products, services, and technical resources such as available expertise.

Metadata on all available data resources will be captured, stored and maintained by the respective data custodian. A *clearing house mechanism* will be implemented to facilitate easy access to metadata that may be held at different locations. Where it is operationally impossible or ineffective to have a distributed metadatabase, the metadata will be stored within one central database and managed by a Technical Service Centre.

Links will be established with external information networks, including web sites and/or portals.

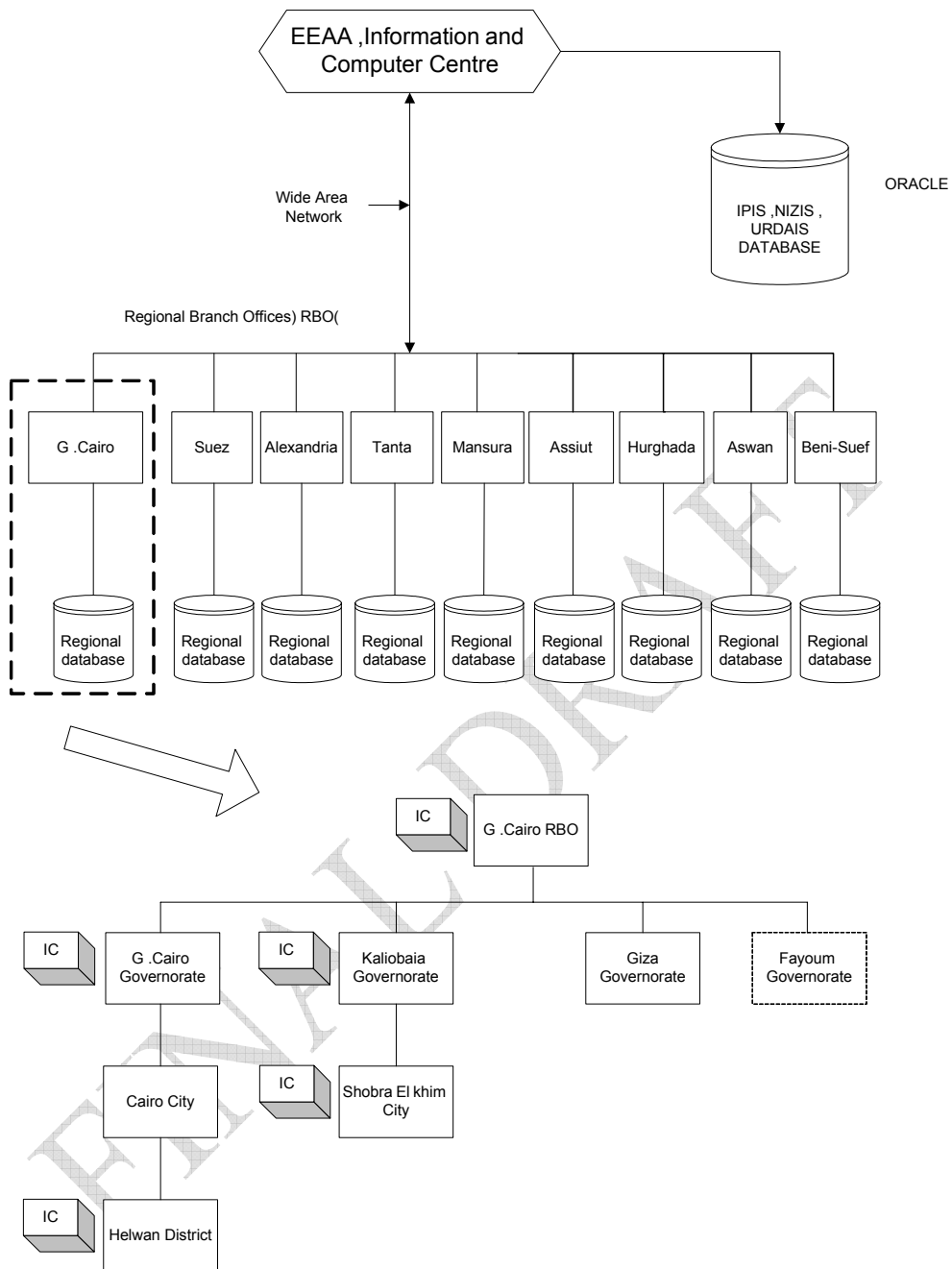


Shared “spaces” and information repositories

It is anticipated that the current development of Information Centers for communication between EEAA and the two RBOs in Greater Cairo and Suez and between the two RBOs and the EMUs will be implemented in the remaining 7 RBOs in Egypt in the future.

The concept is illustrated below, also indicating the EMUs involved in the pilot project in Greater Cairo. Fayoum governorate is in the process of being transferred to a new RBO for North of Upper Egypt located in Beni-Suef. However Greater Cairo RBO will be responsible with the temporary supervision of Fayoum governorate until the establishment of Beni-Suef RBO.

Egyptian Environmental Information Systems EEIS



Conceptuel illustration of the organisational structure for establishment of data communication between EEAA, the regional branch offices and the local EMUs.

Egyptian Environmental Information Systems EEIS

The two districts in Shobra El Khima City (West and East Districts) are both important stakeholders in relation to data capture and data management as they are the data providers in the City.

It is therefore recommended and expected that investments are made in these districts in the near future in order to fully develop the data exchange and dissemination strategy for Shobra El Khima City.

FINAL DRAFT

PROJECT PHASES AND OUTPUTS

The establishment of Information Centers includes seven stages divided into three phases. The seven stages comprise:

1. **STRATEGY** Stage. To produce a strategic plan for information systems development, which will serve the organization's current and future needs.
2. **ANALYSIS** Stage. To expand the findings from the strategy stage into detailed statement of user requirements.
3. **DESIGN** Stage. To design a business system that will fulfill the detailed user requirements given the technical environment and constraints
4. **BUILD** stage. The Database Application (Program) is developed on top of the designed database. The Database is tuned and the database program is tested.
5. **USER DOCUMENTATION** Stage. To produce documentation to support the use and operation of the system
6. **TRANSITION** Stage. To take the working software into production with minimum description to the business.
7. **PRODUCTION** Stage. To ensure the smooth running of the system, responding to user complains, enhancements, new requirements, response time ,...etc

Each of the project phases are described below.

Phase 1: Description of Technical Specifications and organisational set-up

Phase 1 comprise the Inception Activity, the Strategy stage (Stage 1) and the Analysis stage (Stage 2).

The draft outline Project Implementation Plan (PIP) will be reviewed based on the findings in this initial phase. The elaboration of Technical Specifications and description of the organisation needed to manage and maintain the Information System should follow the guidelines stated in the Environmental Information Strategic Plan prepared by the EEIS Project Management in collaboration with DFIDs UK funded Planning Advisor, June 30th 2003.

Activity 1.0: Inception period

The inception period is used to get established and prepare the implementation of Information Centers.

This involves establishment of a team of local counterparts in the RBOs and establishment of overall implementation strategy, introduction to decision-makers in EEAA and the RBOs and identification of local consultants.

These Terms of Reference for the implementation of Regional Information Centers and the list of needed IT equipment are produced during the Inception Period.

Activity 1.1: Identification of data needs and data gaps

A data needs analysis and a review of existing data must be carried for ICC/EEAA, Greater Cairo RBO, Suez RBO and the corresponding EMUs according to the scope of work described above. This analysis will be carried out by interviewing key persons in the RBOs and the EMUs.

By comparing information about existing data with the list of data needs, it will be possible to identify data gaps. The data gaps represent the type of information, which is not already being collected and which is found necessary for the decision-makers in the RBOs and the EMUs in order for them to be able to fulfill their mandates under Law No. 4 regarding the Environmental Law from 1994.

Based on the complete set of data needs obtained from interviews with relevant stakeholders, a final review of these data sets will be carried out. This exercise will separate data into “Need To Have” data and “Nice To Have” data.

Only “Need To Have” data will be taken into consideration during this project.

The list of data needs will be used in the design of the databases in which these data will be stored and managed.

Activity 1.2: Workflow analysis

In order to identify duties and responsibilities of the staff in the various departments in the RBOs and the EMUs, a work flow analysis must be carried out.

This analysis will identify working procedures and the chains of communication for all activities in the RBOs and the EMUs. The analysis will furthermore identify when data are generated, who generates the data and where the data are processed and finally stored. This analysis will furthermore be compared with the analysis of data needs and data gaps, completed in activity 1.1.

The work flow analysis will also identify the staff involved in data capture and data processing. A Training Needs Assessment will be carried out for this staff in order to identify which type of training this staff will need to be able to manage and maintain data in the Information Centers.

The work flow analysis will eventually be used to prepare procedures and guidelines for data communication and quality assurance of data in conjunction with the description of the organization below.

Activity 1.3: High Level Function Diagram

A high-level Functional Hierarchy Diagram (FHD) of the application will be developed. This diagram will show the basic functions of the database application based on the findings of the workflow analysis.

Activity 1.4: Detailed Level Function Diagram

Based on the high-level Functional Hierarchy Diagram, a detailed Functional Hierarchy Diagram will be elaborated. This will clarify in details each of the functions needed in the database application in order to satisfy the requirements from the end-users.

Activity 1.5: Draft Entity Relation Model

Based on the findings in the data needs analysis and the work flow analysis, a draft Entity Relation Diagram will be elaborated. This diagram will form the draft backbone of the database and will describe the relationships between the entities and attributes in the database.

Activity 1.6: Detailed agreed Entity Relation Model

Based on the draft Entity Relation Diagram, a detailed Entity Relation Diagram will be established after consultation with the End-users and relevant stakeholders.

Activity 1.7: System sizing and recommendations

A first overall system sizing will be carried out. During this activity, the number of end-users and size of data to be stored and managed will be estimated. This will give an idea about which Database Management System to apply for this system (Oracle, MS SQL Server, Access, etc.).

Recommendations on how to enhance the existing working procedures will be given to the decision-makers. Recommendations could comprise implementing a new data capture form or to change the procedures for data capture, data processing and reporting.

Activity 1.8: Possible system architecture and phased development plan

A suggested system architecture will be prepared. This will be based on the Draft Outline System Architecture, which is presented in the chapter "Outline System Design".

This will contain a review of the needed Hardware and Software, databases, networking links and security levels.

Activity 1.9: Agreed Function details (Problem specs)

A detailed description of the Functions required in the database application is prepared. This comprise problem <Program> specifications.

This will be used to design the Data entry screens in the application and to design needed data validation modules and data handling modules to assist the end-user.

Activity 2.0: Function/Entity Matrix Analysis

A function/Entity Matrix Analysis will be carried out to cross-check that all functions are related to an entity in the database. Vice versa it will be used to cross check if

planned functions (t.ex. a planned data entry screen) also relates to an existing entity. If not, this function will not be implemented.

Activity 2.1: Data flow Model

Models for data flows, function dependency and state transition will be prepared. This activity will consolidate the previous activities and will be used to model the way data is entered, processed and final stored and reported in the database system.

Should the data model not be approved to be appropriate, actions must be taken to correct this before the database is designed. Failure to do this could give rise to costly implications later in the process.

Activity 2.2: Prototyping

Prototyping is an important part of the analysis stage because it will provide the end-users with a “look and feel” experience of the system to be developed. This is carried out by designing some simple data entry screens, log-in screens, etc.

Typically this activity will give rise to changes in color or position of Agency logo, etc.

Activity 2.3: Audit/control and Backup/recovery needs

Procedures for data audits as part of the Quality Assurance Procedures will be described. Furthermore needs for Back-up and Data Recovery needs are described. This has implications on the need for hardware and for manual/automatic data handling procedures to be encoded.

Activity 2.4: User acceptance criteria

User acceptance criteria must be collected and examined to ensure that the final system also satisfy the needs of the end-users.

User criteria could comprise bi-lingual functions, certain reporting functions, certain data entry functions etc.

User acceptance criteria are often identified in the prototyping activity and in the period after, when the users have had time to think more specifically about what the need and what is possible to do.

Activity 2.5: Constraints and assumptions

A description of the constraints and assumptions must be prepared. This comprise any external factors, management factors or other factors that may confine the business or development in terms of resource availability, dependencies or timescale.

Also assumptions taken for the success of the project will be described. Assumptions could be that the EMUs have prepared the locations before the equipment is installed. Also assumptions related to the staffing and the approval time, are described here.

Activity 2.6: Organisation

The organisation needed to manage and maintain the information in the Information Centers must be described and approved by decision-makers in order to obtain a sustainable solution for data exchange and dissemination. The following teams must be identified and established:

- Data Management and Dissemination Committee
- System Maintenance Team
- Data Management Teams

Each of the above items is described below:

Data Management and Dissemination Committee:

Procedures for data communication must be elaborated in order to describe the duties, responsibilities and mandates of each of the involved parties.

A Data Management and Dissemination Committee must hence be established to ensure a coherent and integrated data communication between EEAA, the RBOs and the EMUs. This committee will be responsible for elaboration and implementation of data exchange guidelines and procedures.

The mandate of EEAA and the RBOs must be described in relation to exchange of data from the EMUs. This is important since the EMUs are administratively related to the Governorates and not to EEAA. This implies that EEAA and the RBOs cannot enforce data to be delivered from the EMUs, which could give rise to issues of concern, should the EMUs not follow the requests from EEAA/RBOs.

The tasks and duties of the committee should be in accordance with the statements in the Environmental Information Strategic Plan (EISP) elaborated by CIDA and DFID.

The procedures and guidelines for data exchange will clarify the TYPE of data, which is exchanged, HOW this data is exchanged, WHEN this data is exchanged and by WHOM.

The first versions of these procedures and guidelines will be elaborated by the ICC/EEAA. The Committee will ensure the implementation and further elaboration after project completion.

System Maintenance Team:

A System Maintenance Team must be established to ensure that the technical implementation of the Information Centers (computers, printers, software and network) is working at all times.

This team must consist of competent IT-staff guided by a Technical Team Leader. The staff should be anchored in EEAA and travel to the destinations in the RBOs or the EMUs whenever technical problems occur, which cannot be solved using the

phone or fax. Gender issues must be taken into consideration when employing the staff, since travel activities are bound to happen involving overnight stays at the destination.

This team could consist of 2-4 staff and the Team Leader as long the Information Centers only cover the scope of this project (G.Cairo and Suez).

However it must be anticipated that when more RBOs are involved and more Information Centers are established, a re-organization of this Maintenance Team will be needed to facilitate the new Information Centers.

It should hence be considered to have one Maintenance Team consisting of 4 staff members and a Team Leader being responsible for the maintenance of the technical implementation in two RBOs and their corresponding EMUs.

Data Management Teams:

RBO level:

A Data Management Team must be established in each RBO to manage and administer data from EEAA, the RBO and the EMUs.

This team should consist of 3 RBO staff members, which will be anchored in the RBO and will be responsible for data processing, data exchange with EEAA and the EMUs as well as production of GIS maps.

This team will furthermore be responsible for presentation of relevant data and for the use of the provided IT-facilities.

EMU level:

A Data Management Team must be established in each of the involved EMUs to manage and administer data from EEAA and the RBO. This team should consist of 3 EMU staff-members, which will be anchored in the local EMU and will be responsible for data entry in the local database and for elaboration of environmental documents for the local administration and for the RBO. This team will furthermore be responsible for presentation of relevant data and for the use of the provided IT-facilities.

Activity 2.7: Outline Data Exchange Formats, Procedures and Guidelines

Data exchange formats must be elaborated in order to ensure that data captured in the RBOs and the EMUs are easily transferred between the EMUs, the RBO and the existing system in EEAA.

Egyptian Environmental Information Systems EEIS

Procedures and Guidelines to be maintained by the Data Management and Dissemination Committee must be elaborated and approved by decision-makers in EEAA and the RBOs.

These procedures and Guidelines must be developed in cooperation with EEAA, the RBOs and the EMUs to obtain an overall agreement of how, when and by whom the various types of data are exchanged.

The documents will include a comprehensive description of Data Capture Procedures, Quality Assurance Procedures, Data Entry Procedures and Data Exchange Procedures.

The procedures and guidelines should be in accordance with the statements in the Environmental Information Strategic Plan (EISP) elaborated by CIDA and DFID.

Activity 2.8: System integration between distributed databases

A detailed description of how the new database application will be integrated with the existing Oracle database in EEAA will be elaborated.

This includes a description of the integration between the central databases in EEAA, the regional databases in the RBOs and the local databases in the EMUs.

Activity 2.9: User acceptance to proceed to design and implementation phase

Documented User Acceptance of the Technical Specifications will be elaborated as the final activity in the first phase. Approval must be obtained by the Project Steering Committee described in the chapter "Project organization during the project life cycle".

This will guarantee that all requirements are met for the involved stakeholders before the actual system design is commenced.

Deliverables

The following deliverables will be produced in Phase 1:

STRATEGY STAGE KEY DELIVERABLES:

- Statement of business direction – business objectives, priorities, constraints, critical success factors.
- Business Unit definition.
- High Level Function Hierarchy diagram.
- High Level Entity Relationship diagram.
- Overview System Sizing.
- Recommendations
- System boundary definition
- Possible system architecture.
- Phased development plan.

ANALYSIS STAGE KEY DELIVERABLES:

- Detailed agreed entity relationship model
- Agreed function detail to elementary level
- Matrix analysis
- Function/entity, function / business unit
- Models for data flow, function dependency and state transition
- Data volume, function frequencies and user performance expectations.
- Prototyping of the database application
- Includes user preferences for the “look and feel “of the system, case of use.
- Audit/ control and backup /recovery needs
- Outline of manual procedures
- User acceptance criteria
- Preliminary sizing
- Constraints and assumptions
- Agreed approach to design and build stages
- Revised system development plan.
- System Integration between Distributed Database For
 - EEAA Central Database
 - RBO Regional Database
 - EMU Local Databases.
- User Acceptance for Analysis Stage (Approval Point).

Phase 2: System Design

This phase comprises the Design Stage (Stage 3) and the User Documentation Stage (Stage 4).

During this phase, elementary business functions in the Function Hierarchy will be translated into modules (screens, reports, menus..)

The Entity Relation Model will turn into database design including tables, columns, indexes and views with related validation rules (stored procedures, functions and database triggers..)

Activity 2.1: Elaboration of System Architecture

The final system architecture will be developed based on the Draft Outline System Architecture presented in the section "Outline System Design".

This will describe the overall set-up of the system with detailed description of hardware, software and communication links (modems, data transfer rates).

Activity 2.2: Elaboration of Logical and physical schemas

Logical and physical database schemas will be developed.

The logical database diagram consists of an Entity Relation Diagram (ERD), which describes the logical relation between the various entities in the system.

In the physical schema all the entities are transformed into table definitions, having plural names instead of the singular names of the entities and column names instead of attributes, with all the foreign keys (FKs) defined as new columns on each table, ready to be physically implemented as tables, relationships and constraints.

Activity 2.3: Database design and sizing

The database is designed based on the logical and physical schemas. Database objects are physically implemented in the database.

In this activity it is decided which Database Management System (DBMS) should be applied (MS Access, MS SQL Server, ORACLE or others...).

A detailed description of the database will be prepared (Stand alone, Client-Server, Replicated, Distributed, etc..).

Import/Export functions for data exchange are designed.

A detailed Program Specification Report is produced.

Activity 2.4: Elaboration of Transition Strategy

An agreed transition strategy comprising plans for delivery and acceptance, needed training, data take-on (entry of test data), cut-over (?) and installation is prepared.

A system Test Plan is prepared and approved.

Activity 2.5: Elaboration of system documents

A Draft Users Manual and a Draft Operations Documentation Manual are produced.

The System Development Plan is revised.

Deliverables

DESIGN STAGE KEY DELIVERABLES:

- System architecture
- Module design
- Logical & physical schemas
- Database design
- Detailed sizing
- Program specification
- Specification of manual procedures
- Draft user manual
- Agreed transition strategy comprising plans for delivery and acceptance training, data take-on, cut-over and installation
- System test plan
- Draft operations documentation
- Revised system development plan

Phase 3: System Implementation

Phase 3 comprise the Build stage (Stage 4), the User Documentation Stage (Stage 5), the Transition Stage (Stage 6) and the Production Stage (Stage 7).

Activity 3.1: Procurement and installation of IT equipment in the RBOs and the EMUs

This activity will establish the working environment in the RBOs and the EMUs.

The required Hardware / Software and communication links are established according to the prepared List of Procurement of IT-Equipment.

The agreed development media is installed to be used by the Database Developers.

Activity 3.2: Programming of Regional and Local Databases

The Database Application Programs are developed for the RBO and EMU database. The database is tuned to facilitate fast search functions for data retrieval.

If relevant, changes are suggested to the database to accommodate new indexes and/or de-normalized data. This may occur during the encoding of the Database Application.

Activity 3.3: Testing of database

The project Team Leader will plan, run and review an overall system test to ensure the functionality of the Database Application. This is carried out by simulating a production environment with RBOs and EMUs.

A comprehensive testing of the Database Application is carried out and test results are reported.

The transition strategy is revised based upon test results

Activity 3.4: User Documentation

User documentation is developed including end-user manuals, function descriptions, examples of screen layout and reports, validation tables and error messages.

An Operation documentation is developed.

Activity 3.5: Transition

Training and educational material are developed in this activity. Training is carried out for end-users in the RBOs and the EMUs and for operational staff. Operational staff must be able to use and support the system without any assistance from the development staff.

Egyptian Environmental Information Systems EEIS

A fully operational database system is installed including hardware, system software, application software, network and components.

Existing data is converted and imported into the new database.

A post-implementation Review Report is produced.

Support facilities are implemented and System Documentation is completed.

Activity 3.6: Production

The Database Application is fully implemented and in use in this activity. The purpose of the activity is to:

- Provide day-to-day support of the system for the end-users.
- Provide operational services for the system
- Provide support for back-up and recovery activities and debugging of system errors
- Respond to user requests
- Monitor / review performance of the system

This activity will furthermore facilitate any additional user requests to the system. This may occur if some activities were not identified during the analysis and development of the system. This may also occur if business activities or working procedures are changed during the development period.

These user requests must be examined and prioritized in order to make any decisions to either implement the changes immediately or to record the changes for future enhancements.

Finally this activity will be used to perform periodically checks of the system in a working environment.

Deliverables

- Provide operational service
- Day-to-day support of the system and users
- Plus house keeping activities (e.g. backup, recovery) fixing faults.
- Respond to user requests
- User will request system changes because of something overlooked during development or because of a change in the business.
- Requests should be investigated and a decision made to implement them immediately or record them as new requirements for future enhancements
- Monitor /review performance
- The performance of the system needs to be checked periodically
- The numbers gathered are used for capacity planning.

Reporting

The Information Centers Team leader will submit Progress Reports to inform about the project status, Problem Reports (if necessary) and one Technical Specifications Report after completion of the first phase. The following reports must be submitted:

Type of Report	Timing	Reports are distributed to
Brief Progress Report	Monthly	Project Manager, Information Centers
Summary Progress Report	Quarterly	Project Steering Committee members
Problem Reports	Whenever a problem with the implementation occurs	Project Manager, Information Centers
Technical Specifications Report	After Phase 1	Project Steering Committee members

ASSUMPTIONS

The following critical assumptions applies for these Terms Of Reference:

- EEAA staff (Programmer(s) and Database Administrator) are assigned by EEAA to work in close cooperation with the assigned Team Leader for the Information Centers.
- EEAA staff is working fully dedicated on this task in order to follow the given Project Implementation Plan.
- The Project Manager will be given the option of employing external Database Programmers outside EEAA, should the given Project Implementation Plan not be followed.
- RBO staff working with the implementation of Information Centers must be assigned an appropriate location and be equipped with office facilities such as tables, chairs, whiteboard and computers/printers.
- The relevant Governorates, Districts and Cities have prepared suitable, renovated and furnished office locations for the Information Centers prior to the installation of computer equipment.
- Staff in the selected EMUs are co-operating with the RBOs staff with respect to exchange of data, information about data needs, information about working procedures, establishment of new procedures, etc.

MEETINGS

Meetings between the members of the Steering Committee should be carried out in the beginning of the project implementation and every quarter hereafter. This will ensure that all relevant stakeholders agree with the outcome of the project.

TIMING

The fully implementation of Information Centers is expected to take 14 months, starting from April 1th, 2004.

Any delays in the given activities will have impact on the total project life cycle.

TRAINING

Staff working with the implementation of Information Centers in the RBOs and the selected EMUs will be given training to strengthen their knowledge about Information Technology. The following training will be carried out:

Type	Titel	Target Group	Timing	Trainer
Practical training course in Designer2000	Oracle CASE Methodology	RBO, Information Center staff	March/April 2004 (G.Cairo and Suez)	Eng. Medhat Mostafa
Introduction Course	Microsoft Windows XP and Office XP	<ul style="list-style-type: none"> • RBO, Information Center staff • EMU, Information Center staff 	<p>May/June 2004 (Helwan District and Shobra City).</p> <p>Cairo and Kaliobaia Governorates will receive training in August/September 2004 or according to availability of staff and equipment. The same applies for Suez RBO staff and Suez EMU staff.</p>	Local provider

Egyptian Environmental Information Systems EEIS

<i>ACTIVITIES/ SERVICES</i> <i>(as listed in the MOU)</i>	<i>STATUS</i> <i>(complete/delayed / ongoing)</i>	<i>OUTPUTS/ RESULTS</i> <i>(as listed in the MOU)</i>	<i>RESPONSIBLE FOR IMPLEMENTATION</i>	<i>TIMELINE</i> <i>(Timelines in MOU)</i>
Activities, outputs and timelines in the MOU (MOUs due to expire in December 2004)				
1. Review and provide comprehensive comments on the AEIN implementation guidelines.	completed	<ul style="list-style-type: none"> • There is no comments on the AEIN implementation guidelines 	<i>Egyptian Environmental Affairs Agency EEAA</i>	Apr 2004
2. Undertake an assessment, using guidelines provided by UNEP, of the status of Environment information systems and networking activities in the country, including existing institutional capacities and identify capacity as well as awareness raising needs.	completed	<ul style="list-style-type: none"> • Sent to CEDARE In June,2004 	<i>Egyptian Environmental Affairs Agency EEAA</i>	by end Apr 2004
3. Organize a national start-up workshop involving all the key stakeholders in environment information management in the country to get consensus on AEIN implementation at the national level. The implementation guidelines provided by UNEP will be the key resource material.	ongoing	<ul style="list-style-type: none"> • Will be held in 15,December,2004 	<i>Egyptian Environmental Affairs Agency EEAA</i>	By end May 2004
4. Prepare a national AEIN implementation plan and submit it to the Center for Environment and development for Arab Region & Develop (CEDARE), the UNEP Collaborating Centre in the region, for peer review.	completed	<ul style="list-style-type: none"> • Sent to CEDARE in 28,November,2004 	<i>Egyptian Environmental Affairs Agency EEAA</i>	June 2004
5. Establish a national implementation structure for AEIN consisting of a national	On-going	<ul style="list-style-type: none"> • A functional national EIN implementation structure established. 	<i>Egyptian Environmental Affairs Agency</i>	Visible network by Dec 2004

Egyptian Environmental Information Systems EEIS

node (or secretariat) supported by technical committees and working groups in accordance with the guidelines provided.			<i>EEAA</i>	
6. Establish and provide a comprehensive database (using Microsoft Access or similar tools) of national and or international institutions which collect environmental data in the country. The database must have fields that contain the country ISO codes in two and three digit format, e.g. Lesotho, LS and LSO respectively.	On-going	<ul style="list-style-type: none"> A database of institutions that collect environmental data in the country, it will be disseminated through EEAA website . 	<i>Egyptian Environmental Affairs Agency EEAA</i>	May 2004
7. Establish a national website for environmental information, with links to other websites of core environmental data producers and also ensure that the information in the database mentioned above (f) is also available on the website.	On-going	<ul style="list-style-type: none"> A national website for environmental information established with links to at least six websites of core national data producers. 	<i>Egyptian Environmental Affairs Agency EEAA</i>	By Dec 2004
8. Provide a brief report on the state and process of environmental assessment and reporting in the country.	completed	<ul style="list-style-type: none"> CEDARE issued many times at many workshops A brief report on the state and process of environmental assessment and reporting in Egypt. 	<i>Egyptian Environmental Affairs Agency EEAA</i>	Apr 2004
9. Produce a National Environment Outlook report.	On-going	<ul style="list-style-type: none"> Egypt Environment Outlook report will be issued at 15,December,2004. 	<i>Egyptian Environmental Affairs Agency EEAA</i>	Dec 2004
10. Document the impacts, lessons (positive and negative) learnt at every stage of AEIN and AEO implementation at the national level.	On-going	<ul style="list-style-type: none"> A detailed report that has supporting data and information to ensure objectivity that captures lessons (positive and negative) learnt at every stage of AEIN and AEO implementation, impacts 	<i>Egyptian Environmental Affairs Agency EEAA</i>	Dec 2004

Egyptian Environmental Information Systems EEIS

		and results of all these activities at the national level.		
--	--	--	--	--

FINAL DRAFT