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# The Future of the City or the City of the Future – Culture as an Enabler for Sustainable Development – the case of Macao

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**ABSTRACT:** In the dramatically changing world where the rates of change follow Moore's Law, determining that the number of transistors on a chip, managing data, doubles every two years, the digital revolution will be a key factor in the redesigning of our cities. With life-styles and patterns of living responding to the new models of urbanization, the need to consider geo-cultural values and attitudes is essential. The current texts for managing human settlement now include, inter alia, the Sustainable Development Goals, the New Urban Agenda and the Recommendation on the Historic Urban Landscape. Applying these concepts to address the challenges of mobility, inclusiveness, resilience and safety is critical in Macao being inscribed on the World Heritage List and in managing the development pressures of global tourism and an extended metropolis of the Pearl River. New technologies, virtual realities, artificial intelligence will change our cities, for better and worse.

**KEYWORDS:** Historic Urban Landscape; New Urban Agenda; Sustainable development; Future; Metropolis

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An anniversary is always an excuse to reflect on the past and look into the crystal ball. The tenth anniversary of the listing of the Historic Centre of Macao on the World Heritage List was no exception. How can we foresee our future? My parents would have been aghast viewing my daily schedule with the equipment and applications that I

have for managing my life. And perhaps, like my parents who might not comprehend our 21st century life style, we will express a similar reaction to our children's generation. We are looking not only at the city of the future, but also the future of the city while engaging culture as an enabler for its sustainable development.

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Norwich cathedral cc-by-sa/2.0 - © Ashley Dace - [geograph.org.uk/p/970558](http://geograph.org.uk/p/970558)St. James the Less church, Little Tey, Essex cc-by-sa/2.0 - © Robert Edwards - [geograph.org.uk/p/137731](http://geograph.org.uk/p/137731)

The world over the past centuries has evolved through a series of revolutions, and the current disruptive innovation is no exception (Bower & Christensen, 1995). The scientific revolutions of the 16th century gave way to the industrial revolutions of the 19th century and in the 20th century to a sequence starting with social revolutions, independently in the East and the West of the world. Subsequently, in the 1970's we found ourselves, after the 1972 United Nations Conference on the Human Environment, Stockholm, in the midst of an environmental revolution, to be followed by a commercial revolution, particularly in the south-east Asian cities with their unprecedented urban growth. In this millennium we are entering a digital revolution, a revolution which is dramatically changing the way we perceive our world, and where people are initiating innovative ideas and cross-disciplinary proposals with smarter cities at the forefront. Although this multi-tasking should be bringing us towards considering a more integrative city, actions are still sporadic and fragmented, even within the framework of the United Nations. Amongst others, we have the resilient cities of the UNISDR, the sustainable cities of the United Nations Environmental Programme, we have healthy cities of the World's Health Organization

and in UNESCO, we encompass the World Heritage Cities and Creative Cities Programmes. With these shopping-lists the political decision-makers are looking to brand themselves and their cities, however, I would question this approach and state that there is something more to a city than branding.

The UN statistics have shown, that from around 2008 more people were living in the cities than not, and we are being intimidated as to what will happen to our 'planet of cities' when by the middle of this century, most of us will be living urban lives. Yet a closer look at the statistics shows that while this is the trend, there are other definitive options, and trends are there to be studied and even diverted. Perhaps we should be looking at 'cooling the city' with alternative solutions for livability by extending the city to include its hinterland for urban sustainability (Weber, 1958).

Nowhere is urbanism more critical than in the projected future growth of Asia and Africa where many conurbations and medium-sized cities may double their size in the coming years; this is quite inconceivable. To understand our futures, we need to look at the components of urban growth and change through the diversities of scale. Stephan J. Gould in a distinctive essay compared two churches of the 12th century in

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England, drawn to the same scale (Gould, 1980, pp. 171-178). The first, being the village church of Little Tey in Essex, a little over 8x16 metres, the second being Norwich Cathedral, a nave of 25x140 metres, only 100 kilometres distant from each other. But obviously, you cannot take two Little Tey churches to make one cathedral. Looking at the images of the two buildings they are dramatically and inherently different. At a particular point on the scale, there is a structural metamorphosis; it becomes a different animal, and it has to be understood within new parameters, similarly with the diverse urban scales.

To understand these features, we need to generate indicators, the first is that of size, through its growth and change, and the second is that of form and function. These indicators are inter-related and inter-dependent. Growth and change can be translated into urban terms as process and project. Our historic cities grew over the years, responding to an incremental process where the projects were small, and dependent on the economic capacity of the political era. We are now witnessing cities being designed through large-scale projects and where the process is breaking down with the speed of change. The form and function respond to new challenges and opportunities, as climate change and technological advancement. Delhi provides an interesting Indian example, with the symbiotic relationship between Shahjahanabad, the Old City of Delhi growing over the years as a dynamic process and the nearby New Delhi of Lutyens, designed as a project. There are similarities in its application to Macao where both process and project intertwine, the Portuguese city and the surrounding development proposals. 'New life in old cities' in the West might be considered as the restoration of a previous time, based on Judeo-Christian roots and recognizing the resurrection for the future, whereas, in the East we recognize different beliefs including Hindu reincarnation and Shinto regeneration. The reincarnation or regeneration of the city is a dramatically different concept than its resurrection resulting in singular solutions.

However, in looking into the future, there are, on the one hand, global strategies and universal values and on the other hand geo-cultural influences. While observing worldwide trends and manifestations, local considerations are vital for cultural identity and although there are some successful mutations, we need

to be very cautious in applying syncretism by simply copying or transposing ideas from one culture into another. In generating a hybrid form it is necessary to encourage the appreciation of those issues that are relevant and adaptive to a new life in an historic ensemble and those that are maladaptive. To achieve this, the city is an amalgam of the intangible, its innovative education programs, the music, the theatre, the literature, the traditions and ceremonies which are being re-enacted in the streets and homes. For Macao, their reinterpretations will endow the continuity needed for livability, livelihood, life and after-life. They represent the soul of the city, for without a soul, the city is reduced to a sterile or even dead monument.

The language of World Heritage and its Convention is based on the concept of values meeting specific criteria – the collective protection of the cultural and natural heritage of Outstanding Universal Value. Yet again, we refer to universality, but relate to locality and the importance of local culture. Revisiting the Burra Charter, it states that “places may have a range of values for different individuals or groups, and values are continually renegotiated” (Marquis-Kyle & Walker, 2004), in other words, the values are negotiable and there appears to be no universality. A veritable paradox! Indeed, we may consider the transformations of the Hagia Sophia from a church to a mosque to a museum, the history of the Chinese imperial palace in the Forbidden City reflecting the regimes of imperialism, communism and tourism and observe how the values have dramatically changed over the years. Thomas Rochon identified three modes of change (Rochon, 2000) - value conversion, value creation and value connection. Value conversion is the replacement of a different value. In the case of the Forbidden City, the value of the Emperor has been exchanged with the value of the Cultural Revolution, and transformed yet again with the current value of tourism. Value creation, is the creation of new values, those which our parents did not consider or the ever-changing values and priorities of our society. Value connection is connecting the values through links that we never even thought existed.

Values however absolute must be considered in an ever-changing global and geo-cultural comparative context. The comparative analysis for the Outstanding Universal Value of the Historic Centre of Macao was prepared in a revised nomination document providing

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a detailed comparison taking into account the global development of trading between the Orient and Western countries in the Portuguese and other colonial contexts. The comparison embraced not only the Portuguese architecture, compared spatially at a global level, but the historical development of trading over the years compared temporally at the local level, thereby preserving and respecting the identities of previous and other trading peoples in the delta of the Pearl River. The Nara Document, relating to the conditions of diversity and authenticity, highlights very clearly that “... in a world in which the search for cultural identity is sometimes pursued through aggressive nationalism and the suppression of the cultures of minorities, the essential contribution made by the consideration of authenticity in conservation practice is to clarify and illuminate the collective memory of humanity” (UNESCO, ICOMOS, ICCROM, 1994).

The Historic Centre of Macao reveals layers that have evolved over five hundred years and built on previous eras. The city, therefore, has within it, as termed by Francis Bacon “shipwrecks of time” (Bacon, 1877), extended by the scars of history and even sites of conscience. Now, these relics might not be apparent in every part of the city, but they are important in understanding the layering, with these shipwrecks being the evidence of the past. However, we are also looking at a Darwinian theory of conservation. His contemporary, Herbert Spencer, coined the theory as the ‘survival of the fittest’ but, in reality, it is the ‘survival of the adaptive’. If it adapts, it will survive; if it does not adapt, it will die. This is a critical concern to consider in the managing of heritage. However, this is a double-edged sword, as the dilemma in adaptation is, in many instances a loss in tradition and continuity, especially where old and new pressures on the urban landscape are very complex.

This was well understood in the 2015 State of Conservation report, in which the Macao SAR Government had outlined the new legislation that had been put into place Law No. 11/2013 ‘Macao Heritage Law’ and Law No. 12/2013 ‘Urban Planning Law’, both of which came into force on 1st March 2014, for the purpose of providing a legal basis for the protection of the cultural heritage and sustainable development of Macao. Nevertheless, with large-scale developments, the material architectural heritage and

its setting have become disassociated from their urban context as was noted in the analysis and conclusions made in 2017 by the World Heritage Centre and the Advisory Bodies. “The possible impact of high-rise developments on the landscape of Guia Lighthouse and Penha Hill, as well as growing concerns about lack of a Protection and Management Plan ... could have serious consequences for the Outstanding Universal Value of the property.” Macao is not alone as this is a global problem, with the World Heritage Centre identifying 14 primary threats, based on the cumulative figures between 2005 and 2015. These show that over 70% of the properties reporting on the State of Conservation have problems of management involving development, including infrastructure and buildings, 43% institutional factors and 27% socio-cultural uses. A more pro-active and holistic approach through the UNESCO Recommendation on the Historic Urban Landscape and the UNHabitat New Urban Agenda is needed together with a Strategic Environmental Assessment ensuring a comprehensive policy for sustainable development (Rodwell & Turner, 2018).

Moreover, one of the main threats which we are facing, and felt overall in East Asia and specifically in Macao and in Beijing, are the tourist torrents. Figures of over 30 million tourists a year in Macao, and 180,000 visitors in one day to the Forbidden City at Beijing are being reached. In dealing with torrents of tourists, we need to pose the question: is this something that we can manage, or is this something which we have to leave alone to reach its own balance? The Palace Museum of the Forbidden City, Beijing now restricts entry to 80,000 visitors a day, booked online, similar limitations at the Alhambra, Granada while the City of Venice is looking to charge for entry to the city. This is beyond just the protection of an individual monument but relates to the wider urban setting and context and urban management of the city. For this, the digital revolution offers new opportunities and new experiences with augmented reality and online management which, in turn, will redefine the city providing for a new generational spirit and feeling.

To tackle these urban issues, an integrative approach was developed in the wake of the 2005 Vienna Memorandum resulting in the 2011 UNESCO Recommendation on the Historic Urban Landscape (UNESCO, 2011). The way forward is a through



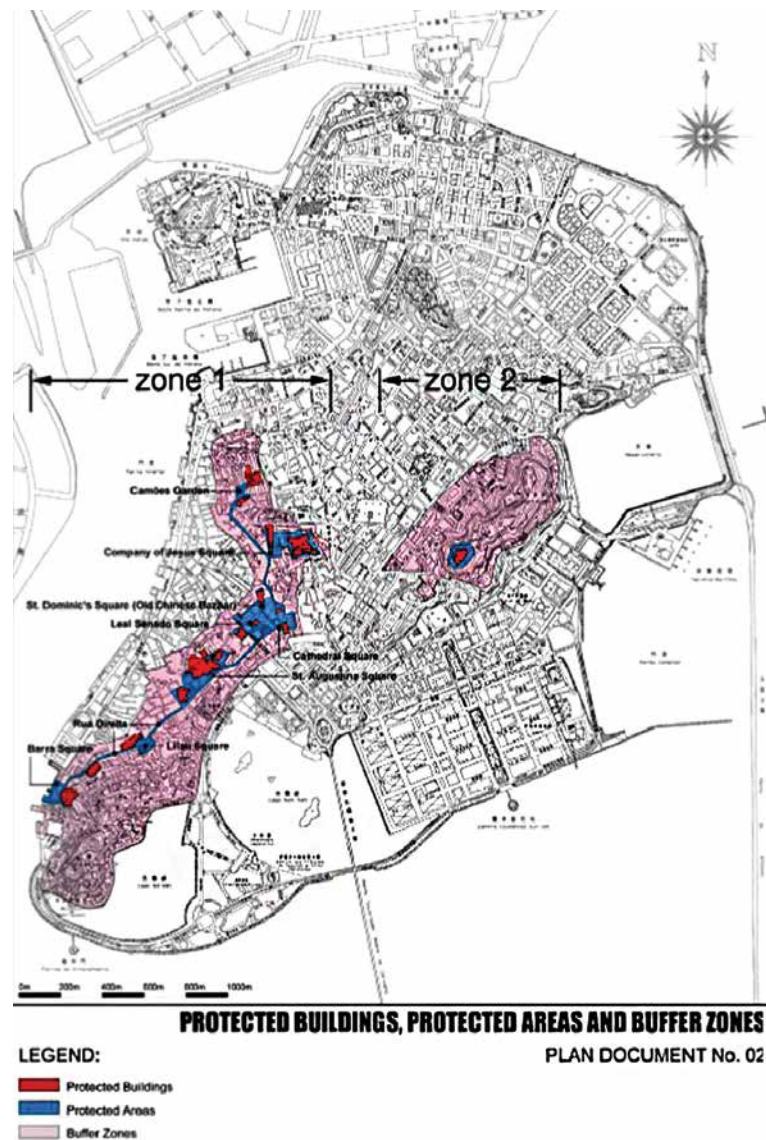
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an enhanced definition of the values and meanings of urban heritage, the application of the landscape approach, and its capacity for the management of change. We can identify change, distinguished through time accumulated with our experiences, visiting new places and even touching old objects that mold and recreate our personalities. Consequently, in understanding the mechanisms that manage change, we need to reach the goals of sustainable social and economic development with appropriate tools for implementation. The tools that manage architectural preservation are not the tools for urban conservation and those needed for the integrative management of the city and its continuity. The essence is in identifying the historic layering of the city, and also encompassing the broader urban context in the understanding of the land and seascapes. This integrative approach assists in the identity of cities through thematic functionality and geo-cultural uniqueness.

Building on Ian McHarg's concepts of the layering of space in his *Design with Nature* (McHarg, 1969) Yi-Fu Tuan in his seminal book *Space of Place* (Tuan, 1977) further extended the three-dimensional layers with a fourth dimension by which we understand the role of time. The layers of time allow us an insight into our environment and the continuum between past and future. He illustrates this with two culturally different examples showing the centrality of the Hopi concept of space and the feng-shui for the design of the northern capital of Peking. This compares with the Latin 'axis mundi' linking the world from the lower, nether of the past through the earthly, present and to the upper, heavenly future of the world being a theme that has been used in Western art, philosophy and literature over the ages. This layering over time has diverse expressions, where cities are built by each other, are built over each other, are built instead of each other, are absorbed within each other, are re-occupied and cities are even hi-jacked.

Whether a systems approach or distinctive goals, the three pillars of sustainability are well entrenched with reference to economics, environment and society (Purvis, Mao, & Robinson, 2018). Over the years there have been murmurings regarding a fourth pillar, that of culture. This is not reasonable; a fourth pillar as an engineering structure does not have the stability of three pillars, the geometric triangle being the most

solid of engineering structures. Culture should be considered as a brace linking these three pillars: in this way, culture strengthens the understanding of sustainability as a component part of an integrative approach. We need to engage with the evolving global frameworks which were adopted in 2015, including the United Nations 2030 Sustainable Development Goals replacing the 2000 Millennium Development Goals when the word 'culture' did not even appear. However,



Map of Macao Historic Centre. In: UNESCO World Heritage Centre

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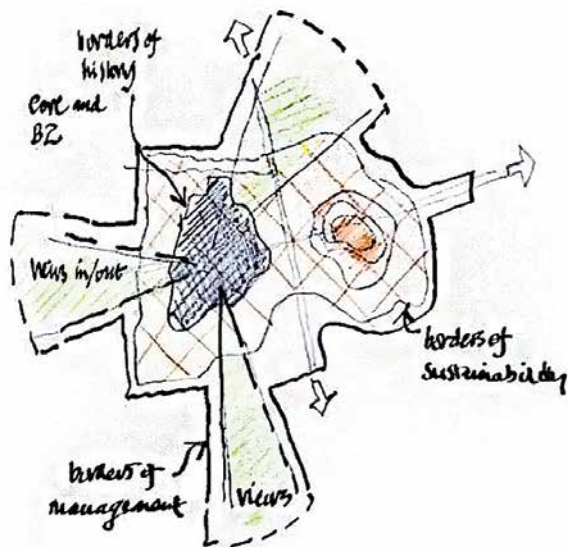


Image: Turner

Redefining boundaries and borders (Buffer Zones, World Heritage Paper Series 25, M. Turner)

in the Sustainable Development Goals, culture has now found its place, although not as a separate subject, but as reference within many of the other goals (Turner, Culture as an Enabler for Sustainable Development - Challenges for the World Heritage Convention in Adopting the UN Sustainable Development Goals, 2017) and specifically in target 11.4 safeguarding the world's cultural and natural heritage to achieve Goal 11 in making "our cities and human settlements inclusive, safe, resilient and sustainable". In this way, the UNESCO Recommendation on the Historic Urban Landscape underscores 'culture as its driver or an enabler of sustainable development' (UNESCO Culture Sector, 2018). Not speculative development; culture does not belong there; but in sustainable development, where culture is the driver. By taking a cue from the new Sustainable Development Goals, culture or development should not be seen as a binary opposition, but an ongoing symbiotic relationship.

Looking at the visions for the coming decades, there are currently three main urban issues on the global agenda, the first being the urgent need for social inclusion, the second is the comprehension of the opportunities of the digital age and third, the provision

of resilience through the management of sustainability. These three agenda items will be critical in shaping the changing views of the city of the future. The economic, political and technological forces will be changing the rules of the game and will be a major influence in the managing of our past and present.

Let us consider how the Historic Centre of Macao can internalize and engage these challenges. Viewing the World Heritage designation of the historic centre as a serial nomination with the protected buildings and surrounding areas we can see how the buffer zone surrounds the parts as a protective shell. The diagram for the 2005 World Heritage Paper #27, (Turner, On Buffs and Buffers, 2009), attempts to give more meaning and content to the role of the buffer zone as a space for sustainability, not only between generations, but also between places; between the historic core and accompanying development. It is the development that sustains the historic core, and with the historic core providing identity, quality and a sense of place that will sustain the development. Much commercial development, with its banality, lack of identity and diversity will not be going very far. It is when the development is integrated as part of the whole that its sustainability is assured through the extension from time to place.

Thus, the drawing fits quite delightfully over Macao. Based on the Historic Urban Landscape approach and the re-defining of the Macao Historic Centre, the whole peninsular would be deemed as the extended area of the Macao Historic Centre together with its relevant views and seascapes.

The terminology and interpretation of 'property' and 'buffer zone' in the Operational Guidelines comes into question. The term buffer zone has the connotation of negativity - buffer zones between conflict areas - dividing 'them' and 'us', and always indicating an unconstructive approach. However, the definition of 'buffer zone' in the language of the Operational Guidelines is defined as 'an added layer of protection', while being considered restrictive it can also be construed in a more positive manner as sustainable development enhancing the values of the inscribed property. This may be seen as the symbiotic relationship of the city that needs to be explored linking culture and nature through mechanisms such as the UNESCO MaB Urban Biospheres or the UN Food

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and Agriculture Organization's Globally Important Agricultural Heritage Systems, FAO-GIAHS. The Historic Urban Landscape approach extends this idea much further and is reflected in the 2015 changes to the Operational Guidelines to paragraph 112, that an integrative approach is essential for the management of a property and its "...approach goes beyond the property to include any buffer zone(s), as well as the broader setting". (UNESCO, 2016) Furthermore, the Historic Urban Landscape approach defines the broader setting including "spatial patterns, visual relationships, social cultural practices and intangible dimensions". (UNESCO, 2011) The celebration of the 10th anniversary of the Macao inscription was the opportunity to reformulate the city and the engagement of new tools of urbanism.

And what about the future of our cities? They are here to stay in an ever-changing form and to manage the challenges of disruptive innovation we need resilience. This may be provided through diversity in function, engaging with shopping, heritage, tourism and education in a pro-active manner. Functional redundancy is an urban essential and its parallel with biological diversity where a substantial role is played in ecosystem resilience through ecological redundancy is more than relevant. "In particular, we hold that the variability in responses of species within functional groups to environmental change is critical to ecosystem resilience, a property that we call 'response diversity', and define as the diversity of responses to environmental change among species that contribute to the same ecosystem function (Elmqvist, et al., 2003)." Similarly, this redundancy is essential to the continuing life of the city and its resilience.

Heritage belongs to us all, it is our common identity; the poorest person in the poorest shed has equal rights to determine their heritage, and by this, we need to recognize that the UNESCO Recommendation

on the Historic Urban Landscape is a holistic approach applying to human settlements and not only to those listed as World Heritage.

Social inclusion and sustainability go hand-in-hand when considering not only the defined area of the World Heritage property but the interrelationships with the wider communities. These peri-urban areas are significant in the balance between culture and nature and for the urban and rural linkages that are now part of the wider considerations in redefining the city as addressed in the New Urban Agenda adopted in 2016 at the UNHabitat III conference (Habitat III Secretariat, 2017). The swamps around the Taipa Island of Macao providing for bio-diversity, environmental protection and the green lungs of the city are exceptional, and essential to ensure urban sustainability. They also provide for the cultural memory of place and should not be lost. By linking nature and culture we might relate to the new reclaimed areas in Macao, and reflect on the city of tomorrow of Le Corbusier, in which he has a one page "left blank for a work expressing modern feeling". This may respond to the layering of the city and something which we can implement while safeguarding the values and significance of the Historic Centre of Macao. However we have to accept this contemporary challenge with an enormous amount of respect and humility within our historic perspective.

The Chinese phoenix is an immortal bird never growing old or dying, being the ultimate symbol for the future of the city. This continuum is embodied in the words of William Wordsworth that "life is divided into three terms – that which was, which is, and which will be. Let us learn from the past to profit by the present and from the present to live better in the future". These words echo my thoughts for this better future with social inclusion, the potential that the digital age offers us and for the sustainable resilience of Macao – a true city of the future. **RC**

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João de Barros, cronista. Conjunto escultórico from Padão dos Descobrimentos, Lisboa. Imagem: Luís Pavão, 2018.