

Exploring sustainable burial practices in South Africa: Potential challenges and opportunities

Tsepang Leuta and Chéri Green

1. Introduction

There is currently ongoing media dialogue in South Africa regarding the lack of land to be developed for new cemeteries (SAPA, 2010; Moreosele *et al*, 2011) and alternatives to traditional burial¹ (Davids, 2011). Burial in South Africa remains the most popular end-of-life choice, and is by far the most commonly used by members of Islamic, Christian, Jewish and traditional African faiths. In addition to the various faiths/religions, many cultures believe that burial is the most respectful and dignified way to treat the body, and for loved ones to find comfort in having a specific gravesite to visit. The primary drawback to conventional burial is that it uses a great deal of space.

Cemeteries are rapidly filling up (SAPA, 2010), and the scope for new sites is extremely limited in many metros and large cities. The geo-technical requirements place an additional constraint (e.g. high water table) on the land availability issues. Once a conventional cemetery is full, it has limited future alternative functions, often sterilising large areas of the urban space. Unlike other forms of urban land use, rezoning cemeteries entails a long process, including public participation which is fraught with difficulties. Cemeteries cannot easily be transformed for alternative uses due to their nature that constrains further development based on religious and cultural significance, even where land prices are high or alternative needs are pressing. As a service, it also competes with other services and land uses.

The paper aims to explore sustainable burial practices as alternatives to the land-hungry burial methods currently practised in South Africa.

2. Background

There is an annual increase in the demand for cemetery and burial space, while land availability for expansion continues to decrease. Optimal utilisation of space is, therefore, vital although this alone will not be sufficient to meet the escalating demand. In 2010, Johannesburg City Parks confirmed that 27 of its 35 cemeteries were inactive, and only used for burials in reserved graves and second burials² (Ndlovu, 2010). Along with other countries which have space limitations for cemeteries and have difficulty finding new suitable areas for cemetery development, South Africa needs to re-evaluate all the methods of disposal of human remains, including in-ground burial and unconventional methods.

2.1 Current practices in South Africa

2.1.1 Traditional/conventional burial

Despite a range of alternatives, conventional burial is still the most common and preferred practice for body disposal. In the African culture, the funeral and the unveiling of the gravestone play a significant role in the culture as acts of achieving closure by the

¹ Traditional/conventional burial is the placing of a body underground with the use of a casket/coffin accompanied by a ceremony that follows some standard traditions celebrating the deceased's life.

² Second interment/burials are the placing of a person's remains in a grave that already contains another person's remains.

family. Tombstone unveiling is often held about a year after the funeral and the actual tombstone is very important as families will buy the best they can afford. These practices differ between cultures but remain sources of comfort for the living, thus creating a potential impediment to changing mindsets with regard to conventional burial alternatives.

As a result of land pressure, various alternative human remains disposal methods have to be considered and city authorities in several centres are trying to persuade their residents to adopt new ways of thinking. Cape Town is looking at extending some of the cemeteries by above-ground burial using mausoleums, which not only require less space but allow bodies to be stored above ground, thus increasing the chances of purchasing suitable land. The City has piloted a mausoleum project to establish whether the public is interested in using mausoleums³ instead of traditional graves. The biggest challenge to the implementation of mausoleums is convincing the public that it is a viable alternative (Powell, 2007). It is also an alternative that is not in conflict with the traditional perceptions or beliefs that remains must be placed in the ground.

Legacy Parks⁴ is a private sector initiative developed as an alternative to public cemeteries. However, the development of these areas does not present a less land-intensive option, but rather a better management option especially with regard to the costs of development and maintenance. It is not clear as yet whether these will be seen as integrated recreational/ burial spaces.

2.1.2 Recycling of graves

The re-use and recycling of graves, a policy which leads to the extension of cemetery lifetime, requires a careful understanding of the historical, cultural, religious, legislative and economic roles of cemeteries for all its users (Francis *et al*, 2000). Recycling of graves means that after an acceptable period (i.e. 10 years) all current remains and headstones are removed from the grave, after which the grave is used for a fresh burial.

eThekwini practices re-use /recycling of graves after 10 years in terms of the Cemeteries and Crematoria Act (1996) and the completion of the necessary protocol. However, the practice will not provide sufficient space in current cemeteries beyond 10-20 years, unless a much greater rate is adopted than the 2% per annum, as tested by the CSIR for eThekwini in 2008 when two different scenarios were investigated (CSIR, 2008). Thus, recycling needs to be considered along with other options.

The study conducted by the CSIR found that in eThekwini, the minimum new grave space required for 2016 alone is approximately 10 000 graves, equalling 50 000m² or 5 ha for a single year, if the recycling rate continued at the 2007 rate (CSIR, 2008). An almost equal amount is required for each following year. This can be reduced to 3.8 ha per annum when recycling is at 2%⁵. No grave can be re-used for at least 10 years, which is the minimum span needed to reduce a corpse to bones, and families can prevent a grave from being re-used at all by renewing their lease on the burial site.

³ A community mausoleum is a large building designed to provide above-ground entombment for a number of people.

⁴ Legacy Parks are eco-cemeteries where caskets are made from biodegradable materials such as wicker, and burial sites are marked organically with engraved stone markers or a tree planted by relatives (Online, 2011).

⁵ It should also be borne in mind that these figures were calculated based on the number of reported burials, but that the significant shortfall between this and assumed deaths implies that there may be as many unaccounted for burials as there are burials being reported officially. Land requirements may thus be twice as much if all burials are undertaken in formal cemeteries in future.

In a review of access norms and threshold standards for the spatial provision and development of social facilities and recreational spaces in the metropolitan areas of eThekweni and the City of Cape Town (CSIR, 2010) it was highlighted that if the death rate is higher or fewer people are cremated, demand for land required for burial will increase. Current trends are that eThekweni works on a burial rate of 18 000 people per annum; even this is low given the metropolitan population and the prevailing high death rate. The 2% recycling of graves previously tested has had to be reviewed due to the land scarcity problem which still provides challenges due to insufficient suitable and affordable land for future burial needs. For this method to become a more culturally-acceptable practice it requires education and publicity of the choices and implications (including costs) regarding opting for single burial *versus* the use of recycled gravesites or multiple burials.

2.1.3 Second interment

Second interment is another way of extending the life span of a cemetery. This option encourages family members to share a grave. Although the City of Tshwane has experienced resistance from the black population regarding cremation, second interment is gradually gaining momentum (CoT, 2011). In 2010, only 15 of the 34 cemeteries in the City of Cape Town still had unused burial space but full cemeteries were being used for second burials and burial of cremation ashes (SAPA, 2010).

2.1.4 Cremation

As with most metropolitan regions, the City of Tshwane is also experiencing a burial space shortage (CoT, 2011), to the extent that cremation and grave re-use are being actively encouraged. Cremation is an option that takes up limited or no space depending on the choice of disposal of the ashes. All current Christian denominations, including the Roman Catholic Church, allow cremation, as do Hindus, Parsees and Buddhists. It is, however, forbidden by Orthodox Jews and Muslims, while the black population has shown resistance to cremation. The practice of cremation is growing in Indian and European populations. In 2007, Cape Town had already reported a growth in cremations by up to 50%; however, this number as a percentage of total burials is not recorded (Powell, 2007). Fortunately, some high-profile individuals in South Africa have chosen to be cremated and they can be used to set an example and help change people's perceptions regarding alternative practices to traditional burial.

2.2 International practices

2.2.1 New practices and those under investigation

Countless methods of body disposal are practised worldwide. Although some of these are not yet carried out in South Africa, they can be further explored. A Swedish alternative to cremation is called promession. In this method a corpse is frozen in liquid nitrogen and then reduced by sonic waves. It is the opposite of cremation whereby instead of burning, the body is frozen and shattered to powder, which can be buried and subsequently used as fertiliser. In another method of body disposal, called resomation (alkaline-hydrolysis), the corpse is melted. The by-product of this process is an inert liquid, which could be drained while any remaining bones could be crushed as in cremation, or buried. The technology to perform the resomation is currently being considered for use in South Africa by the private sector in response to the resistance towards burning during cremation. The expectation is that such this method will be more acceptable than cremation, given people's cultural perceptions and mindsets regarding

the association of fire and its link to 'hell', particularly in some beliefs. The option is also environmentally sound as no carbon is produced in the process and the remains are sterile. However, consultations with different cultural and religious groups are imperative to establish whether this method would be acceptable.

2.2.2 Mixed use

While many cemeteries occupy valuable land in central city locations, they are generally seen as separate from, rather than an integral part of, surrounding communities. However, opportunities exist to integrate parks and nature reserves with burial grounds. This has been done very successfully at the Pinnaroo Cemetery in Perth, Australia. The single-use approach to cemetery design could be abandoned in favour of the multiple-use approach, with urban cemeteries also playing a role in providing open space, a sanctuary for wildlife, or in the provision of human recreational space (Kong, 1999). With cities running out of land for burials, and with the need for easily-accessible recreation facilities, mixing parks with cemeteries could reduce pressure on inadequate land and also offer opportunities to escape the hustle and bustle of the city in a green and calm haven. Although some cultural groups or individuals would find the aspect of being too close to the dead unsettling, this perception is sure to change if society is educated about such an option, and good aesthetic principles and design form part of the overall plan. In the development of access and threshold standards for different facilities, the CSIR too has called for careful consideration for allowing multi-purpose use of the land, such for cemeteries, parks, grazing, etc. - if acceptable to the community (CSIR, 2010).

The development of multi-functional spaces of this kind also offers the opportunity to make park spaces more efficient and extend their use, making them more cost-effective. The integration of new amenity spaces such as urban parks with memorial walls can be integrated with current policy programmes of urban and neighbourhood renewal. There are also notions of using land under power lines and greening of existing cemeteries, which have not been fully explored. However, options that consume land are inadequate and only provide short-term solutions. What South Africa needs is a solution that will integrate all the partial solutions, which will absorb the massive numbers without sacrificing land which has potential to be used for agriculture or building homes and schools. Such options should also consider acceptability across a range of cultures and religions.

3. The way forward

This paper aimed to enhance an understanding of the challenges faced by South African municipalities concerning inadequate land for cemetery development. Burial forms part of important ceremonies in personal, familial and community lives. Alternatives to traditional burial have been identified and need to be evaluated carefully. Such alternatives include recycling of graves, second interment, cremation, promession, resomation and combining cemeteries with other social facilities. However, the biggest challenge faced by city planners in South Africa in pursuing these alternatives is not any legal, cost or technological impediment. Rather, the greatest challenge to implementing these options is in changing the mindset of people to accept a way of burial that may be reprehensible to them.

Notwithstanding the availability of a range of sustainable options, burial remains the dominant means of disposing of bodies in South Africa, especially among African Christians, since the significance of a burial and the unveiling of a gravestone have become a significant part of the cultural traditions of modern African people. Traditions are handed down from generation to generation and are an intrinsic part of a person's beliefs and customs. To change this requires effort, liberalism, and the ability to see the bigger picture when the traditions may no longer be sensible taking current availability of land into account. Communities should be presented with a space-saving, environmentally-friendly and more efficient and even more affordable means of burial.

It is important to respect and recognise every possible cultural and religious requirement regarding burial, while the current dire shortage of land and cost of cemetery development and maintenance are the prevailing reality. Alternative burial measures will have to be considered. Looking at whether South Africans are embracing the idea of cremations and what influences their choices, it is clear that, particularly in the larger urban areas, the cremation rate has been increasing steadily for the past decade (Collinge, 2011). More educated and affluent people show a higher likelihood of opting for cremation. One can thus recommend education drives for communities to address resistance caused by cultural and religious beliefs regarding cremation as an alternative to conventional burial. Cremation is highly recommended due to no or far less land required for disposal of ashes.

One should, however, guard against making it too difficult or costly to pursue traditional burials, since people may be 'pushed' by culture to opt for illegal burial either at home, in open spaces or in existing cemeteries. Uncontrolled burials will have negative impacts such as ground water contamination, burial in flood plains or already used or reserved sites. This is especially true in cities such as eThekweni, which still encompasses large areas of more traditional development making it easier to undertake illegal burial.

Multi-use cemeteries, re-cycling, second interments and cremation all offer solutions to the space shortage problem, although most of these are culturally not acceptable for most Africans as well as individuals from other ethnic groups. It is extremely important that people are given various options which are culturally and religiously acceptable. If people are left with no acceptable options, they will opt for illegal or wrong burial practices. To avoid this, a major research effort is required to establish what will make each alternative burial method acceptable and what needs to be done to achieve the required mindset change. However, options that do not require use of land or as little as possible need to be pursued strongly. This leaves the following questions: Could the use of alternative burial methods be achieved through education? Could it be achieved through involving churches and traditional leaders? What would the costs be to change people's perceptions, or would it be as simple as changing the pricing structures?

While eagerly incorporating various body-disposal methods, South Africa as a society needs to do an exhaustive introspection when it comes to its own traditional burial practices and why they should change.

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