

Caring for Country: An Urban Application

The possibilities for Melbourne



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A note on terminology

This report uses the term 'Aboriginal' rather than 'Indigenous' to refer to the First Nation Peoples of mainland Australia. This is because the report is focused towards the application of Caring for Country to urban sustainability specifically in Melbourne, Victoria. This report recognises that the term 'Aboriginal' collapses a vast number of specific individuals and communities within Melbourne, Victoria (Heiss, 2012, p. 4). However, there is a reluctance to use more localised terms such as 'Koori' or even 'Boon Wurrung' to maintain the relevance of Caring for Country for widespread application to urban sustainability throughout Australia. The term 'Indigenous' is sparingly used in instances where other individuals, literature or institutions and their initiatives have been quoted or referred to. The description of 'Western' is used to indicate ideas, people and cultures descending from Anglo-European origin which have dominated and continue to dominate the philosophies, structures and institutions of human society both nationally and internationally (Plumwood, 2002).

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Introduction

Indigenous knowledge in Victoria dates back at least 40,000 years. Caring for Country is a term used to describe the different sustainable land management practices and initiatives that Aboriginal and Torres Strait Islander peoples undertake, and the key role these practices play in continuing culture.

Caring for Country is an integrated approach for sustainable management. It encompasses the entirety of country – its past and future; its people; its flora and fauna; its natural landscapes and urban formats; its history and culture.

The application of Caring for Country in an urban context offers new and innovative ways to interact with nature and manage its resources for economic, social and cultural prosperity. This report aims to highlight the many benefits of applying Caring for Country to sustainability in an urban context.

Since early 2015, The City of Melbourne has been considering the application of Caring for Country in an urban context. This work has been done in close partnership with the Monash Sustainability Institute, Indigenous Architecture and Design Victoria, the Melbourne Sustainable Society Institute and the Clean Air and Urban Landscapes Hub (National Environmental Science Programme).

Melbourne has gradually started to incorporate Indigenous culture into its architecture, art and public infrastructure. It is distinguishing itself as the first city to apply Indigenous knowledge and perspectives to care for the urban form. Partnering with Victoria's Indigenous community will ensure that Aboriginal cultures are acknowledged and celebrated.

Incorporating the Indigenous approach of Caring for Country into public discussions increases awareness of the need to 'care for' i.e. protect our ecology as we invest in natural infrastructure to respond effectively and innovatively to the impacts of climate change.

The principles that underpin Caring for Country provide a blueprint for dealing with the challenges of climate change. They will help us reshape how we value nature and its services in the urban form, to ensure we continue to maintain a liveable and sustainable Melbourne in a drier, hotter future.

This research report and literature review:

- Explains the meaning and philosophy of Caring for Country,
- Highlights the benefits of applying Caring for Country in the urban form,
- Examines the application of Traditional Ecological Knowledge to urban sustainability at national and international scales, and
- Provides some suggestions for how Caring for Country principles can be applied in Melbourne.

What is Caring for Country?

Caring for Country embodies set stewardship values for land and sea environments which are deeply embedded in Aboriginal culture (Zurba & Berkes, 2014, p. 823). It is the possession of, the sense of responsibility for and the inherent right to manage one's Country in a way that is ecologically, socially, culturally and economically sustainable (Atkinson, 2004; "Yotti" Kingsley, Townsend, Phillips, & Aldous, 2009, p. 291). The assertion of Aboriginal rights to remain on Country and to Care for Country is not simply an act of entitlement, rather it is a deep loyalty to fulfilling the responsibilities to Country that have been handed down through generations for tens of thousands of years (Atkinson, 2004).

Each Aboriginal person has his or her Country. Country is the place that provides, supports and receives all life within an Aboriginal person's metaphysical world. It is spoken about amongst Aboriginal Australians as if it were not only a person, but a blood relation such as a mother or a brother (Neidjie, 2002; Watson, 2009; Weir et al., 2011).

"This ground is mother. This ground, she's my mother. She's mother for everybody. We born top of this ground. This [is] our mother. That's why we worry about this ground" (Riley Young cited in Rose, 1992, p. 220).

As such, loss of Country or loss of the ability to care for Country can be understood as the loss of a family member and causes significant emotional and psychological trauma.

"Take away the land, it is often said, and you take away our soul and identity as a people" (Atkinson, 2004, p. 1).

In addition, there is the cultural loss that occurs as rapid species extinction and land degradation eliminate the necessary resources for cultural practices and ceremonies (Rose, 2012).

The Dreamtime Stories

The Dreamtime Stories are the foundation of customary law which provide a set of human obligations to their local environment and symbolise an inseparable and innate human-nature relationship (Zurba & Berkes, 2014). The ability to carry out these obligations through traditional practices such as plant harvesting, burning and native species protection is seen as vital by Traditional Owner groups in the retention and intergenerational transmission of Traditional Ecological Knowledge (Atkinson, 2004; Weir et al., 2011; Zurba & Berkes, 2014).

Traditional Ecological Knowledge can be defined as a 'cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission.'

(Zurba & Berkes, 2014). Through the Dreamtime stories, each Traditional Owner group is endowed with an intricate system of customary laws, kinship systems and totem relations that determine a system of resource management, which nourishes economic, environmental, cultural, social and physical wellbeing.

The notion of kinship embodies the importance of all relationships including relationships with the land and non-human species. A totem is a particular animal or plant to which a person or clan is specifically related, and whose spirit protects them.

Caring for Country conceives the land and its non-human inhabitants as deeply embedded in both the practical use of natural resources and the spiritual nourishment of society (Head, Trigger, Mulcock & others, 2005).

This interrelatedness eliminates any demarcation of separate sectors of life such as economy, environment, society, culture, technology, science etc. Rather each sector becomes fluid and deeply dependent on all others in order for Traditional Owner groups to fulfil their obligations to Country (Atkinson, 2004).

This holistic approach emphasises that not only are cultural, environmental, economic and societal systems not in opposition to one another, but they are necessary for each other's survival. It also has implications for notions of ownership and resource use. Caring for Country embodies an alternative view of ownership than those conceptualised by Western legal institutions. Ownership within Caring for Country represents a profound connection to place that goes hand in hand with stewardship relations of responsibility and obligation to Country, its human and non-human inhabitants. Ownership is also a duty to transfer Traditional Knowledge regarding the preservation of those relationships (Atkinson, 2000, 2004; Battiste & Henderson, 2000; Watson, 2009; Weir et al., 2011; Zurba & Berkes, 2014). Thus as Country is part of a network of relationships just as much as fellow human beings, ownership does not translate to the ability to sell one's Country.

“Our ancestors are alive in the land, and this is in accord with saying that to sell the land is akin to selling one's own mother.” (Watson, 2009, p. 40).

Using resources

Resource use is also conceptualised very differently within Caring for Country from Western systems. For example, the Western view sees water as a resource that must be available for production and consumption at all times. This has led to dire conditions for natural environments such as the Murray Darling River (Neidjie, 1985; Rose, 2012; Strong, 1998). The river is rapidly blocking up with silt, filling and emptying with the ocean tides. This is due to heightened demands for irrigation where farms, towns and factories constantly pump more water than would have ever naturally flowed through the river system.

A system of damming and flooding that counters the river's natural cycles means that the wetlands are dry when they should be wet and wet when they should be dry. It does not appreciate the natural patterns of the river or environmental flows to nourish the surrounding ecosystems that are so dependent on the river system.

In contrast, water is viewed as a vital part of cultural continuation of the Yorta Yorta people, the traditional custodians of the land surrounding the Murray Darling River. They support a water regime that emulates the natural wetting and drying patterns and the reinstatement of seasonally favourable flooding events to improve the water quality of the Murray (Atkinson, 1997).

This view of resource use sheds light on western views that wilderness and nature in general are disconnected from humans (Cronon, 1996; Rose, 2008). Wilderness has positive connotations of pristine beauty, untouched by human exploitation. Wilderness is to be preserved and protected from human endeavours to reap the profits of nature's fruits (Cronon, 1996). As stated previously, Caring for Country views humans and nature as entirely bound in a mutually beneficial relationship of responsibility and reciprocity. Rather than Country having to be protected from humans, Country necessitates the activities of humans to thrive. This is a practice of resource use whereby human modification and employment of nature nourishes Country rather than degrading it. An example of this can be found in firestick farming where traditional burning techniques facilitate the germination of a number of native tree species (Goston & Chong, 1994).

Obligations to Country encapsulate not only the responsibility one has to the living beings within their immediate time and place but also the responsibility one has to past ancestors and future descendants. There is a responsibility to transfer knowledge and culture throughout generations and also to ensure that energy flows and resources are transferred from one generation to the next. Life must continue to be sustained both physically and spiritually. The respect for these resources acknowledges the contribution these non-human species have made to the nourishment of ancestors and will continue to make to future descendants. Thus the obligation to protect these resources upholds Dreamtime law, sustains the natural environment and pays tribute to a set of multispecies kinship relations within our forbearer's time to which we and our descendants owe our lives (Rose, 2011, 2012).

The spirit and future generations

Country is the origin of a person's spirit at birth and its destination upon death. As such, death becomes a gift for future generations as the spirit returns as ashes and nourishes the earth (Neidjie, 1985). In this way, the mountains, rivers, waterholes, animals and plants are all physical manifestations of the ancestral beings of a particular Aboriginal clan.

Caring for Country becomes an act of nurturing your spirit, the spirit of your ancestors and the spirit of future generations through Dreamtime Law (Zurba & Berkes, 2014). Death is also viewed as a gift for future generations as it necessitates the transmission of wisdom and memory throughout generations. This transferral of knowledge allows for the transcendence of death, as a person's memory will live through the stories and knowledge of the Dreamtime (Rose, 2012).

Health, education and economic benefits

Customary laws that outline obligations to Country are crucial to all facets of human life including health, education, family, ceremony, art and livelihood.

Classic understandings of Caring for Country such as those practiced under Indigenous Protected Area Programs in remote and regional Australia are very important. Practices include the removal of invasive species, native re-vegetation, improvement of water quality, protection of native fauna, traditional harvesting and burning techniques, biodiversity management and ecosystem monitoring (Grice et al., 2012).

In addition, Caring for Country has been shown to improve physical health as it is associated with improved diet, increased physical activity and the use of traditional medicines for healing (Berry et al., 2010). Being able to connect with culture in everyday life also contributes to emotional well-being and self-esteem. As a result, Caring for Country is associated with lower levels of psychological distress and improved mental health.

The documented health effects of Caring for Country are not far from western understandings of biological and psychological health. Western health discourses increasingly stress the importance all factors relating to culture including opportunities to interact with nature and community. These practices help to build natural and social capital, both of which are essential for wellbeing (Berry et al., 2010; "Yotti" Kingsley et al., 2009). Wellbeing as part of Aboriginal frameworks has an additional requirement of connecting to Country to fulfil obligations to kinship relations with members of both the human and non-human community.

In recognising that Aboriginal social relationships include those with the non-human, Caring for Country becomes a way to strengthen Aboriginal social capital and improve spiritual, emotional and social wellbeing. The regularly quoted 'Healthy Country, Healthy People' - the notion that if Country becomes sick, people become sick also has a very obvious practical meaning. If the land deteriorates, humans are unable to access the resources that sustain life in a physical sense (Atkinson, 2004; Neidjie, 2002; Weir et al., 2011).

'If you look after the country, the country will look after you' is a common Aboriginal phrase that emphasises the reciprocal relationship between humans and nature. As neither humans nor nature can thrive without the

other, both must work to keep each other healthy. This shows that Caring for Country has real effects on the lives of Aboriginal Australians.

The intergenerational transmission of Traditional Ecological knowledge connects Caring for Country to education. The opportunity for young Aboriginal Australians to reconnect with Country has been shown to reduce truancy and youth incarceration. It has also been connected with decreased alcoholism, drug abuse, family violence and strengthened relationships within Aboriginal communities (Weir et al., 2011). In addition, lessons concerning sustainability are delivered through more than just natural resource management techniques but also through ceremony, dance, song and visual art.

The economic benefits of Caring for Country include employment as Aboriginal Rangers, compensation for Traditional Ecological Knowledge, the harvesting of wildlife for consumption and employing natural resources in commercial enterprises such as arts and crafts production.

Caring for Country is not simply about sustainable natural resource management but rather it is an all-encompassing way of life.

Integrating Caring for Country into sustainable development

The world's ecosystems face increasingly complex and serious challenges such as climate change, biodiversity loss and ecological degradation. Now is the time to further integrate Aboriginal environmental philosophy and knowledge into mainstream sustainable development practices. On a global scale there is increasing recognition of the detrimental effects of unsustainable natural resource use, and nationally, discussion has increased about Aboriginal rights to land and resource management. We can learn a great deal from Aboriginal resource managers who have been sustainably caring for this Country for tens of thousands of years.

Sustainable development

In 1987 the Brundtland Report outlined the classic definition of sustainable development as 'meeting the needs of present without compromising the ability of future generations to meet their needs' (World Commission on Environment and Development, 1987). Sustainable development is also an effort to simultaneously address growing environmental, economic and social concerns. It is often visually portrayed as the intersection between three circles representing the environment, society and the economy. This implies some form of connectedness whilst maintaining three ultimately separate realms (Giddings, Hopwood, & O'Brien, 2002).

This presentation of sustainable development has been criticised for its unproductive separation of the environment, the economy and society. Some argue that the separation of these three realms leads to narrow western-techno-scientific approaches that prioritise economic progress over the sustainability of the environment, communities and cultural vitality.

Straightforward solutions such as pollution control, higher energy efficiency, lower resource use, renewable energies and carbon trading are preferred over a re-examination of the fundamental way we conceptualise the relationship between the economy, society and the environment or the way we define development in purely neo-liberal economic terms.

Another key criticism is the absence of any rigorous guide to sustainable development as a theoretical framework let alone its practical application. This has allowed for such a diversity of interpretations by both academic literature and political rhetoric that it can be nominally employed to justify a multitude of policies that may or may not align with the original intent of the Brundtland Report (Giddings et al., 2002).

Hopwood, Mellow, & O'Brien (2005) map the various trends of thought on sustainable development. Transformationism is one particular trend that aligns well with this report's attempt to reconcile criticisms of sustainable development through the philosophy encapsulated in Caring for Country. The transformative interpretation of sustainable development dedicates itself to society equity as its key ingredient. This entails engaging minds and environmental philosophies outside the centres of power such as Aboriginal communities and Caring for Country (Hopwood et al., 2005).

Incorporating alternative views into urban sustainability upholds our endeavour for social equity as it creates a form of socio-ecological democracy. This is a democracy in which a number of diverse cultural perspectives can contribute to the dominant sustainability paradigms that shape people's lived realities (Hopwood et al., 2005). This provides pathways not only for Indigenous empowerment but to the alleviation of wider experiences of oppression and disadvantage (Hopwood et al., 2005). Having a multitude of voices embedded in sustainability endows it with meaning for people's everyday lives. Sustainable development initiatives become relevant and sensitive to the complexity of desires and priorities held by the very individuals whose behaviour is core to the success of such endeavours.

A fourth tier

This analysis reveals that social equity necessitates a fourth tier to the triple bottom line of sustainable development: a cultural element. The Australian Conservation Foundation (ACF) undertook a collaborative research project, supported by the Australian Government, to analyse the suitability of Canada's 'cultural conservation economy' model to enhance sustainable development outcomes in Aboriginal communities. This model speaks of the quadruple bottom line to sustainable development that was proposed by a Canadian organisation called Ecotrust.

The quadruple bottom line firstly 'conserves and restores the environment', secondly 'builds and supports strong, vibrant, sustainable communities', thirdly 'provides meaningful work, good livelihoods and sustainable enterprises' and finally 'recognises Aboriginal culture, rights and title' (Hill et al., 2008). ACF's research stressed that to advance sustainable development in Australia it is necessary to implement a model of cooperation with Australia's Aboriginal communities and promote cultural sensitivity as its fourth arm.

Cultural processes provide a multitude of taken-for-granted beliefs, assumptions and practices that work together to cultivate particular human-nature relations. These cultural processes are the foundation for environmental attitudes and behaviours and are key to facing the challenges of environmental sustainability. All people have culture, and we cannot ignore its responsibility for the success or failure of current and future environmental policies (Head et al., 2005, p. 253).

Western culture and its sustainable solutions are characterised by a number of artificial segregations. This includes sustainable development's three distinct components of economy, society and environment as well as ideas that science is void of culture or that culture is in opposition to nature. The relationship between culture

and the environment is defined by the separation of humans and nature (Cronon, 1996). Humans are in control of and superior to nature, thus justifying the commodification and exploitation of nature for the purpose of economic production and wealth. Indeed Plumwood (2002) argues that this segregation is precisely why our relationship with nature is failing. However, once we realise that current notions of sustainable development and human-nature relationships are culturally constructed by the dominant western-scientific paradigm, we can begin to reinterpret these ideas through alternative cultural lenses. In fact, sustainable development's power to address the world's most fundamental challenges hinges on this reconceptualization.

Embracing Caring for Country into mainstream sustainability work provides avenues to transform Western views of and relationships with nature. The very distinction between Indigenous and Western culture is unhelpful in our attempt to develop more dynamic and fluid understandings of how culture and nature interact. The realisation that there is no monolithic classification of Western or Indigenous aids the coming together of the two ideologies in order to work towards more innovative and socially equitable solutions to the challenges of sustainable development (Head et al., 2005). This process of melting strict barriers between cultures is a crucial step towards incorporating the wisdom of Indigenous Australians as it takes steps towards appreciating the interrelatedness of all things (Altman, 2003; Harward-Nalder et al., 2011).

Caring for Country challenges the autonomy of the economy, society and the environment, emphasising the fundamental connections between all three realms. The 'trade-offs' between the economy, society and the environment no longer have meaning as we realise that each sector exists to nurture the others and become stronger by doing so. There is no economy without environment, no environment without society, no society without economy and so on. The idea that there can be no environment without society is counter intuitive to western thinking. Western ideologies believe that whilst humans depend on the environment, the environment would continue to survive without human existence (Giddings et al., 2002).

To make sense of this, we can employ Aboriginal concepts of wilderness. Wilderness is not something out there untouched by humans but rather wilderness is the neglect of nature on behalf of humans. Caring for Country views wilderness, not as places of conservation and vitality of life, but as places of disconnection and catastrophe where humans have neglected their responsibilities and betrayed the land (Rose, 2008).

Aboriginal approach

Aboriginal environmental movements may not use the official vocabulary of sustainable development, but it is clear that sustainability principles can be found in the philosophy of Caring for Country. The concept of biodiversity is a huge priority for the Western conservationist agenda, and is deeply ingrained within the Aboriginal kinship system and traditional stories. Stories that communicate knowledge about secret places you cannot go, animals you cannot hunt or plants you cannot harvest have a fundamental significance for biodiversity conservation, ensuring that a diversity of species is protected and resources are not used during seasons of scarcity (Mowaljarlai, 2001).

Additionally, Aboriginal landowners and managers illustrate a form of Western ecologists' 'whole systems approach'. Caring for Country appreciates the complexity of ecological and socio-economic interactions that requires an integrated and holistic framework. This can also be witnessed in the lack of division between different ecosystems or natural resources such as land and sea, water and soil, urban and remote, rangeland and coast.

Caring for Country is also relevant to the notion of intergenerational sustainability encompassed in the Brundtland Report's definition of sustainable development. Aboriginal responsibilities to past, present and future generations clearly translate to intergenerational responsibility.

Technology & Caring for Country

It is difficult to draw connections between Caring for Country concepts and Western views of science and technology. In Western philosophy technology is often seen as separate from society despite the fact it only exists within social and cultural relationships. (Giddings et al., 2002). In contrast, Aboriginal world views do not demarcate science and technology as a different realm to social values, beliefs and culture as a whole.

Western perceptions of technology embody desires for mass, global production that extends beyond function or usefulness (Goston & Chong, 1994). Whilst Aboriginal scientific knowledge and technology has become more complex and expansive over time, this evolution has been within the limits of immediate geographical location and spiritual and physical necessity. As a result, there is no over production, no excess, no redundancy, no waste and no impersonal exploitation of resources in places completely distinct from the responsible relationships that exist between people and their Country (Clarke, 2003; Plumwood, 2008).

This is in contrast with the practices of our globalised world, which allows for the exploitation of foreign lands without experiencing the consequences of such exploitation. Allowing Caring for Country to reshape western perceptions of technology does not mean we should end global production and return to self-sufficient local-production. It is a realisation that we must become responsible for and care for the places affected by the technologies of production and consumption that nourish our existence (Plumwood, 2008).

These parallels show how relevant Caring for Country is for our current endeavours. Aboriginal culture is not a static entity. Before settlement Aboriginal culture was always fluid, adapting to changes in the natural environment for continued survival (Atkinson, 2000; Goston & Chong, 1994). In the face of colonial settlement, and despite violent attempts to prevent this, Aboriginal culture has continued to mould and thrive as a unique and proud heritage. In the face of environmental concerns of historical proportions, it is now time for us to borrow from Aboriginal Australia's wisdom and rework our frameworks of sustainable development so that the health of our environment becomes intertwined in our everyday lives (Altman & Whitehead, 2003; Plumwood, 2002, 2008).

Faced with a Country suffering from widespread ecological degradation, neither sustainable development in its present state or Traditional Ecological Knowledge alone will be adequate. Sustainability solutions require an approach that incorporates Traditional Ecological Knowledge and selects best practice from both western and Aboriginal frameworks. This includes inventive techniques in areas such as biodiversity conservation but also in agriculture and pastoral production (Altman & Whitehead, 2003).

This interaction with Caring for Country cannot be another act of cultural appropriation or exploitation. An engagement between non-Aboriginal environmental paradigms and the philosophy of Caring for Country must take place through a process of dialogue. That is, all participants must be treated as subjects with agency and ownership. Parties must have equal right to compensation for their contributions as the two cultures develop what it means to reconceptualise sustainable development through the lens of Caring for Country (Langton, 1993). Traditional Ecological Knowledge must be treated as a legitimate and professional source of information similarly to western scientific knowledge. This is vital to avoid facilitating another attempt to assimilate Aboriginal Australians into the dominant culture.

Applying Caring for Country to urban sustainability

Urban greenspace and biodiversity have numerous benefits, including to improve health, sense of wellbeing, reduce stress, enhance productivity, reduce crime and boost property values (Barnett et al., 2005). They also provide vital ecosystem services such as the mitigation of flooding and erosion, collection of airborne and waterborne contaminants and the provision of wildlife habitats.

Over 40 per cent of Australia's nationally listed threatened ecological communities are found in urban areas. However, ecosystem destruction and fragmentation has already reduced and continues to threaten the rich biodiversity that exists in Australia's cities (Barnett et al., 2005; Wehi & Wehi, 2010).

The majority of both Aboriginal and non-Aboriginal Australians reside in urban environments. Unsustainable urbanisation brings problems regarding strained urban infrastructure, pollution, industrial and household waste, runoff, sewage disposal, poor water quality, reduced open and green spaces, traffic congestion, high energy use and overall reduced environmental health with associated effects on human wellbeing (Harmsworth, n.d.; Skinner, 2010). Additionally, it focuses our conservation efforts exclusively on the remote and rural, thus distracting us from the serious environmental concerns that face urban environments (Head et al., 2005).

As cities contend with growing social inequalities, exclusion and a swelling environmental footprint, urban sustainability frameworks have come to the forefront of urban planning and design (Skinner, 2010). Urban sustainability gives local meaning to sustainable change.

Aboriginal values & urban greenspace

As urban planners begin to appreciate the importance of low impact urban design and development it becomes clearer how significant the contribution of Aboriginal environmental philosophy could be to the success of these new sustainable cities.

Maori environmental values that encompass the active, spiritual and physical guardianship and custodianship of the land find deep parallels with Caring for Country. Harmsworth argues that the use of Traditional Maori values include balance, connection and interdependence between all ecosystems and the living and spiritual beings that reside within them. These values are directly in line with low impact urban design principles. Not only would the incorporation of Maori values provide new perspectives for urban design but it would provide opportunities for Aboriginal input that has been historically neglected (Harmsworth).

As attitudes towards nature are so culturally determined, the incorporation of Aboriginal values into urban planning provides opportunities to markedly improve its sustainability. This is due to a heightened appreciation it would bring for nature's fundamental role in human existence and vice versa (Harmsworth, n.d.). For example there would be a greater emphasis on low-impact technologies and development, collaborative learning and community participation, native vegetation to reduce runoff, environmental planning and technologies to reduce contamination, use of natural systems for erosion sediment and effluent control and increased care concerning ecosystem disturbance (Harmsworth, n.d.).

The design of urban spaces becomes part of our living environment and affects our living conditions, social wellbeing and health (United Nations Environment Programme, n.d.). As such, it is essential we pay attention not only to the environmental and economic sustainability of these urban centres but also to the cultural sensitivity of their design.

Urban sustainability frameworks informed by cultural diversity and inclusion is crucial to reduce our cities' environmental impact, nurture a healthy economy and improve social equity (Skinner, 2010). In this way, we can combat the frequent association of urbanisation with disconnection from Country for Aboriginal people and loss of traditional knowledge (Mercer et al., 2015).

Aboriginal people's full participation as urban citizens in the planning, design and governance processes of urban spaces can halt urbanisation characterised by cultural loss. Instead urbanisation can represent opportunities for traditional forms of land-use, ecosystem management and new innovative techniques for urban design that contributes to sustainability and flourishing biodiversity (Mercer et al., 2015).

Most opportunities for Aboriginal Australians to care for Country are provided through National and State Parks or Indigenous Protected Area Programs in regional and remote Australia (Altman & Whitehead, 2003; Baker et al., 2001). However, Country is just as important for Aboriginal Australians living in urban centres as it is for those living in remote regions. Caring for Country is not exclusive to areas of remote Australia but rather Dreaming places are forever and everywhere (Neidjie, 1985).

"Dreaming place... you can't change it, no matter who you are... No matter if it Croker Island, Elcho Island, Brisbane or Sydney." (Neidjie, 1985, p. 48).

Aboriginal people have a unique sense of landscape that includes the past, present and future, the physical, social and spiritual and are not disconnected purely through processes of urbanisation (Rau Hoskins, 2008). In Australia cultural stereotypes of the authentic Aborigine living harmony with nature in the outback, clean of the vices of economic development have been particularly dangerous for Aboriginal Australians living in urban centres.

Aboriginal people who engage in contemporary society, living and interacting with Western institutions and structures of living are seen as void of culture and stripped of their spiritual identity (Fredericks & others, 2004). In reality, urban-based Aboriginal people and their culture are still present and still carry laws and responsibilities as custodians of their land (Hinkson, 2003; Watson, 2009).

The incorporation of Caring for Country into urban design and sustainability practices begins to appreciate that Aboriginal Australia incorporates a multitude of distinctive life histories, experiences, cultural connections and expressions. In this way we can begin to develop a broader, multi-layered more genuine understanding of wider Australia's history and identity as a nation (Hinkson, 2003).

Recently in New Zealand, there has been a cultural revitalisation on behalf of urban Maoris through their active participation in the development of urban Maori authorities, education, business and service delivery.

This has reemphasised the importance of Maori culture to urban identities (Harmsworth, n.d.). However there is less opportunity to connect with Country in urban areas. Urban Aboriginal Australians are less likely to speak an Aboriginal language as their main language, less likely to have traditional foods in their diet, less likely to be living in areas that are formerly recognised as their traditional Country and are less likely to undertake Caring for Country activities such as burning grass, cleaning up, gathering bush tucker and medicine, protecting sacred sites, animals and totems, performing in ceremonies and producing traditional artwork.

Importance of Caring for Country in the urban space

Aboriginal people who are able to connect to their traditional Country have been shown to have lower rates of diabetes, cardiovascular disease and mortality rates than those living in urban areas (“Yotti” Kingsley et al., 2009). This highlights the importance of bringing Caring for Country into an urban space to achieve the goals outlined in the Australian Governments’ Close the Gap campaign including improved Aboriginal health outcomes.

The Boon Wurrung people are the traditional custodians of the East Kulin Nation that covers parts of Melbourne’s metropolitan areas. A study by Yotti Kingsley et al. (2009) conducted surveys with a number of Boon Wurrung members, which revealed that Caring for Country increased employment, education, health outcomes and reduced incarceration rates. A number of traditional custodians reported that the opportunity to fulfil their ancestral obligations made them feel empowered and instilled a sense of identity and pride.

It is important it is for Aboriginal people to have their culture reflected in the urban spaces in which they live. Aboriginal people must be able to experience a sense of place that embodies the reciprocal relationships of responsibility and obligation that are core to cultural and environmental health. To live in a space that visually and spiritually represents one’s culture is essential to promote self-esteem, wellbeing and the preservation of traditional practices and knowledge.

The embodiment of Aboriginal culture in urban spaces also provides opportunities to reinforce a unique and culturally diverse sense of identity for non-Aboriginal residents. For the sake of our cultural, societal, economic and environmental health we must meaningfully engage with Caring for Country within urban sustainability so that the natural and built environment encapsulates both Aboriginal and non-Aboriginal histories, identities, values and aspirations (Rau Hoskins, 2008).

Cities have often served as incubators of social, economic and cultural change, initiating movements that inevitably spread to the national level. We must harness the power of cities to develop localised, community empowered sustainable practices.

How Caring for Country has been applied in an urban context

As previously stated, traditional Aboriginal knowledge and philosophy such as that embedded in Caring for Country is not often applied to sustainability in an urban context. (Mercer et al., 2015). It has been applied in remote and regional areas for natural resource management through programs such as Working on Country and Indigenous Protected Areas. However, there are some examples of its application in urban contexts both internationally and in Australia.

1. Japan

In Japan 'Satayama' is widely applied in urban management and governance, particularly in urban parks. Satayama is a traditional type of socio-ecological landscape and seascape production, which aids cultural and biological diversity without reducing economic activity. This provides opportunities for urban citizens to connect with nature and traditional knowledge on a regular basis (Mercer et al., 2015).

2. Wuyang Bay, China

The traditional agro-ecological knowledge of local residents has been used to combat the negative effects of the drawdown zone in Wuyang Bay of Hangfeng Lake. Hangfeng Lake is the second largest urban lake in China and was recently designated an urban wetland park (Chen et al., 2014). Negative impacts of drawdown zones include soil erosion, habitat and cultural heritage loss, and aesthetic degradation.

A modified pond-land terrace land/water use (MLPT) system was used to maximise ecosystem services based on a combination of the local practices of paddy terrace and dike-fish pond farming with modern ecological restoration design analysis. The system is comprised of water retention ponds at the top, vegetation fields in the middle and a reservoir lake at the bottom. The design was developed through a consultation project with residents around the site regarding their agricultural practices and techniques to reduce runoff and soil erosion (Chen et al., 2014).

The implementation of the MLPT system was shown to reduce resource depletion, lake pollution risks, soil erosion, nutrient flow and improve the integrity of natural and managed ecosystems. There was broad community support for the MLPT system with locals reporting exhilaration to have their agricultural practices featured in an urban park and willingness to participate in the expansion and maintenance of the system.

3. Cape Town, South Africa

In Cape Town, South Africa, conservation officials worked with the Rasta bossiedoktors (traditional bush doctors) to plant a number of Indigenous plants of medicinal significance on the Seawinds open-access street garden. This process took place in a number of low-income areas. It strengthened bio-cultural ecosystem resilience by increasing the value of the residential streets, supporting biodiversity and opening up avenues for communication and collaboration between the Rasta and conservationists (Mercer et al., 2015).

4. Auckland, New Zealand

The city council of Auckland, New Zealand has an independent Maori Statutory Board and Pacific People Advisory Council to ensure their consideration of Maori and Pacific Islander interests, priorities and values

within urban planning. The city also has a Maori Strategy and Relations department, which sees that obligations towards the Maori people are met.

Consequently, the Auckland City Council has developed an urban design framework whose ultimate goal is to encapsulate the city's unique Maori, Pacific and multicultural history and identity. This includes combining Maori values and approaches within Western-centric architecture, design and engineering in order to achieve a socially, culturally and environmentally sensitive design that incorporates low impact, energy, resource use and cost efficient techniques (Mercer et al., 2015).

5. Edmonton, Canada

Edmonton's, Urban Affairs Committee and Aboriginal Relations Office have begun to draw from Aboriginal environmental philosophy in their city projects. As a result, a portion of Whitemud Park is being considered as a permanent licensed site for traditional Aboriginal activities. A fund has also been set up for the redesign of Walterdale Bridge in Rosedale, which is located near a traditional burial ground, and the Squamish and Lil'wat Nations of Whistler built a Cultural Centre to house and present Aboriginal art, history and culture. The Centre was constructed such that the forested area on the property was relatively untouched and the architectural design emulated the traditional longhouses of the local people (Mercer et al., 2015).

6. Cairns, Australia

In Cairns, Tjapukai Aboriginal Cultural Park displays an array of traditional Tjapukai music, dance and storytelling. The park is placed on the traditional lands of the Tjapukai people in a rainforest setting with an architectural environment that emphasises the importance of biodiversity to traditional Aboriginal culture. In addition to the socio-ecological benefits, it has also brought over \$35 million to the local Aboriginal community through wages and royalties associated with tourist attractions (Mercer et al., 2015).

7. Perth, Australia

The Perth Region Natural Resource Management (NRM) covers metropolitan Perth. The body collaborates with the people of the Noongar Nation to mitigate environmental issues and help deliver positive outcomes that address Noongar concerns. It recognises the inextricable links between the Noongar people's traditional knowledge and the environment. The program values Noongar participation, ownership and control of natural resource management both for the success of sustainability goals and for the preservation of Noongar culture. There is an active engagement with the seasonal knowledge of the Noongar people to guide understanding concerning weather and seasonal cycles of plants and animals. Noongar people are also provided opportunities to train in environmental management and participate in native flora and fauna monitoring programs (Perth Region NRM, 2011).

In addition, the Perth Region NRM has a formal Cultural Heritage Program, which includes initiatives to educate the public about the six seasons Noongar calendar and traditional uses of flora and fauna. This is achieved through their Traditional Ecological Knowledge Noongar database and Primary School Mentoring Program. Additionally, cultural heritage education is facilitated by community workshops about Noongar protocols, cultural knowledge and consultation processes. A Noongar Coastal Trail, which spans the coast from

Rockingham in the south, highlights significant cultural sites and traditional cultural practices. The NRM also recognises the importance of traditional languages in preserving Traditional Ecological Knowledge and works closely with the Noongar community to record and revitalise traditional languages (Perth Region NRM, 2011).

8. Northern Territory, Australia

The Larrakia Rangers is a long-running urban-based Aboriginal ranger group that works across Larrakia land and sea Country. This Country comprises the greater Darwin region west across the Cox Peninsula and east to the Adelaide River. The Larrakia rangers are unique in that they focus on commercial work, employment and training. The group carries out a variety of commercial work including weed control, feral animal control, erosion, grounds maintenance, revegetation, fencing, boardwalks, signage, crocodile monitoring, marine megafauna spotting, fish surveys, wildlife trapping, archaeological surveys, and water quality sampling (Larrakia Nation, n.d.).

Additionally, they work on community priority projects such as protecting sites of cultural and natural heritage significance to the local Aboriginal people and participating in and promoting community clean-up days. The ranger program provides significant opportunities for training in skills that will open pathways to external employment in industry such as cross cultural training, tourism, mining and marine services. Their vision is 'to be a strong, self-sufficient and healthy Nation of Larrakia people, participating fully in the wider economy of Darwin and the Northern Territory, where Larrakia language, law and culture is known, respected and valued by all members of that community' (Larrakia Nation, n.d.).

9. Sydney, Australia

Aboriginal perspectives are progressively being incorporated in the metropolitan landscape of Sydney suggesting that the practice of marginalising Aboriginality to remote and regional spaces is shifting. Aboriginal culture is becoming more visible in urban centres through initiatives such as the Parramatta Riverside Walk. This is an 800 metre painted pathway that explores Aboriginal history in the area. It commemorates traditional Aboriginal cultural practices such as hunting, fishing and languages whilst also acknowledging more controversial aspects such as frontier violence and massacre. (Hinkson, 2003). The Botanic Garden presents the Cadi Jam Ora display, which educates visitors about the traditional life and lands of the Aboriginal custodians of the region as well as examining their relationships with their British colonisers and differing perspectives of the environment. The old Australian Hall building in Sydney is considered by many to be the birthplace of the Aboriginal civil rights movement. It housed 100 Aboriginal people on The Day of Mourning on January 26, 1938 as they called for an end to the mistreatment of Aboriginal people under protectionism and lay the foundation for the 1967 referendum campaign. The building is now listed on the NSW State Heritage Register and under the ownership of the Metropolitan Local Aboriginal Land Council. It still represents a powerful symbolism for urban-based Aboriginal people. Finally, there have been a number of community initiatives such as the development of the Bush Tucker Walk in the grounds of the Yarra Bay House at La Perouse (Hinkson, 2003).

10. City of Port Phillip Council, Australia

In metropolitan Melbourne, the City of Port Phillip Council has a number of programs that seek to engage with the Boon Wurrung people, the traditional custodians in the area. The Port Phillip EcoCentre has established a strong relationship with the Elders of the Boon Wurrung people, providing assistance for Aboriginal Cultural Professional Development and regular excursions and education forums for them to inform the public about traditional knowledge. The council's 'Country Connect' project commenced in 2011. Country Connect works in collaboration with the Boon Wurrung Foundations to provide guidelines enabling local land managers and Aboriginal communities to actively participate in the protection of cultural heritage sites from erosion, weed invasion and uncontrolled human foot traffic. (Port Phillip EcoCentre, 2013).

Applying Caring for Country further in Australia's urban context

Some work is being done in Melbourne to respect and preserve traditional Aboriginal knowledge and culture, but there is opportunity for much more application of Caring for Country to urban sustainability. Education programs and exhibitions of Aboriginal culture and history are very important in developing an informed and considerate relationship between Aboriginal and non-Aboriginal Australia. However, we need to further explore Traditional Ecological Knowledge to ensure the meaningful incorporation of Caring for Country into the fundamental structures of our cities. In addition to some of the examples above, the following section provides tangible suggestions for how Traditional Ecological Knowledge can be integrated into the physical planning, design and practices of sustainable urban environments.

Names & Renaming

The renaming of urban spaces could become a large part of the decolonising process for Australia (Plumwood, 2002). The majority of Australian place names are human-centred, serving to flatter and commemorate significant figures in European History. The suggestion is not that place names must not be named after people of European descent or that all names must be in Aboriginal languages. Rather the nomenclature process should involve deep naming that connects place names to the story and character of the environment and community they denote. Aboriginal place names interact with the narrative of the land itself. For example 'Uluru' has no meaning in the language of the local Pitjantjatjara people, but the senior Traditional Owner use it as a local family name. Thus the name incorporates the lives of the community who nurture the land surrounding Uluru. This gives agency to the land and the society it supports and rebuilds a community identity which incorporates the life and spirit of the region. As such, the bonds between communities and their environments are enhanced and the protection and sustainability of these environments become further embedded into the priorities of the humans who inhabit them.

Support of existing practices

In some instances the incorporation of Caring for Country into urban sustainability merely requires the support of practices that are already taking place rather than the development of entirely new projects. In the Waikato region of New Zealand, traditional harvesting is still a huge part of the everyday lives of the Waikato elders (Wehi & Wehi, 2010). Only a small proportion of these plants are harvested from conservation lands. The majority of the plants are collected from urban and public areas such as roadsides, scrubs, universities and parks.

Active support for traditional harvesting on behalf of local governments through urban planning that supports the health of traditional plants and harvesting techniques could have large benefits for the aesthetics and biodiversity of urban centres. Without such support, these traditional harvesting practices will continue to decline in the face of serious concerns such as contamination, hybridisation, ecosystem destruction and incorrect harvesting procedures.

The increased management of public urban areas for cultural use would also see to a revitalisation of traditional knowledge surrounding cultural uses of these plants that has been lost due to generations of

assimilation and ecosystem fragmentation. Increased opportunities for traditional harvesting would improve the vitality and cultural diversity of the community as a whole.

Urban planning process

Incorporating Aboriginal values in urban planning would deliver benefits to both Aboriginal and non-Aboriginal communities. For example, the strategic introduction of native vegetation in culturally significant areas would enhance cultural values, reduce runoff and stormwater and recreate habitats based on Aboriginal values.

Other possibilities include: restoration and enhancement projects on Aboriginal lands; planting of indigenous flora and increased native faunal habitats in urban areas; reduced disturbance, biosecurity and contamination of culturally significant areas through low impact design and development; promotion of safe, healthy traditional food source areas in urban centres; incorporation of natural systems within urban design to enhance cultural sites and control and reduce erosion and sediment, and culturally appropriate design for sewerage reticulation, disposal and treatment; and involvement of Aboriginal communities to improve energy efficiency and reduced energy use.

In 2008, Awatere et al. developed a list, represented below, of Maori urban design principles and the ways these could be applied in urban planning. The principles are embodied within traditional Maori environmental philosophy and largely correlate with that of Aboriginal Australia.

- 'Kotahitanga' refers to cohesion and collaboration.
- 'Whanaungatanga' denotes participation and membership in the community and social setting. Both principles could be manifested through community centres, facilities, parks, reserves and walkways.
- 'Wairuatanga', meaning embedded emotion or spirit, stresses the importance of an emotional connection between the environment and people and could be employed in site orientation to important land marks, sight lines and environmental restoration projects.
- 'Manaakitanga' indicates hospitality and security, advocates acceptance and hospitality to visitors, community protection and security. This could inspire restored access to traditional medicines and food resources, communal gardens and crime prevention through urban design.
- 'Kaitiakitanga' connects to sustainable resource management. This could be used to protect significant landscape features important to local Aboriginal and non-Aboriginal communities through restoration of waterways and natural areas and cluster buildings to maximise communal reserves and natural environments.
- 'Rangatiratanga' means leadership, identity and self-determination whereby communities can lead and take responsibility for creating and determining their futures. This can be achieved through freedoms such as the ability to live and work from home or live in high density of clustered dwellings.
- 'Mauritanga' emphasises the essence and life force of the natural environment and can be expressed through initiatives such as community monitoring of natural environments, swale systems for stormwater, rain-tank collection systems, grey-water recycling systems and passive solar design.

- 'Orangatanga' signifies health and wellbeing, aiming to maintain health and wellbeing of community through communities' access to resources, indigenous flora on public and private space and infrastructure to encourage walking, cycling and public transport.
- 'Matauranga' describes knowledge and understanding to connect different community histories and identities through education promotions, interpretation boards and heritage trails. All these concepts and their physical manifestations could be applied to urban sustainability in Australia and contribute substantially to reduced inequality, holistic planning and low impact design.

International recognition of biological diversity & traditional knowledge

The Convention of Biological Diversity has three main objectives: the conservation of biological diversity, the sustainable use of the components of biological diversity and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

The Convention was signed by 150 government leaders at the 1992 Rio Earth Summit as a practical tool for translating the principles of sustainable development outlined in Agenda 21 into reality. The Convention stresses that biological diversity extends beyond the importance of plants, animals, micro-organisms and their ecosystem to people, food security, medicine, clean air and water, shelter and standards of living. It also states that traditional knowledge is a key tool in the conservation of biodiversity and sustainable resource use.

The Malawi Principles for the Ecosystem Approach was presented at the fourth meeting of the Conference of the Parties to the Convention and declared ‘the ecosystem approach should consider all forms of relevant information, including scientific and Indigenous and local knowledge, innovations and practices’ (Garcia, 2003). Target 18 of the Aichi Biodiversity Targets developed under the Convention’s Strategy Plan for 2011-2020 explicitly states:

“By 2020, the traditional knowledge, innovations and practices of Indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of Indigenous and local communities, at all relevant levels” (Convention on Biological Diversity, n.d.-a).

Most importantly, recent decisions of the Convention’s Conference of the Parties developed a mandate for investing in ways to increase Aboriginal engagement in urban planning and governance. In November 2015 the Secretariat of the Convention held a workshop in Montreal on this topic as an incubator for new and innovative techniques in urban planning. If Australia is to live up to its duty as a signatory of the Convention of Biological Diversity, it must align itself towards further integration of Caring for Country within urban sustainability.

Conclusion

It is crucial that the application of Caring for Country to urban sustainability is not performed in a way that simply allows two ideologies to work parallel to each other. There must be a genuine effort to understand and embed Aboriginal environmental philosophy and knowledge into its world-view. There must also be a genuine engagement on behalf of the Western culture to understand the interdependent relationship between nature, law, language, culture, ethics and economy. Otherwise Aboriginal participants will not be able to fully express their connection to Country in a way that is holistic and meaningful to them.

Caring for Country and the sustainable solutions it inspires may become integrated into every aspect of people's everyday lives. The economy, society and the environment are not separate or opposing, but instead are entirely dependent on each other and nurture one another through a series of responsible and reciprocal relationships.

The process of applying Caring for Country to sustainability also offers a fourth, cultural tier to sustainable development. Incorporating varying cultural perspectives into sustainable development fulfils obligations to social equity and provides relevance to various sustainable initiatives that require behavioural change from all sectors of society. It also highlights the artificial cultural boundaries that have been established between Western-scientific and Aboriginal philosophies as we begin to realise the many intersections and parallels that can be drawn between these two worldviews.

Caring for Country can be manifested within urban sustainability in a multitude of ways:

- Aboriginal participation in the governance of urban planning,
- Physical structures within urban centres,
- Naming of urban spaces, and
- Encouragement and incorporation of traditional practices and knowledge in urban design.

The success of sustainable development requires a significant shift in how the dominant, Western-techno-scientific culture sees the world. Continuing to separate our lives into distinct compartments of economic/social/environmental/cultural, urban/remote, Western/Aboriginal will deliver the same unsustainable results.

It is time to engage in a transcultural, trans-disciplinary worldview that recognises all humans everywhere are part of a web of connections, which embody a series of responsibilities to our environment and each other.

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