

SYRIAN CULTURAL HERITAGE DATABASE AND GIS SYSTEM

March 2007

In order to proceed to the implementation of the Database and GIS activities foreseen in the Agreement between Italy and Syria, planned for starting next months, related to (with reference to the Annex II of the Agreement):

- *Fifth Activity - Database equipment*
- *Sixth Activity - Database creation*
- *Seventh Activity - Geographic Information System*

a preliminary meeting has been required in order to finalize and to update at the actual situation the program of the works.

The necessity to have a clear report from many Departments involved has suggested the realization of a Workshop, called e-Archaeology workshop, where all the key persons involved by DGAM presented their experience and the work done till now. In following pages a summary results of this workshop, that represent a real state-of-the-art situation, is presented.

Recommendations reported here, at the end of this document, are to be considered as the base of the future work.

Workshop E-Archaeology
18/19/20 March 2007 – DGAM – Damascus
Proceedings

I. Summary of Presentations

Resumes of presentations:

Dr Basam Jamous
General Director of DGAM
Opening work shop

Presentation 1

Vicken Abajian <vickenabajian@yahoo.com>
Informatics expert in DGAM
From the realistic to electronic solutions

Brief

This presentation focus on the main questions starting from realistic factors " classify all kind of problems" until the kind of solutions depended on, in order to prepare the planning based on requirements collected from the experts and analysing and designing containing the methodology of system design to approach the final implementation of the system.

Presentation 2

Mrs. Myasar Yabroudy
Curator of East ancient Department in Damascus national museum
Parallel project - New experience in electronic documentation

Brief

In this presentation, the curator of Ancient East showed us how many records she entered in the database and how she made good matching with the requirements of her department and we made measurements by tree factors on samples to be sure that the objects are very well characterized by their detailed features. These tree factors are (i) differentiation, (ii) resolution, and (iii) identification.

Presentation 3

Mrs. Heckmat Salahy
Data entry expertise
Parallel project - New experience in electronic documentation

Brief

In this presentation, the curator of Islamic Period showed us how many records she entered in the database, using the same module used by Ancient East Department. She showed us also how she made good matching with the requirements of this department and we made measurements by tree factors on samples to be sure that the objects are very well characterized by their detailed features. These tree factors are (i) differentiation, (ii) resolution, and (iii) identification.

Presentation 4

Mrs. Heiam Darkal

Curator of Modern Art Department in Damascus national museum

New experience in electronic documentation

Brief

In this presentation, the curator of Modern Art department told us about the using a specialized software. She compared it with UNESCO one and she said that she is more comfort with this software because it can propose the expert more precise calculation of forms suitable for Museum needs (Module #1 and #3). This software is used as a standard for academic research.

Presentation 5

Mosaic Documentation System

Dr. Stefania Chlouveraki, Greece, <stefie@instapec.gr>

Khaled Hiattli & Basel Zeno

Brief

This system was realized in the framework of a donor from the Greek government to the Syrian government, represented by University of Damascus, for the Benefit of DGAM. One action of this project is to develop a new and accurate documentation system for the mosaic in the world and they exposed coding measured by archaeologists in the most important institute for mosaic in the world. They tested this system by gathering and entering 300 records from all Syria. With this system they can make a lot of very deep searching with detailed queries, making comparison and extracting reports.

Presentation 6

Miss Loda Mahfoud <ludamahfoud@postmaster.co.uk>

Assistant directorate of Conservation Department in DGAM

Automation of conservation department

Brief

In this presentation Miss Loda described the kind of problems they faced and we can summarize in this few points (i) the need of to collect the pieces of information that are distributed in many locations (ii) the need of certain methodology in all parts of conservation laboratory (iii) the need of links with another parts of DGAM (iv) the need of to collect all experience that built upon the time with the capability to pass this experience to another generation of conservator and exchange this experience with another experts. And she showed us a lot of examples of these problems after that she described how this application solved that, comparing the designing of this the system with the methodology of system approach.

Presentation 7

Mr. Saad Fansa

Assistant director of Photograph Department in DGAM

Automation of photograph department

Brief

In this presentation, the orator summarized the main problems of his department and these problems starting from the valuable photograph archiving because there is a lot of photos in this department, and (i) there isn't a good organisation for this photos; and (ii) there isn't a link between these archives and others departments, and (iii) the ability of searching in these archives is a weak point. And the system he showed us

solved these problems with a new structure of archiving and linked this structure with archaeological departments in DGAM.

Presentation 8

Miss Nada Sarkis

Icons Documentation System

Brief

In this presentation, we saw for the first time that, in Syria, there is an integrated and linked system for Icons documentation. This system with link to the monuments (churches) can solve the problems of documentation starting from the I.D. of the icons in two languages (Arabic and English) and we can say this system approach to academic research of icons field in Syria with the protect of the these icons in the future by linking the E-archaeology system at a whole.

Presentation 9&10

Eng. Lina Kutaifan

Hills And Monument documentation systems

Brief

Monuments: In very vital and so important part of e-Archaeology this Application impacts many problems (i) Create the ID of the monuments (ii) entry on all available details in the monuments (iii) tracking for the monuments in all chemical and physical effects (iv) make a lot of reports and queries for administrative & researching reasons and this one of projects DGAM shared Damascus university with graduated students in informatics engineering.

Hill: Hill the most important part of the site that considers as Archaeological sites and this Application consider the base entry point for e-Archaeology to define (i) ID of hill with a lot of calculations (ii) dangers degrees to define the necessity of excavation with approach of this system to send direct reports reflects accurate situation.

Presentation 11

Abdala Halawi (Engineering Department)

Bozo Yousef (Contractor, Graphical experience)

Project of siano - V.D.Rb Sample

Brief

As the base of V.D.Rb this project divided into three main targets (i) with the cooperation of Dr.Mishel Makdesy the director of excavation departments in DGAM as Archaeological supervisor for this project the team collect and build the visual rebuilding for siano temple with (ii) interactive program interface (iii) and virtual movie as simulation of the environment of siano life.

Presentation 12

Hassan Al-Khateeb

IT specialist, University of Damascus

The experience of Cooperation between DGAM and Damascus university " informatics university " - Demo of Phase 2: solution by Oracle and Java

Brief

This presentation focused on second version of a part of E-Archaeologie's will two main Modules are **OA & MON** "OA for Museum automation and **MON** for monument documentation system" with oracle based and java the graduated engineering student worked on this main points (i) reengineering and making ERD and user case diagram (ii) solving the problem of absolute and relative GIS pointers (iii) Creating

DEMO version as WEB BASED APPLICATION on JSP with java middle layers on oracle data base system.

Presentation 13

Vicken Abajian

Demo of Phase 2: solution by SQL Server and V.B

Brief

The first version of phase 2 from the E-Archaeology system with the main Modules I described over this work shop and those are (i) OA , (ii) Mon , (iii) restoration , (iv) photograph department with local area applications depending on two layers (i) SQL server based data base (ii) V.B for forms building and crystal reports for report building , also the presentation include another advanced module in decision tree and data structured as a components of E-Archaeology in the future, with this presentation I finished all the partial applications and DGAM worked on to convert the old method of registration's and securities and researching into new one depending on advanced technique

Presentation 14

Dr. Oriane Matte, France < >, Vicken Abajian

How we can add Adding Text Mining & web Mining to e-Archaeology to create e-Archaeology+

Brief

This presentation demonstrated briefly what is Text-mining and Web-mining technologies and the benefits to add these kind of technologies in E-Archaeology application. Through examples based on archaeological field, we showed how the resources produced by this module, for instance terminology of archaeology can be very useful for E-Archaeology system. One the most important point was to underline that E-Archaeology can become a very advanced and standard system to use computer science and technology in all heritage field (archaeology, history, architecture, etc.) application.

Presentation 15

Crossing Key points Between the Italian project and the Syrian technical solutions

Dr. Renzo Carlucci, Italy <carlucci@uniroma3.it>, Vicken Abajian

Brief

In this presentation a report on the Cultural Heritage Risk Map, realized in Italy last years, was presented with particular focus on the acquisition of old paper data (legal act) to get information for following data entry. Such data, treated in order to get coordinates location by cadastral data, was used for the entry point of the GIS system. The web enabled geographic user interface is the starting point for the use of the system. The crossing points focused are mainly related to the same experience realized by Italy in the work of building a new Database starting from many specialist of database in a framework of a International Standard compliance and we see that E-Archaeology concrete & optimizes system in collecting all kind of requirements, with deep analyzing and designing and from this point we can continue this activity of informatics in the Italian/Syrian project.

Dr. Renzo Carlucci, appreciated all the efforts done for this workshop and concluded the workshop with following opinions:

- the situation of the development of the Information System of the DGAM is arrived to a high level, with the works completed in last 5 years.
- it is particularly appreciable the fact that for each Department a Data Entry (with annexed study of the Database) has been realized and for almost all this the process of digitization is in progress.
- Most of the solutions adopted in DGAM are actually not yet realized in other heritage systems and in Middle-East, and in Europe, so that we should consider the possibility to use the Syrian one as a prototype to be exported in Countries with similar Cultural Heritage necessity
- The Syrian-italian cooperation, where the Italian knowledge for Gis-Web-Risk centralized database linked to the Syrian knowledge for detailed cataloguing systems, could lead to an experience for the realization of a Cultural Heritage Information System to be used as a solution to be proposed at the international level.

Final Conclusions of Presentations

We saw the main development realized about E-Archaeology system through the presentations given in this workshop as a state of art. We agreed to say that the work already done as the base of E-Archaeology project for Phase 1 and demonstration of Phase 2 clarify the main targets of this system to approach the standardization.

From this point of view we have to continue the development based on this background with the benefit of EU experience as the Italian technical experience in web GIS and Risk Map, the Greek experience on Mosaic Cataloguing and the French technical experience in Text Mining and Web Mining to Create E-Archaeology⁺.

II. Summary of the key points for the future work

The presentation "Crossing key points between the Italian project and the Syrian technical solution" represents an important recommendation to define the future work to realize. In this presentation is demonstrated how, starting from the work done actually by DGAM, it is possible to build a Central Unified System able to show also in the Internet the huge Cultural Heritage of Syria, with a particular view on the Risk Analysis based on the criteria for Maintenance and Protection based on the Vulnerability of the Monuments and the Danger coming from their Environment.

The main key points to address, in order to follow the above intentions, are:

1) *Adoption of International Standards for Multimedia Access to Cultural Heritage*

An agreement was reached to start a Working Group (composed by experts to be defined) on international standards to be adopted considering as a starting base the following world standards:

- CIDOC/Dublin Core

- ICCROM
- Getty Institute
- RAD methodology (the particular strategy done for standards and measurement of solutions solved with 2 phases for building system designing demonstrated in the presentation of Dr. Abajian – annexed document)

2) *ID unified coding system (with international compliance)*

The adoption of a unique identifying coding system is a particularly important key because the whole system depends on this point as presented in the document annexed.

This key point has to be addressed in two separate ways, which are complementary and reciprocally dependent from each other, as following:

a) Computer system solution

A particular “simple” solution is needed to be able to distribute easily and quickly the Code to manage Data Entry for old and new entries.

A proposal on this way has been showed during the WS (annexed document)

b) Administrative issue

Urgent act from administration of monuments and antiquities is required to institute a “General Coding System” for all Syria with a Responsible Authority.

International Committee for evaluation of the general set of unique ID system – related to the modules presented in Phase 2 solution (annexed document)

3) *Data System for general distribution over the Internet*

A general Database has to be realized (as a generalization of all specialized software of Level 1) possibly as a “view” of all DB specialists (point 4) to be seen also as a geographic interface system for the general access from the WEB.

User management, user profiles and DB administration criteria have to be defined according to the user requirements to be defined in future work.

Lexicons, thesauri, terminologies, and dynamical ontology will be built and used by the experts (users) by the system. The users can use a Data Mining system to extract exact information from the system and from the Web. Web mining technology, Data Mining (text and numerical data, and in future images) have to be integrated in order to use it or as a starting point or as a verification tool (see annexed document) for all the terminology in use.

All interfaces shall be “Web Enabled”.

4) *Data System for all specialist cards (Archaeology, Excavation sites, Monuments, Paintings, Icons, etc.)*

Local systems for cataloguing and description of items are on going and some time still in a beta testing phase.

The particular analysis realized directly with all the experts user (museum curators, laboratory responsible) has taken to a development of local systems actually in use in many Antiquities Departments.

The result of this huge work is of a real high level and all agree on maintaining this system in use eventually with adaptations needed to be studied during the realization of point 3.

This high level of realization has been the starting point for the creation of a Digital Cultural Heritage System actually at the best level of the international realization.

Recommendations for this phase are particularly regarding the “English” version of some of them.

5) *Geographic Information System*

Considering the future work for the realization of the GIS environment following recommendations have been agreed:

a. geo-referencing of all data

All specialist and general DB system must contain coordinate system information

A solution was proposed in the environment of the collaboration between Damascus University (see annexed document)

b. GIS as a tool to navigate from general maps to detailed local survey

All detailed surveys realized for Monuments and Sites are to be realized in compliance to the GIS requirements, specially for the Reference System that has to be related to the World Geodetic System 1984 (WGS84) that is also the Reference system of the Global Navigation Satellite System actually in use (GPS, GLONASS, GALILEO)

6) *Data Mining technology*

A general agreement was reached to add this functionality to the future system, in order to obtain:

- At the beginning, the starting point for the homogenization of the terminology
- And after, a tool for researcher and high level users of the system.

7) *Damascus National Museum GIS as sample for other Museums*

The creation of a digital accurate model of the National Museum is a priority in order to realize a sample of Cultural Heritage Object Container to be navigated in a GIS environment.

Such sample will serve for all Monuments, Museum and Sites.

8) *Risk Map of Syrian Cultural Heritage*

All the data in the Database can be updated by information regarding the Vulnerability and the state of Decay, using simple formulas and algorithms.

The link to the GIS with all information regarding the danger on the territory can reach to the realization of a Risk Map system to be used also as a tool for a Decision Support System to the management of the DGAM authority.

9) *To take care of other programs*

The success of the e-Archaeology is also related to the real integration with other realities and other programs on-going. We report therefore the opinion of one of the other actors interested in Syrian heritage.

Opinion of Dr. Franck Ghitalla

Université de Technologie de Compiègne, France

The E-archaeology+ project must be considered to be chance to federate a community of actors who are specialists of these questions, rich and complex systems which link archaeology and engineering of computer systems. If we can find now very advanced systems to manage information resources linked with different archaeological corpus (as *Porphyri* system, French School of Athens), the project would like to concentrate on activity of archaeologists and historian of Middle East starting from a first experimental field in Syria and we can now go to a real French-Syrian collaboration between different kind of actors, specialists of conception of information systems and archaeologists and others actors in institutions as museums, ministry of tourism, foundations, institutes, research teams, leaderships of cooperation programs between states. The evaluation of E-Archaeology will arrive to a series of proposals to develop in direction of a first community of actors, in thinking to its character of usability and its use in a general way in a second time. This evaluation will bring us to a general strategy of valorisation of Syrian heritage, especially in focusing on access to public data via the web.

List of participants

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Mrs. Heckmat Salahy, Data entry expert
Mrs. Heiam Darkal, Curator of Modern Art Department in National Museum
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