ResearchGate

See discussions, stats, and author profiles for this publication at: https://www.researchgate.net/publication/237653860

Ecological concerns over cemeteries

Article *in* African Journal of Agricultural Research · December 2009

CITATIONS
9

READS
3,691

3 authors, including:



Aysel Uslu
Ankara University
40 PUBLICATIONS **296** CITATIONS

SEE PROFILE

All content following this page was uploaded by Aysel Uslu on 01 April 2014.

The user has requested enhancement of the downloaded file.

African Journal of Agricultural Research Vol. 4 (13), pp. 1505-1511, December 2009 Special Review
Available online at http://www.academicjournals.org/AJAR
ISSN 1991-637X © 2009 Academic Journals

Standard Review

Ecological concerns over cemeteries

Aysel Uslu *, Emin Bariş and Elmas Erdoğan

Ankara University Agriculture Faculty Department of Landscape Architecture, Dişkapi Ankara, Turkey.

Accepted 22 October, 2009

Both developed and developing countries are living a disturbing period because of growing population, rapid urbanization and environmental degradation in their urban and also rural areas. So that , the new approaches and terms in the field of daily life, which will be the solution of environmental problems are getting priority in the agenda of planners, managers and designers of cities. Many similar terms such as "green movement", ecological approaches", "sustainable development" and "green urbanization" play an increasingly important role in the purpose of minimizing environmental degradation in different areas. Cemeteries are the probably the most interesting areas in this context. Cemeteries as the inevitable form of land use in cities, should have be planned, managed, design and maintained with ecological approaches in order to protect environment and create livable spaces. Ecological concerns to cemetery areas include the type of inhume, selection of burial area, the type of soil, cemetery landscape design (selection of plant species etc.) and maintenance of cemetery landscape (such as weed control, fertilization) after planning and design process. This paper intends to emphasize and explains these considerations and their importance in the cities as healthy urban habitats. It also gives some samples of eco-cemetery, which have less pollutant. The study especially gives cemetery issues from different religions and cultures, discusses ecological sensitivity for cemeteries.

Key words: Eco-cemetery, ecological sensitivity, environment problems, green burial, urban planning.

INTRODUCTION

The main functions of cemeteries are:

i. Place of deposit and transformation of the dead bodies without dangers for the public health.
ii. Place of visit for those people wanting to remember a dead person and at the same time a symbol of the historical memory of a collectivity (Fogli, 2004).

In addition, cemeteries have different meaning and different study domain for many disciplines. For example, cemeteries have different meanings for historians or ecologists. An ecologist considers an old cemetery as an important habitat for lichens.Ecologists see the gravestones as a prime location for lichens and so advocate that stones should not be cleaned (Rugg and Dunk, 1994).

Cemeteries have religious, symbolic, philosophical and artistic meanings for disciplines like theology, history of art and anthropology and they are gaining importance as "ecological reserve areas" or potential green areas for branches of science dealing with urban planning or ecology (Fogli, 2004). Cemeteries which have many functions including mainly religious, ecological and folkloric tasks have an important place among green areas which are decreasing day by day especially in cities (Uslu and Hasgüler, 2006). Cemeteries which were formerly out of the cities have, in the course of time, remained within urban settlement areas and have become entangled with inhabited areas. These areas within and in the vicinity of urban areas constitute organic links connecting urban green areas and ecological corridors. These areas when taken up in all respects constitute an indispensable use for urban settlements. Planners, cemetery managers and citizens feeling more responsibility for their environment are bringing into agenda ecological cemeteries which accommodate more sensitive approaches to the environment with respect to burial areas. Ecological considerations are strongly needed in the subject of the planning, design and management of cemeteries.

*Corresponding author. E-mail: uslu@agri.ankara.edu.tr.

Table 1. Elemental composition of a human body based on a standard or reference man of 70 kg. Body (Fogli, 2004).

Element	Mass (g)
Oxygen	43000
Carbon	16000
Hydrogen	7000
Nitrogen	1800
Calcium	1100
Phosphorus	500
Sulfur	140
Potassium	140
Sodium	100
Chlorine	95
Magnesium	19
Iron	4.2
Copper	0.07
Lead	012
Cadmium	0.05
Nickel	0.01
Uranium	0.00009
Total body mass	70000

CEMETERY AND ENVIRONMENT RELATIONS

A living body becomes a medium on which many morbid factors can easily produce after death; therefore, corpses and living people must be held in separate places. Beginning from very old days, reservation of corpses has taken its form from geographical conditions, climate, religious beliefs, traditional and social behaviors, health concern and urban conditions.

Corpses remaining outside begin to decompose, produce microbes and stink in a certain period. 34 to 36 h after death, soft parts of the body begin to decompose under the effects of anaerobic bacteria and some digesting enzymes found in the body. Some gases produced during decomposition spread around. These gases include indol, skatol, hydrogen sulphure and various carbon compounds. This phase takes about 3 to 4 months. After this phase, effects of aerobic microorganisms begin. The effects of these microorganisms depend on characteristics of the soil, rate of humidity, the amount of oxygen in the soil and some internal and external factors mentioned below. Also bugs and worms in the soil accelerate the decomposition. In graves with wet bases sero-adipose changes occur and the corpse can remain for a long time without decomposing. The same effect can occur also when the corpse remains under water (Güler and Çobanoğlu, 1996; Fogli, 2004).

Depending on the form of burial and the subsequent practices at the cemeteries, the burial areas can become areas threatening the environment, polluting underground water and creating negative effects on fauna and flora. In fact, cemeteries are very special ecological areas because of the fauna and the flora they shelter. Contrary to other forms of urban land use, they cannot be easily converted to places with different functions because of their religious and philosophical meanings even where urban profitability is high.

Choosing a place with suitable characteristics and big enough for a cemetery is the most important environmental issue. In determining the size of the cemetery, demographic data including projected population growth and death as well as the size of an area necessary for a burial place are taken into account. The need for a bigger burial place increasing parallel to the population growth is the most important problem.

The ground of the cemetery must be water permeable and there must be enough microorganic activity in the soil. Very loose or rocky and very hard grounds are not suitable for a cemetery. The characteristics of the ground are important for digging the graves and decomposition of the corpse. The cemeteries must also be away from underground water basins and potable water resources. To this end, andesite grounds without soil must be avoided. In such grounds the corpse must be easily decomposed and transformed. The slope must be between 0 to 10%. As a general rule, places with more than 15% slopes must not be chosen for cemeteries. Decomposition of the corpse may take longer in soil looking northwards; therefore, areas looking southwards must be chosen (Özkan et al., 1996). Flat grounds are also unsuitable as burial places since they may create drainage problems. Places so slopy as to require excavation and filling must also be avoided.

The decomposition of the dead bodies create potential polluting chemists, in which carbon, ammonia, chloride, sulfates, sodium and potassium based elements prevail. Table 1 gives elemental composition of a human body. Also Table 2 points out the potential releases of a human body weighting 70 kg buried with inhumation, during ten years of burial ground.

THE FACTORS INFLUENCING THE PROCESS TRANSFORMATION OF THE DEAD BODY

Factors directly or indirectly affecting the process of decomposition and transformation are directly related to environmental issues in planning and management of cemeteries. These factors are as follow (Fogli, 2004);

External factors influencing the transformation of the dead body

i. Characteristics of the soils, particularly the microbiological and physic ones (that is, texture, structure, porosity and correct airing).
ii. pH: conditions of neutral pH are the ideal for the process of decomposition.
iii. Depth of burial, that engraves both for the oxygenation

Table 2. Example annual potential releases from a single human burial (Fogli, 2004).

Year	Potential mass releases (g)					
	C	NH4	P	SO4	Cd	Ni
1	6000.0	870.0	250.0	210.0	0.01875	0.00375
2	3000.0	435.0	125.0	105.0	0.009	0.002
3	1500.0	217.5	62.5	52.5	0.005	0.001
4	750.0	108.0	31.3	26.3	0.002	0.000
5	375.0	54.4	15.6	13.1	0.001	0.000
6	187.5	27.2	7.8	6.6	0.000	0.000
7	93.8	13.6	3.9	3.3	0.000	0.000
8	46.9	6.8	2.0	1.6	0.000	0.000
9	23.4	3.4	0.98	0.82	0.000	0.000
10	11.7	1.7	0.49	0.41	0.000	0.000

and for the access of vertebrates and invertebrates that can act on the body.
iv. Degree of humidity of the soils; that engraves worsening the conditions of transformation, if the humidity is high.
v. Seasonal course of the ground waters (seasonal vertical oscillations, them directions of motion).
vi. Climatic characteristics.
vii. Characteristics of the materials with the coffin is built or painted with (that is, lumber's type, wood-shaving, MDF, varnishes).
viii. Presence in some cases of an internal metallic coffin (that is, generally made of zinc).
ix. Mortuary linings insides the coffin (that is, pillows, fabrics, etc. in synthetic material).
x. Garments of the deceased, more frequently in artificial material).
xi. Inhumation or placing in aired or watertight niche.

Internal factors influencing the transformation of the dead body

i. Dead body features which eliminate a main "entry" of beginning of the bacterial process typical of the decomposition (for example emptying of the dead body autopsy).
ii. Conservative processes as the embalming, that needs the injection of a certain quantity of formaldehyde-base compounds, powerful inhibiting of the bacterial activity.
iii. Medicines- or in general medical cares- that can surely influence on bacterial activity (antibiotic, chemotropic, etc.).
iv. Interactions among the dead body with the produced cadaverous liquids from a side and the zinc case and the internal linings from the other, with transformations undesired in the organic tissue and / or formation of intermediary compounds that slow down or prevent the regular decomposition.

There are several environmental problems related with cemeteries:

i. The possibility of contamination of the ground waters.
ii. The contamination of the soils of inhumation.
iii. Visit of the cemetery-goers, they produce traffic and consequently noise- emissions atmosphere connected to the going to the cemetery with mean of locomotion (Fogli, 2004).

In order to reduce the effects of the possible pollution of the ground waters, the fields chosen for realizing cemeteries are those with particular characteristics and the soil and ground water, at a certain distance from the plan of lying of the coffin. This minimal value changes among the countries (30 cm in The Netherlands, 50 cm in Italy, 70 cm in Great Britain).

CEMETERY AND RELIGION RELATIONS

The form of burial is the most important factor in formation of cemeteries. Such forms are determined, in great part, by religous rules and directives (Özdemir, 2003). Generally, the corpses are cremated according to the methods as allowed or prohibited by the religions, or directly buried under the ground in coffins or without coffins (as is the case in Islamic cemeteries).

In history, different motives (either religion, shortage of land, traditions, or customs etc.) have led the communities to use different techniques like cremation, burial under the ground directly or after embalming, leaving the deceased in the nature etc. for reserving the deceased in places out of inhabited areas. In early ages, some communities used to bury the deceased inside their dwelling. Regular cemeteries built in inhabited areas date back to antique period.

Religion provides important tenets for social attitudes and protective approaches of the communities towards the environment. Therefore, relation of religion and environment has become an important subject of research. It is claimed that attitudes of different religions all over the

World with respect to environment are important instruments in solving the environmental problems. Attitudes and views of the religion with respect to cosmos and environment determine, in a sense, the shape of the cemeteries, as well as the form and ceremonies of burial.

There has been striking growth in monographs and journal articles, books in the area of religion and ecology. Especially, religion and the environment relations have been major concern of these studies (Barnhill and Gottlieb, 2001; Denny, 1998; Denny et al., 2003; Foltz et al., 2003; Fltz, 2006; Gottlieb et al., 2006; Hessel and Ruether, 2000; Özdemir, 2003; Tucker and Williams, 1997).

Each religion has a different tenor. Whereas one is largely ethical and practical, the other is largely spiritual and symbolic. Cemetery term is from the Greek for "sleeping place" (Walter, 1993). It is as though the body is not so much buried, as sleeping, lying in state. There is strong correlation in the West between burial and Catholicism- with Catholic France, Ireland and Italy at the bottom of the European cremation league (Walter, 1993).

According to Islamic burial the deceased is taken for burial (*al-dafin).* The style of the grave and that of the burial may vary from place to place due to different methodologies surrounding funeral procedures. The Islamic directive is restricted to respectful burial ground.

It is requested not to construct buildings over the graves and not to harm the trees and plants in the cemeteries (even if they are wild-grown plants). Islam requires respect to graves and recommends cemeteries with rich vegetation. When Islamic cemeteries are looked at from this point of view, their vegetal richness attracts our attention. In Islamic cemeteries there are many trees, especially *Cupressus s. (cypress)*, bushes and flowers in addition to naturally growing species (Keleş, 2007). Because of its form and aromatic properties cypress can be found in cemeteries of different religions.

According to Islam, the deceased must be directly buried to allow rapid decomposition and transformation. Though, there is no clear provision in the Holy Qoran, Islam requires avoiding from construction of ornamented and eye-catching graves. In main Islamic jurisprudence books, the rules of burying the corpse and building the graves are specified. According to these rules, the corpse is put in the grave in the direction of Qiblah and then covered with adobe or straw whereafter the grave is filled with soil. It is advisable to cover the grave with materials like rocks, wood etc. or to build a tomb using rectangular adobes, lime and wood. The tomb must not be higher than a hand-span off the ground (Karamagaralı, 1992).

In the cemeteries of our modern cities, an Islamic grave is a walled tomb sunk in the ground about 200 cm long, 80 cm wide and 100 cm deep. The cover of the tomb is 80 cm long, 40 cm wide and 10 cm thick. Total excavated soil is 1.6 m^3, the amount of concrete is 0.878 m^3. The amount of soil put in the tomb after burial is 0.9 m^3 and about 50 cm thick. The gravestone is placed in this soil. No pesticide or insecticide is used on the soil. However, the street trees and green areas in the cemeteries are treated with such chemicals (M. Yaman, Ankara Municipality, Ankara, Turkey, personal communication).

In Islamic religion, the grave itself should be aligned perpendicular to the Qiblah (that is, towards *Mecca*). The wrapped body is placed directly into the ground, without a casket. Grave should be raised up to maximum of twelve inches above ground. Grave markers are simple, because outwardly lavish displays are discouraged in Islam. Many times graves may even be unmarked, or marked only a simple wreath. However, it is becoming more common for family members to erect grave monuments nowadays trend.

The direction of Qiblah is a determining factor in designing the cemetery and preparing the lot, parcel and circulation system (because the shorter sides of the graves are in the direction of Qiblah) (Özkan et al., 1996).

According to Islamic vision dead body must be buried directly to the ground (soil) without a casket. This is the main reason dead body must be decomposed to the soil as soon as earlier.

In Christianity, the deceased can be directly buried under the ground in a coffin, or be cremated. The choice of the method of burial depends on the individuals, beliefs, and economic factors (Walter, 1993). However, in countries where chemical treatments like embalming or burial in a coffin are widely used, the concept of *"eco-cemeteries"* are now on the agenda because of the negative impacts of the said methods on the environment.

Eco-cemetery concept and samples

Rapid urbanization and environmental concerns have necessitated new approaches to the cemeteries, too. "Eco-cemeteries" or so-called "green burial" or "natural burial" concept has begun coming forth especially in the West. This is an approach supporting environmental transformation taking place in the ecological cycle. Eco-cemetery represents the idea of rapid return of the corpses to the nature and non-polluting burial methods and cemetery planning.

Eco-cemetery is an approach to mainly burial methods envisaging environmental sustainability and recycling in natural ways. It proposes new methods to decrease the amount of wood, steel or other metals used in making coffins and to prevent pollution of the environment with chemical treatments of the corpse during burial. It also encourages protection of the natural landscape as well as the fauna and the flora at the time of planning the cemetery and choosing its location.

Eco-cemeteries, also called natural burial, green burial sites preserve often uses grave makers that do not intrude on the landscape. Graves are marked with markers native to the landscape like trees, shrubs, or flat

stones. In some cases, graves are unmarked and the plots are identified by surveying techniques like a GIS (Geographic Information System).

The main purpose of eco-cemeteries is to decrease the negative impacts of the cemeteries on the underground water, natural vegetation and fauna existing in the burial area, to use materials biodegrading more rapidly and to minimize the ecological footprint of the individual. Ecological footprint implies the trace created by the individual on the planet while using natural resources like soil, water, forest etc. that the individual uses to meet his/her food, dwelling and energy requirements. The size of the ecological footprint shows the size of the damage to the nature (Wackernagel and Rees, 1996). Issues of choosing the location of the cemetery, forms of burial, construction of the tomb and structural and vegetal design are taken up under eco-cemeteries approach, which aims at minimizing the ecological footprint.

The environmental impacts created by cremation or by burial under the ground in a coffin, are the main reasons of the emergence of eco-cemetery concept. For example, the materials used each year in the United States for burying more than 2.5 million persons in 22.500 cemeteries are given below.

i. 30 million board feet (70.000 m^3) of hardwood caskets.
ii. 90.272 ton vaults (for caskets).
iii. 14.000 ton vaults (for graves).
iv. 2.700 ton copper and bronze (for caskets).
v. 1.636.000 concrete (for graves).
vi. 872.060 gallon (1 gallon = 3.78 lt.) of embalming fluid, which most commonly includes formaldehyde is using.

Formaldehyde, the primary ingredients in embalming fluids and a potential carcinogen (on the European Union's list for possible banning) is another concern. Formaldehyde is a flammable reactive gas belonging to the VOC (Volatile organic compound) family of chemicals. Ingestion of the chemical can cause several physical reactions including coma, internal bleeding and death. Embalming fluid chemically changes in the act of preserving the body and is not largely present as a fluid (Anonymous- a, 2009).

It is reported that the formaldehyde used for embalming gets oxidized and converts to formic acid and is released to the atmosphere. Moreover, it is claimed that too much energy is spent for cremation and that this method is not ecological. Instead of these burial methods, eco-cemeteries are recommended as a method where cancer-causing materials and energy are not used. In eco-cemeteries, if burial is to be made in a coffin, recyclable materials like cardboard etc. are preferred instead of conventional coffins.

The modern concept of natural burial began in UK (Carliste Cemetery) in 1993 and has since spread across the globe. A natural burial is a conservation tool to create, restore and protect urban green spaces (Anonymous-c, 2009). The first eco-cemetery in the United States was established in 1998 with Ramsey Creek Cemetery (Anonymous-b, 2009). In fact, the beginning of construction of rural cemeteries and the tradition of burying the corpse in a natural landscape began in 1803 with Pere-Lachaise cemetery in Paris and continued with Mount Aubern Cemetery established in 1831 in Massachusetts in the US (Walter, 1993). When Mount Aubern Cemetery was being planned, a new master plan in line with the conditions of the age was prepared by a design group comprising many specialists from different disciplines including architects, urban planners, hydrogeologists, graphic designers, landscape architects and wild-life biologists. The cemetery stands out with its landscape and biodiversity.Trees and benches are used as memorials in Mount Auburn Cemetery Master Plan (Trulove, 1993).

There are several hundred natural burial grounds in the UK and half a dozen sites across the USA with other eco-cemeteries planned in Canada, New Zeland, South Africa and even China (Anonymous-c, 2009). The approach of not embalming the corpse, using biodegradable materials for coffin and protecting the biodiversity of the burial area is becoming an issue with priority (Anonymous- a, 2009; Harris, 2007). In Fernwood Cemetery as another natural burial cemetery, natural rocks, wildflowers, shrubs are the most dominant design elements. Trees has been used as markers of each grave, also each grave is locatable via GPS (Global Positioning System).

The eco-cemetery idea advocates that cremation method, too, is polluting and that the energy used for cremation releases pollutants to the atmosphere. Importance is given to the species present in the natural vegetation since they provide a habitat (sheltering and food) for birds and other animals (2).

In some eco-cemeteries no grave stones are used and the graves situated in a natural landscape are located by means of the coordinates pre-loaded to GPS devices given to the visitors. In another eco-cemetery (Spring Vale Cemetery, La Fayette) there are about 200 environmentally friendly graves. Again, in some other eco-cemeteries graves located in natural landscape are indicated just by metal sheets. The visitors can locate the graves of their relatives by means of metal detectors provided by the management of the cemetery (Anonymous-b, 2009).

Bodies in eco-cemeteries are usually buried in a casket made of cardboard or wicker, or simply in a shroud. Cremation another relatively alternative to conventional burial, it has its own problems from an environmental perspective. It uses lot of energy to cremate body. Cremation dose use fuels and in of its self does not save land from development, nor protect or restore wildlife habitat.

Conclusion

As a special form of land use cemeteries must be dealt with together with environmental problems relevant to

choice of location, planning, design and management. Cemeteries must be considered public green areas and be planned and designed in collaboration with different disciplines. Characteristics of burial, as well as tomb construction and structural and vegetal design elements must be carefully taken up. Landscape peculiarities of the cemeteries and their relations with the environment must not be disregarded.

Old cemeteries must be protected along with new ones and their historical and symbolic meanings and ecological significance must be emphasized (Walter, 1993). Presence of habitats sheltering different species and efforts to protect corridors of wild life are the basis of environmentalist approach to cemeteries as ecological areas.

Ecological cemetery approach has emerged in the Western World because of the forms of burial. In Islamic grave traditions, there is an ecological conception coming from the very nature of burial (burying directly without a coffin, banning cremation, non-use of chemicals etc.). Despite that Islamic burial traditions and forms of burials include more ecological and less polluting elements, the problems at the cemeteries of big cities cannot be disregarded. Density, monumental tombs and dominance of exotic flowers can also be observed in these cemeteries. The cemeteries which are under the responsibility of the municipalities in Turkey are perceived as abandoned places for storing the corpses where structural density is high and ecological concerns are lacking. Nevertheless, in cemeteries of the big cities technological facilities like GIS are also used by the cemetery managements. As a matter of fact, three big urban cemeteries in Ankara have been equipped with kiosks serving as geographical information centers and provide information to visitors about the location of the graves. Data like identity of the deceased, date of death, etc. are entered into the system and information like the location of the grave, the shortest way of access from the point the visitor is standing etc. are presented to the visitors on monitors (Anonymous-d, 2009).

Islam is an ecological oriented religion (Foltz, 2006). Islam life style will" naturally" be environmentally sensitive, if only the distractions of selfish existence can be removed. On the other hand, some of the most severe environmental problems in the world today are found in countries where the majority of inhabitants are Muslim (Foltz, 2006). The majority of world's Muslims live in developing countries, where environmental problems are particularly severe and rapidly worsening.

Cemeteries are urban places which must be planned and managed as special ecological green areas with their fauna and flora. When taken up as recreational and green areas they will become important planning instruments for urban sustainability and (contrary to what is commonly feared) will be socially accepted because of their contribution to the green structure. Furthermore, sectors development of which depend on cemeteries (marblers, blacksmiths, nurseries, florists etc.) and car parks, access roads and communication roads to the city must also be planned taking into account ecological concerns.

In terms of protection of the environment, land selection criteria should be based on conservation science to protect and enhance biological and social value of cemetery area. It is vital that staff has to have conservation background in the cemetery management. Also natural landscaping and ecological considerations are very important to sustainability of cemetery. The burial function would be an important part of the sites' identity and sense of place, but not the overwhelming dominant identity in the eco-cemeteries. Nature, flora and fauna are also most part of the elements of natural burial areas. In addition to ecological concerns, using a natural burial sites is less expensive than burial in a conventional cemetery (Anonymous- c, 2009).

If cemeteries with such special importance are treated as areas where ecological concerns have priority as is the case in all fields of life with respect to planning, management and design, they will be important sources of making the cities healthy, aesthetic and livable places.

REFERENCES

Anonymous (2009a). Available at http://www.green burial council.org. Accessed 20 January, verified 11 June.

Anonymous (2009b). Available at http://www.memorialecosystems.com/conservationBurial/tabid/110/default.a accessed 28 December, verified 2 June.

Anonymous (2009c) available at http:// http:// natural burial.com accessed 7 November, verified 2 June.

Anonymous (2009d) available at http:// www.ankara.bel.tr/mebis/mebis.asp accessed 19 January 2009, verified 12 June.

Barnhill DL, Gottlieb RS (2001). Deep Ecology and World Religions: New essays on Sacred Ground, State University of New York Press, USA.

Denny FM (1998). Center for Respect of Life and Environment, Earth Ethics 10, No:1(Fall).

Denny FM, Foltz RC, Baharuddin A (2003). Islam and Ecology: A Bestowed Trust, Cambridge MA University of Harvard Press, USA.

Fogli D (2004). Techniques of decomposition of Bodies Adopted in Cemeteries and Their Relations with the Environment, available at http:// 6.71.151.103/effs/docs/shangai_ing.pdf accessed 20 January 2009, verified 13 May 2009.

Foltz CR, Denny FM, Baharuddin (2003). Islam and Ecology: A Besttowed Trust, Cambridge MA, University of Harvard Press.

Foltz CR (2006). Islam: The Oxford Handbook of Religion and Ecology (edited by Roger S. Gottlieb) Oxford University Press, USA, 228p.

Gottlieb RS (2006). The Oxford Handbook of Religion and Ecology. Oxford University Press, USA, 3p.

Güler Ç, Çobanoğlu Z (1996). Mezarlıklar Tesisi, Ölü Defin ve Nakil İşleri, Çevre sağlığı Temek Kaynak Dizisi, Cilt: 20, Ankara, s-2-16.

Harris M (2007). Grave Matters: A Journey the Modern Funeral Industry to A Natural Way of Burial, Skribner New York 38p.

Hessel DT, Ruether RR (2000). Christianity and Ecology: Seeking the well-Being of earth and Humans, University of Harvard Press, USA.

Karamağaralı B (1992). Ahlat Mezartaşları. T. C. Kültür Bakanlığı Yayınları /1394, Sanat Tarihi Dizisi/19, Türk Tarih Kurumu Basımevi, Ankara.

Keleş R (2007). Kentsel yeşil Doku Olarak Mezarlıklar, Bilgi Hazinesi.

Trulove GJ (1993). Planning and Urban Design: Honor, Mount Auburn Cemetery Master Plan

Özdemir I (2003). Towards on Understanding of Environmental Ethics

from Quaranic Perspective. Islam and Ecology: A Bestowed Trust, (edited by Richard C. Foltz, Frederick M. Denny, Azizan Baharuddin) University of Harvard Press, USA.
Özkan B, Küçükerbaş E, Kaplan A, Aslan N (1996). Açık- Yeşil alan Ve Rekreasyon Alanı Olarak Mezarlıkların Planlama ve Tasarımı Sorunları İle Çözüm Olanaklarının İzmir Kenti Örneğinde Araştırılması. Ege Üniversitesi Araştırma Fonu Araştırma Raporu, Proje No: 1994/006, Bornova, İzmir.
Tucker ME, Wiiliams DR (1997). Eds. Budhism and Ecology, University of Harvard Press, USA.
Uslu A, Hasgüler A (2006). Ölüler Kentinden Sağlıklı Kentlere Dönüşümü Sağlayacak Peyzaj Tasarımı Üzerine Düşünceler.Kent Ve Sağlık Sempozyumu Bildiri Özetleri Kitabı, Bursa.
Rugg J, Dunk J (1994). Conserving Cemeteries. Landscape Design- J. The Landscape Institute, No: 235, Nov., Norman Printing Ltd., London, pp. 24-27.
Wackernagel M, Rees EW (1996). Our Ecological Footprint. Reducing Human Impact On the Earth. New Society Publishers, Canada.
Walter T (1993). Dust not Ashes. The American Preference for Burial. Landscape, Berkeley, California, USA. 32(1): 42-48.

View publication stats