

Data Dissemination Information System through WWW

By

Bhandit Pornkraisri

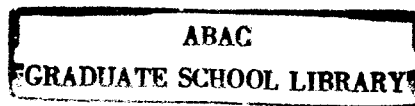
Final Report of the Three - Credit Course
CS 6998 System Development Project

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Computer Information Systems
Assumption University

July, 1998

MS (CIS)

5



Data Dissemination Information System through WWW

by

Bhandit Pornkraisri

ID: 363-9200

Final Report of the Three-Credit Course
CS 6998 System Development Project

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Computer Information Systems
Assumption University

July 1998

Project Title : Data Dissemination Information System Through WWW
*The title has been changed according to the final approval the committees

Name : Mr.Bhandit Pornkraisri

Project Advisor : Dr.Aran Namphol

Academic Year : July 1998

The Graduate School of Assumption University had approved this final report of the three-credits course, **CS 6998** System Development Project, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer Information Systems.

Approval Committee :



(Dr.Aran Namphol)
Advisor



(Prof.Dr.Srisakdi Charmonman)
Chairman



(Air Marshal Dr.Chulit Meesajjee)
Member and Co-Advisor



(Assoc.Prof.Somchai Thayarnyong)
MUA Representative

July 1998

ABSTRACT

This project initially plans to do for database migration from Macintosh system to PC system. Later it was advised to extend to serve more users and to integrate with worldwide network, which is known as "World Wide Web (WWW)". The system itself could work as a stand-alone database system to serve within the office. At the same time it could generate Web pages in HTML data format to put in PC Web Server to disseminate all available data reachable by outsiders through WWW networks. The project had concentrated in only "Static HTML" data format.

The current database system in the EAP Office uses "File Maker 4.0" in Macintosh LC200 to store and manipulate all datasets information. There is only one Macintosh in the office that means no system compatibility for this Macintosh. Apart of this problem there are data redundancy and consistency concerned with the current system. Database Manager has to key the same information to many data tables. Then he would have less time to service more users. The database system will be accessed periodically or as needed.

With the current manpower in the office, the developed system will reduce the workload of data service, improve data consistency and encourage more users in WWW to make use of the existing environment data. Apart from these benefits the system can be reached 24 hours a day. The system security will be strictly maintained because the dataset catalogue, dataset documentation in HTML data format can be only read (browse).

The database system in this project was improved by using database normalization techniques. These techniques will reduce redundancy, enforce data integrity. Then it results in system reliability and data consistency.

The proposed system has shown the break-even point at 3.3 years that will be operated 24 hours a day accessible by a large number of users. The cost and benefit comparison graph was shown on page 28.

There are the possibility to develop and enhance the features existed in nowadays technology to provide near real time dataset catalogue for users and decision-makers. This is so called "Dynamic HTML". Anyway this step still need more investment in Web Server software and further study before taking design and implementation.

ACKNOWLEDMENTS

Many people had made significant contribution to the successful of this project. The writer would like to thank you all the lecturers in the university who had taught him all the subjects which laid down foundation for him. This project used many key elements in computer technology for design and implementation. The writer would like to thank Dr. Suphamitre Chittayasothorn who had taught in the principle of Database Management, Normalization and SQL. Most parts of this project had been designed with normalization techniques. Also Dr. Rom Hiranpruk who paid a lot of effort in teaching System Analysis and System Design.



TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
ABSTRACT	i
ACKNOWLEDGEMENTS	ii
LIST OF FIGURES	v
LIST OF TABLES	vii
LIST OF APPENDIX FIGURES	viii
 I. INTRODUCTION	
1.1 Organization Background	1
1.2 Project Background	2
1.3 Objectives of the project	3
1.4 Scope of the project	4
1.5 Benefits	4
1.6 Workplan	5
 II. EXISTING SYSTEM	
2.1 The Environmental Model	7
2.2 Scenario of the current system	7
2.3 The Event Lists	8
2.4 Overview of the existing system	9
2.5 Problem	9
 III. PROPOSED SYSTEM	
3.1 Introduction to the new system	12
3.2 Proposed Hardwares Configuration	12
3.3 Proposed Softwares Configuration	13
3.4 Proposed Local Area Network	13
3.5 Cost and Benefit Analysis	26
3.6 Cost & Benefit Comparison (in Baht)	26
 IV. DESIGN AND IMPLEMENTATION	
4.1 Input and Output Section	29
4.2 Database file design and Normalization	35
4.3 Data Dictionary	36
4.4 Table Relationship	39
4.5 Entity-Relationship Diagram (ERD)	40

<u>Chapter</u>	<u>Page</u>
V. CONCLUSIONS AND RECOMMENDATIONS	
5.1 Conclusions	44
5.2 Recommendations	45
BIBLIOGRAPHY	46
APPENDIX A Background of EAP Home Page	47
APPENDIX B Examples of HTML Coding	61
APPENDIX C Example of Current Data Request Form	82



LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1.1 Gantt Chart of the Project Workplan	6
2.1 Context Diagram of Current EAP Database System	10
2.2 The Top Level Dataflow Diagram	11
3.1 Physical System Diagram of EAP	15
3.2 Context Diagram of New EAP Database System	16
3.3 The Top Level Dataflow Diagram of the New System	17
3.4 Level 1 of Filling Data Request Form	18
3.5 Level 1 of Processing Data Request	19
3.6 Level 1 of Packing	19
3.7 Level 1 of EAP Web Server	20
3.8 Level 1 of Creating New Dataset Documentation	21
3.9 Level 1 of Adding Dataset to Catalogue	21
3.10 Structure Chart of EAP Database System	22
3.11 Quotation of DEC Prioris Server	23
3.12 Quotation of UPS	24
3.13 Cash Purchase Summary of MS Office	25
3.14 Cost and Benefit Comparison Graph	28
4.1 Screen Layout of Data Request Form	30
4.2 Screen Layout of Dataset Documentation	31
4.3 Dataset Catalogue (Hard Copy)	32

<u>Figure</u>	<u>Page</u>
4.4 Data Distribution Report	33
4.5 Print-out of cata-1.htm from table “cata”	34
4.6 Graphical Presentation of 1-1 Table Relationship (table “doc” and “cata”)	41
4.7 Graphical Presentation of 1-M Table Relationship (table “cata” and “reg”)	42
4.8 E-R Diagram of Data Dissemination Information System through WWW	43



LIST OF TABLES

<u>Table</u>	<u>Page</u>
4.1 Requestor Table (reg)	35
4.2 Documentation Table (doc)	35
4.3 Catalogue Table (cata)	36
4.4 Data Dictionary of Table “reg”	36
4.5 Data Dictionary of Table “doc”	38
4.6 Data Dictionary of Table “cata”	39
B.1 Examples of HTML Coding	61



LIST OF APPENDIX FIGURES

<u>Appendix figure</u>	<u>Page</u>
A.1 Main Home Page	48
A.2 EAP Component	49
A.3 Capacity Building	50
A.4 Data Management	51
A.5 Training Charges	52
A.6 Assessment	53
A.7 Framework	54
A.8 GRID Centers	55
A.9 UN Links	56
A.10 Other Links	57
A.11 GIS Data	58
A.12 Meta-data	59
A.13 Publication	60
C.1 Example of Current Data Request Form	82

I. INTRODUCTION

1.1 Organization Background

“The UNEP Environment Assessment Programme comprises the Global Environment Monitoring Systems (GEMS), the Global Resource Information Database (GRID), State of the Environment (SoE) Unit and UN System-wide Earthwatch Coordination elements of UNEP. The Programme will facilitate cooperative environmental assessments of environment and development issues of international significance.

In Asia and the Pacific, the Programme is implemented through the UNEP/GRID facility located at the Asian Institute of Technology, Bangkok, Thailand. The facility was established by UNEP in 1989. The role of GRID-Bangkok has been expanded to encompass UNEP's Environment Assessment Programme for Asia and the Pacific. UNEP/EAP-AP is implemented in association with AIT and regional, sub-regional and national partner institutions. It operates under the regional policy direction of UNEP's Regional Office for Asia and the Pacific.”¹

Three-Point Plan for Cooperative Assessment

1. Capacity Building and Servicing

Developing countries in Asia and the Pacific Region have a real need for assistance in building national capacities for assessment reporting and data management. With associated countries in South Asia, South East Asia and the South Pacific, UNEP/EAP has formulated a programme to service environment and natural resource information networking among database custodians for cooperative international assessments related to shared resources. To implement the programme, partnerships have been established with ADB, UNDP, CGIAR, ESCAP, etc. and at the sub-regional level with ASEAN, ICIMOD, MRC, SACEP, and SPREP. Consultations have been held with 40 senior environmental agency representatives on needs and programme implementation.

2. Data Management

Data acquisition, analysis and management are essential elements in assessment and reporting. In Asia and the Pacific, UNEP provides assistance to improve accessibility and availability of reliable data. UNEP has strengthened the UNEP/EAP-AP facility to meet this goal. Core data sets of both bio-physical and socio-economic data at varying scales and at different levels are being completed. To meet the increasing demand for

¹ UNEP/EAP-AP brochure, Volume 1-1992

practical applications, training materials and case studies have been developed to demonstrate the use of geographic information system and remote sensing technology in assessment and reporting.

3. Assessment and Reporting

A major objective of environmental assessment and reporting is to provide overviews of environment and development issues, concerns and trends to raise awareness and generate policy action. Assessments evaluate cumulative impacts of environment and development processes to recommend preventive, corrective or reinforcing action. The primary needs for effective assessment include a functional assessment framework and a suitable mechanism to gather and analyze the necessary data and information. UNEP is helping to formulate an assessment framework and lay the foundation for an SoE database to be used in the Region for reporting as a basis for policy formulation, priority setting and action planning.

Assessment for Environmentally Sustainable Development

Information for environmentally sustainable development planning and management is a major concern for developing countries. The UNEP Environment Assessment Programme (EAP) is intensifying efforts to catalyze national and international action to strengthen assessment, reporting and data management capacities of institutions undertaking environmental assessment for decision making, policy setting and planning for sustainable development.

UNEP is fostering the development of an international cooperative assessment framework for collaborative action with both national and sub-regional bodies. It is expected that these existing networks of suitably equipped national, sub-regional and regional agencies representing groups of countries with common interests will improve mutually beneficial assessments of the effects of environment and development interaction at the national and international levels.”

1.2 Project Background

From the above organization (EAP) background, there are several services provided by 3 components. This project aims mainly to improve the capability of the second components; **Data Management Component**. The major activities of this component are listed as following:

1. Data acquisition, analysis and management at varying scale. There are 2 types of data gathering in the office now:

- Geographic Information System (GIS) Data. The datasets archive in GIS Arc/Info Export file format with the Geographic map projection (Latitude and Longitude) by using Degree Decimal (DD) map unit. Dataset file type is XXXX.E00.
 - Remote Sensing Satellite Data. The data is in either Raw imagery or processed “Raster data”. The data format archive for “Raster data” is in either plain binary file format or ERDAS file format.
2. Data archiving. There are 2 main tasks for this activities:
- Dataset Catalogue, to key in all necessary field to a database management system and print to a report showing all available data to the public. This catalogue will be sent to all the cooperating research centers and Institutes in Asia. Any users or researchers may request specific data in the catalogue to this office by mail, facsimile with filled Data Request Form.
 - Dataset Documentation, to key in all detail of that particular dataset to one page data sheet. This dataset document will be sent together with the requested dataset in order to give necessary information to users such as; coding system used, legends, data process for that dataset.
3. Data Distribution Report, to key in summary data services provided to all users in order to submit to Director to review every 3 months.

There is still foreseeable need to strengthen cooperation, to disseminate available data and information to serve more scientific users, researchers in order to provide reasonable guidelines to decision maker to take appropriate actions, policy setting and planning for development. The existing services are upon “Data Request Form” which still could serve limited number of users and consume a lot of time. To meet the increasing demand of data requested in the Asian Region, thus a need to improve the servicing system through a new possible Information Technology and Networking at global scale which is known as World Wide Web (WWW).

1.3 Objectives of the project

The objectives of the project are as following:

1. To study the existing system for improvement
2. To analyze, design and implement the new system
3. To improve the efficiency of the database system
4. To automate the database system within the office
5. To disseminate the available data and information to external users through World Wide Web (WWW)
6. To retrieve data and information through the query form

1.4 Scope of the project

The project will concentrate only the “Data Management Component” major activities as following:

1. Data Request Form

This form will enable external users to enter personal information, data required, then these information will be posted to a database file.

2. Data Distribution Report

This process will generate all necessary information of data requesters in report format to submit to Director every 3 months.

3. Dataset Catalogue

This process will extract key data field to publish on the designed Web page in HTML data format and hard copy print-out.

4. Dataset Documentation

This process will publish all dataset detail on designed Web page in HTML data format and hard copy print-out.

Deliverables

The deliverables of the project are as following:

1. An automate database system to serve both internal staffs and external users through WWW
2. Database design includes Table Design and Entity Relationship Diagram
3. Screen Layout for User Interface (Data Request Form)
4. Hard copy Layouts containing:-
 - 4.1 Data Distribution Report
 - 4.2 Dataset Catalogue
 - 4.3 Dataset Documentation

1.5 Benefits

There are 3 different types of benefit for this project:

1. User side. More users can access the available dataset at their convenient time without going through normal process. All bureaucratic problems will be bypassed.
2. Release the workload of servicing staff to do something else more fruitful to the office.
3. Faster dataset delivery with no mailing cost.

1.6 Workplan

This project is divided into 3 major parts:

1. System Analysis. This part will be mostly studying about the existing system and data gathering.
2. System Design. This part will be the technical design of the new system.
3. Implementation. This part will be the data entry, testing and debugging the system.

The project workplan can be seen in detail on the next page.



PROJECT WORKPLAN AND MILESTONES
12 January - 11 July 1998 (Tentative)

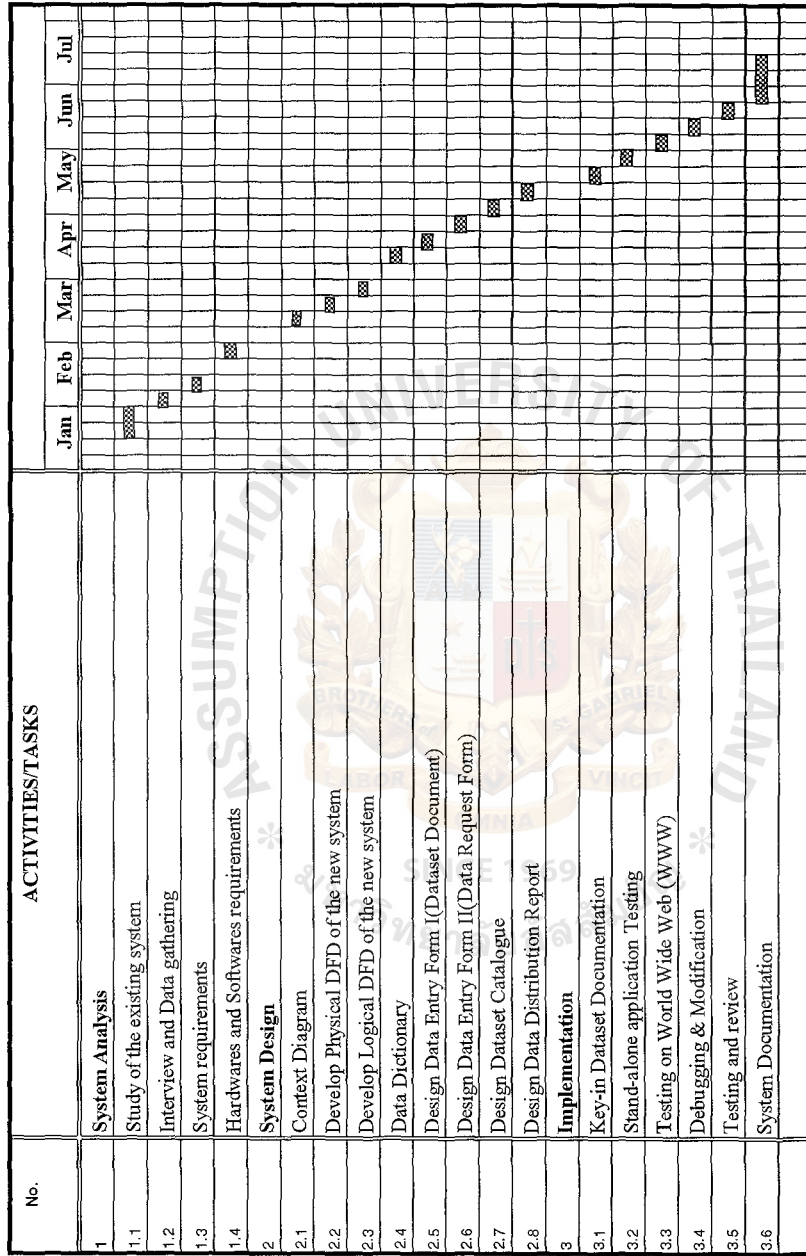


Figure 1.1. Gantt Chart of the Project Workplan

II. THE EXISTING SYSTEM

2.1 The Environmental Model

The statement of purpose: The role of data management component is to provide accessibility and availability of reliable data to all potential users (Scientists, Researchers and Policy Maker).

2.2 Scenario of the current system

The users of this database system are classified into 2 groups:

1. **External users** are all collaborated organizations' staffs, research students in universities, researchers in institutes, UN agencies, NGO and government officers. They may walk in to EAP (Environment Assessment Programme) office and request to see the "Dataset Catalogue". If they find any dataset could be used to their project, they will fill in "Data Request Form", submit to a service staff. The requester may need to wait at least 3 days for process of that request depend on the volume of datasets.
2. **Internal users** are all EAP staffs particularly operational staffs of the office projects; Land Cover Project, COMEMIS Project. These staffs will get the highest priority. They have no need to fill in any "Data Request Form". Since they inform the service staff who will hand over the datasets within one day with the related documents.

Mean of correspondence are letter, facsimile or electronic mail. The datasets will be delivered in computer digital file format. The computer compatible mediums are ranging from 9-track magnetic tape, 1 / 4" data cartridge (DC6250); 250 Mb. or 3.5" diskettes depend on the size of dataset. For external users this computer medium will be shipped by normal air-mail but requester may be asked to absorb this cost. Generally international shipment will be charged to requester through EMS or DHL services. Right now all datasets provide "Free of Charge" except mailing costs. In the future EAP may need to Charge for each data request to support cost of data archive, computer medium and maintenance.

EAP Database System is using "File Maker 4.0 DBMS (Database Management System) running on Macintosh LC200 to keep track of incoming datasets, generate Dataset Catalogue, print "Dataset Documentation". MS Excel (Spread Sheet Software) is used to keep track of out-going datasets by manually key in from "Data Request Form" and print out "Data Distribution Report" to submit to the Director every 3 months. The "Data Request Form" will be filed in a file folder for further reference.

There are 2 major type of dataset as following:

1. Incoming datasets usually come from the contribution of collaborating UN agencies, Research Institute, Universities who are willing to share their datasets in the community. These incoming datasets sometimes purchased by EAP staff in order to use for his/her project from many commercial company e.g. SPOT Asia, National Research Council of Thailand (NRCT) for LANDSAT-MSS or TM, NOAA-11. The processed data will be put on “Dataset Catalogue” for distribution.

Some cases data requesters acquire datasets from EAP Office and generate another set of data, then they send back to us the digital output to put into the “Dataset Catalogue”.

Some of the datasets are produced by participants in the region who come to attend EAP Training class.

2. Outgoing datasets are the datasets which are requested and send out from EAP office by either hand carry or mail.

2.3 The Event Lists

The event list for EAP Database system consists of 10 events as following:

1. Dataset generator contribute a set of data (GIS data, Satellite data or processed data).
2. EAP send acknowledgment letter to dataset generator.
3. Database manager (service staff) gather dataset information.
4. Database manager key in dataset information to a database file (Dataset Documentation).
5. Database manager key in dataset information to a database file (Dataset Catalogue).
6. User (Requester) fill in “Data Request Form” after browsing to “Dataset Catalogue”.
7. Database manager copy files to computer mediums according to “Data Request Form”.
8. Database manager prepare acknowledgment letter to send with requested datasets.
9. Secretary do packing for mail delivery.
10. Database manager key in requester information to a spread sheet file in order to print a report (Data Distribution Report) to Director.

2.4 Overview of the existing system

The overall picture of the current system can be described as shown in Figure 2.1. This system interacts with 5 entities. There are Land Cover Project, COMEMIS, NGO-University-Research Institutes, Capacity Building & Servicing Component and UN-agencies. These entities normally exchange data with each other through EAP Database System. That means the EAP office will serve as a data warehouse for these entities. The system can be further explained as shown in Figure 2.2. There are 2 major activities occur in Figure 2.2;

1. Outgoing datasets. When these 5 entities come to check all available dataset from “Dataset Catalogue” print-out, fill-in “Data Request Form” and send to database manager. Database manager will copy all requested datasets, prepare acknowledgment letter, photo copy Dataset Documentation, send all to secretary for packing and mail to the requestor.
2. Incoming datasets. Sometimes these 5 entities contribute datasets to EAP office for free. Occasionally EAP staffs will purchase dataset from other organizations to use in assigned projects. Then database manager has to gather all related information to key into EAP Database System in order to print;
 - Dataset Catalogue
 - Dataset Documentation

2.5 Problems

There are several problem with the existing system as following:

1. Redundant work of data entry; key in dataset information to a database file (Dataset Documentation), key in dataset information to another database file (Dataset Catalogue) and key in requester information to a spread sheet file (Data Distribution Report).
2. No Referential Integrity is applied to these database files. Inconsistency of data may occur which will lead to wrong information.
3. The services are carry on by only one EAP staff which can serve to a limited number of users.
4. Time consuming data request services by manually copy each dataset, preparing acknowledgment letter, packing for delivery.
5. Mailing cost is charged to either EAP (Data Provider) or users (Data Requester).
6. NO warranty for damage of data delivery.

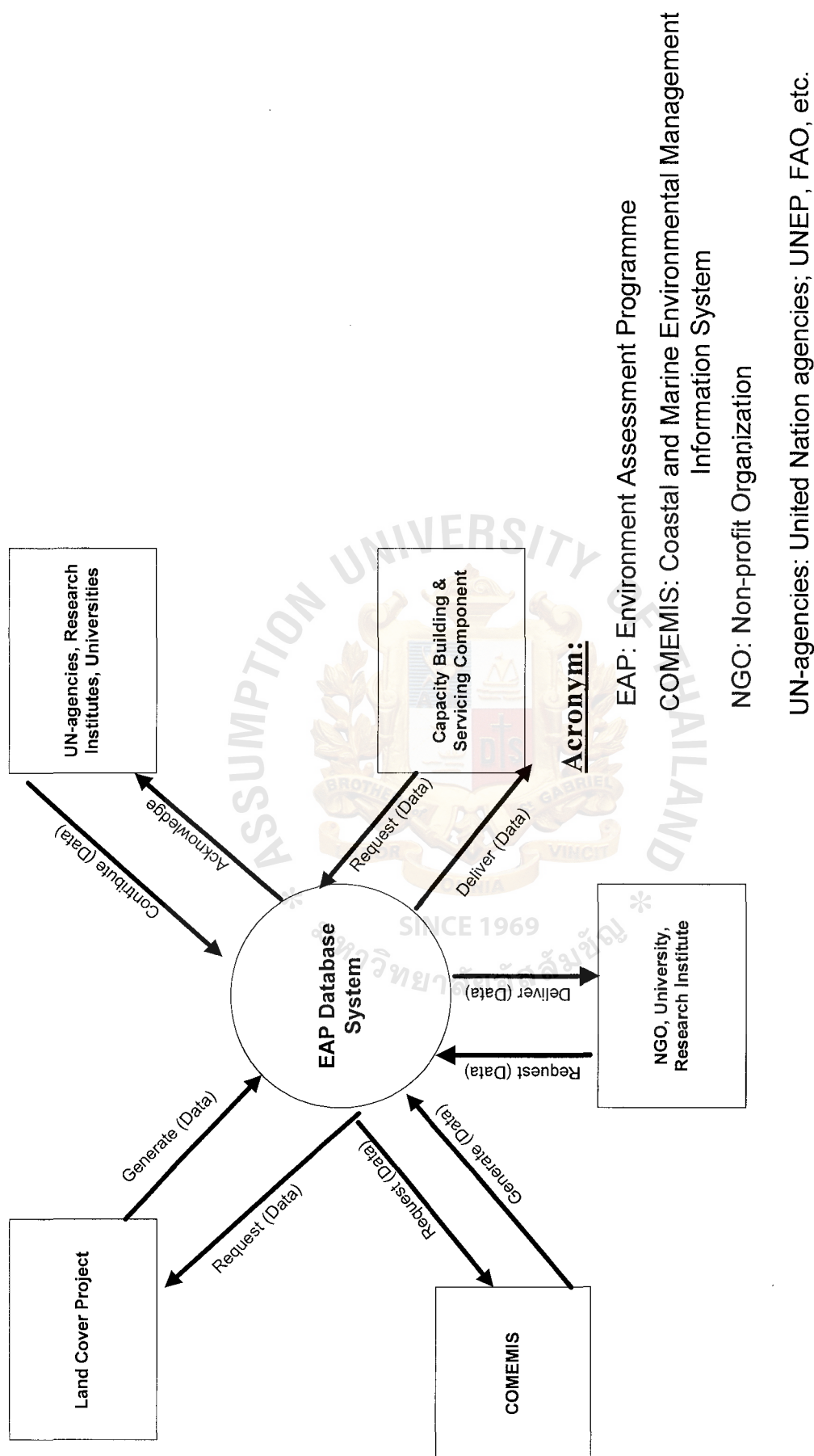


Figure 2.1. Context Diagram of Current EAP Database System

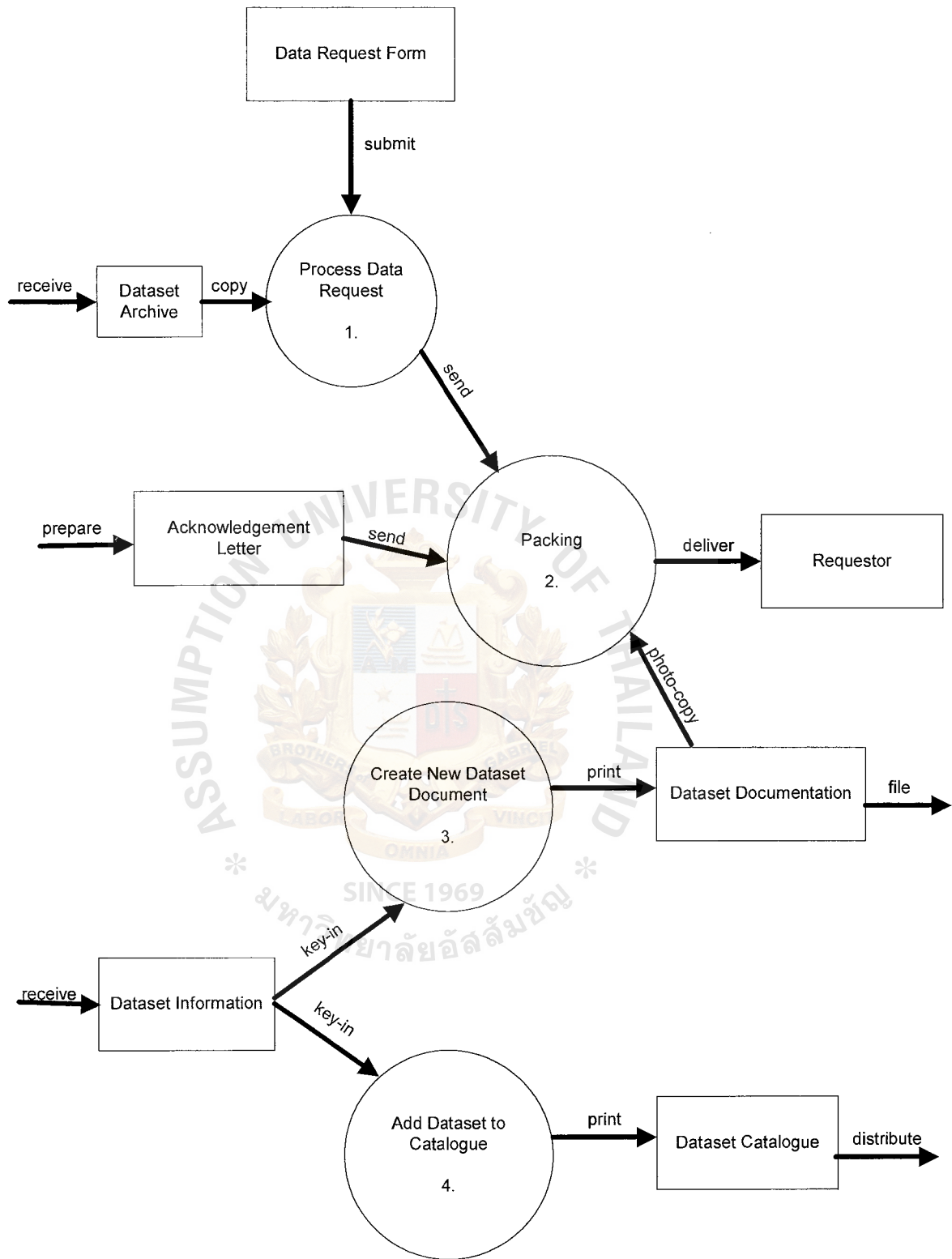


Figure 2.2. The Top Level Dataflow Diagram

III. PROPOSED SYSTEM

3.1 Introduction to the new system

The new system is planned to implement with the minimum investment because of the reducing budget. It was recommended from the management that the system should target to utilize the existing system both hardware and software. The new system should be only one computer add into the current EAP office computer system in room no: 304/1 as shown on Figure 3.1. Several downloadable softwares from WWW were heavily used to create general information and serve as the skeleton body of this EAP database system (please look at the appendix A). The general information of EAP was created in Hyper Text Markup Language (HTML) format by using these following softwares;

1. Netscape Gold 3.01 to browse the screen display result from the editing mode.
2. HTML Assistant to edit some minor change of the files.

3.2 Proposed Hardware Configuration

After the detail of system study, we can recommend these computer configurations should be used for the new EAP Database System. One computer will be used to create, edit HTML file and develop the new database system. One computer will be used as a server for Office LAN and Internet Information Server for WWW access. One Internet Service Provider(ISP) should be contacted in order to gain access to WWW. Since the server will be operated 24 hours per day, one UPS (Uninterrupted Power Supply) should be used.

1. COMPAQ XL590 (exist in office) 1 unit
 - INTEL 80486-90 Mhz Microprocessor with build-in Math Co-Processor
 - 16 Mb RAM
 - 1.44 Mb 3.5" Floppy Drive
 - VGA Card with 1 Mb RAM
 - Build-in Sound Card
 - COMPAQ Enhanced Keyboard with mouse
 - COMPAQ Super VGA Color Monitor 19"
 - Licensed Copy of Windows 95
 - 1.7 Gb of Hard Disk

- | | | |
|--|---|------|
| 2. DEC Prioris 6200MP (to be purchased) | 1 | unit |
| <ul style="list-style-type: none"> - INTEL Pentium 200 Mhz Dual Processor - 64 Mb RAM - 1.44 Mb 3.5" Floppy Drive - 12X CD-ROM Drive - VGA Card with 1 Mb RAM - Enhanced Keyboard with mouse - VGA Color Monitor 14" - 4 Gb of Hard Disk | | |
| 3. UPS Rating 1 KVA (to be purchased) | 1 | unit |
| <ul style="list-style-type: none"> - 30 minutes backup for PC File Server | | |

For item 1. The PC exists in the office, then there is no cost occur. But for item 2 & 3 should be purchased from the cheapest offer from vendors as shown by quotation on page 23 and page 24.

3.3 Proposed Software Configuration

The softwares needed to implement this database system that could not be downloaded from WWW but are available in the market:

- | | | |
|---|---|-----|
| 1. Windows NT 4.0 Server (25 users license)
with MS Internet Information service version 2 | 1 | set |
| 2. MS Office 97 with Access 97 | 1 | set |

The windows NT 4.0 will be installed in the DEC Prioris 6200MP which is the server for office LAN. The option of MS Internet Information Service will be selected to control the WWW data management.

MS Office 97 will be installed on COMPAQ XL590 in order to develop EAP Database system using Access 97. Association softwares (downloadable from WWW) like Netscape Gold 3.01 and HTML Assistant will also be installed to handle HTML files and test browsing on WWW.

No cost of application development involve since the application developed by current EAP staff. So only the cost of Windows NT 4.0 and MS Office 97 will be assumed. A cash purchase summary for MS Office 97 can be seen on page 25.

3.4 Proposed Local Area Network (LAN System)

The nature of the system here is usually data retrieval from the master file record e.g. Available Datasets, Available Dataset Document. The interact between users (requester) and the system for a large number of users from different computer system (which is also different Operating Systems) through new computer network “World Wide Web”. Then both of LAN and WAN² (Wide Area Network) are implemented by using “Internet Connection”.

Context Diagram for the new EAP Database System is shown on Figure 3.2. There are few modifications from the existing system as following;

1. New system will be operated in PC Windows 95 system instead of Macintosh.
2. New database software; MS Access 97 will be used to store, form design and report production.
3. One additional entity is added to the context diagram; World Wide Web. This will be a new PC Server (DEC Prioris 6200MP) with the connection to an Internet Service Provider (ISP).

More detail of the new system can be seen on Figure 3.3. The new system had included the new entity of EAP Web Server to serve users in the WWW 24 hours a day. At the same time it solves all of the problems define in chapter 2 on page 9.

The detail of each process in the system can be seen from Figure 3.4 – 3.9. In Figure 3.7 we can see that EAP Web Server will interact with users on self-service basis. Each user has their own choice to select suitable datasets for each particular project at his/her convenient time. Each individual will fill-in Data Request Form in HTML format, post to the system, down load desired datasets and save Dataset Documentation in his/her hard disk. The system can also generate Data Distribution Report. In Figure 3.8 will show how to create a new Dataset Documentation in the system with special function to generate Dataset Documentation in HTML format. The new Dataset is added to the Dataset Catalogue by extracting some data fields from new Dataset Documentation and generate to HTML format in Figure 3.9.

The structure chart of EAP Database System was shown in Figure 3.10. The structure chart describes the data flow between each module in hierarchy of level

² WAN: communication network operate at international, national and state-wide (Analysis & design of Information Systems; James A. Senn (Second edition))

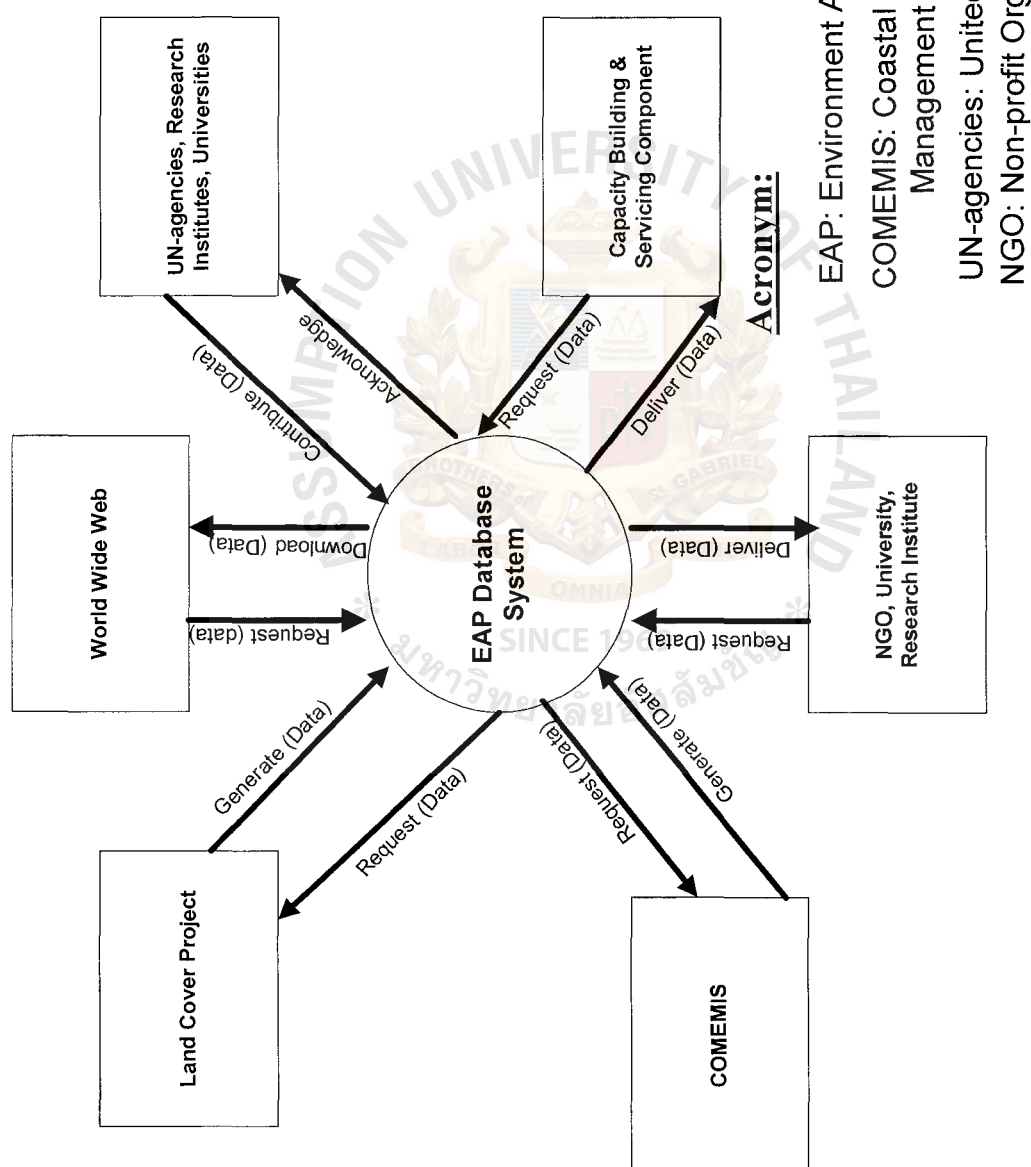


Figure 3.2. Context Diagram of New EAP Database System

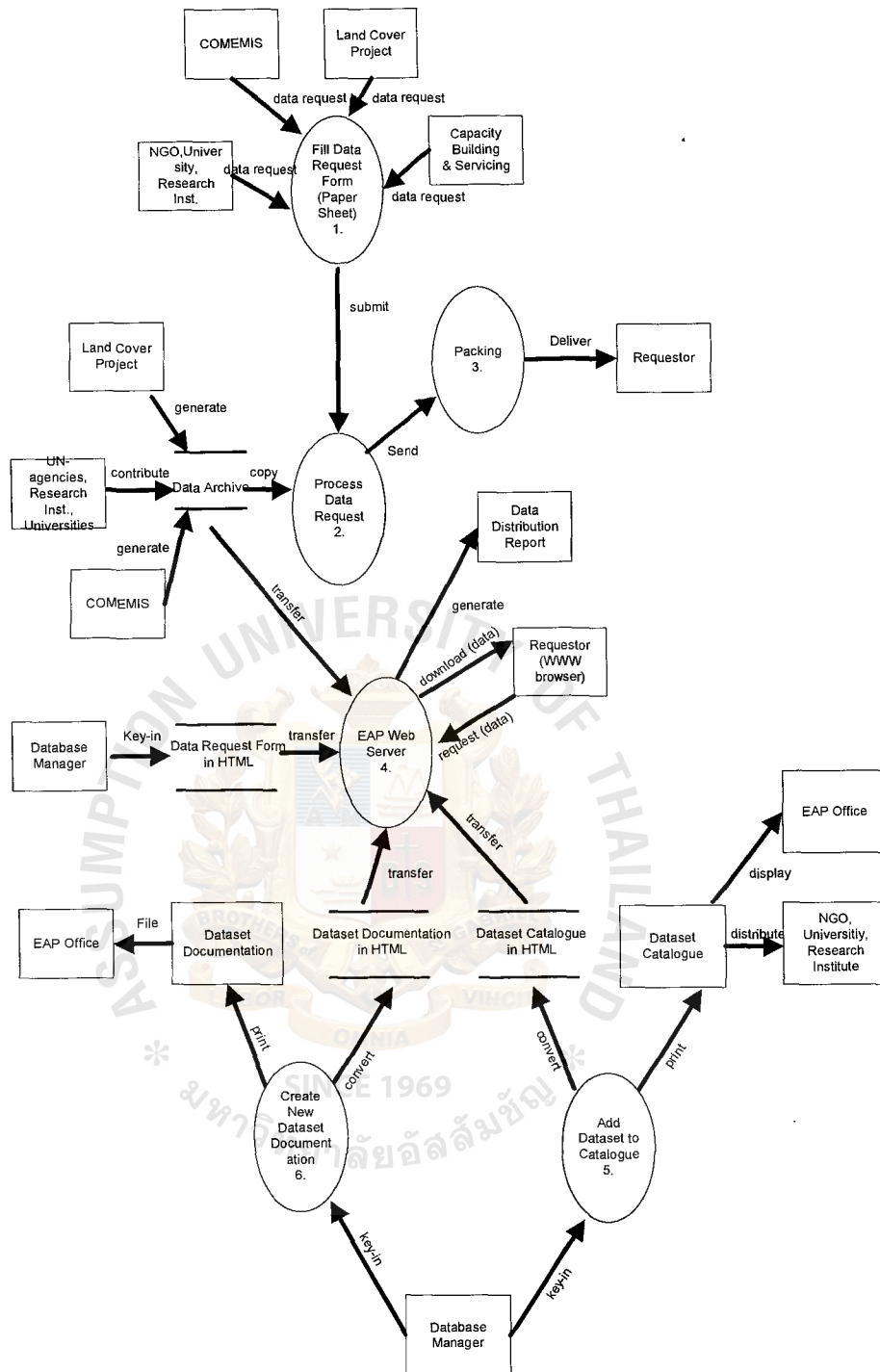


Figure 3.3. The Top Level Dataflow Diagram of the New System

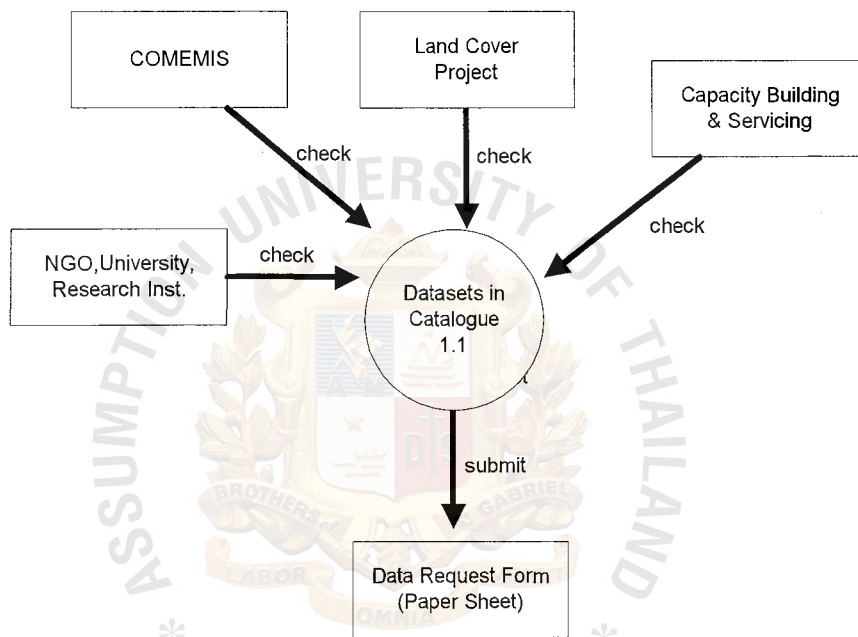


Figure 3.4. Level 1 of Filling Data Request Form

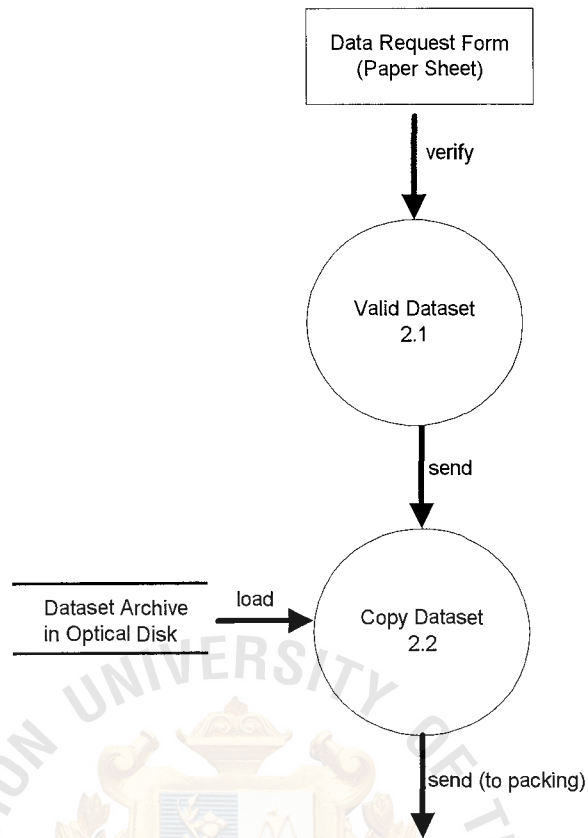


Figure 3.5. Level 1 of Processing Data Request

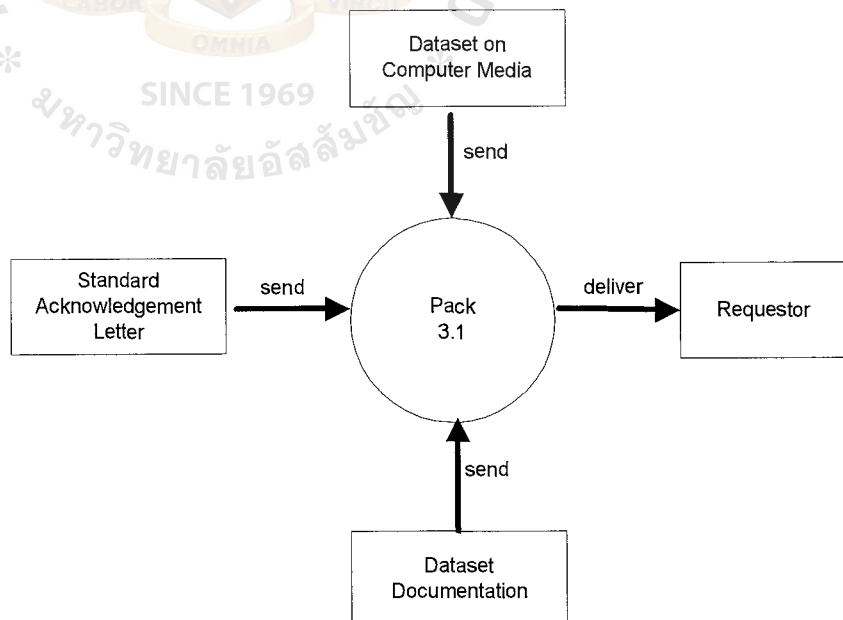
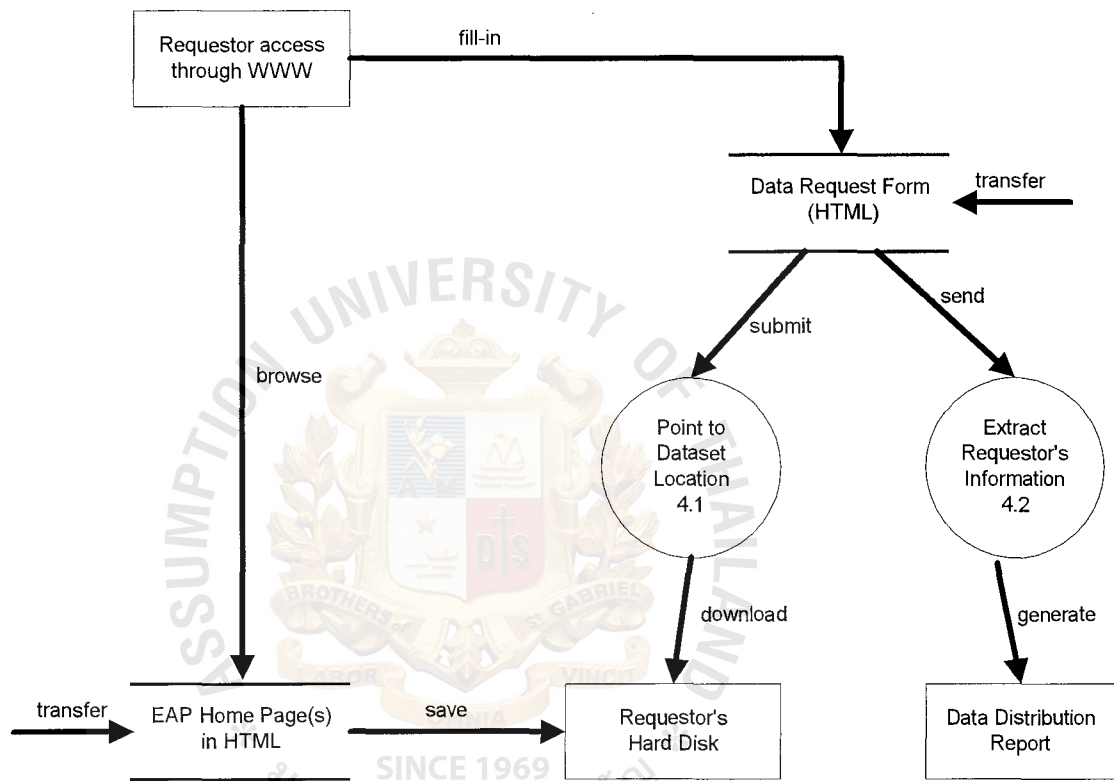


Figure 3.6. Level 1 of Packing



Acronym:

EAP: Environment Assessment Programme

WWW: World Wide Web

Figure 3.7. Level 1 of EAP Web Server

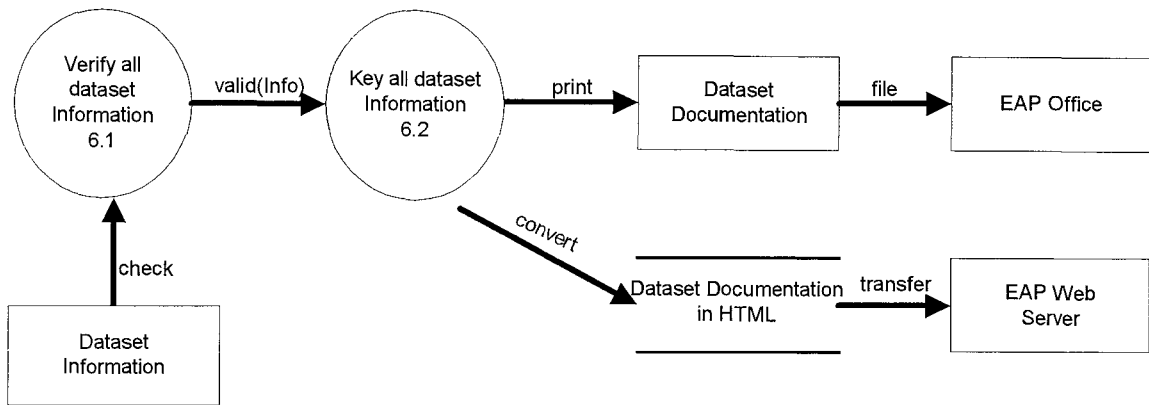


Figure 3.8. Level 1 of Creating New Dataset Documentation

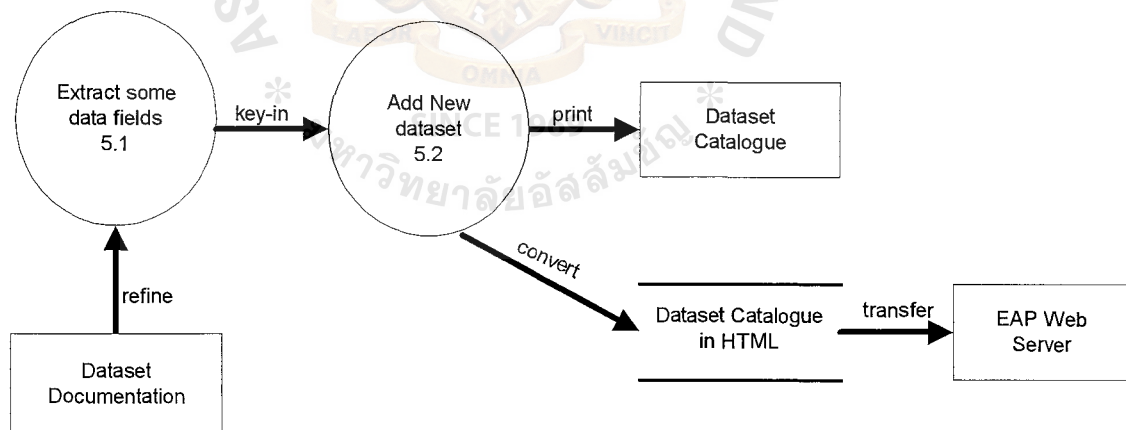


Figure 3.9. Level 1 of Adding Dataset to Catalogue

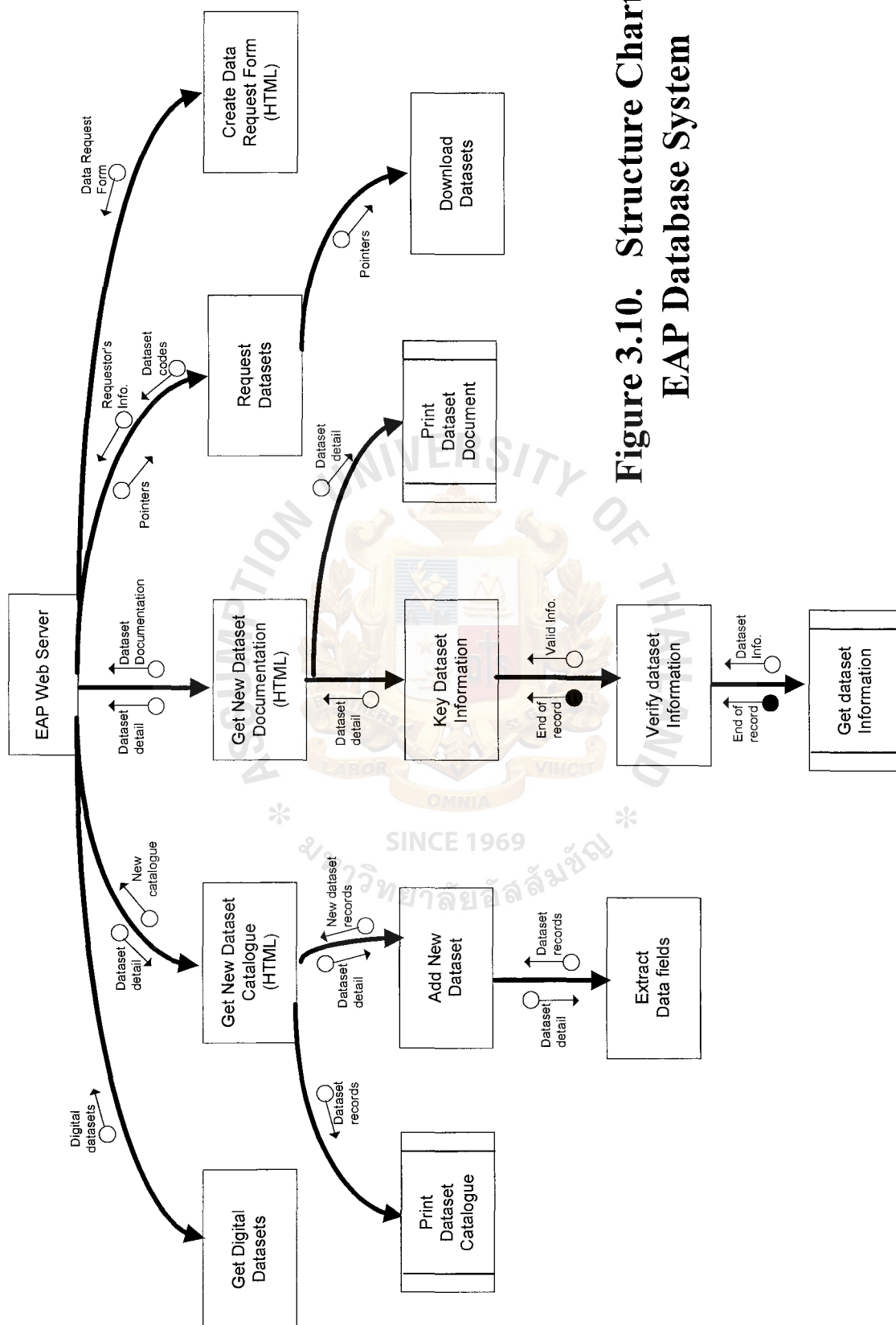


Figure 3.10. Structure Chart of EAP Database System



International
Research

Corporation Limited.

บริษัท อินเทอร์เน็ตเอ็นจิเนียริ่ง รีเสิร์ช กอร์ปอเรชั่น จำกัด

โครงการวิจัย (บร.ก. 2) 23106-108 ซอยศูนย์วิจัย ถนนพระราม 9 - ศูนย์วิจัย เขตวัฒนา กรุงเทพมหานคร 10310

โทร. 2030009 (จันทร์-ศุกร์ 20 สาย) FAX 2030280

ใบเสนอราคา QUOTATION

Ref. Q05/4155-3

Date. 3-Sep-97

เรียน/Attention

คุณบัณฑิต - ฝ่ายคอมพิวเตอร์

สถาบัน AIT

TEL: 524-5367

FAX : 516-2125

กำหนดขึ้นราคา	:	วัน
กำหนดส่งของ	45	วัน
กำหนดชำระเงิน	30	วัน
การรับประกัน	3	ปี

ลำดับที่ ITEM	จำนวน Quantity	รายละเอียด DESCRIPTION	ราคาต่อหน่วย Unit Price (฿)	ราคารวม AMOUNT
1	1	DEC PRIORIS HX6200MP (FR-B41W-AX) CPU PENTIUM PRO 200MHZ/ DUAL PROCESSOR RAM MEMORY 64 MB EDO EXPANDABLE TO 1 GB 256KB INTEGRATED PIPELINE SYNCHRONOUS BRUST CACHE PER PROCESSOR IDE CONTROLLER, FDD1.44MB 3.5". CD-ROM DRIVE (12X) 1MB GRAPHIC MEMORY INTEGRATED PCI BASED S3 1 PARALLEL, 2 SERIAL MOUSE PORT, PCI FAST AND WIDE SCSI-2 PORT KEYBOARD 101 KEYS & MOUSE SW SERVER WORKS AND INTELLIGENT SERVER MANAGEMENT	190,000.00	190,000.00
3	1	4. GB HOT SWAP ULTRA SCSI HARDDISK	43,000.00	43,000.00
4	1	DEC14" SVGA COLOR MONITOR	9,500.00	9,500.00
REMARK . THIS PRICE IS NOT INCLUDED OPERATION SYSTEM.				
+ PCI Fast Ethernet 100/10Base-T, 10Base-2				
ราคารวม				242,500.00
ภาษีมูลค่าเพิ่ม 10 %				24,250.00
ราคารวมภาษี				266,750.00

เสนอราคาโดย

บริษัท อินเทอร์เน็ตเอ็นจิเนียริ่ง รีเสิร์ช กอร์ปอเรชั่น จำกัด

5/กันยายน/97



(นางสาวช่อทิพย์ ไรศิมโนธรรม)

3/9/97 DATE

Sale Department 1 Ex 41, 42, 43

Figure 3.11. Quotation of DEC Prioris Server



บริษัท ซินโดม อิเล็คทรอนิกส์ อุตสาหกรรม จำกัด
SYNDOME ELECTRONICS INDUSTRY CO. LTD.

ราคาผลิตภัณฑ์ POWBACK UPS

Descriptions	Model	Price (Baht)		
		Retail	VAT	Retail & VAT
POWBACK UPS Rating 500VA 15 นาที	PB-510P	12,500.-	875.-	13,375.-
POWBACK UPS Rating 500VA 30 นาที	PB-511P	17,500.-	1,225.-	18,725.-
POWBACK UPS Rating 1KVA 15 นาที	PB-1010P	24,000.-	1,680.-	25,680.-
POWBACK UPS Rating 1KVA 30 นาที	PB-1011P	31,000.-	2,170.-	33,170.-

Figure 3.12. Quotation of UPS

CASH PURCHASE SUMMARY

(Over 2,000.-)

Pay to: Mr. Phudat Petchaissri Date: 22/05/97
 Sent: Thirteen thousand five hundred only Desc./Div.: EAP-AP
 P/B. * _____ ad. : _____

Item	Description	Account	Amount Sent
1.	MS OFFICE	217782058 108 464	13,500.-

THE BOOK CHEST CO., LTD. 240 Siam Square Soi 2,
 Pratumwan, Bangkok 10500
 TEL 251-6334, 251-1764
 เลขบัญชีธนาคาร 10 41 12757 เลขประจำตัวผู้เสียภาษี 51 01 55 1501
 วันที่ 21 เดือน 5 ปี 90
 ขายให้ 21

Receipt
 No. 37/843

วันที่	No.	รายการ	ราคา	จำนวนเงิน
30/06		MS OFFICE		13500
		(MS OFFICE 21)		
		หักเงินค่าสินค้าคงเหลือ		

GRID-Bangkok
 12 SEP 1997
 Time: 14:25 hrs
 C.L.B.

Payment received with thanks.

Figure 3.13. Cash Purchase Summary of MS Office

3.5 Cost and Benefit Analysis

System Start-up cost	Baht
Development	
System Analysis and System Design	
9 weeks.....	0.0
Development and Implementation	
6 weeks.....	0.0
Equipment Purchase	
DEC Prioris 6200MP.....	266,750
UPS Powback Model PB-1010P.....	25,680
Software Purchase	
Windows NT 4.0 (25 users license).....	26,000
MS Office 97 (Professional Edition).....	13,500
Total Cost.....	<u>331,930</u>
Annual Operation Cost	
Computer Media.....	8,000
Office Supplies.....	6,000
Maintenance(10% of Server).....	26,675
Total Operation Cost.....	<u>40,675</u>
System Benefits	
Saving on additional personnel	
1 service staff to process the request(Yearly).....	180,000
Saving Postal cost (assume 12 requests/year).....	3,600
Saving Secretary time.....	600
Intangible benefit	
Organization Goodwill	
Serve much more users	
System operational 24 hrs	
Quicker service	
Release workload of Data Manager	
Total Benefit.....	<u>184,200</u>

3.6 Cost & Benefit Comparision_(in Baht)

The cost and benefit comparision had been conducted by using payback period formular as shown on the next page:

$$P = \frac{I}{(1 - T) \times R}$$

Where

P	=	Payback period (year)
I	=	Investment or capital expenditure
T	=	Tax rate = 30%
R	=	Tangible benefit subtract by operation cost
	=	184,200 - 40,675 = 143,525

$$\begin{aligned} \text{Payback} &= \frac{331,930}{(1-0.30) \times 143,525} \\ &= 3.3 \end{aligned}$$

From the above comparison we can see that the investment will yield just in the third year of operating with the new computerized system.



Cost and Benefit Comparison

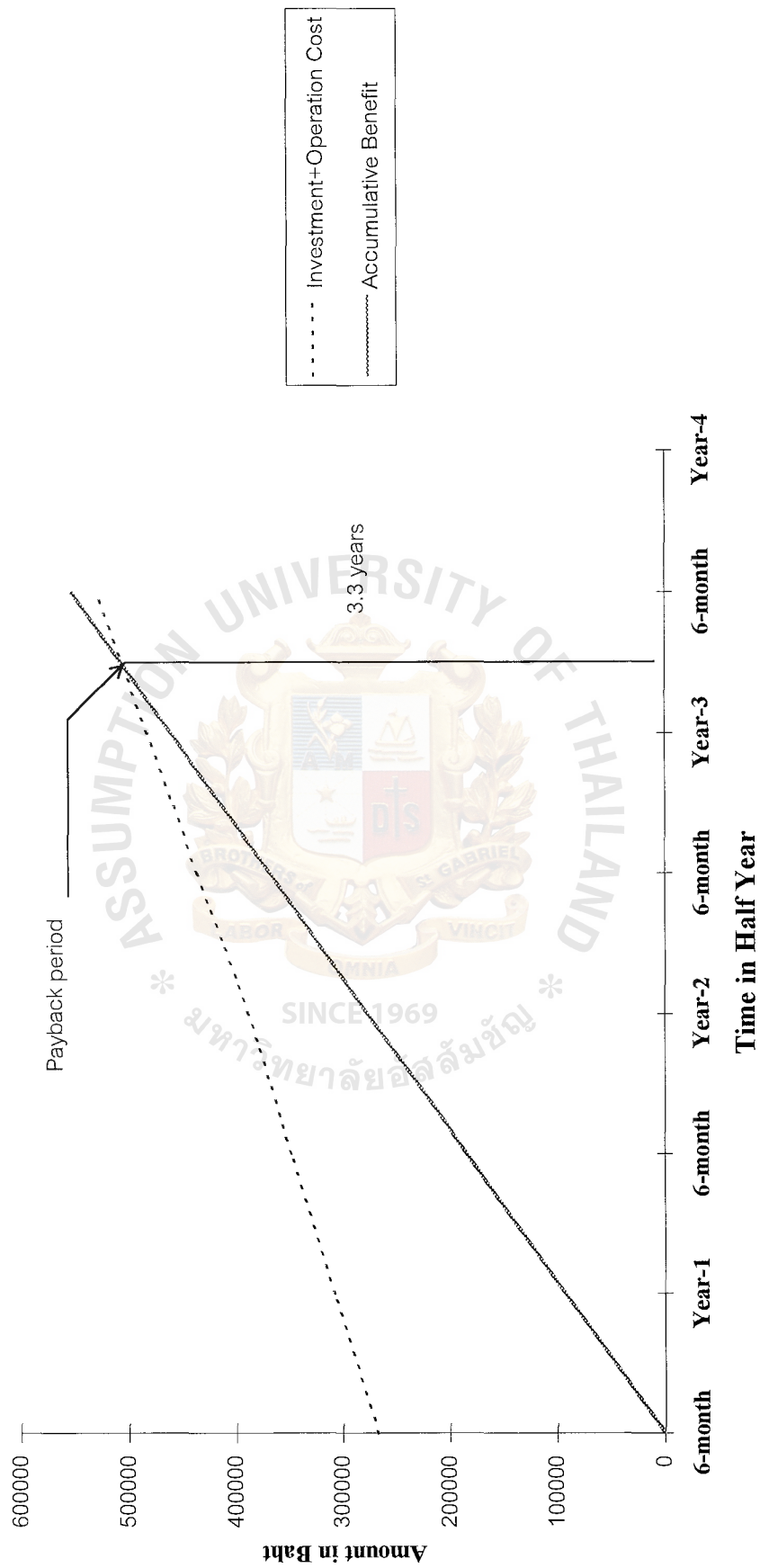


Figure 3.14. Cost and Benefit Comparison

IV. DESIGN AND IMPLEMENTATION

4.1 Input and Output Section

This section will contain 2 parts; Input section and Output section. The input section will cover Screen layout, Database file design and normalization. The output section will cover report design such as Data Distribution Report and Dataset Catalogue.

1) Input section will cover screen layout for User Interface

- Data Request form for user to key-in their name and address including the required datasets. This form will be saved in a data table "reg" under the master file "eap.mdb" in Access97. This screen layout could be seen on figure 4.1.
- Dataset Documentation for data manager to key-in important information for that particular dataset. This form will go through "Normalization" to reduce redundancy and improve consistency. The screen layout will display value in 2 data tables; "doc" and "cata". This screen layout could be seen on figure 4.2. Actually this form is composed from mentioned 2 tables; "doc" and "cata".

2) Output section will cover dataset catalogue "cata" under the master file "eap.mdb" in Access97. The output could be classified into 2 types;

- Hard copy report of "Dataset Catalogue" to distribute by normal mail as shown on figure 4.3. And "Data Distribution Report" as shown on figure 4.4.
Dataset Catalogue print-out has come from a table "cata" resultant from "Normalization". This table could be automatically converted to Web page (.HTML) under Access97 utility program as shown on figure 4.5.
Data Distribution Report has extracted value from a table "reg". This report will be printed upon request by the Director or as schedule to quarterly.

UNEP/EAP-AP

Telefax: (66-2) 516-2125
Telex: 84276 AIT TH

3 Fl. Outreach Building, A.I.T.,
P.O. Box 4, Klongluang,
Pathumthani 12120, Thailand

DATA REQUEST FORM

NAME	Bhandit
SURNAME	Pornkraisri
SECTION	Data Management Group
ORGANIZATION	EAP-AP
ADDRESS	3 Fl.Outreach Bldg., P.O. Box 4, Klongluang, Pathumthani 12120
COUNTRY	Thailand
EMAIL	bhandit@ait.ac.th
FAX	(66-2)-516-2125
DATE	16 January 1998
DATASET NO:	ASI0001
DATASET NO:	ASI0002
DATASET NO:	ASI0003
DATASET NO:	BAN0001
DATASET NO:	GLB0021
OFFICE CLASSIFICATION:	NGO

Figure 4.1. Screen Layout of Data Request Form

UNEP/EAP-AP

DATASET DOCUMENTATION

DATASET NO:	ASI0001
TITLE:	World Boundary Database II - Asia & Australia
DESCRIPTION:	Coastlines, Islands, Lakes, Rivers (major to minor), National Boundaries, Internal Boundaries
AVAILABILITY OF DATA	Free Access
ORIGIN OF DATA:	"All Available" source information compiled by CIA, USA
DATA SOURCE:	National Technical Information Service (NTIS), US
GEOGRAPHIC COVERAGE:	Asia and Australia
DATE OF COVERAGE:	Unknown
ACCOMPLISHED DATA PROCESS:	Vector representation and coding of coastlines, Islands, Lakes, Rivers, Boundaries
DATA TYPE:	Vector
DATA FORMAT:	Arc/Info Export Format
SCALE/RESOLUTION:	1:3,000,000
PROJECTION/MAP UNIT:	Arc/Info Geographic Projection
DATA SUPPLY BY:	GRID-Geneva
DATA RECEIVED:	February 1991
STORAGE MEDIUM:	Magnetic Tape (6250 BPI)
STORAGE FILE NAME:	6 separated file names
STORAGE SIZE:	124.1 Mb.
ADDITIONAL INFORMATION:	1. ASIA_RIV.E00- Rivers - File No 1 in Tape G00133 - 28.9 Mb. 2. ASIA_CIL.E00- Coastlines - File No 2 in Tape G00133 - 30 Mb.

Figure 4.2. Screen Layout of Dataset Documentation

UNEP/EAP-AP

Dataset Catalogue

Bangkok

Fax: (66-2) 516-2125

Data Availability: Free Access

As of 10 November 1998

CODE	TITLE	TYPE	LOCATION	DATE	SCALE	SIZE
ASI0001	World Boundary Database II - Asia & Australia	Vector	Asia and Australia	Unknown	1:3,000,000	124.1 Mb.
ASI0002	World Boundary Database II with Subnational boundaries - Asia	Vector	Asia and Australia	Unknown	1:3,000,000	>60 Mb.
ASI0003	Asian Soil map from FAO/UNESCO soils map of the world	Vector	Asia	1973	1:5,000,000	1 mag. Tape
ASI0004	Vegetation and Ecofloristic maps of Asia by FAO	Raster	Continental Asia	Unknown	1152 meters	600 Kb.
BAN0001	National & Provincial Boundaries map of Bangladesh from WBDII	Vector	Bangladesh	Unknown	1:3,000,000	224 Kb.
GLB0021	PC World Boundary Database (PC WBD) by ESRI (Country Boundaries)	Vector	Global	Unknown	1:25,000,000	2.94 Mb.
GLB0021_	PC World Boundary Database (PC WBD) by ESRI (Rivers)	Vector	Global	Unknown	1:25,000,000	701 Kb.

Figure 4.3. Dataset Catalogue (Hard Copy)

UNEP/EAP-AP

Bangkok

Fax: (66-2) 516-2125

Data Distribution Report

As of 10 November 1998

<u>COUNTRY</u>	<u>DATE</u>	<u>INSTITUTION</u>	<u>CLASS</u>
Thailand	.6 January 1998	EAP-AP	NGO
Thailand	.6 January 1998	UNEP/EAP-AP	NGO

Figure 4.4. Data Distribution Report



cata

CODE	TITLE	TYPE	LOCATION	DATE	SCALE	SIZE
ASI0001	World Boundary Database II - Asia & Australia	Vector	Asia and Australia	Unknown	1:3,000,000	124.1 Mb.
ASI0002	World Boundary Database II with Subnational boundaries - Asia	Vector	Asia and Australia	Unknown	1:3,000,000	>60 Mb.
ASI0003	Asian Soil map from FAO/UNESCO soils map of the world	Vector	Asia	1973	1:5,000,000	1 mag. Tape
ASI0004	Vegetation and Ecofloristic maps of Asia by FAO	Raster	Continental Asia	Unknown	1152 meters	600 Kb.
BAN0001	National & Provincial Boundaries map of Bangladesh from WBDII	Vector	Bangladesh	Unknown	1:3,000,000	224 Kb.
GLB0021	PC World Boundary Database (PC WBD) by ESRI (Country Boundaries)	Vector	Global	Unknown	1:25,000,000	2.94 Mb.
GLB0021_1	PC World Boundary Database (PC WBD) by ESRI (Rivers)	Vector	Global	Unknown	1:25,000,000	701 Kb.

Figure 4.5. Print-out of cata-1.htm from table “cata”

4.2 Database file design and Normalization

The first draft of the relational data model are defined as the record structure as below:

Table 4.1. Requestor Table (reg)

Record name	Item name (Field name)	Type (character = text in Access97)	Length
Requestor	<u>NAME</u>	C	30
	<u>SURNAM</u>	C	30
	SECTION	C	30
	ORGANIZATION	C	30
	ADDRESS	C	75
	COUNTRY	C	50
	EMAIL	C	30
	FAX	C	17
	DATE	DATE(long date)	variable
	CODE1	C	50
	CODE2	C	50
	CODE3	C	50
	CODE4	C	50
	CODE5	C	50
	CLASS	C	20

Remark: this "reg" table used "combination key" of "NAME" + "SURNAME".

Table 4.2. Documentation Table (doc)

Record name	Item name (Field name)	Type (character = text in Access97)	Length
Document	<u>CODE</u>	C	9
	DESCRIPTION	C	170
	AVAILABILITY	C	25
	ORIGIN	C	90
	SOURCE	C	70
	PROCESS	C	150
	FORMAT	C	50
	PROJECTION	C	50
	SUPPLIER	C	30

	UPDATE	C	15
	MEDIUM	C	50
	FILE	C	50
	ADD-INFO	C	250

Remark: this "doc" table used CODE as "Primary key" (Unique value)

Table 4.3. Catalogue Table (cata)

Record name	Item name (Field name)	Type (character = text in Access97)	Length
Catalogue	<u>CODE</u>	C	9
	TITLE	C	80
	TYPE	C	7
	LOCATION	C	20
	DATE	C	20
	SCALE	C	20
	SIZE	C	55

Remark: this "cata" table used CODE as "Primary key" (Unique value)

4.3 Data Dictionary

The data dictionary is the writer defining term for this Database system. The data elements (field name) used here will serve as a guideline for the users or programmer to enter or modify the data structure easily.

Table 4.4. Data Dictionary of Table "reg"

Data element (Field name)	Composition	Description
NAME	Courtesy-title + First name Courtesy-title=[Mr. Miss Mrs. Ms. Dr. Prof.] First name={Legal character} Legal character=[A-Z a-z 0-9 - _]	The first name of requestor
SURNAME	Legal character=[A-Z a-z 0-9 - _]	The last name of requestor
SECTION	Legal character=[A-Z a-z 0-9 - _]	Division, Unit or Department of requestor

Table 4.4. Data Dictionary of Table "reg" (continue)

ORGANIZATION	Legal character=[A-Z a-z 0-9 - _]	Full name of requestor's organization
ADDRESS	Legal character=[A-Z a-z 0-9 - _]	Postal address of requestor
COUNTRY	Legal character=[A-Z a-z - _]	Country location of the organization
EMAIL	Legal character=[A-Z a-z 0-9 - _ @ %]	E-mail address of requestor
FAX	Number=[0-9 -]	(Country code + City code) + Fax number
DATE	Legal character=[A-Z a-z 0-9 - _]	Requesting Date
CODE1	Legal character=[A-Z 0-9]	Requested dataset number 1
CODE2	Legal character=[A-Z 0-9]	Requested dataset number 2
CODE3	Legal character=[A-Z 0-9]	Requested dataset number 3
CODE4	Legal character=[A-Z 0-9]	Requested dataset number 4
CODE5	Legal character=[A-Z 0-9]	Requested dataset number 5
CLASS	Legal character=[A-Z a-z -]	Requestor office classification

Table 4.5. Data Dictionary of Table "doc"

Data element (Field name)	Composition	Description
CODE	Legal character=[A-Z 0-9]	Dataset code assigned by area such as Global (GLB),...etc
DESCRIPTION	Legal character=[A-Z a-z 0-9 - _]	More explanation of the dataset
AVAILABILITY	[Free Access Inhouse Permission Source Approval]	There are 3 types; "Free Access", "Inhouse Permission", or "Source Approval"
ORIGIN	Legal character=[A-Z a-z 0-9 - _]	Origin of the dataset e.g. SPOT, etc
SOURCE	Legal character=[A-Z a-z 0-9 - _]	Original data supplier
PROCESS	Legal character=[A-Z a-z 0-9 - _]	Accomplished data process
FORMAT	Legal character=[A-Z a-z 0-9 - _]	Data format
PROJECTION	Legal character=[A-Z a-z 0-9 - _]	Map Projection e.g. "Geographic; Lat/Lon"
SUPPLIER	Legal character=[A-Z a-z 0-9 - _]	Present owner of the dataset
UPDATE	Legal character=[A-Z a-z 0-9 - _]	Date of updating dataset
MEDIUM	Legal character=[A-Z a-z 0-9 - _]	Storage Medium e.g. 3.5" Diskette,...etc
FILE	Legal character=[A-Z a-z 0-9 - _]	Storage file name e.g. ban.e00, etc
ADD-INFO	Legal character=[A-Z a-z 0-9 - _]	Any other addition file or information

Table 4.6. Data Dictionary of Table "cata"

Data element (Field name)	Composition	Description
CODE	Legal character=[A-Z 0-9]	Dataset code assigned by area such as Global (GLB),...etc
TITLE	Legal character=[A-Z a-z 0-9 - _]	Title of the dataset
TYPE	[Vector Raster]	Technical data type either "Vector" or "Raster"
LOCATION	Legal character=[A-Z a-z 0-9 - _]	Geographic area for that dataset
DATE	Legal character=[A-Z a-z 0-9 - _]	Date of that data produced or could be "Unknown"
SCALE	Legal character=[A-Z a-z 0-9 - _ :]	Map scale of the dataset or resolution
SIZE	Legal character=[A-Z a-z 0-9 - _]	Size of the dataset in Megabyte (Mb.) or Kilobyte (Kb)

4.4 Table Relationship

In Access97 the table "cata" has enforce the "Referential Integrity" to table "doc" by linking field name "CODE" including implement these two options;

- Cascade Update Related Fields means the change of "Primary Key" (CODE) in table "cata" will result in changing of value "CODE" in table "doc"
- Cascade Delete Related Records means the deletion of a record in table "cata" will result in deleting a record in table "doc".

Both tables have one common field name "CODE" which could be used to create table relationship "One-To-One". This mean each record in table "cata" will imply these following characteristics with table "doc";

- 1) The value of CODE in table "cata" will be the same as CODE in table "doc" to prevent data inconsistency such as;
Table "cata" CODE = "ASI0001" = Table "doc" CODE = "ASI0001"
- 2) If user change or update value in table "cata", value in table "doc" will be changed accordingly which mean data consistency or "Referential Integrity"

And also table "cata" has the relationship "One-To-Many" with table "reg". This could be implied as following;

- 1) Requestor could request more than one dataset (CODE) from UNEP/EAP-AP. But there will be only one dataset CODE in table "cata".

The graphical presentation of these tables relation can be seen on figure 4.6 (One-To-One Table Relationship) and figure 4.7 (One-To-Many Table Relationship).

4.5 Entity-Relationship Diagram (ERD)

In this chapter a graphical notation for modeling data known as "Entity-Relationship Diagram has been presented. This diagram describes the layout of the system in a high level as shown in figure 4.8.

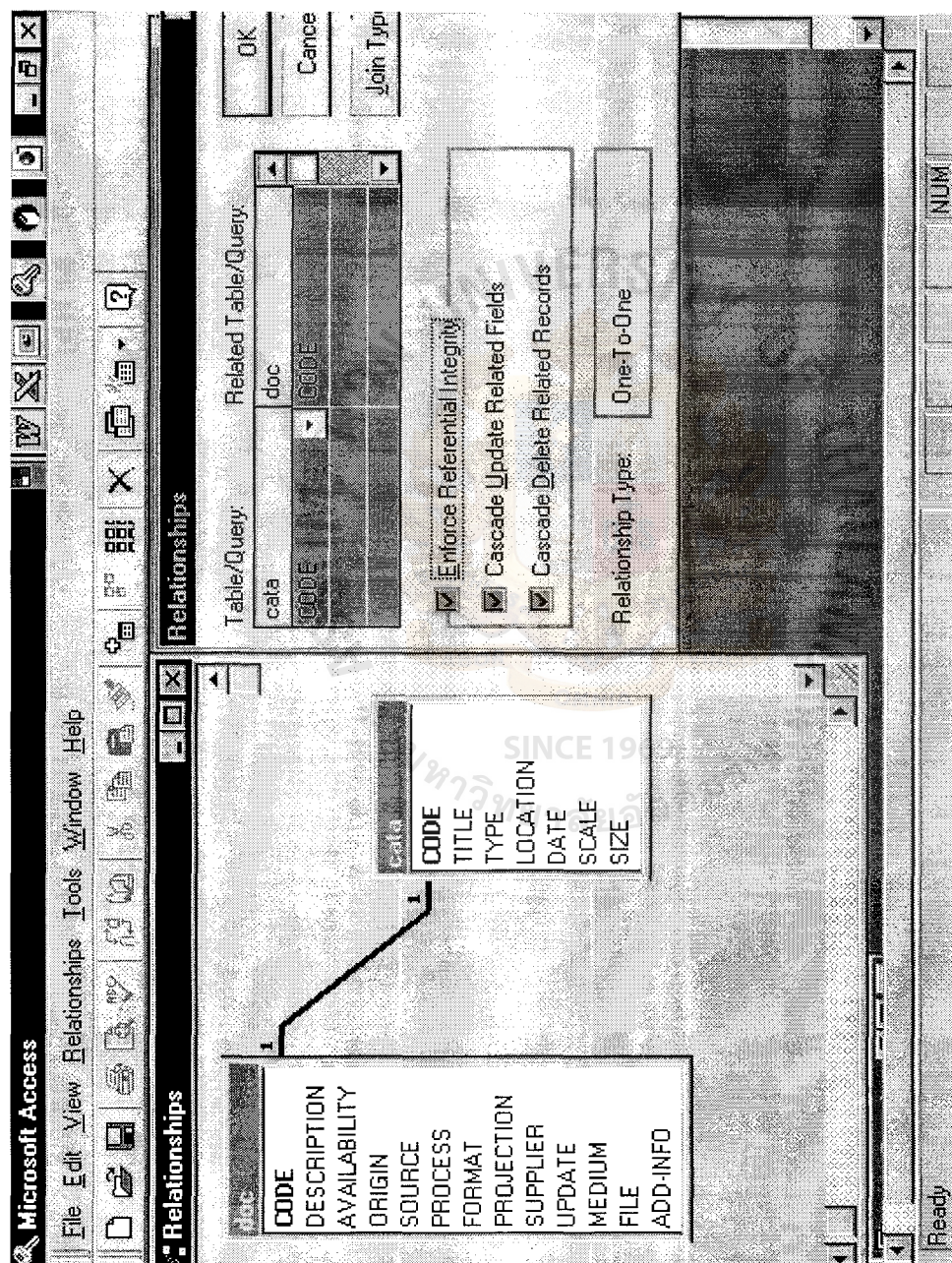


Figure 4.6. Graphical Presentation of 1-1 Table Relationship (table “doc” and “cata”)

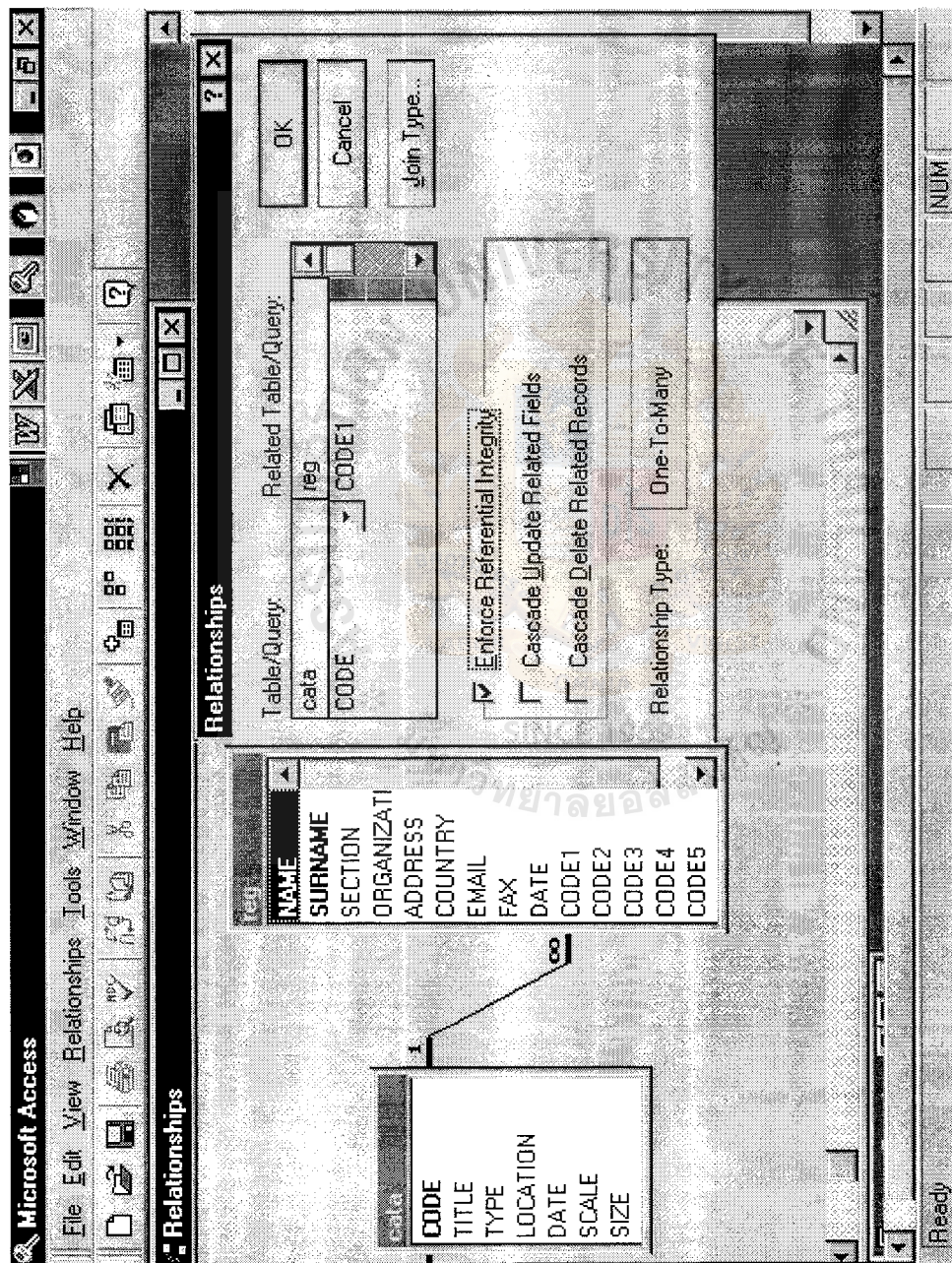


Figure 4.7. Graphical Presentation of 1-M Table Relationship (table “cata” and “reg”)

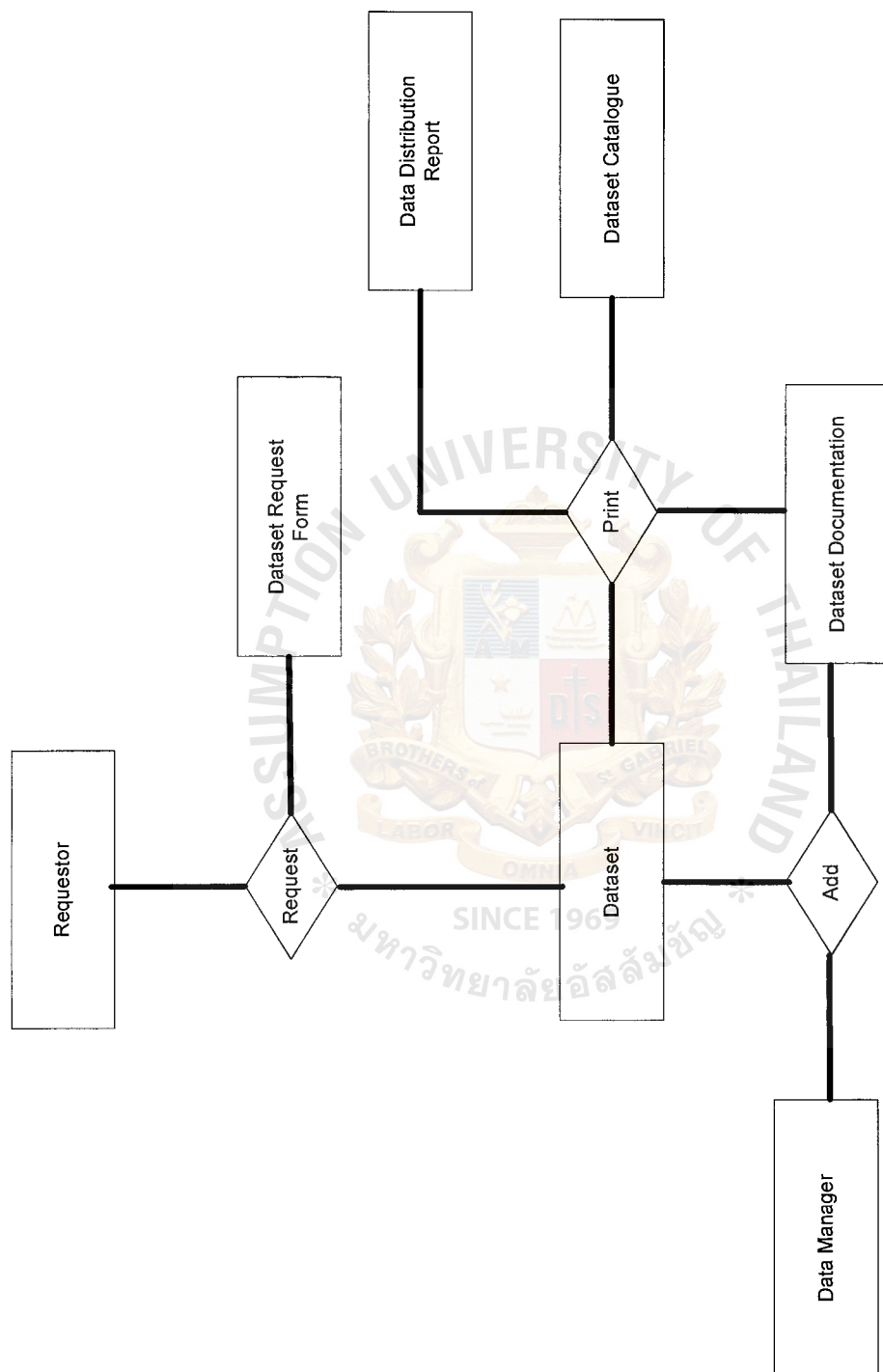


Figure 4.8. E-R diagram of Data Dissemination Information System through WWW

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This project "Data Dissemination Information System through WWW" had been developed to help the data manager of UNEP/EAP-AP to automate the data service within the office and external users. The benefit of this system will release the workload of the data manager. Then he will have more time to concentrate in other office activities that indirectly increase productivity. The successful system will be integrated to the developed UNEP/EAP-AP Home Page as you can see in the appendix A at the back of this report.

As mentioned in the first chapter of the report in the topic "Deliverables", all the expected outcomes have been fulfilled. The overall outputs show the satisfactory benefit to the office that could be reasoned below:

- 1) The system could guide the user through "List options" which will standardize the data content. The user will fill the form easily with a click of mouse with less error.
- 2) The system could be published through WWW by using provided utility program in Access97 easily.
- 3) The system will act as "Automate system" to disseminate the available data 24 hours a day through a PC server.
- 4) The system will be up to date whenever the data manager converted the related tables to "Web page"(.HTML).
- 5) The system could be further developed with the same direction of the current technology.
- 6) This system can be served as a pilot project for the future system development toward "Web Application".

For the part of "Design and implementation" in chapter 4, the normalization has been applied to the system to improve efficiency that seem to the weak point of the previous system in Macintosh by using software "File Maker 4.0" in 2 ways:

- 1) Data manager has no need to key-in redundant data content twice in "Dataset Documentation" form and "Dataset Catalogue" form.
- 2) Consistency of data and information has been improved because the data has been keyed into a single form "Dataset Documentation" in Access97.
- 3) Faster data entry with the "List options" available on the time of data entry.

5.2 Recommendations

This project had developed all the home pages in "Static HTML" which need only normal coding within the Hyper Text Markup Language standard. Modification and change of any contents need coding each time. Usually all contents of each Web server will be updated periodically to catch the browsers' (users') attention.

Even though this system development project is seemed to be completed now but the system still need to improve in the PC Server with the new arrival technology of "near real time" data retrieval. The new technology has introduced "Active Page Server (.ASP)" data file format. The data sheet file type will be ".IDC/.HTX". This new technology (Dynamic HTML) will be the trend in Thailand IT for the next few years.

Anyway this trend of system development is beyond the scope of this project at the moment. With the time limited and insufficient reference books, this project still has chance to expand in the future. More investment of software to install in the PC Server also needs to be allocated. "Active Page Server" software needs to be purchased and installed on server. The client side also require a specific "Browser" which is now monopoly by "Microsoft Internet Explorer 3.02" or more.

"Dynamic HTML" needs to be further experimented and study in order to improve this project. Foreseen benefits of this system are obvious but there is still gap with the existing technology. Money and time will be considered together with potential target users. If the break even point show high return with reasonable time frame then the second phase system development will be proposed to the higher management group for approval.

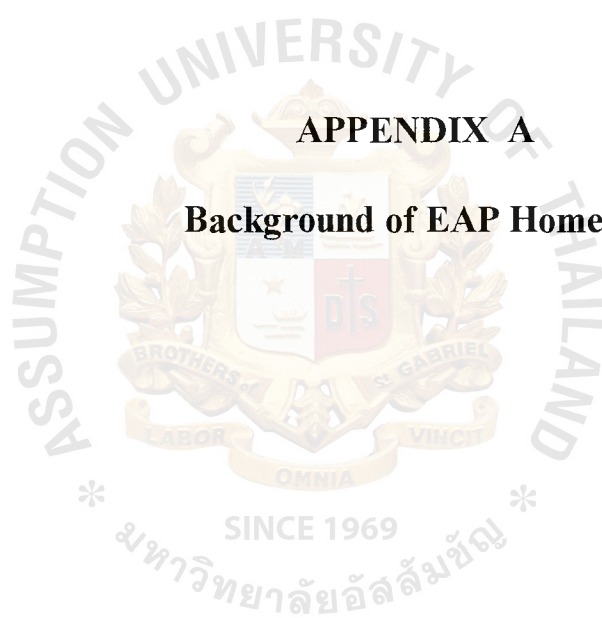
BIBLIOGRAPHY

1. Edward Yourdon, Modern Structured Analysis, Prentice-Hall International Inc., 1989
2. Kenneth E. Kendall and Julie E. Kendall, Systems Analysis and Design, Prentice-Hall International Inc., 1992
3. Meilir Page-Jones, The Practical Guide to Structured System Design, Prentice-Hall International Inc., 1988
4. Rithithongpitak Theparit, Microsoft Access 97 at a Glance (Thai Edition), Provison Co.,Ltd., 1996
5. Senn James A., Analysis and Design of Information Systems, McGraw-Hill Inc., 1989



APPENDIX A

Background of EAP Home Page



APPENDIX A

Background of EAP Home Page

The booming of the new technology especially World Wide Web is the hottest topic in "Information Technology (IT)". The management group of EAP had been asked to prepare office Home Page. The EAP Home page had been developed and designed by one staff.

The first version of EAP home page had been written by using "Netscape Gold 3.0" together with "HTML Assistant". This version aimed to be a tool for the beginner of "Home Page Construction".

The next version had been implemented "Frame Design" with the consideration of system security and flexibility. The new html editor software was used also which is MS Word97 (Part of MS Office97). This current version of EAP Home Page will act as "Skeleton" of the system development project "Data Dissemination Information System through WWW". The integration will be carried on as soon as the Domain name had been setup properly. The Home page now is running on DEC Prioris HX6200MP with Windows NT 4.0 Server operating system. The Web server software is "MS Internet Information Service 2.0 (MIIS 2.0)".

The next few pages shown dump screen of the current EAP Home Page which could be accessed by IP number: <http://203.159.22.48/>
All these pages are "Static HTML" which need to be modified from time to time.

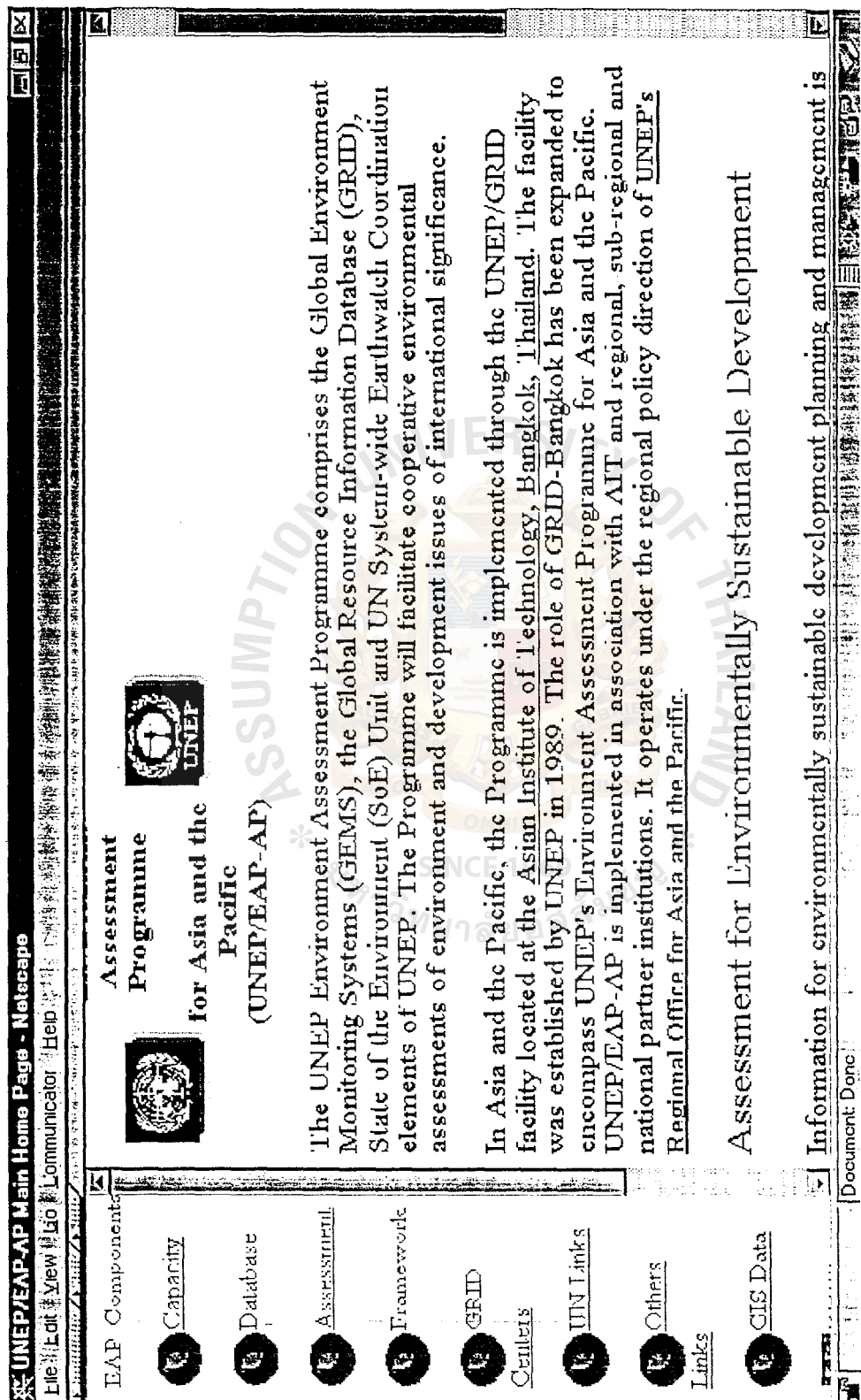


Figure A.1. Main Home Page

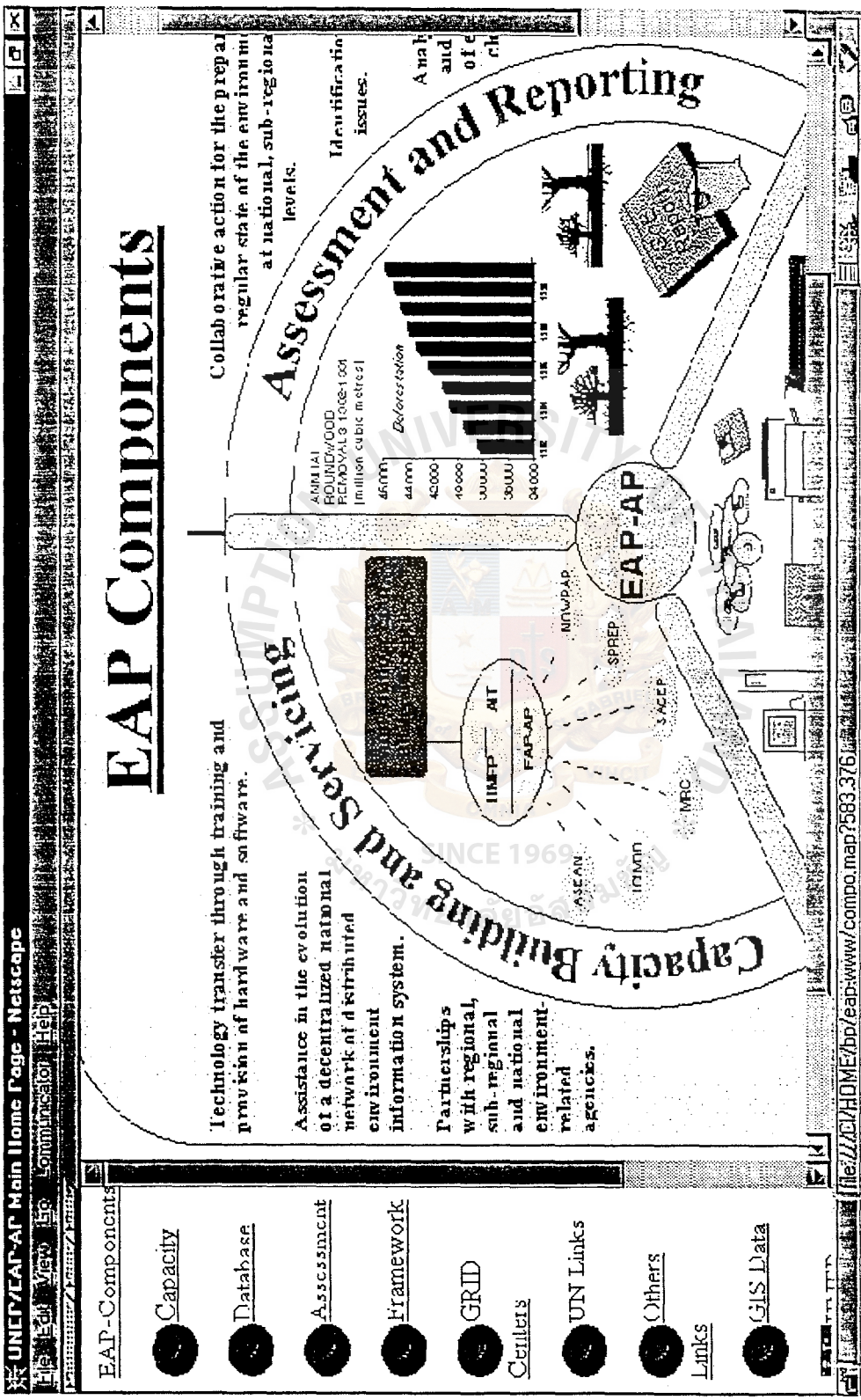


Figure A.2. EAP Component

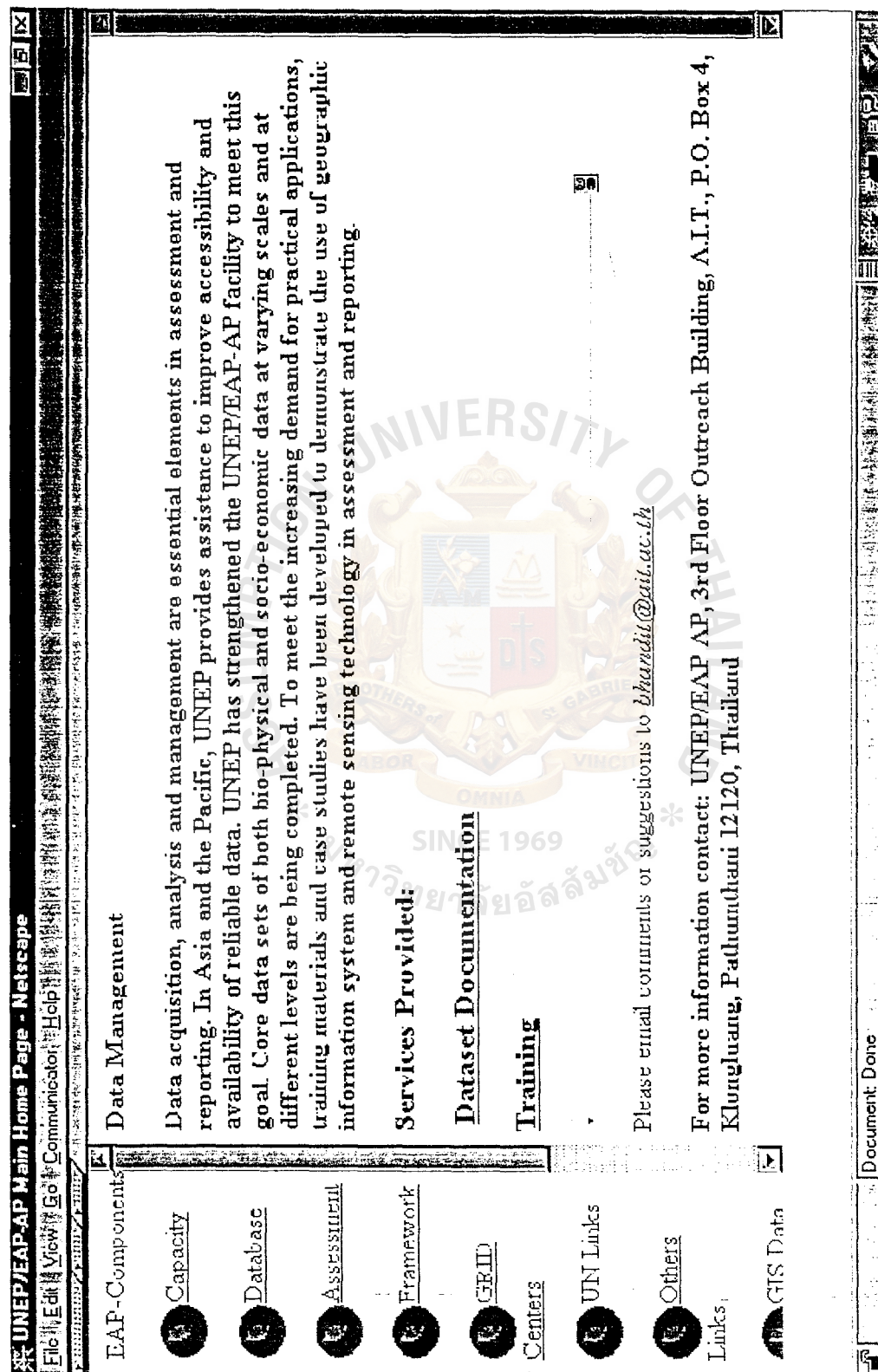


Figure A.4. Data Management

UNEP/EAP-AP Main Home Page - Netscape				
File Edit View Go Communicator Help				
http://www.unep.org/eap/				
EAP-Components				
Capacity				
Database				
Assessment				
Framework				
GRID				
Centers				
UN Links				
Others				
Links				
GIS Data				
Training provided by Database Management Group				
Course	Duration	Cost	Description	Loader
Arcview 2.0 Training	2 days	\$200	Introduction to Arcview, Views, Tables, Charts, Layouts	Bhandit P.
Basic Home -Page design & HTML Editor	3 days	\$300	Data format, Layout, Editor, Clickable map, Animation	Rhandit P.
Data & Information Request	As soon as possible	No charge	Fill in data requests from the Institutes, University or other NGOs	Bhandit P.
Basic Arc/Info Training	2 weeks	\$500/week	GIS Concept, Digitizing, Editing (ADS), simple map plotting	Shankar M./ Bhandit P.
Intermediate Arc/Info Training	2 weeks	\$500/week	GIS Concepts, Digitizing, Editing (Arcedit), Attribute assignment, Database Management, Overlay Operations, Data Query and Display, Map Composition and Output	Shankar M.
			Advanced Editing Techniques, Advance data	

Figure A.5. Training Charges

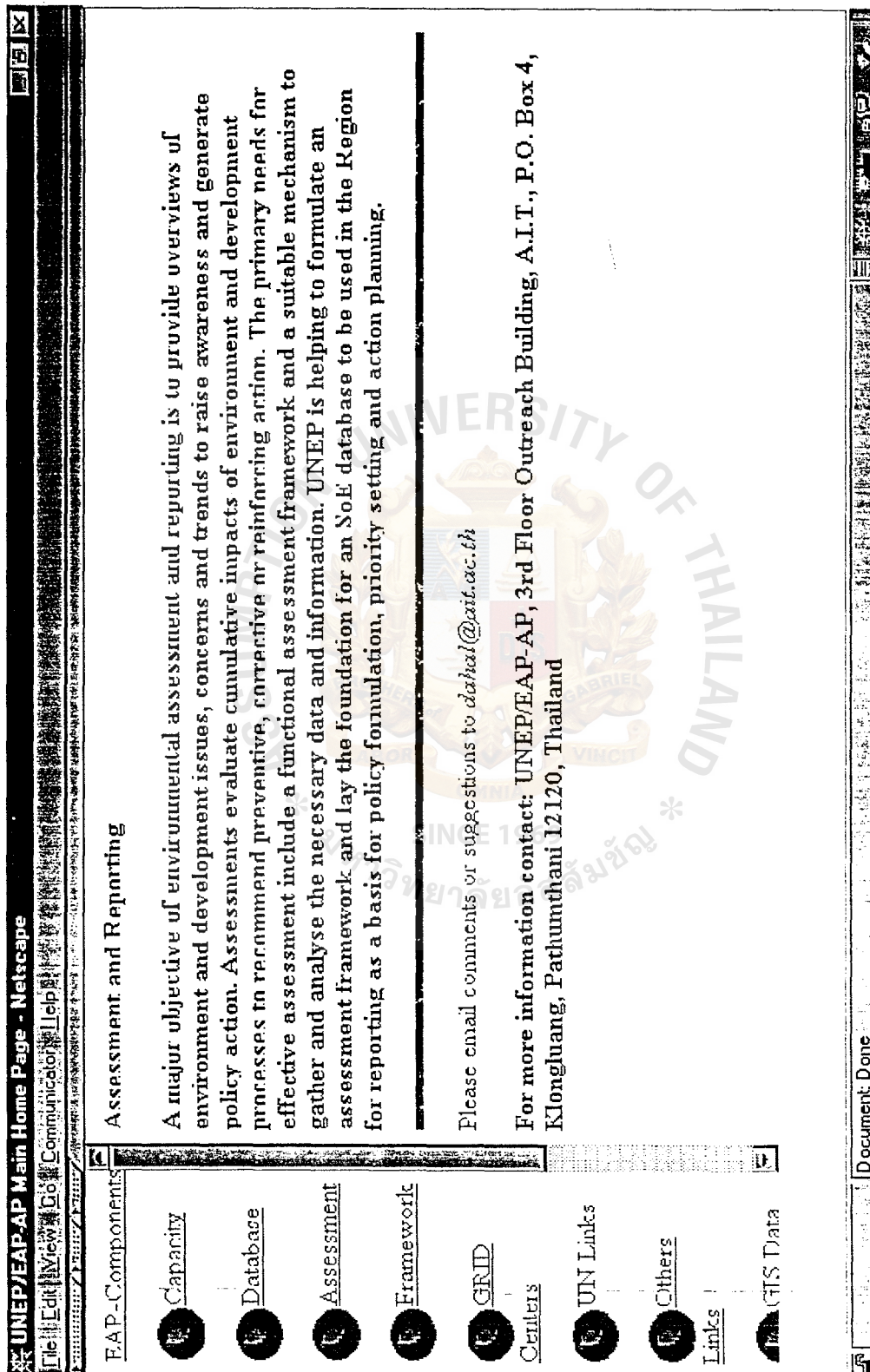


Figure A.6. Assessment

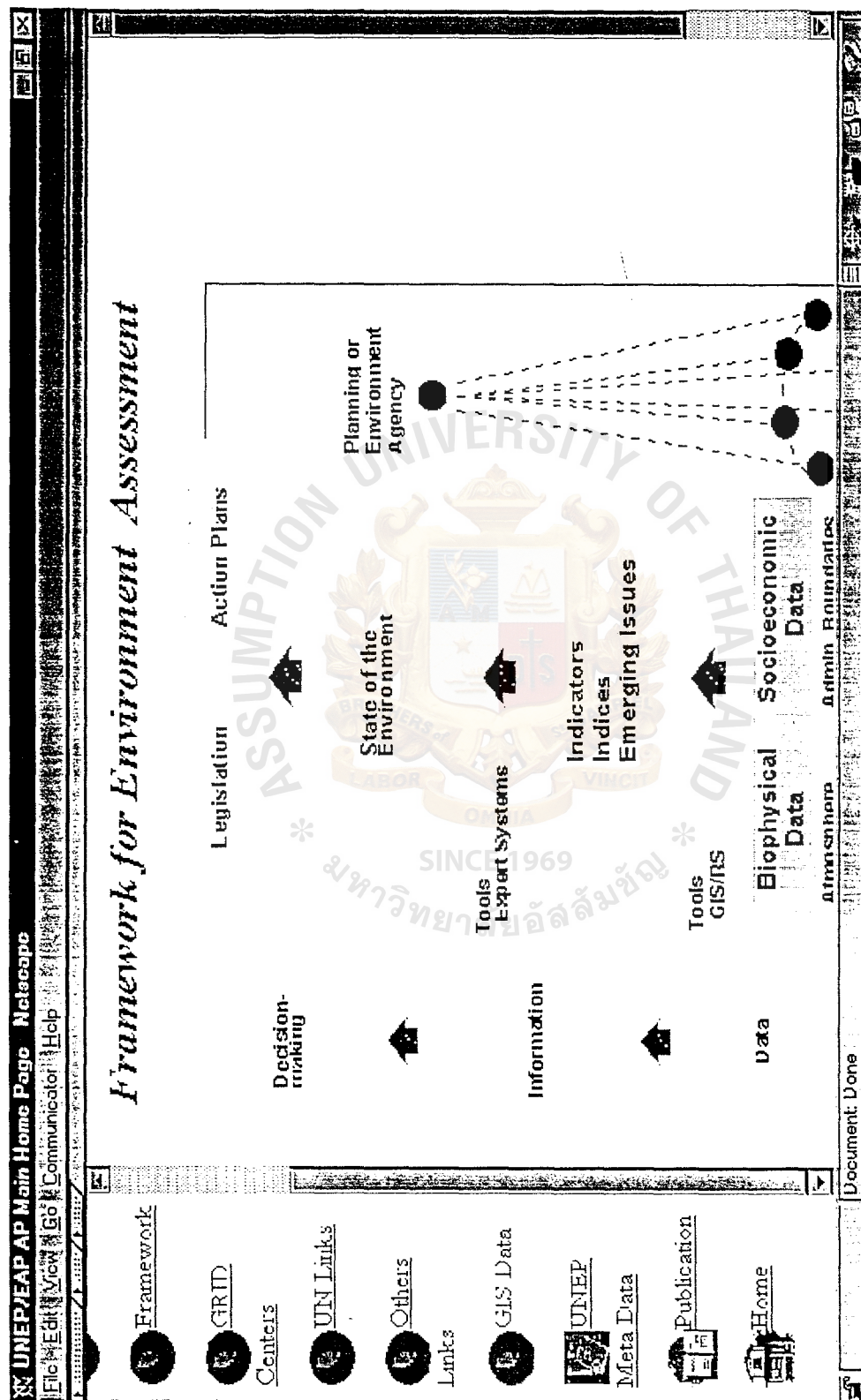


Figure A.7. Framework



Figure A.9. UN Links

UNEP/EAP Main Home Page - Netscape

File Edit View Go Communication Help

UNEP

Framework
GRID
Centers
UN Links
Others
Links
GIS Data
UNEP
Meta Data
Publication
Home


Global Environment Outlook

- A new State of the Environment Report

[GEO main site: Kenya] [Mirror site: Norway]

What is the Global Environment Outlook (GEO)?

- A brief introduction to GEO
- GEO - A biennial report series
- GEO - An international participatory assessment process.
- The mandate given by the UNEP's Governing Council decision on SoE reporting in May 1995.



The main GEO components

- A global network of assessment Collaborating Centres
- A mechanism for regional consultations
- Four scientific Working Groups
- UN participation through the UN system-wide Earthwatch process.

Document Done

Figure A.10. Other Links

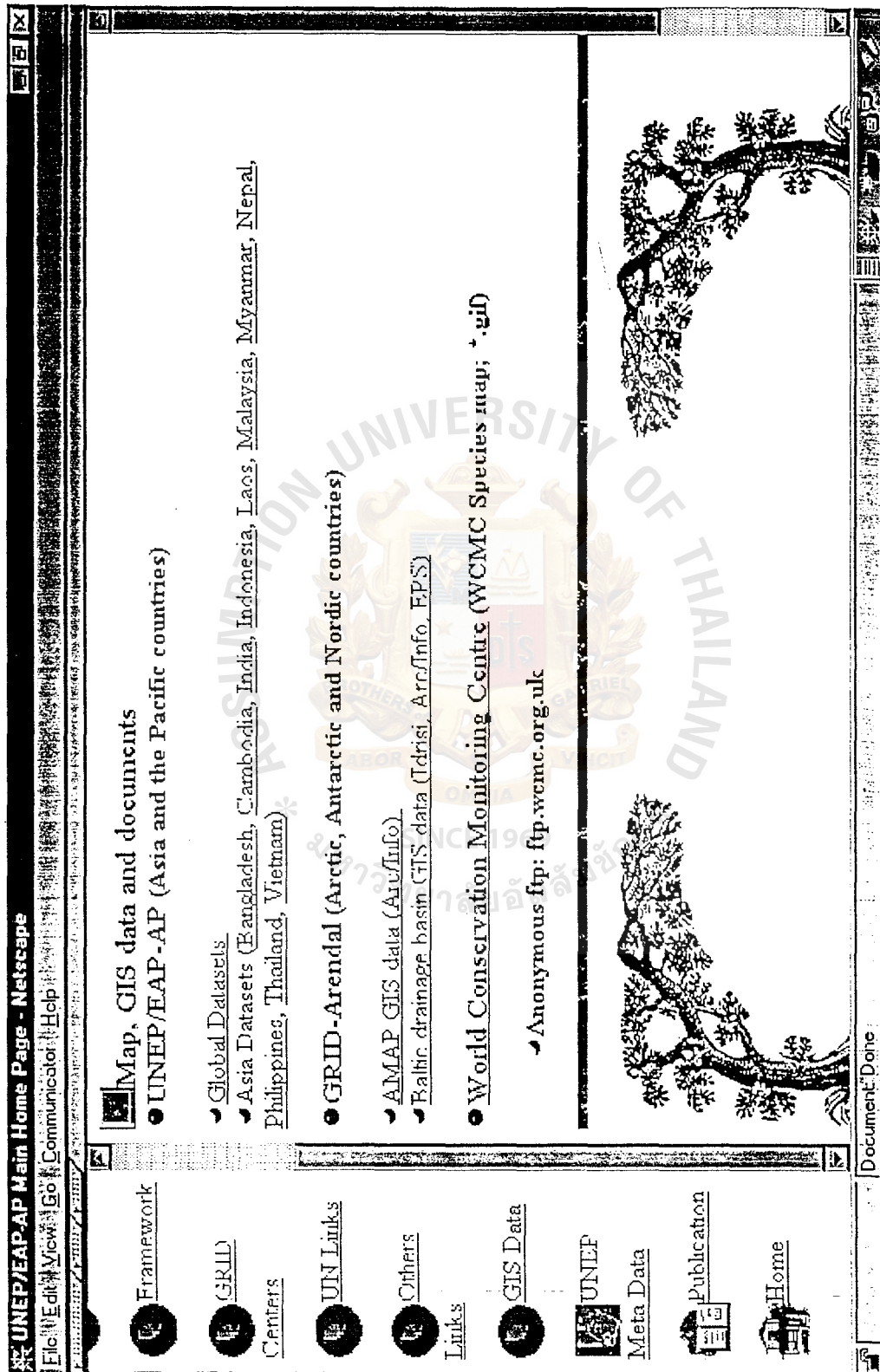


Figure A.11. GIS Data

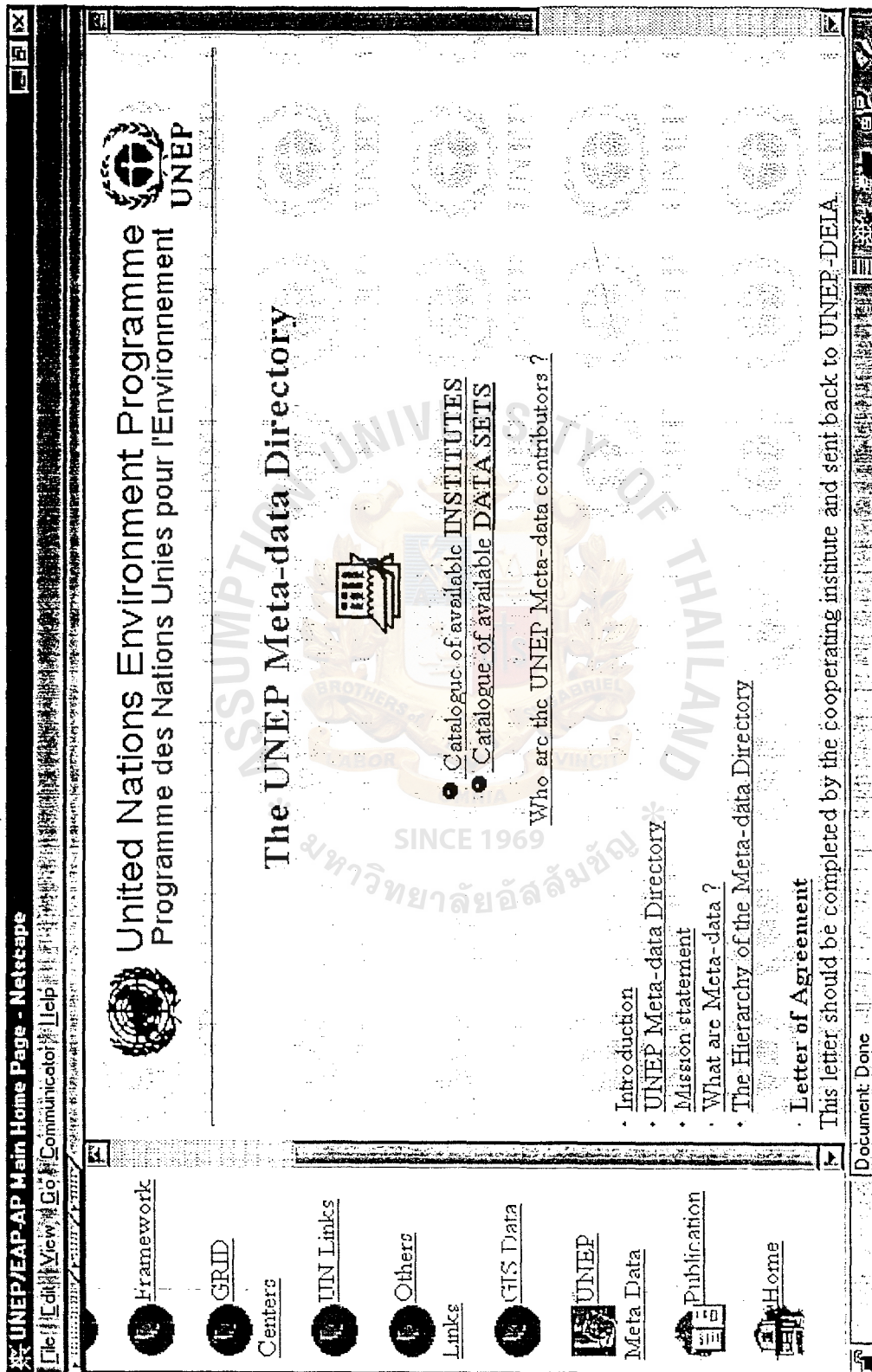


Figure A.12. Meta-data

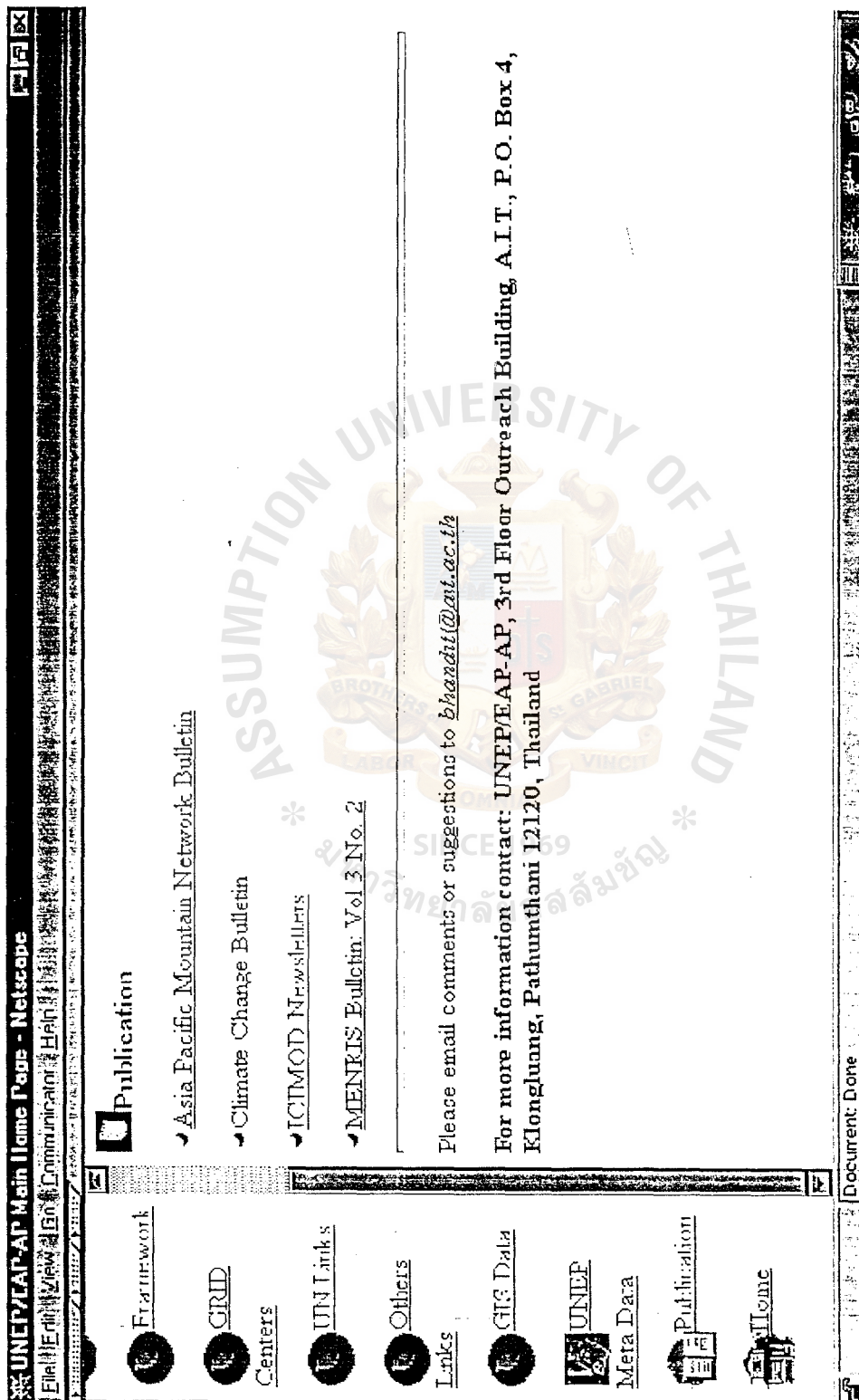


Figure A.13. Publication



APPENDIX B

Examples of HTML Coding

The next following pages will be corresponded to screen dump of EAP Home pages appear in appendix A. The mapping of corresponding pages are shown in the table below.

Table B-1. Examples of HTML Coding

Page Name	P a g e Number	HTML file name	Page Number
Main Home Page	48	Index.htm	62
		Menu1.htm	66
		Body1.htm	67
EAP Component	49	Compo.htm	69
Capacity Building	50	Capa1.htm	70
Data Management	51	Data1.htm	71
Assessment	53	A&r21.htm	72
GRID Center	55	Gcenter1.htm	73
UN Links	56	Un1.htm	75
Other Links	57	Encen1.htm	76
GIS Data	58	Ext-data.htm	80

Example of HTML Coding
Of "index.htm"

```
<HTML>
<HEAD>
<TITLE>UNEP/EAP-AP Main Home Page</TITLE>
</HEAD>
<FRAMESET COLS="18%,85%" FRAMEBORDER=no BORDER=0>
<FRAME SRC="menu1.htm" NAME="menu">
<FRAME SRC="body1.htm" NAME="body">
</FRAMESET>
<NOFRAME>
<HEAD>
<TITLE>UNEP/EAP-AP Main Home Page [Non-Frame Enhanced]</TITLE>
</HEAD>

<BODY BACKGROUND="unep.jpg">

<P>[<B><A HREF="eap-ap.htm">Overview</A></B> | <B><A
HREF="compo.htm">EAP-Components</A></B>
| <B><A HREF="capa.htm">Capacity</A></B> | <B><A
HREF="data.htm">Data</A></B>
| <B><A HREF="a&r2.htm">Assessment</A></B> | <B><A
HREF="gcenter.htm">Other
GRID</A></B>] </P>

<P>
<HR SIZE=5></P>

<TABLE CELLPADDING=5 >
<TR>
<TD width=2% VALIGN=MIDDLE>
<CENTER><P><IMG SRC="unep-temp.gif" HEIGHT=85
WIDTH=90></P></CENTER>
</TD>

<TD width=2% VALIGN=MIDDLE>
<CENTER><P><B><FONT COLOR="#000000"><FONT SIZE=+1>Environment
Assessment
Programme </FONT></FONT></B></P></CENTER>

<CENTER><P><B><FONT COLOR="#000000"><FONT SIZE=+1>for Asia and the
Pacific
(UNEP/EAP-AP)</FONT></FONT></B></P></CENTER>
</TD>

<TD width=2% VALIGN=MIDDLE>
<CENTER><P><IMG SRC="unlogo.gif" HEIGHT=85 WIDTH=90></P></CENTER>
</TD>
</TR>
</TABLE>
```

<P>

<HR SIZE=5></P>

<P><IMG SRC="text.gif" BORDER=0 HEIGHT=24
WIDTH=24 ALIGN=BOTTOM><A HREF="eap-
ap.htm">Overview
of UNEP/EAP-AP</P>

<P><IMG SRC="text.gif" BORDER=0 HEIGHT=24
WIDTH=24 ALIGN=BOTTOM>Environment
Assessment Programme (EAP) Components </P>

<P><IMG SRC="redball.gif" BORDER=0 HEIGHT=14
WIDTH=14>Capacity
Building and Servicing </P>

<P>Data
Management </P>

<P>Assessment
and Reporting</P>

<P><IMG SRC="text.gif" BORDER=0 HEIGHT=24
WIDTH=24 ALIGN=BOTTOM>Framework
for Environment Assessment</P>

<P>UNEP is
fostering
the development of an international cooperative assessment framework for
collaborative action with both national and sub-regional bodies. It is
expected that these existing networks of suitably equipped national, sub-regional
and regional agencies representing groups of countries with common interests
will improve mutually beneficial assessments of the effects of environment
and development interaction at the national and international levels. </P>

<P><FONT
COLOR="#000080">Map,
GIS data and documents

UNEP/EAP-
AP (Asia
and the Pacific countries) </P>

<P>Global
Datasets

<IMG SRC="Yellowba.gif" BORDER=0 HEIGHT=14
WIDTH=14> Asia
Datasets (Bangladesh, Cambodia,
India, Indonesia,
Laos, Malaysia,
Myanmar, Nepal,
Philippines, Thailand,
Vietnam)</P>

<P><FONT
COLOR="#000080">GRID-Arendal
(Arctic, Antarctic and Nordic countries) </P>

<P>AMAP
GIS data (Arc/Info)

<IMG SRC="Yellowba.gif"
BORDER=0 HEIGHT=14 WIDTH=14>Baltic
drainage basin GIS data (Idrisi, Arc/Info, EPS)</P>

<P><FONT
COLOR="#0000FF">World
Conservation Monitoring Centre (WCMC Species map;
*.gif)</P>

<P>Anonymous ftp:
ftp.wcmc.org.uk</P>

<P><FONT
COLOR="#0000FF">GRID
Meta-Database</P>

<P><IMG SRC="ico256sm.gif" BORDER=0 HEIGHT=24
WIDTH=24 ALIGN=BOTTOM>Other
GRID Centers</P>

<P>Other
UN Links</P>

<P><IMG SRC="ico256sm.gif" BORDER=0 HEIGHT=24
WIDTH=24 ALIGN=BOTTOM>Other
Environmental Information Sources</P>

<P><FONT
SIZE=+1>Publication</P>

<P><IMG SRC="Yellowba.gif"
BORDER=0 HEIGHT=14 WIDTH=14><A HREF="http://www.south-
asia.com/icimod/apmn.html">Asia
Pacific Mountain Network Bulletin</P>

<P><IMG SRC="Yellowba.gif"
BORDER=0 HEIGHT=14 WIDTH=14>Climate
Change Bulletin</P>

<P><IMG SRC="Yellowba.gif"
BORDER=0 HEIGHT=14 WIDTH=14><A HREF="http://www.south-
asia.com/icimod/newstab.html">ICIMOD
Newsletters</P>

<P><IMG SRC="Yellowba.gif"
BORDER=0 HEIGHT=14 WIDTH=14><A HREF="http://www.south-
asia.com/icimod/bull1.html">MENRIS
Bulletin: Vol 3 No. 2</P>

<P></P>

<P><I>Surendra Shrestha, Regional Coordinator</I> </P>

<P><I>UNEP/EAP-AP</I></P>

<P><I>Outreach Building,
Asian Institute of Technology
(Click here to see location map)</I></P>

<P><I>(Please click on the back icon to
come to this Home Page)</I></P>

<P><I>P.O. Box 4, Klongluang, Pathumthani 12120, Thailand</I> </P>

<P><I>Tel. (66-2) 516-2124, 524-5365</I> </P>

<P><I>Telfax (66-2) 516-2125, 524-6233</I> </P>

<P><I>E-mail grid@cs.ait.ac.th</I></P>

</BODY>
</NOFRAME>
</HTML>

Example of HTML Coding
Of "menu1.htm"

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2//EN">
<HTML>
<HEAD>
  <TITLE>Menu of UNEP/EAP-AP</TITLE>
  <META NAME="Author" CONTENT="UNEP/EAP-AP">
  <META NAME="GENERATOR" CONTENT="Mozilla/3.0Gold (Win95; I
[Netscape]">
</HEAD>
<BODY TEXT="#000000" BGCOLOR="#FFFFFF" LINK="#0000EE"
VLINK="#551A8B" ALINK="#FF0000">

<P><BASE Target="body"><A HREF="compo.htm">EAP-Components </A></P>

<P><IMG SRC="world.gif" HEIGHT=33 WIDTH=33 ALIGN=CENTER><A
HREF="capa1.htm">Capacity</A></P>

<P><IMG SRC="world.gif" HEIGHT=33 WIDTH=33 ALIGN=CENTER><A
HREF="data1.htm">Database</A></P>

<P><IMG SRC="world.gif" HEIGHT=33 WIDTH=33 ALIGN=CENTER><A
HREF="a&r21.htm">Assessment</A></P>

<P><IMG SRC="world.gif" HEIGHT=33 WIDTH=33 ALIGN=CENTER><A
HREF="frame.gif">Framework</A></P>

<P><IMG SRC="world.gif" HEIGHT=33 WIDTH=33 ALIGN=CENTER><A
HREF="gcenter1.htm">GRID
Centers</A></P>*

<P><IMG SRC="world.gif" HEIGHT=33 WIDTH=33 ALIGN=CENTER><A
HREF="un1.htm">UN
Links</A></P>

<P><IMG SRC="world.gif" HEIGHT=33 WIDTH=33 ALIGN=CENTER><A
HREF="encen1.htm">Others Links</A></P>

<P><IMG SRC="world.gif" HEIGHT=33 WIDTH=33 ALIGN=CENTER><A
HREF="ext-data.htm">GIS Data</A></P>
<P><IMG SRC="refer.gif" HEIGHT=33 WIDTH=33 ALIGN=CENTER><A
HREF="http://www.grid.unep.ch/mdd/home.htm">UNEP
Meta Data</A></P>
<P><IMG SRC="book.gif" HEIGHT=33 WIDTH=33 ALIGN=CENTER><A
HREF="pub.htm">Publication</A></P>
<P><A HREF="body1.htm"><IMG SRC="home.gif" BORDER=0 HEIGHT=33
WIDTH=33 ALIGN=CENTER></A><A HREF="body1.htm">Home</A></P>
</BODY>
</HTML>
```


Example of HTML Coding
Of "body1.htm"

```
<HTML>
<HEAD>
<META HTTP-EQUIV="Content-Type" CONTENT="text/html; charset=windows-1252">
<META NAME="Generator" CONTENT="Microsoft Word 97">
<TITLE>Overview of UNEP/EAP-AP</TITLE>
<META NAME="Template" CONTENT="D:\APPS\OFF97\OFFICE\html.dot">
</HEAD>
<BODY LINK="#0000ff" VLINK="#800080" BGCOLOR="#ffffff">

<P><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2//EN"><BR>
<B><I><FONT SIZE=1 COLOR="#ff0000">You are the visitor No: <IMG SRC="/cgi-
bin/Count.cgi?dd=C&ft=1&negate=T|df=home.dat"></FONT><FONT SIZE=1
COLOR="#0000ff">Date: <IMG SRC="/cgi-
bin/Count.cgi?dd=C&ft=1&negate=T|display=date&dformat=yymmdd"></FONT><FONT
SIZE=1 COLOR="#008000">Time: <IMG SRC="/cgi-
bin/Count.cgi?dd=C&ft=1&negate=T|display=clock&tformat=24"></P></B></I></FONT
>
<TABLE CELLSPACING=0 BORDER=0 WIDTH=37>
<TR><TD WIDTH="33%" VALIGN="MIDDLE">
<P ALIGN="CENTER"><IMG SRC="unep.gif" WIDTH=70 HEIGHT=65></TD>
<TD WIDTH="33%" VALIGN="MIDDLE">
<B><FONT SIZE=4><P ALIGN="CENTER">Environment Assessment Programme</P>
<P ALIGN="CENTER">for Asia and the Pacific (UNEP/EAP-AP)</B></FONT></TD>
<TD WIDTH="33%" VALIGN="MIDDLE">
<P ALIGN="CENTER"><IMG SRC="unlogo.gif" WIDTH=70 HEIGHT=65></TD>
</TR>
</TABLE>

<FONT SIZE=4><P>The UNEP Environment Assessment Programme comprises the
Global Environment Monitoring Systems (GEMS), the Global Resource Information
Database (GRID), State of the Environment (SoE) Unit and UN System-wide Earthwatch
Coordination elements of UNEP. The Programme will facilitate cooperative environmental
assessments of environment and development issues of international significance. </P>
<P>In Asia and the Pacific, the Programme is implemented through the UNEP/GRID
facility located at the </FONT><A HREF="http://203.159.0.1/"><FONT SIZE=4>Asian
Institute of Technology</FONT></A><FONT SIZE=4>, </FONT><A
HREF="http://203.159.0.1/cgi-bin/thai.pl?Bangkok"><FONT
SIZE=4>Bangkok</FONT></A><FONT SIZE=4>, </FONT><A
HREF="http://203.159.0.1/Asia/infoth.html"><FONT
SIZE=4>Thailand</FONT></A><FONT SIZE=4>. The facility was established by UNEP
in 1989. The role of GRID-Bangkok has been expanded to encompass UNEP's
Environment Assessment Programme for Asia and the Pacific. UNEP/EAP-AP is
implemented in association with AIT and </FONT><A HREF="region1.htm"><FONT
```


SIZE=4>regional, sub-regional and
 national partner institutions. It operates under the regional policy direction of UNEP's Regional Office for Asia and the
 Pacific. </P>
 <P>Assessment for Environmentally
 Sustainable Development</P>
 <P>Information for environmentally sustainable development
 planning and management is a major concern for developing countries. The UNEP
 Environment Assessment Programme (EAP) is intensifying efforts to catalyse national and
 international action to strengthen assessment, reporting and data management capacities of
 institutions undertaking environmental assessment for decision making, policy setting and
 planning for sustainable development.</P>
 <P><FONT
 SIZE=4>UNEP is fostering the development of an
 international cooperative assessment framework for collaborative action with both national
 and sub-regional bodies. It is expected that these existing networks of suitably equipped
 national, sub-regional and regional agencies representing groups of countries with common
 interests will improve mutually beneficial assessments of the effects of environment and
 development interaction at the national and international levels.</P>
 <P></P>
 <I><P>Surendra Shrestha, Regional Coordinator</I>, <I>UNEP/EAP-AP, 3
 Fl. Outreach Bldg., A.I.T, P.O. Box 4, Klongluang, Pathumthani 12120, Thailand</I>
 </P>
 <I><P>Tel. (66-2) 516-2124, 524-5365, Telfax (66-2) 516-2125, 524-6233, E-mail
 </I><I>grid@ait.ac.th</I></P>
 <I><P>Location Map (in GIF format):</I><I> Outreach
 Building</I><I>, </I><I>Asian Institute of
 Technology</I><I> (Click here to see location
 map)</I></BODY>
 </HTML>

Example of HTML Coding
Of "compo.htm"

```
<html>
<head>
  <title>3 Components of UNEP/EAP-AP</title>
  <meta name="GENERATOR" content="Mozilla/2.01Gold (Win32)">
  <meta name="AUTHOR" content="UNEP/EAP-AP">
</head>
<body BGCOLOR="white">
<!doctype html public "-//IETF//DTD HTML//EN"><b><font SIZE=+1>Click
on each Graphic Object for more information</font></b>
<p><a href="compo.map"></a></p>

</body>
</html>
```



Example of HTML Coding Of "capa1.htm"

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2//EN">
<HTML>
<HEAD>
  <TITLE>Capacity Building and Servicing</TITLE>
  <META NAME="GENERATOR" CONTENT="Mozilla/3.0Gold (Win95; I)
[Netscape]">
  <META NAME="AUTHOR" CONTENT="UNEP/EAP-AP">
</HEAD>
<BODY BGCOLOR="#FFFFFF">

<P><B>Capacity Building and Servicing</B> </P>

<P><B>Developing countries in Asia and the Pacific Region have a real need
for assistance in building national capacities for assessment reporting
and data management. With associated countries in South Asia, South East
Asia and the South Pacific, UNEP/EAP has formulated a programme to service
environment and natural resource information networking among database
custodians for cooperative international assessments related to shared
resources. To implement the programme, partnerships have been established
with <A HREF="region1.htm">ADB ,</A> UNDP, CGIAR, ESCAP, etc. and at the
sub-regional level with <A HREF="subreg1.htm#asean">ASEAN</A><A
HREF="subreg1.htm"> ,</A>
<A HREF="subreg1.htm#icimod">ICIMOD</A> , <A
HREF="subreg1.htm#mekong">MRC</A>
, <A HREF="subreg1.htm#sacep">SACEP</A> , <A
HREF="subreg1.htm#sprep">SPREP</A>.
Consultations have been held with 40 senior environmental agency representatives
on needs and programme implementation. </B></P>

<P><IMG SRC="bar.gif" HEIGHT=6 WIDTH=640></P>

<P>Please email comments or suggestions to <I><A
HREF="mailto:dennis@ait.ac.th">dennis@ait.ac.th</A></I></P>

<P><B>For more information contact: UNEP/EAP-AP, 3rd Floor Outreach Building,
A.I.T., P.O. Box 4, Klongluang, Pathumthani 12120, Thailand</B></P>

</BODY>
</HTML>
```

Example of HTML Coding
Of "data1.htm"

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2//EN">
<HTML>
<HEAD>
  <TITLE>Overview of Data Management</TITLE>
  <META NAME="AUTHOR" CONTENT="UNEP/EAP-AP">
  <META NAME="GENERATOR" CONTENT="Mozilla/3.0Gold (Win95; I
[Netscape]">
</HEAD>
<BODY BGCOLOR="#FFFFFF">

<P><B>Data Management</B> </P>

<P><B>Data acquisition, analysis and management are essential elements
in assessment and reporting. In Asia and the Pacific, UNEP provides assistance
to improve accessibility and availability of reliable data. UNEP has strengthened
the UNEP/EAP-AP facility to meet this goal. Core data sets of both bio-physical
and socio-economic data at varying scales and at different levels are being
completed. To meet the increasing demand for practical applications, training
materials and case studies have been developed to demonstrate the use of
geographic information system and remote sensing technology in assessment
and reporting. </B></P>

<P><B><FONT COLOR="#0000FF"><FONT SIZE=+1>Services
Provided:</FONT></FONT></B></P>

<P>&nbsp;<B><FONT SIZE=+1><A HREF="data2.htm">Dataset
Documentation</A></FONT></B></P>

<P><B><FONT SIZE=+1><A
HREF="dmserv.htm">Training</A></FONT></B></P>

<P><IMG SRC="Birne.gif" HEIGHT=18 WIDTH=560></P>

<P>Please email comments or suggestions to <I><A
HREF="mailto:bhandit@ait.ac.th">bhandit@ait.ac.th</A></I></P>

<P><B>For more information contact: UNEP/EAP-AP, 3rd Floor Outreach Building,
A.I.T., P.O. Box 4, Klongluang, Pathumthani 12120, Thailand</B></P>

</BODY>
</HTML>
```

Example of HTML Coding Of "a&r21.htm"

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2//EN">
<HTML>
<HEAD>
  <TITLE>Overview of Assessment and Reporting</TITLE>
  <META NAME="GENERATOR" CONTENT="Mozilla/3.0Gold (Win95; I)
[Netscape]">
  <META NAME="AUTHOR" CONTENT="UNEP/EAP-AP">
</HEAD>
<BODY BGCOLOR="#FFFFFF">

<P><B>Assessment and Reporting</B> </P>

<P><B>A major objective of environmental assessment and reporting is to
provide overviews of environment and development issues, concerns and trends
to raise awareness and generate policy action. Assessments evaluate cumulative
impacts of environment and development processes to recommend preventive,
corrective or reinforcing action. The primary needs for effective assessment
include a functional assessment framework and a suitable mechanism to gather
and analyse the necessary data and information. UNEP is helping to formulate
an assessment framework and lay the foundation for an SoE database to be
used in the Region for reporting as a basis for policy formulation, priority
setting and action planning. </B></P>

<P><IMG SRC="bar.gif" HEIGHT=6 WIDTH=640></P>

<P>Please email comments or suggestions to <I><A
HREF="mailto:dahal@ait.ac.th">dahal@ait.ac.th</A></I></P>
<B>For more information contact: UNEP/EAP-AP, 3rd Floor Outreach Building,
A.I.T., P.O. Box 4, Klongluang, Pathumthani 12120, Thailand</B>

</BODY>
</HTML>
```

Example of HTML Coding
Of "gcenter1.htm"

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2//EN">
<HTML>
<HEAD>
  <TITLE>GRID - Center Links</TITLE>
  <META NAME="GENERATOR" CONTENT="Mozilla/3.0Gold (Win95; I
[Netscape]">
  <META NAME="AUTHOR" CONTENT="AIT">
</HEAD>
<BODY BACKGROUND="unep.jpg">

<UL>
<P><B>Click on each GRID - Center to go to that Home Page.</B></P>

<P><A HREF="gcenter.map"><IMG ISMAP SRC="world1.gif" HEIGHT=351
WIDTH=607 ALIGN=CENTER></A></P>

<P><IMG SRC="yellowba.gif" HEIGHT=14 WIDTH=14><A
HREF="http://128.39.158.5">GRID-Arendal,
Norway</A>(http://www.grida.no)</P>

<P><IMG SRC="yellowba.gif" HEIGHT=14 WIDTH=14><A
HREF="http://icair.iac.org.nz/bio/icair.html">GRID-Christchurch,
New Zealand </A>(http://icair.iac.org.nz/bio/icair.html)</P>

<P><IMG SRC="yellowba.gif" HEIGHT=14 WIDTH=14><A
HREF="http://meris.grid.aau.dk">GRID-Denmark
</A>(http://meris.grid.aau.dk)</P>

<P><IMG SRC="yellowba.gif" HEIGHT=14 WIDTH=14><A
HREF="http://193.5.5.2">GRID-Geneva,
Switzerland</A> (http://www.unep.ch)</P>

<P><IMG SRC="yellowba.gif" HEIGHT=14 WIDTH=14><A
HREF="http://150.163.9.17">GRID-Sao
Jose dos Campos, Brazil</A> (http://www.inpe.br/grid/home OR
http://www.inpe.br)</P>

<P><IMG SRC="yellowba.gif" HEIGHT=14 WIDTH=14><A
HREF="http://152.61.192.112">GRID-Sioux
Falls, South Dakota</A> (http://www.grid2.cr.usgs.gov/grid/grid.htm)</P>

<P><IMG SRC="yellowba.gif" HEIGHT=14 WIDTH=14><FONT
COLOR="#0000FF"><A HREF="http://www.south-asia.com/icimod.htm">ICIMOD-
Kathmandu,
Nepal</A></FONT> (http://www.south-asia.com/icimod.htm, E-mail:
icimod@mos.com.np)</P>
```


<P>GRID-Ottawa, Canada (E-mail:campbell@ccrs.emr.ca)</P>

<P>GRID-Tsukuba, Japan (E-mail:grid@nies.go.jp)</P>

<P>GRID-Warsaw, Poland (E-mail:gridw@plearn.edu.pl)</P>

</BODY>

</HTML>



Example of HTML Coding
Of "un1.htm"

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2//EN">
<HTML>
<HEAD>
  <TITLE>UN Links</TITLE>
  <META NAME="GENERATOR" CONTENT="Mozilla/3.0Gold (Win95; I)
[Netscape]">
</HEAD>
<BODY BACKGROUND="unep.jpg">
<H1><IMG SRC="unlogo.gif" HEIGHT=36 WIDTH=36>Other UN Links</H1>
<P><IMG SRC="bar.gif" HEIGHT=6 WIDTH=640></P>
<UL>
<LI><A HREF="gopher://binas.iaea.or.at">Biosafety Information Network and
Advisory Services (BINAS), Vienna</A> Gopher. <BR></LI>
<LI><A HREF="http://pan.cedar.univie.ac.at">Central European Environmental
Data Request Facility (CEDAR)</A> WWW. <BR></LI>
<LI><A HREF="http://www.fao.org">Food and Agriculture Organization (FAO)</A>
WWW. <BR></LI>

<LI><A HREF="http://www.gsf.de/UNEP/index.html">Harmonization of
Environmental Measurement (HEM), Germany</A> WWW. <BR></LI>

<LI><A HREF="gopher://nesirs01.iaea.or.at:70/1">International Atomic Energy
Agency (IAEA) </A>Gopher. <BR></LI>

<LI><A HREF="http://hpb.hwc.ca:7002/">Int. Council on Monuments & Sites
(ICOMOS/UNESCO) </A>WWW. <BR></LI>

<LI><A HREF="http://www.unicc.org/ifad/home.html">International Fund for
Agricultural Development (IFAD) </A>WWW. <BR></LI>

<LI><A HREF="gopher://info.itu.ch">International Telecommunication Union
(ITU)</A> Gopher. <BR></LI>

<LI><A HREF="http://www.ifs.univie.ac.at/unov/home.html">The International
Year of the Family WWW server</A> WWW. <BR></LI>

<LI><A HREF="http://www.paho.org">Pan-American Health Organisation
(PAHO)</A>WWW. <BR></LI>

<LI><A HREF="http://www.un.org">United Nations Secretariat (UN)</A> WWW.
<BR></LI>

<LI><A HREF="http://www.undp.org/popin/popin.htm">UN Population Info. Network
(POPIN), UN Population Div. (UNDESIPA)</A> WWW. <BR></LI>

<LI><A HREF="gopher://uacsc2.albany.edu:70/11/newman">United Nations Criminal
Justice Information Network (UNCJIN)</A> Gopher. <BR></LI>
```

United Nations Conference on Trade & Development (UNCTAD) Gopher.

World Symposium on Trade Efficiency (UNCTAD) WWW.

United Nations Conference on Trade & Development (UNCTAD) WWW.

United Nations International Drug Control Programme (UNDCP), Vienna WWW.

United Nations Development Programme (UNDP) WWW.

United Nations Development Programme Office in Brazil WWW.

United Nations Development Programme Office in Dominican Republic - Marine-Coast Biodiversity Project (SP) WWW.

United Nations Environment Programme (UNEP) on UNDP server Gopher.

United Nations Population Fund (UNFPA) Gopher.

United Nations International Computing Centre WWW.

United Nations Children's Fund (UNICEF)WWW.

United Nations Office for Outer Space Affairs FTP.

United Nations Office in Tallinn, Estonia WWW.

United Nations Office in Ukraine UNDP New York mirror - WWW.

United Nations Office in Vienna (UNOV) WWW.

United Nations Volunteers (UNV) Gopher

- United Nations Volunteers (UNV) WWW

- World Food Programme

- World Health Organization (WHO)
WWW.

- World Bank WWW.
- <H3>Other non-United Nations related links:</H3>
-
- Commission on Global Governance WWW.

- Information
about the United Nations Conference for Environmental Development (UNCED)
-- (at CIESIN) WWW.

- The Consortium for International Earth
Science Information Network (CIESIN). WWW.

- Harvard National Model United
Nations 1995 WWW.

- Norwegian
collection of Human Rights information WWW.

- Multi-National
Peace-keeping Operations List (at George Mason University) WWW.

- Institute for Global
Communications(IGC/APC) WWW.

- North Atlantic Treaty
Organization(NATO) Gopher.

- Foreign &
Intl. Law: Primary Docs. & Comments (at Cornell Univ) Gopher.

- International Institute for Sustainable
Development (IISD) WWW.

- Voices of Youth
- World Summit for Social Development IISD WWW.

- OneWorld
Online. WWW.

- Microstate
Resources.WWW.
-
- </BODY>
- </HTML>

Example of HTML Coding
Of "encen1.htm"

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2//EN">
<HTML>
<HEAD>
  <TITLE>Other Environmental Centers</TITLE>
  <META NAME="GENERATOR" CONTENT="Mozilla/3.0Gold (Win95; I)
[Netscape]">
  <META NAME="AUTHOR" CONTENT="AIT">
</HEAD>
<BODY BGCOLOR="#FFFFFF">

<P><B><FONT COLOR="#FFFF00"><FONT SIZE=+1>The following list of
environmental
webpages contains many listings that may be useful.</FONT></FONT></B></P>

<P><IMG SRC="bar.gif" HEIGHT=6 WIDTH=640></P>

<UL>
<LI><FONT SIZE=+1><A HREF="http://www.unep.or.jp/gec">Global Environment
Centre Foundation (GEC)</A></FONT></LI>

<LI><FONT SIZE=+1><A HREF="http://www.grida.no/geo">UNEP's Global
Environment
Outlook (GEO)</A></FONT></LI>

<LI><FONT COLOR="#0000FF"><FONT SIZE=+1><A
HREF="http://pan.idrc.org.sg/pan">Pan
Asia Networking (PAN)</A></FONT></FONT></LI>

<LI><FONT COLOR="#0000FF"><FONT SIZE=+1><A
HREF="http://www.deqp.go.th">Department
of Quality Promotion(DEQP), Thailand</A></FONT></FONT></LI>

<LI><FONT SIZE=+1>Updated list of WWW Environmental
Resources</FONT></LI>

<UL>
<LI><FONT SIZE=+1><A HREF="epa.htm">Environmental Protection Agency
(EPA)</A></FONT></LI>

<LI><FONT SIZE=+1><A HREF="doe.htm">Department of Energy
(DOE)</A></FONT></LI>

<LI><FONT SIZE=+1><A HREF="dc.htm">Deptment of
Commerce</A></FONT></LI>

<LI><FONT SIZE=+1><A HREF="misc.htm">Miscellaneous Federal Government
WWW
```


Sites

U.S. State Government

International

Business
and
Industry

Pollution
Prevention Research and Information Centers

Design
For The Environment (DFE) Information

Energy
Efficiency,
Renewable and Sustainable Energy--Organizations, Research and
Services

Recycling
and Materials Exchange

Sustainable Resource
Development & Management

Great
Lakes P2& Management; Environmental Information

Other
WWW Environmental Resources

World Wide Web Search Engines

Yahoo

Hotbot

Non-Environmental Resources

Indonesia
Malaysia Thailand Growth Triangle (IMT-GT)

<P></P>

<P>UNEP/EAP-AP, 3rd Floor Outreach Building, A.I.T., P.O. Box 4, Klongluang,
Pathumthani 12120, Thailand </P>

</BODY>

</HTML>

Example of HTML Coding
Of "ext-data.htm"

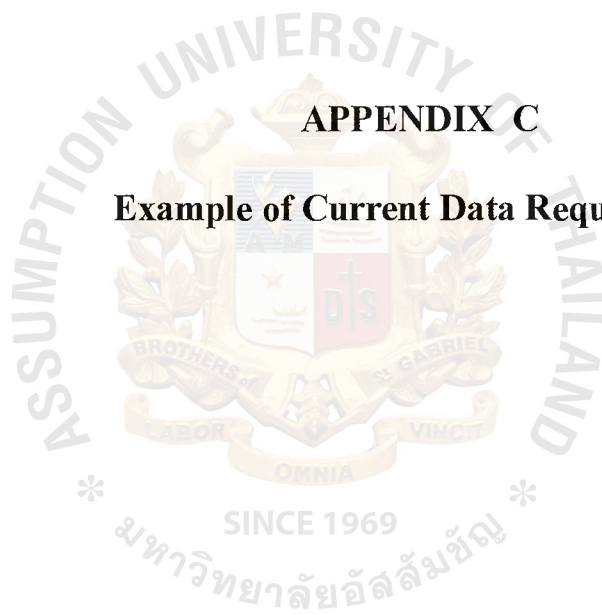
```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2//EN">
<HTML>
<HEAD>
  <TITLE>External Data Sources</TITLE>
  <META NAME="AUTHOR" CONTENT="UNEP/EAP-AP">
  <META NAME="GENERATOR" CONTENT="Mozilla/3.0Gold (Win95; I
[Netscape]">
</HEAD>
<BODY BGCOLOR="#FFFFFF">
<P><IMG SRC="introbut.gif" HEIGHT=24 WIDTH=24><FONT
COLOR="#000080"><FONT SIZE=+1>Map,
GIS data and documents <BR>
<IMG SRC="redball.gif" HEIGHT=14 WIDTH=14>UNEP/EAP-
AP</FONT></FONT> <B>(Asia and the Pacific countries)</B> </P>
<P><IMG SRC="Yellowba.gif" HEIGHT=14 WIDTH=14><A
HREF="data2.htm#global">Global
Datasets</A><A HREF="data.htm#global"> <BR>
<A HREF="data.htm#global"><IMG SRC="Yellowba.gif" BORDER=0 HEIGHT=14
WIDTH=14></A></A> Asia Datasets (<A
HREF="data2.htm#bangla">Bangladesh</A>, <A
HREF="data2.htm#cambo">Cambodia</A>,
<A HREF="data2.htm#india">India</A>, <A
HREF="data2.htm#indo">Indonesia</A>,
<A HREF="data2.htm#laos">Laos</A>, <A HREF="data2.htm#mala">Malaysia</A>,
<A HREF="data2.htm#myan">Myanmar</A>, <A
HREF="data2.htm#nep">Nepal</A>,
<A HREF="data2.htm#phil">Philippines</A>, <A
HREF="data2.htm#thai">Thailand</A>,
<A HREF="data2.htm#viet">Vietnam</A>)</P>
<P><IMG SRC="redball.gif" HEIGHT=14 WIDTH=14><FONT
COLOR="#000080"><FONT SIZE=+1>GRID-Arendal</FONT></FONT>
<B>(Arctic, Antarctic and Nordic countries)</B> </P>
<P><IMG SRC="Yellowba.gif" HEIGHT=14 WIDTH=14><A
HREF="http://128.39.158.5/amap/gisdata.htm">AMAP GIS data (Arc/Info) <BR>
<A HREF="http://128.39.158.5/amap/gisdata.htm"><IMG SRC="Yellowba.gif"
BORDER=0 HEIGHT=14 WIDTH=14></A></A><A
HREF="http://128.39.158.5/prog/norbal/baltic/">Baltic
drainage basin GIS data (Idrisi, Arc/Info, EPS)</A></P>
<P><IMG SRC="redball.gif" HEIGHT=14 WIDTH=14><FONT
COLOR="#0000FF"><FONT SIZE=+1><A
HREF="http://www.wcmc.org.uk:80/data/maps/">World
Conservation Monitoring Centre</A></FONT></FONT> <B>(WCMC Species map;
*.gif)</B></P><UL>
<P><IMG SRC="Yellowba.gif" HEIGHT=14 WIDTH=14><B>Anonymous ftp:
ftp.wcmc.org.uk</B></P></UL>
<P><IMG SRC="bar.gif" HEIGHT=6 WIDTH=640></P>
<P><IMG SRC="test2.gif" HEIGHT=175 WIDTH=600></P>
```



<P>Please email comments or suggestions to <I>bhandit@ait.ac.th</I></P>
<P>For more information contact: UNEP/EAP-AP, 3rd Floor Outreach Building,
A.I.T., P.O. Box 4, Klongluang, Pathumthani 12120, Thailand</P>
</BODY>
</HTML>



APPENDIX C

Example of Current Data Request Form



	<h2 style="margin: 0;">GRID - BANGKOK</h2> <p style="margin: 5px 0 0 0;">Global Resource Information Database Asian Institute of Technology GPO Box 2754, Bangkok 10501, Thailand</p>	 <p style="margin: 0;">UNEP</p>
<p>Telefax: (66-2) 516-2125 Telex: 84276 AIT TH</p>	<h3 style="margin: 0;">DATA REQUEST FORM</h3>	<p>Telephone: (66-2) 516-2124 (66-2) 516-0110 Ext. 5365</p>

In order to expedite your data request, please ensure that a copy of the following form is completed :

Address Information			
Name	<input style="width: 90%;" type="text"/>	Phone No.	<input style="width: 90%;" type="text"/>
Title	<input style="width: 90%;" type="text"/>		
Section	<input style="width: 90%;" type="text"/>	Fax No.	<input style="width: 90%;" type="text"/>
Organization	<input style="width: 90%;" type="text"/>	Telex No.	<input style="width: 90%;" type="text"/>
Postal Address	<input style="width: 90%;" type="text"/>	E-mail address	<input style="width: 90%;" type="text"/>
	<input style="width: 90%;" type="text"/>		
	<input style="width: 90%;" type="text"/>		
Data Sets Requested			
Dataset Code	Title	Dataset Code	Title
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
Data Media Information		Additional Information	
<p>Media to use when sending the requested data (tick one):</p> <p><i>Diskette</i></p> <p>3.5" 720kb <input type="checkbox"/> 1.4 Mb <input type="checkbox"/></p> <p>5.25" 720kb <input type="checkbox"/> 1.2 Mb <input type="checkbox"/></p> <p><i>Tape</i></p> <p>9-track 1600 bpi <input type="checkbox"/> 6250 bpi <input type="checkbox"/></p> <p>Quarter-Inch-Cartridge <input type="checkbox"/></p>		<p>Computer used to process the data <input style="width: 90%;" type="text"/></p> <p>Operating System used <input style="width: 90%;" type="text"/></p> <p>Software used to process the data <input style="width: 90%;" type="text"/></p> <p>Intended use for the data <input style="width: 90%;" type="text"/></p>	
<p>Date of request <input style="width: 80%;" type="text"/></p>		<p>Signature <input style="width: 80%;" type="text"/></p>	

Figure C.1. Example of Current Data Request Form

