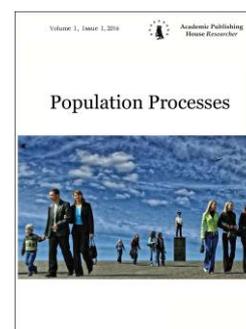


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## Articles

### Legal Provision of Environmental Safety of Burials: Demographic and Sustainable Development Issues

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#### Abstract

Over decades the funeral service industry, cemeteries designs and fashions have changed. Nowadays the death care and sites for burial influenced by intensive management and have naturalistic or eco-friendly flavor. The dominant paradigm of the funeral service industry focuses on very active legal, political and grassroots challenges within the world, particularly promoting new methods of memorialization and disposition. Besides, some state regulation of the funeral industry may limit choice and increase costs for consumers. However the most downside is that cemeteries are environmentally harmful, represent a source of environmental liability due to their potential to accumulate and release large quantities of contaminants generated by decomposition of corpse.

We cannot overestimate the importance of making changes in Ukraine. The searching for essentially new legal and organizational forms of the Funeral service industry is the part of those changes. There is an urgent need to reform the legal regulation of funeral services provision, with the focus of environmental safety and UN Sustainable Development Goals. Within the context of European integration, the advancement of the funeral industry reform is closely related to consideration of international standards and EU rules of the death care. The prospects and possible ways of improving the national legal regulation in this area are considered.

The author of considered, that modifying the national regulatory act of the Funeral Business associated with international standards in the funerals domain increase environmental safety of burials, deregulation funeral business with creating a healthy competitive environment among economic entities providing funeral services, saving municipal land resources improve the national regulatory framework by adopting a new profile law with the obligatory consolidation of new ecological standards of providing funeral services in accordance to such a Goal of Sustainable Development as the environmental safety.

**Keywords:** demographic crisis, fertility rate, death rate, burial, funeral service, cemetery, sustainable development, environmental safety, a funeral damage factor.

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## 1. Introduction

Ukraine's population (excluding Crimea) in 2018 was estimated at near 42 million individuals ([Population of Ukraine, 2018](#)). The country's population has been declining since the 1990s owing to a high emigration rate in addition to high death rates and low birth rates. Life expectancy in Ukraine as in all former Soviet countries has dropped in 1990th and slightly increasing or stable later, however Ukraine suffers a high mortality from environmental pollution and inappropriate living conditions and standards – poor diets, widespread smoking, in depth alcoholism and deteriorating health of health care ([Meslé, Vallin, 2012](#)). The analysis of this thesis has a substantial impact on the final conclusions; therefore we will address this issue in more detail below, in the result section of this paper. There will be additional pressure on the funeral services due to a high and increased mortality rate.

Nowadays in Ukraine funeral services are provided to the population by municipal funeral services and business entities operating on a contract basis. Dominated form of burial is a traditional one in soil and only insignificant part of the total number of buried dead are buried by cremation. So the quantity and territory of cemeteries have tendency to extend. Generally, cemeteries represent a source of environmental liability due to their potential to accumulate and release large quantities of contaminants generated by the decomposition of corpses and used funeral items, so populations living close to cemeteries may be exposed to elevated levels of highly harmful contaminants to human health.

## 2. Discussion

According to Tanya D. Marsh ([Marsh, 2018](#)) the humanity, despite its awareness, is in the midst of "the Death Care Revolution": the traditional content of ritual services and regulations in the funeral service industry are subject to rethinking and changes.

Our style of traditional burial with its coffins, graves, tombs or may be embalming fluids aims to preserve the body for as long as possible with the categorical purpose, it might appear, of not returning it to nature. No ashes to ashes, dust to dust for a body pumped with formaldehyde and housed in a wood or metal casket.

Yet traditional burial seems to be a world trend in decline. More and more settlements are now opting for cremation, a process considered "all but taboo" decades before. Some states are simply to face a problem such as lack of municipal land ([Glaeser, 2011](#)), that they are (particularly in Asia and Europe) losing burial space. Other ones pay more attention to environmental impact of death, even if cultural changes have increased the rate of cremation. As a result, natural burials are on the rise, so there is a whole new array of services to deal with the human remains.

Negative consequences of anthropogenic impact on the environment remain one of the main problems of mankind. Sustainable Development Paradigm (Sustainable Development), by definition of the UN Commission on Sustainable Development on United Nations Conference on Environment and development, Rio de Janeiro ([Agenda XXI, 1992](#)), is a combination of efforts by countries of the world in order to parallel provision of high quality of the environment and economic development, balance satisfaction of modern society's needs and interests of future generations. The concept of Sustainable Development appeared as a result of combining three main points of view: economic, social and environmental. Achievement of the stated objectives of development sustainability is considered solely by the substantiated policy of promoting sustainable development within the framework of the global partnership in overcoming, in particular, the ecological problems of deforestation, depletion of fertile soils, expansion of deserts area, etc. by introducing and supporting measures to prevent air, land, and water pollution, destroy resources and promote safe actions with toxic wastes. Methods of implementation of the concept of sustainable development impossible not only without the dissemination of international cooperation in the area of environmentally reasonable technologies, the unification of the finance resource, however there is also importance of international agreements and legal mechanisms that can be successfully used both at the global and regional level.

Ukraine meets the 17 Global Sustainable Development Goals proclaimed by the United Nations General Assembly Resolution № 70/1 of 25 September 2015 (SDGs.ua, 2018). Goal 12 of Sustainable Development until 2030 is to ensure the transition to rational of consumption and production models, which, in turn, involves the ecologically rational use of chemicals and all waste throughout their life cycle in accordance with agreed international principles, to significantly reduce the ingress of these substances into the air, water and soil to minimize their negative impact on human health and environment. At the same, among these problems of mankind, particularly in the process of urbanization, we can outline the accumulation and recycling of waste: both household waste and obtained ones as a result of the production or other socially useful activities.

Of many may shock the opinion expressed in the report of British environmentalists, that "Cemeteries can then be considered landfills of sorts, as there is a higher than normal concentration of potentially contaminative materials located in one place." (Rachel, 2019). Unfortunately, in Ukraine, despite the extensive analysis in the statistical information of the authorities and the conduct of scientific researches of various sources of environmental pollution (enterprise production, road traffic, household, etc.), the environmental hazard of the burial sites is delicately silent, although grows annually.

According to Article 50 of The Law of Ukraine "On environmental protection", the environmental safety is recognized as the environmental condition, which ensures the prevention of deterioration of the ecological situation and human health; a set of actions, conditions and processes that prevent directly or indirectly result in a vital loss to the natural environment and people (Prohoron navkolishnogo..., 1991). In a broad sense, the environmental safety is an ecological balance on Earth and all parts of the world on a level that is physically, socially-economically, technologically and politically adoptive for humanity.

Environmental safety is defined in relation to the territories of the state, region, administrative-territorial unit, or to objects of national, municipal economy or certain industries (transport, energy, chemistry, mining, communication, etc.). So, the environmental safety of burials also constitutes an important aspect of sustainable development, in our case – applying to Ukraine.

### 3. Results

Ukraine's total fertility birth rate is one in very of rock bottom in Europe. With the exception of Kiev region, all of the regions with a lot of births than deaths were within the less industrially developed regions of western land. The overall ratio of births to deaths in Ukraine had improved from 1 to 1.7 in 2004–2005 to 1 to 1.4 in 2008, according to the Ukraine's Ministry of Justice. However, the worst birth to death ratios in the country were in the eastern and central parts of the country. In Donetsk, Luhansk, Cherkasy and Poltava regions for every birth there were 2.1 deaths.

Ukraine recorded one in very of the sharpest declines in poorness of any transition economy in 2001-2016 years. The Eastern Ukraine (Donetsk and Luhansk regions) have sustained direct losses as a consequence of military actions.

In addition, the Eastern and Southern Ukrainian regions also suffer from the highest rates of HIV and AIDS, which impacts life expectancy. A major reason for this is the fact that the urbanized and industrialized regions in the East and South of Ukraine suffered most from the economic crisis in the 1990s, which in turn led to the spread of unemployment, alcoholism, and drug abuse, thus setting the conditions for wider spread of the epidemic (Meslé, Vallin, 2012).

Ukraine is the major source of migrants in Russia and many of the European Union member-states. Ukraine's sputtering economy and political instability contributed to rising migration, particularly to close Russia, Poland and Republic of Hungary, but also to other States such as Italy, Portugal, Spain, Turkey, Israel, Russia and Canada. Eastern Ukrainians are seemingly to immigrate to Russia whereas western Ukrainians are likely to move to the EU. Although estimates vary, approximately from two to three million Ukrainian citizens are presently working abroad, most of them illegally.

Thus, Ukraine is considered to be in a demographic crisis due to its high death rate with a low birth rate, a high mortality rate, particularly among working-age males. In 2008, the country's population was one of the fastest declining in the world at  $-5\%$  growth, so the UN warned that Ukraine's population could fall by as much as 10 million by 2050 if trends did not improve (Bialik, 2014).

As the result of a high and increased mortality rate, there will be additional pressure on funeral services. As were already said, funeral services in Ukraine were provided to the population by municipal Funeral Services and business entities operating on a contractual basis with first ones.

Funeral (or another name Ritual) Services established by local government and their executive bodies in accordance with Articles 8 and 9 of the Law of Ukraine "On Burial and Funeral Business" (Pro pohovannya..., 2003). According to the analytical reference of The Ministry of Development of Communities and Territories of Ukraine, in 2019 they provided ritual services to the population and sold ritual items representing an increase of 13 per cent over the previous year (Stan galuzi..., 2019). The total amount of provided ritual services and items of ritual accessories to the population by economic entities of various forms of ownership in 2019 amounted to UAH 3.2 billion, of which almost 43 % were provided by Ritual Services. At the same time, more than 57 % of provided funeral services and sold items of ritual belonging are provided by privately owned enterprises (Stan galuzi..., 2019).

During 2019, almost 479 thousand dead people were buried in Ukraine by Funeral Services (Stan galuzi..., 2019). It is near 90 % of the total number of deaths, which is more than 534 thousand people in total accordant to statistics provided by the State Statistics Service of Ukraine for 2019 (Statistika Derzhstat, 2019).

Currently, the situation in the burial industry in Ukraine, as a lot of other domestic statistic data, is given without taking into account the data of parts of Lugansk and Donetsk regions, in addition to the datum information of the temporarily occupied territory of the Autonomous Republic of Crimea and the city of Sevastopol.

As we can see from materials of The Ministry of Development of Communities and Territories of Ukraine (Stan galuzi..., 2019), funeral services to the population during the past 2019 were provided by 2264 business entities of various forms of ownership on a contract basis with Funeral Services, of which: 307 utilities, 751 private enterprises and 1206 individual entrepreneurs.

Of the total number of private forms of ownership (1957), the largest number was observed in Dnipropetrovsk (222), Zaporizhia (136) and Odessa (148) regions.

Almost 4,000 burial places are located in cities and towns and 29,000 in rural areas. At the same time, out of the total number of burial places in cities and settlements, 3 thousand are active and 1 thousand are closed, of which 3 thousand burial places are landscaped, which is 82 %; of the total number of burial places in rural areas, 26 thousand are active and 3 thousand are closed, of which only 24 thousand burial places are landscaped, which is 82 %.

Burials by cremation are carried out only in the cities of Kyiv, Odesa and Kharkiv, where crematories operate, and 26 thousand dead people were buried by cremation, which is only 5 % of the total number of buried dead. Partially, almost 0.5 thousand people were buried by cremation in the settlements of Odesa region, which is only 2 % of the total number of buried, and there is a need to build 20 new burial places; in the settlements of Kharkiv region 10,000 people were buried by cremation, which is only 27 % of the total number of buried, and there is a need to build 45 new burial places; in the city of Kyiv, 16,000 people were buried by cremation, which is 70 % of the total number of buried, and there is a need to build 6 new burial places. This state of affairs indicates the failure of local governments to disseminate the tradition of organizing the burial of the dead by cremation. In the Ukrainian settlements there are more than 33,000 burial places. More than 27,000 of mentioned burial places are arranged (83 %). Cemeteries in Ivano-Frankivsk (100 %) and Volyn (100 %), Chernivtsi (100 %) regions are fully landscaped, while in Kyiv region only 19 % of cemeteries are landscaped (Stan galuzi..., 2019).

As the data in the funeral service industry shows, there are still problems that arise due to insufficient attention of local governments to comply with the Law of Ukraine "On Burial and Funeral Business" ([Pro pohovannya..., 2003](#)), in particular, to address issues aimed at improving the organization of the funeral of the dead, namely: improving the quality of funeral services and the manufacture of funeral items; creation of a competitive environment and involvement of economic entities of various forms of ownership on a competitive basis; development of such type of burial as cremation, in particular, paying considerable attention to this type of burial for deceased single citizens, homeless people, citizens whose burial was refused by relatives, particularly in cities where crematoria operate, that would solve the problem of shortage of land resources for the creation of new cemeteries in the settlements of Ukraine; ensuring the proper allocation of funds necessary for the improvement of burial places, which would allow to take appropriate measures to preserve and protect burial places, prevent intentional destruction or theft of columbarium niches, burial structures and crypts and desecration of graves.

Article 5 of The Law of Ukraine "On Burial and Funeral Business" ([Pro pohovannya..., 2003](#)) declared that in order to ensure the safety of life and health of people, animals, plant protection, as well as property and environment, creating conditions for rational use of all types of resources in accordance with the procedure stipulated by law, State standards, other normative documents in the field of burial. The State standards in the funeral service industry, primarily, consist of rules of the establishment and operation of cemeteries, crematoriums, combustion and other burial sites. The State Building Standards of Ukraine DSTU B v.2.2-35:2013 "Tombs buildings and crypts. Common technical requirements" ([Namogilni sporudi..., 2013](#)) and DSTU-NB-B.2.2-36:2013 "Guidance on the device of flower-gardens and protections on graves" ([Nastanova z ulashtuvannya..., 2013](#)) contain a few (four each in section 8) Requirements of environmental protection during the production of tombstones, flower beds and fences with the introduction of the standards of pollutant content in the air.

Sanitary and hygienic requirements for arrangement and maintenance of cemeteries in the settlements of Ukraine were introduced to The State Sanitary standard of Ukraine DSANPIN 2.2.2.028-99 of the corresponding name ([Gigienichni vimogi..., 1999](#)). On the basis of the provisions of the Law of Ukraine "On sanitary and epidemiological welfare of the population" ([Pro zabezpechennya sanitarnogo..., 1994](#)), the Ukrainian State building standards of rules on planning, development and building of urban and rural settlements, the hygienic requirements of drinking water quality standards, the hygienic requirements for the arrangement of cemeteries, their exploitation and maintenance are established. There are also requirements for transportation and to the burial process (in spite of burial of the dead from especially dangerous infections which are restricted by special rules of the Ministry of Health of Ukraine), reburial of the deceased remains, as well as the requirements for closure and reconstruction of cemeteries.

At the same time, sanitary rules, for example, do not contain norms indicating periodicity and the procedure for monitoring the use of cemetery lands by local bodies of sanitary-epidemiological service or other authorities or local self-government, preferably with the disclosure of such data. There is no data of the using embalming fluids. And the last but not the least, in Ukraine there are no statistical observations of soil contamination and groundwater by lead and other heavy metals, poisonous chemicals (formaldehyde, arsenic, etc.) from funeral activity, information about which are accumulated and analyzed, for example, in the USA ([Harker, 2014; Sevenponds, 2019](#)).

Besides, while death can be a difficult subject, keeping ethical beliefs and environmental convictions in mind while tending to end-of-life arrangements can create a meaningful send-off--not to mention a lower-impact one.

Undoubtedly, that, in general, funerals hurt the environment. When people choose a more common traditional burial style, they often overlook many unforeseen factors that make burial funerals harmful for environment, for example, the destroying substances for soil and groundwater. Thus, among these factors with negative impact of burials can be called:

Human body (corpse):

The chemical compounds of intravital and aggressive treatment, food and not derived from the human body (products of chemotherapy, antibiotics, heavy and nonferrous metals – lead, mercury, silver, platinum, cobalt), etc.;

Artificial cardiac pacemaker, dental seals and crowns, prosthetics joints, plates, pins, intrauterine devices, subdermal contraceptive implants, removal before burial of which is not provided;

Harmful substances from embalming and cosmetic postmortem procedures (for longer preservation of the aesthetic form of the dead body) – formaldehyde, thymol, phenol, sulema, carbolic acid, zinc chloride, potassium oxide or sodium, etc.;

Painful bacteria, viruses, intestinal sticks, tuberculosis, other superficial microbial contamination.

Coffin, its contents and clothing – lacial processing, impregnation material in wood sealants and preservatives, metal handles and inlays, buttons, jewelry, artificial steam-houses, metal, plastic and rubber elements of footwear, etc.

Destruction of wood arrays for mass production of caskets.

The uncontrolled distribution ("sprawling") of the territory of cemeteries, the emergence of numerous abandoned cemeteries in connection with the closure of smaller settlements due to urbanistic processes.

Pollution from using herbicides, pesticides and other corrosive substances and chemical compounds to maintain the cleanliness of the cemeteries.

The use of artificial plastic flowers, wreaths, tombstones, etc. is widespread in the post-Soviet countries.

It is noticeable that, besides, in spite of the soil pollution, the particular threat relates to groundwater and surface water. No wonder that in the pre-Soviet times cemeteries usually placed on the hills.

In pursuit of environmental safety goals in the world appeared the concept of green funeral (alkaline hydrolysis for the disposal of human and pet remains, promession, composting, the use of biocapsules, etc.), that is contributes deceased to its natural decomposition and natural cycle of substances.

Thus on, the funeral service industry creates environmental problems for human life. It finds the confirmation of the opinion of domestic scientists, that the individual issues of environmental safety remain unresolved in the bottom of these territories with conflicting environmental situations and, above all, among others, this concerns the environmental impacts of municipal economy facilities (Sokur et al., 2019), which include cemeteries and burial sites.

In order to introduce effective ways to address problematic issues in the funeral service industry, in particular such as lack of burial places due to limited land resources, development cremation as most perspective type of burial accordant to the European experience, improve competitive standards for business activities in the funeral service industry, ensuring the possibility of obtaining quality funeral services at economically reasonable prices, etc., the Ministry of Communities and Territories of Ukraine has developed a draft Law of Ukraine "On Amendments to Certain Legislative Acts of Ukraine to Improve Funeral Business" (Pro vnesennya zmin..., 2018) together with the interested central executive bodies for submission to the Government.

The draft law stipulates that the executive bodies of local government in villages, settlements, city councils, central executive bodies in order to develop investment activities contribute to attracting investment for the construction of crematoria of various forms of ownership with investors the right to further operation and maintenance in accordance with business plans and town-planning documentation with observance of obligatory town-planning, ecological and sanitary-and-hygienic requirements.

Implementation of the draft Law, by the opinion of Ministry of Development of Communities and Territories of Ukraine, will solve problems in the funeral service industry and reform it by

saving land resources of territorial communities necessary for life, deregulation of business activities in the death care, creating a healthy competitive environment among economic entities providing funeral services, obtaining quality ritual services at economically reasonable prices, development of such types of burial as cremation and eco-burial as the worlds practice shows.

For reforming from the ecological point of view, primarily, with the aim of economy of municipal land resources, in the draft law is proposed to introduce new concepts of "biograves" and "places of bioburial".

Thus, the proposal type of burial of the deceased as bioburial involves the use of materials that decompose within five years, the location of which does not contain gravestones, and settling information a sign; the place of bioburial is defined as a separate part of the land plot located on the territory of the cemetery, Park, Square, Forest Park and other green zone reserved solely for the implementation of biopreparations. These definitions are proposed separately in contrast to and contrary to the concepts of "burial place" (cemetery, columbarium) and "place for burial" (grave or burial niches for cinerary urns).

In addition, bioburial is introduced as a type of cremation - burial of the deceased by burying a biocapsule with cremated remains, which decomposes quickly and serves as fertilizer for the plant, which is planted at its location and actually plays the role of a natural burial structure. This type of burial is a modern innovative type of burial of the dead and provides for the allocation of cemeteries only separately in the cemeteries of bioburials of the dead using materials that decompose within five years, the location of which does not contain burial structures (tombs, graves, etc.) and is equipped with an information board.

Comparative analysis of this draft law with the requirements and terms of the European standard EN 15017:2019 "Funeral Services – Requirements" ([EN 15017:2019](#)) indicates that the bill, placed on the website of the Ministry of Development of Communities and Territories of Ukraine, does not take into account nowadays world experience of providing ritual services: does not cover the full spectrum of "green" or eco-burial, the market of funeral services, the provision of permits and procedures for burial in the sea, etc. At the same time, progressive is a point aimed at achieving environmental safety of burial, which is in proposed in the draft law extending the circle of main principles of activity in the funeral service industry in the version of the principle of ensuring preservation of burial sites by the appendix compliance with the principles of ecological and economic efficiency of the use of land resources during the device and maintenance of burial sites (part 10 Article 4), as well as complement the list of principles a new one including ecodevelopment and greening activities in the Funeral service industry in Ukraine.

#### **4. Conclusion**

The unfavorable trends in mortality and population decline in Ukraine like in other post-Soviet countries (republics of the former USSR), in spite of some increased life expectancy, reflect a real deterioration standards of living, including ecological ones, much more than any estimation. Traditional burial practices can have significant negative environmental impact; however cremation, green funerals or eco-burials are one way to lessen the damage.

Implementations of the draft Law is one of direct solutions for problems in the Funeral business. It should provide the reforms by saving municipal land resources, increase environmental safety of burials, deregulation funeral business with creating a healthy competitive environment among economic entities providing funeral services. So, the development of such types of burial as cremation and eco-burial, in step by international practice, can help customers obtain quality ritual services at economically reasonable prices.

Summing up the laid out, I should note that it is necessary to improve the national regulatory framework by adopting a new profile law with the obligatory consolidation of new ecological standards of providing funeral services in accordance to such a Goal of Sustainable Development as the environmental safety. Reforming the Death Care in Ukraine is necessary to create a proper the system of laws that govern it and competent administration of Funeral business, including improve

professional skills in such a socially important industry with implements eco-friendly standards and eco-oriented licensing of the funeral service activity.

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