



## **Inventory Studies for Tourism Information System of Obruk Lake in Konya/Turkey<sup>#</sup>**

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**Abstract:** Lake of Obruk, which has been formed last century in Konya/TURKEY, is an important natural heritage. With the characteristics of mythological and mystical, the existence of mound of which has oldest settlement places (Gökhöyük, Çatalhöyük) ever known on it's nearest around, the Binbir Church and Taşkale of which has historical, artistic and cultural centres taking place at the centre of easy arrival and landscape, it is candidate to be foundation tourism centre. It is important for tourism that Lake of Obruk is to be including underground water network because of its geological characteristic, suitable fishing industry and a lot of caves that have been used different duty. In this study, In order to be charm centre of region, Infrastructure studies have been done for touristic foundations. Topographic maps have been produced for Tourism Information System and have been overlayed cadastral maps. For region, Tourism Information System has been designed.

**Keywords:** *Cultural Tourism, Information Systems, Inventory, Natural Heritage, Planning*

### **Introduction**

Tourism industry is based on information science, as during the phase of purchasing tourism productions only need to provide the information about them but not need to provide the actual product (Staab et. al., 2002). Recent advances in "information and communication" technology have changed enterprises behaviour, especially, in manufacturing and services. An increasing attention is being paid to three important principles: Speed, accuracy and cost as a strategy in order to acquire competitive advantages. In the 21<sup>st</sup> century the "tourism industry" moved forward drastically by drawing on new information systems (Mehdipour *et.al.*, 2006).

Tourism information is predominantly based on geographically related information and therefore, the tourism and leisure industries are currently searching for ways how to explore the potential of technologies for presenting geographical data (Almer *et.al.*, 2006).

Tourism Information System( TIS) are, as its name implies, one of the application fields of GIS. Generally, tourist regions are facing more management service problems in high season because of increasing populations. Sometimes it doubles or, occasionally, increases tenfold. In this situation, the first aim of TIS is constitution of effective management services (Esen *et.al.*, 2008).

Çumra, located 47 km southern to the centre of Konya, is like a gate opening to the south of Konya Plain, Toros Mountains. Most settlements, excluding interior prolongation of Toros Mountain which starts from 20 km south of Çumra has been located on plains. Çarsamba River coming from around Bozkır and Beyşehir has an effect on irrigated farming of Çumra. Çatalhöyük which interest Anatolia even World's Prehistory, Gökhöyük and the lake of Obruk is in this region. Gökhöyük Village is 15 km to Çumra Town (Figure 1). The history of settlement in that town dates up to the age of Heolitic.

As the study subject, the reason we select this region is approach way and treatment riches of the people living in this region. They follow developments in close and want to benefit them. In fact

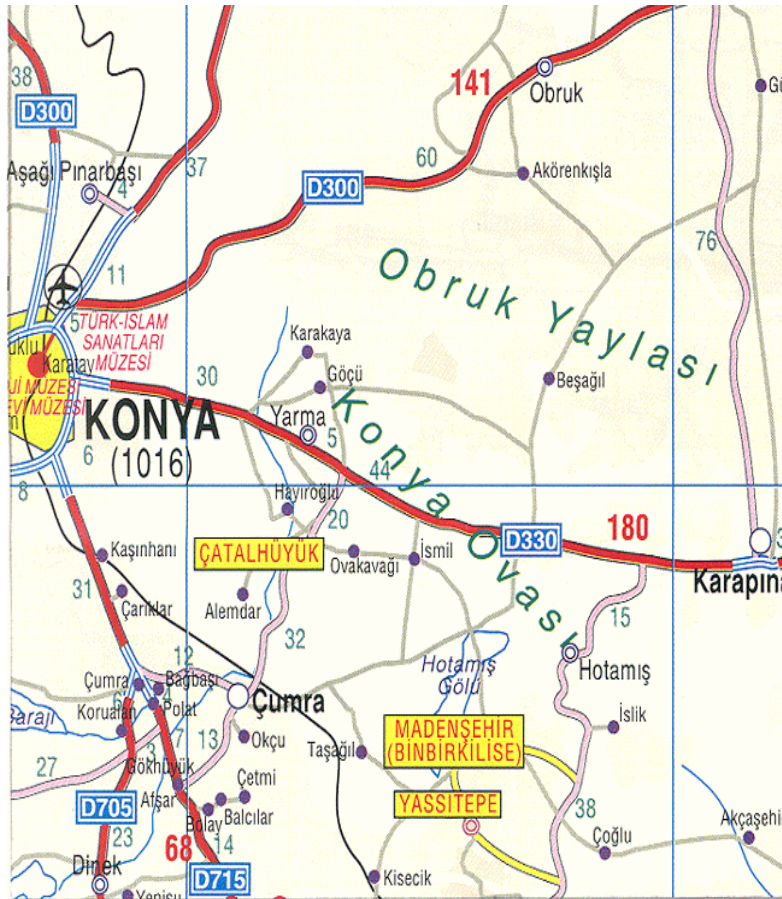
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another factor which supports this claim is that application of plans done and ownership developing in time has been protected. These are;

- Completed 1912, technique infrastructure studies, protecting Çumra Plain studies from flooding of Çarsamba River, Using this River studies for irrigating purpose. The firm to carry out these duties was responsible for building Istanbul-Bagdat railroad (Erdi *et al.*, 2000),
- In the republic history of our country putting district in order studies was first made in Çumra (Türker, 2000),
- Beginning from Çumra, deed of real estate belonging to ottoman term was first given by government in our history (Türker, 2000),
- In terms of Emvali Real Estate Law, the first written cadastre law with 5 February 1912, the first cadastre studies was done in Çumra (Alibey Höyük).
- First together lands similar to that of today was made in term of Johannes Verkaren's instruction, Holland specialist (Demirel, 1999).

The aim of this project is that the Lake of Obruk taking place in Konya-Çumra-Gökhüyük Village is brought to native and foreign tourism.



**Figure 1.** Map of Çatalhöyük, Binbir Church, Yassitepe, Çumra (URL 1)

With the characteristic of mythological and mystical, the existence of mound of which oldest settlement places ( Gökhüyük, Çatalhöyük) ever known on it's nearest around, Binbir Church and Taşkale of Which has historical, artistic and cultural centers taking place at the centre of easy arrival and landscape(Figure 2.), it is candidate to be foundation tourism centre.

It is important for tourism that lake of Obruk is to be including underground water network because of it's geological characteristic, suitable fishing industry and a lot of caves that have been used different duty.



**Figure 2.** Gökhöyük (Lake of Obruk )

Because Obruk Lake is in the centre of Catalhoyuk Binbir Church-Taskale which is popular touristic places and in the line of transportation, it must be charm centre and that is why we plan making topographic maps of the region.

After completing this project another required activities for information system (searching, tourism reconstruct plan, water analyze, there dimensional photogrammetric predesign, investigation *etc.*) can be projected.

### **Materials and Methods**

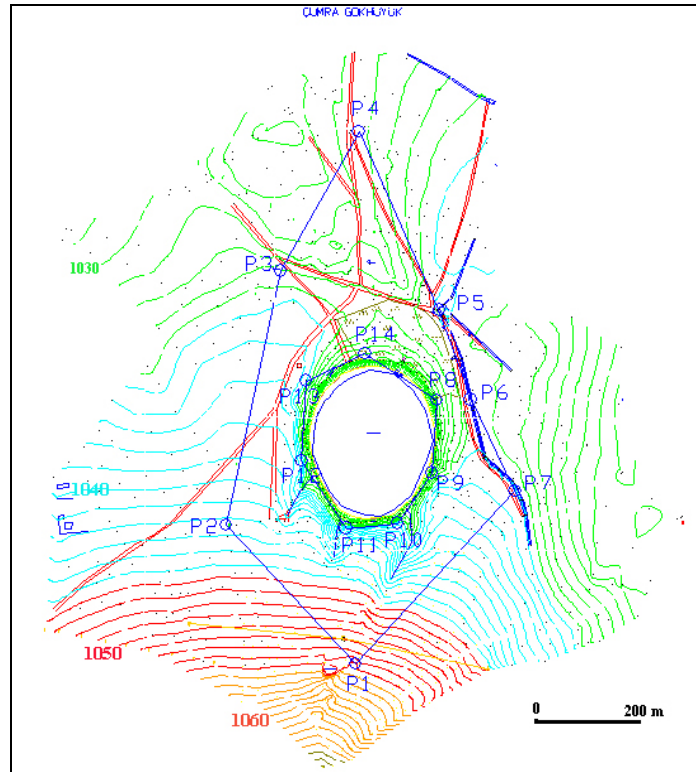
- Reconnaissance, establishing and measuring of triangulation and traverse point in study area
- Measuring to draw topographic map of Obruk lake and it's around
- Evaluation of topographical surveying
- Digitizing 1/5000 scaled property maps to be used for Obruk Lake Tourism Plan Information System.
- Harmonizing property maps with topographic maps.
- Design of Tourism Plan Information System.
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### **Application**

#### ***Measuring and Calculating of Triangulation and Traverse Points***

To be able to make photogrammetric drawing of land use map of project's area and edges of Obruk lake in future, 7 number traverse points between number of 9160 and 133 triangulation and it's around 7 number, that is, total 14 traverse points have been establishing. Dispersion of the points are seen Figure 3.

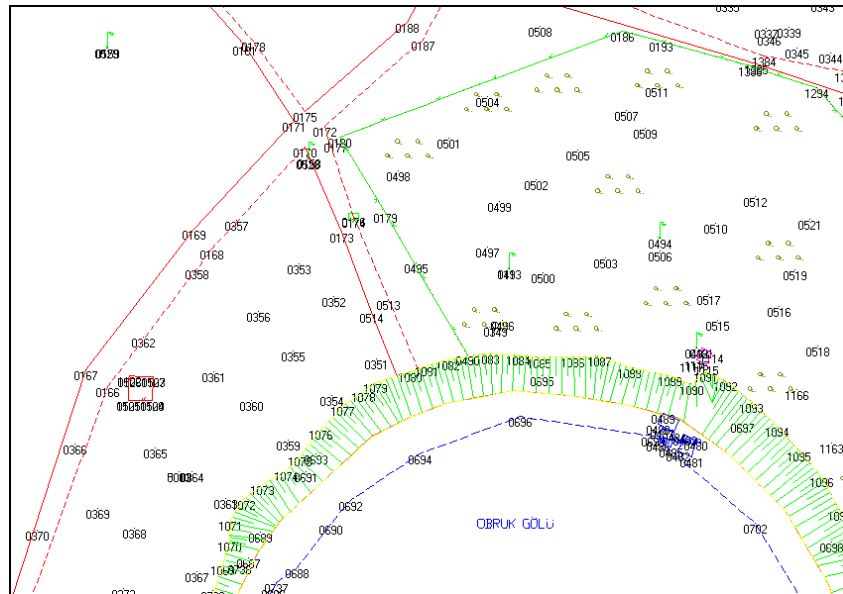
The values of traverse coordinate has been measured by American JavaT GPS device with 4 receiver, double-frequency. In spirit levelling average error  $m_0 = \pm 9$  mm. It is found that these values are in the instruction of making big-scaled map.



**Figure 3.** Topographical Traverse Map

#### ***Measuring Studies of Topographic Map***

From traverse points, energy carry lines, water drains canal and other foundation has been measured by Sokhisha Power Set 2000 Electronic Station in study area. In figure 4, the position and dispersion of measured points are seen.

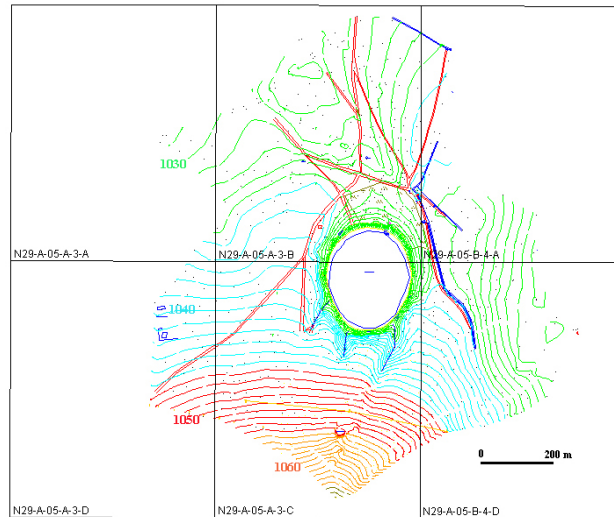


**Figure 4.** Detail Measurements

#### ***Evaluation of Topographic Map and Drawing of Section of Land***

Transferring details to computer, evaluations have been made in Net-CAD programme. In country coordinate system land sections 1/1000 of project area have been made. Indexes of section land are given on Figure 5.





**Figure 5.** Indexes of Section of Land

***Digitating of 1/5000 Scaled Property Maps To be used for Tourism Plan Information System of Obruk Lake***

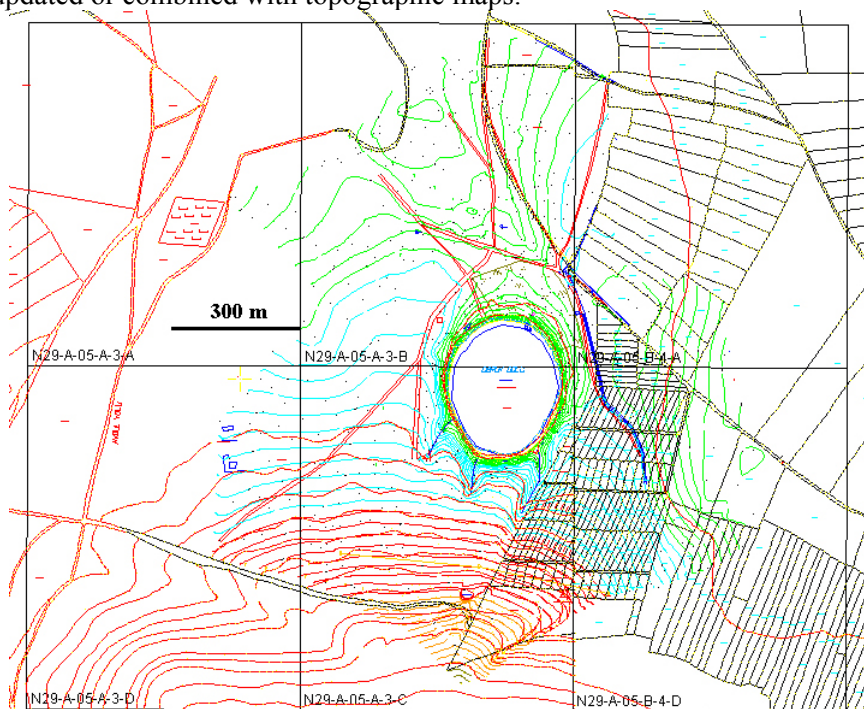
1/5000 scaled maps (Konya-CumraN29-a-05-a and N29-a-05-b) have been scanned. Raster files have been transformed to NetCAD and Affine Transformation has been made. The report turned out the result of affine transformation has been pointed out per section of land.

***Harmonising Property Maps with Topographic Maps***

Section of land edge errors of digitized maps has been eliminated by Affine Transformation and 1/1000 scaled maps produced has been fit into topographic map. With these processes, that contours, cadastre roads and other details are harmony has been observed (Figure 6). By means of the produced maps, Tourism reconstructive plans can be drawn.

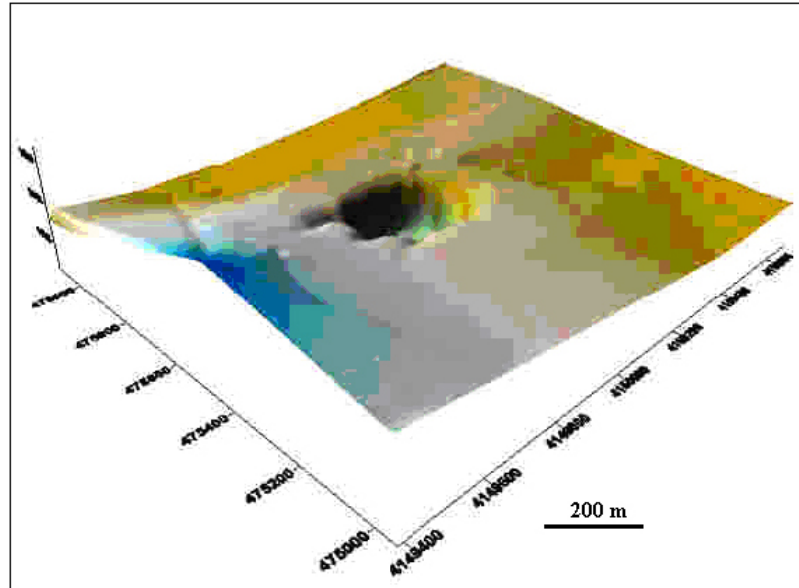
**Conclusions**

Available cadastre maps are insufficient for Tourism Plan Information System studies. These maps should be updated or combined with topographic maps.



**Figure 6.** Updating of Property maps with Topographic Maps

In these studies, 5 number 1/1000 scaled topographic maps have been produced (125 ha) and 2 number 1/5000 scaled Topographic map have been digitized. Cadastral maps in NetCAD form have been combined with topographic maps and required database has been establish for Tourism Plan Information System. Three dimension visual of Obruk Lake and it's around has been given as well (Figure 7).



**Figure 7.** Three Dimension Visual of Obruk Lake and It's around

According to the project data, required other activities for Tourism Plan Information System (searching tourism reconstructive plan, analyzing water, three dimension photogrammetric designed and geological examine *etc.*) can be projected.

Obruk Lake has been visited by tourists who come to Konya and Antalya. However, there are no complexes such as rest, recreation, accommodation facilities for tourists in this region. This study will be base of these facilities. Therefore, touristic attractiveness will be high, and enable much more economical and cultural contributions to this region.

In order to offer Obruk Lake to native and foreign tourism, Obruk Lake Information System is following;

1. General Information

- Historical account
- Communication
- Stay for a short time
- Climate features
- Traditions
- Festivals
- Albums

2. Geologic Examinations

3. Water Analyses

- Developing fishing

4. The Underwater Network of Obruk Lake

- Running waters
- Lakes

5. Tourism Plans

- Relaxing foundations (hotel, sport ground,)
- Near foundation to touristic places
- Settlement network of roads.
- Topographic position

- Cadastral position
- Land use plans
- Developing village settlement districts
- Three dimension design by photogrammetric method
- Economic contribution

6. Offering Tourism Information System to Internet Explorer

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