

**1. Name and address of the compiler of this form:**

Selim ERDOGAN (Hydrogeological Engineer, M.Sc)

Ministry of Environment & Forestry., General Directorate of Nature Conservation & National Parks., Wetlands Division

Address: Çevre ve Orman Bakanlığı, İstanbul Caddesi No: 98

Phone: 0090 312 3840510 / 3021

Fax: 0090 312 3842476

Email: cigiltepe@gmail.com

**2. Date this sheet was completed/updated**

01.02.2006

**3. Country:**

Republic of Turkey

**4. Name of the Ramsar Site**

Meke Maar

**5. Map of Site included**

A site map of 1:25 000 scale and providing the characteristics indicated in the Annex III of this guideline is included in this package.

a) **Hard Copy:** YES

b) **Digital (electronic) Format:** YES

**6. Geographical Coordinates:**

33<sup>0</sup>38'28" E., 37<sup>0</sup>41'10" N

**7. General Location:**

Turkey is separated into 82 administrative districts. As regards area extension, Konya is the largest district of Turkey. It's also the 4<sup>th</sup> biggest city with approximately 2 million habitants. Meke Maar is situated in Konya district. The distance of it to the center of the city is approximately 101 km (towards the south of the district). The subdivision in which the Meke Maar is located, is Karapınar and it's 8 km far from the site.

**8. Elevation:**

1004 m (minimum – the elevation of the plain on which the maar is situated)

1280 m (maximum – the elevation of the crater of the volcano)

**9. Area:**

202 hectares

**10. Overview:**

Meke Maar is a volcanic system which contains typically a volcanic rock mass and a crater lake up above. However the system differs from other volcanic systems with its caldera lake surrounding the volcanic mass (See pictures in Annex 2).

The water of the caldera and the crater is typically acidic. That's why it doesn't permit to any aquatic life in and around it. However in humid periods during which the precipitation is high, the concentration turns to be neutralized (to a certain degree) and some non-significant waterfowl colonies can be seen there. Some species that one can see are Northern Wheatear, Mallard, Marsh Harrier, Coot, Black – winged Stilt, Lapwing, Ruddy Shelduck, Teal, Redshank.

Around the site a typical step flora can be observed. As regards the vegetation cover, the plain on which the Meke Maar is situated (Karapınar Plain) is very important. It contains a lot of IPA and Bern Convention species.

## 11. Ramsar Criteria

1	2	3	4	5	6	7	8
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## 12. Justification for the application of each Criterion listed in 11. above

### Criterion 1

Meke Maar is a complex ecosystem which can be identified as “Permanent Brackish Lake” with Ramsar’s “Q” code. It is designated as a Ramsar Site according to Criterion 1.

In Anatolia, there are several volcanoes with beautiful crater lakes. It’s also quite common elsewhere. However it’s rare to see a system containing three element of a “model” volcanic system. Generally volcanic rock masses and crater lakes disappear right after the caldera formation and the system turns to be a unique lake which can be identified sometimes as caldera or as Crater Lake. Or this caldera never occurs. In Meke Maar example, these three elements form a wonderful landscape.

In aerial photos, Meke Maar presents a natural picture of an “eye”. Eyes are ceramic blue beads; they are used against the evil eye and for good luck. That’s why it’s called as “Anatolia’s eye”. This is a common cultural belief.

### Criterion 2:

<i>Allium sieheanum</i> ,	endemic, globally threatened
<i>A. Vuralii</i> ,	endemic, Bern Convention Annex I liste
<i>Astragalus cicerellus</i> ,	endemic, globally threatened
<i>Gladiolus halophilus</i> ,	endemic, globally threatened
<i>Lepidium caespitosum</i> ,	endemic, globally threatened
<i>Limonium lilacinum</i> ,	endemic, globally threatened
<i>Sphaerophysa kotschyana</i> ,	endemic, Bern Convention Annex I liste
<i>Verbascum pyroliforme</i>	endemic, globally threatened

This existence of the following species, which are listed in Annex I of the Council Directive on Birds, makes this site globally important as regards ornithological values: Marsh Harrier (*Circus aeruginosus*), Black – winged Stilt (*Himantopus himantopus*) as well as *Otis tarda* (Great Bustard) and *Tetrax tetrax* (Little Bustard).

### Criterion 3:

The site supports an unique biological diversity, which includes several endemic species such as *Acantholimon halophilum*, *Allium sieheanum*, *A. Vuralii*, *Astragalus cicerellus*, *Gladiolus halophilus*, *Lepidium caespitosum*, *Limonium lilacinum*, *Sphaerophysa kotschyana*, *Verbascum pyroliforme*.

## 13. Biogeography

### a) biogeographic region:

Mediterranean Xeric Continental (Bioclimate), Lower Dry Lower Supramediterranean (Bioclimatic Zone)

Anatolian Region (Council Directive 92/43/EEC)

It represents Iran – Touran Biogeographical Region's characteristics with temperate grasslands (steppes) and semiarid – arid climate.

**b) biogeographic regionalisation scheme:**

Council Directive 92/43/EEC

<http://www.runet.edu/~swoodwar/CLASSES/GEOG235/biomes/main.html/#tabcont>

Kılıç, T., Eken, G., Turkey's Important Bird Areas 2004 Update., Doğa Derneği, Birdlife Int., 2004

**14. Physical features of the site**

At the end of Pleistocene age, following a volcanic eruption, the initial volcano was formed and like other caldera formations, this volcano disappeared in the caldera lake. Then a secondary eruption occurred and the volcanic mass outcropped in the caldera with its own crater lake. What is interesting is that the soil cover is somehow permeable that this monument has not been eroded during all these centuries.

Meke Maar is situated in the southern part of the Konya Closed Basin. Until Miocene age of geological times, this basin was a freshwater lake of 25 m depth. Following Miocene climatic changes, the media turned to be semiarid and this huge wetland disappeared. Relict parts of it are represented by several small shallow lakes such as Tersakan, Bolluk, Kulu etc.. That's why now the main geomorphology is a totally flat plain. The main geological unit is neogene limestone. As this region was not affected from major tectonic movements, sedimentary strata are horizontal. However the existence of some volcanic intrusions increased the H<sub>2</sub>CO<sub>3</sub> concentration of the groundwater and accelerated the unusual karstification in the area. Thus the main physical units are some karstic collapses (obrouks), 7 small volcanoes and the steppes plain which seems like endless.

Hydrogeological units around the site are neogene karst aquifers and the alluvial cover. Related to the drought and the past over-usages, groundwater level of the alluvial unconfined aquifers decreased significantly. That's why actually there's no exploitation in this unit. For agricultural purposes (irrigation etc.) and other human originated usage, the groundwater obtained from the karstic aquifers by deep wells is being used.

**15. Physical features of the catchment area**

Main geomorphological elements and the lithology of the basin are the same with the vicinity of the site. Except this similarity, in different parts of the Konya Closed Basin, some shallow lakes (relict ponds of the Miocene lake) can be seen. The altitude of the basin varies between 950 m and 1100 m.

For large human settlements (Konya, Çumra, Ereğli, etc), small stream waters on which small dams (Altınapa, Apa, May, etc..) have been installed are being used. The majority of these small streams are temporary and one can say that the fluvial regime in the basin is negligible. The main water movement is the karstic groundwater flux towards the eastern boundary of the basin (Tuz Gölü – Salt Lake) and it forms the main discharge unit.

**16. Hydrological Values**

The main hydrological function of the Meke Maar can be the climate stabilisation. The overall climatic conditions in the basin are generally dry, semiarid – arid and steppes. However around wetlands such as Meke Maar, Kulu, Tersakan, Kozanlı lakes and obrouks, the climatic conditions are somehow suitable for human wellbeing. Other values are landscape, cultural and socio-economic functioning.

## 17. Wetland types

### a) presence

Meke Maar system consists of a Caldera lake (permanent brackish lake – Q) and a crater lake of same characteristics.

Coastal:

A	B	C	D	E	F	G	H	I	J	K	Zk(a)
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Inland:

L	M	N	O	P	Q	R	Sp	Ss	Tp	Ts	U	Va	Vt	w	Xf	Xp	Y	Zg	ZK(B)
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Human – made:

1	2	3	4	5	6	7	8	9	Zk(c)
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### b) dominance:

Caldera lake: permanent brackish lake – Q – 46,25 hectares

Crater lake: permanent brackish lake – Q – 0,2 hectares

The other 155,55 hectares are not wetlands.

## 18. General ecological features

Within the Ramsar site, the dominant vegetation cover is mainly formed by steppes plants, resistant to arid climatic condition and which can survive even if the chemical content of the soil is calcium carbonate dominant. These are *Frankenia hirsuta*, *Lepidium cartilagineum ssp. Crassifolium*, *Panderia pilosa* and *Suaeda altissima*. On the other hand there is 9 globally threatened (and also endemic) taxon making this site globally important; *Acantholimon halophilum*, *Allium sieheanum*, *A. Vuralii*, *Astragalus cicerellus*, *Gladiolus halophilus*, *Lepidium caespitosum*, *Limonium lilacinum*, *Sphaerophysa kotschyana*, *verbascum pyroliforme* (Important Plant Areas of Turkey., 2003., WWF Turkey).

## 19. Noteworthy flora:

The site contains 9 globally threatened plant species (including 2 species of Bern Convention Annex I). These are;

*Acantholimon halophilum*, endemic

*Allium sieheanum*, endemic, globally threatened

*A. Vuralii*, endemic, Bern Convention Annex I liste

*Astragalus cicerellus*, endemic, globally threatened

*Gladiolus halophilus*, endemic, globally threatened

*Lepidium caespitosum*, endemic, globally threatened

*Limonium lilacinum*, endemic, globally threatened

*Sphaerophysa kotschyana*, endemic, Bern Convention Annex I liste

*Verbascum pyroliforme* endemic, globally threatened

## 20. Noteworthy fauna:

In the nearest proximity of the Ramsar site, *Otis tarda* (Great Bustard) and *Tetrax tetrax* (Little Bustard) are told to be observed. Infact, the entire plain is one of the last surviving area of these

species. This existence makes this site globally important as regards ornithological values. Besides, Northern Wheatear (*Oenanthe oenanthe*), Mallard (*Anas platyrhynchos*), Marsh Harrier (*Circus aeruginosus*), Coot (*Fulica atra*), Black – winged Stilt (*Himantopus himantopus*), Lapwing (*Vanellus vanellus*), Ruddy Shelduck (*Tadorna ferruginea*), Teal (*Anas crecca*), Redshank (*Tringa totanus*) are species that anyone can watch there irregularly.

## **21. Social and cultural values**

The site doesn't have any archaeological, religious or economical functions. However as it was mentioned above, not only in the local level but also nationally Meke Maar is known as "the eye of Anatolia". It's a common cultural belief and according to aerial photos this description is quite reasonable. People come to see it from all around Turkey, it means that Meke Maar has a significant eco-tourism potential.

On the other hand, a part of the annual festivals of Karapınar is being organized around the site. In the framework of these ceremonies, swimming contests and some other local activities are being realized. Another cultural value of the site is that the local people believe that the caldera lake has a healing effect for some diseases such as psoriasis and rheumatism.

## **22. Land tenure / ownership:**

(a) Within the Ramsar site:

The entire Ramsar site is governmental lands, there's no private property.

(b) in the surroundings/catchment:

In the surrounding area, there are cultivated private properties and also governmental steppes lands.

## **23. Current land (including water) use:**

(a) Within the Ramsar site:

The entire Ramsar site is abandoned and is not being used for any purpose.

(b) in the surroundings/catchment:

There are deep groundwater wells around the area and they're being used for irrigation. Because of their hydrochemical characteristics, surface waters cannot be used for irrigation. The agricultural pattern is mostly wheat which doesn't require huge amounts of water.

## **24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:**

(a) Within the Ramsar site:

As regards demographical density, the area on which the Ramsar site is situated is one of the weakest places in Turkey. That's why there's no significant pressure on it. The local people consider the site as a recreational place where they can organize local festivals and some other cultural events.

(b) in the surroundings/catchment:

In the surroundings, as it's seen in entire Konya Closed Basin (or let's say Central Anatolia), a geohydrological problem is very obvious. The hydrologically dry period continued longer than ever (8 years), the farmers used groundwater more than they should do and an unexpected human made disaster (the climate change) occurred. Then the groundwater

levels of the unconfined aquifer overlaying the basin decreased significantly. Now only the water of the confined karstic aquifer can be used for irrigational purposes.

### **25. Conservation measures taken**

The area containing the maar system was declared as “Natural Monument” by Ministry of Environment & Forestry and “Natural SIT of 1<sup>st</sup> Degree” by Ministry of Culture & Tourism in September 09<sup>th</sup>., 1998. With this protection status, all activities (except educational and scientific activities) were restricted. The Ramsar boundary is larger than these boundaries and they're included in it.

### **26. Conservation measures proposed but not yet implemented**

Actually no plan has been developed for the future. The reason of this application is that, there is no any land use scheme in the area. These protection status are enough to organize existing and future interests and improve conservation - wise use of Meke Maar.

### **27. Current scientific research and facilities**

The basis of all scientific knowledge was established by different scientists. On the other hand, a local university (University of Selcuk, Konya) is currently implementing research activities on different disciplines (geology, hydrogeology, biology, chemistry, etc.). Also, the area is regularly being observed by ornithologists and bird watching groups.

### **28. Current conservation education**

Following the designation of Meke Maar as a Ramsar Site, relevant educational and tourist guides and materials will be prepared. A visitor center is not planned to be established, because no one wants to disturb the virginity of the site, even with a visitor center. The site will be promoted to primary schools in order to be included in their annual field trip schedule.

### **29. Current recreation and tourism**

As it was mentioned above, regularly a festival is being celebrated each year in the surrounding area. As regards this festival, the site is very important. Instead of this, the site is known as “the eye of Anatolia” and this belief brings a lot of visitor to the area. Following the declaration of this location as Ramsar site, some indicators and arrows will be installed on main routes in the area and it's obvious that the number of these visitors will be increased.

### **30. Jurisdiction**

The area is under responsibility of different authorities;

The Ministry of Environment & Forestry (Department of National Parks) is responsible because of the “Natural Monument” status

The Ministry of Environment & Forestry (Department of Nature Conservation) is responsible because of the “Ramsar Site” status

The Ministry of Culture & Tourism is responsible because of “Natural SIT area of 1<sup>st</sup> Degree” status

However the National Wetlands Committee (the uppermost decision making mechanism on wetlands) is the main responsible and it also provides the coordination among these authorities. The Governor of Konya District implements the legislation with the name of these authorities.

### 31. Management authority

- Ministry of Environment & Forestry, General Directorate of Nature Conservation and National Parks, Wetlands Division: Nilda Ozen ERGUR (Agricultural Engineer, M.Sc), Istanbul Cad. No:98, Iskitler Ankara TURKEY, Tel: 0090 312 3840510, Fax: 0090 312 3842476., email: [nildaergur@cevreorman.gov.tr](mailto:nildaergur@cevreorman.gov.tr)
- Provincial Directorate of Environment & Forestry of Konya., Konya Çevre ve Orman Müdürlüğü., Meram Eski Yol No:4., Tel: 0090 332 3226872., Fax: 0090 332 3216171., email: [ilcevre@konyacevre.gov.tr](mailto:ilcevre@konyacevre.gov.tr)

### 32. Bibliographical references

- Yaşar, S. et al., 2003., Konya İlinin Sulak Alanları., Konya İl Çevre ve Orman Müdürlüğü Yayınları, Yayın No : 10., pp. 54 – 55.
- Kılıç, T., Eken, G., Turkey's Important Bird Areas 2004 Update., Doğa Derneği, Birdlife Int., 2004
- Yarar, M., Magnin, G., 1997., Important Bird Areas of Turkey., Turkish Association for Conservation of Nature., pp. 186 – 189.
- Gunay, G. et al., 1995., Karst Waters and Environmental Impacts., Guide Book., International Research and Application Center for Karst Water Resources., pp. 58 – 60.
- Erdoğan, S., 2003., Conservation of the Cave Ecosystem and Cave Use in Turkey., Symposium I., Editor: Albayrak, I. pp. 21 – 32.