

Captain, where can we find the attributes?

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Captain, where can we find the attributes?

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Abstract

Every site that is listed as World Heritage comes with its own justification for inscription, in which the State Party describes why this specific place is considered to be of Outstanding Universal Value (OUV). This global cultural significance is to be described based on attributes, tangible or intangible, and their subsequent values categories. As suggested by the management approach attached to the Historic Urban Landscape approach (UNESCO, 2011a), the management of such attributes and values should be integrated into a wider (local) urban management framework. Though, how can they be properly included in such framework when most often, it is not clear where they are located exactly? In order to develop efficient management plans to manage cultural significance, a thorough understanding of what exactly reflects this outstanding universal value is required. The aim of this paper is, firstly to present the results of a research on systematically revealing and locating a selection of attributes of Amsterdam Canal Zone, as described in the Nomination File (Kingdom of the Netherlands, 2009a) and the Advisory Body Evaluation (ICOMOS, 2010). Next, recommendations will be provided on how they can be integrated in the local urban management framework.

Introduction

The growing and changing understanding of the nature of cultural heritage has an effect on the guidelines and approaches that recommend how to manage heritage (e.g. [Smith, 2006](#); [Pendlebury, 2008](#); [Fairclough et al., 2008](#); [Pendlebury et al., 2009](#); [Whitehand, 2012](#); [Veldpaus et al., 2013](#)), and very likely also on the actual practices of heritage management ([Pickard, 2002](#); [Waterton et al., 2006](#)). Evolving theoretical concepts require evolving approaches and strategies to be applied and adapted in local reality. This paper will present the results of an urban survey method applied to the World Heritage site Seventeenth-Century Canal Ring Area of Amsterdam (NL).

Heritage management is often (still) aimed at the protection of monuments and designated areas (e.g. [Pickard, 2001](#); [Stubbs and Makas, 2011](#)). Heritage theory on concepts of heritage (management) however, is shifting to employ values-based or landscape-based concepts. How can this be applied in practice? Do existing management tools need an update? As heritage theory was focused on an object-based approach, subsequently heritage management was mainly committed to the protection of the tangible dimensions of cultural heritage assets ([Petzet, 2004](#); [Smith, 2006](#)). This type of heritage management was not likely to be very tolerant to change. That seems to disagree with the very nature of the environment as most heritage can be found in the living city, where change is the rule. This paradox has kept heritage theory and management busy since its beginnings; in fact the history of heritage seems a continuous attempt to reconcile conservation and development ([Araoz, 2011](#); [Bandarin and Van Oers, 2012](#); [Veldpaus et al., 2013](#)).

“[...] people and their motivations define heritage. Not everything is heritage, but anything could become heritage” ([Howard, 2003](#)). In other words, heritage management is a cultural practice as much as anything we as humans undertake. Thus, as our ideas and values change, so does the practice of heritage management. The landscape-based approach is a recent attempt to reconcile conservation and development; by redefining conservation as ‘the management of change’, and integrating heritage management into the larger planning frameworks. Over the past decades, UNESCO has been developing guidelines for such an approach, which resulted in the Recommendation on the Historic Urban Landscape (HUL). The *historic urban landscape* is defined by UNESCO (2011) as “the result of a historic layering of cultural and natural values and attributes, extending beyond the notion of “historic centre” or “ensemble” to include the broader urban context and its geographical setting”. The

accompanying approach is then a “comprehensive and integrated approach for the identification, assessment, conservation and management of historic urban landscapes within an overall sustainable development framework”. This HUL approach is holistic; it aims at an urban scale, and considers all urban resources, tangible and intangible, as valuable. Based on the value ascribed to these, positive or negative, decisions can be made on what the acceptable amount of change is. The underlying idea is that heritage can foster development; it can be used as a driver to build sustainable and resilient cities while fully acknowledging that change is in the very nature of every living city (Landorf, 2009; Van Oers, 2013; Da Silva and Morera, 2014; Kourtiti, et al., 2014; Pereira Roders, 2014). Change can have very different forms though – even conservation is a form of change. This, it is assumed, can only work when policies are designed in a holistic manner, integrating heritage management and sustainable development. Intergovernmental and nongovernmental organizations have been defining strategies to address this since the seventies. (Council of Europe, 1975; UNESCO, 1976; 2005a, 2005b, 2009; ICOMOS; 2011). Nonetheless, implementation of the landscape-based approach in sub-national policy remains a challenge yet to be solved (Veldpaus et al., 2013).

The question is, how can this integration be established? One way seems to be increasing the scale of the protected area. As the size of protected areas grew from a single object to entire landscapes, so did the scale of the tools used to manage them (e.g. townscape or zoning, and cultural landscapes). Those large-scale tools would ideally be more holistic and encompassing, and allow for a better relation and integration of the various attributes and values that are found spread along an area. Though, they could also be a way to take everything together, and not be specific at all on what is of value and why, or where it is. This might seem easier, and more flexible. But is it really? The vagueness of a large-scale tool could also lead to more complicated management, the limits of acceptable change are unclear, or if clear, they are generic rather than tailored or specified to the individual attributes. As such they could easily lead to very black and white situations, where it’s either all or nothing that is protected within the entire area. And since this is very impracticable and undesirable in day-to-day management, a rolling scale is often applied after all. Again, arguably this can work very well – especially when everyone more or less agrees upon the main goal. Though, it could also become problematic, as it is difficult to argue a variation of different decisions within an area where the protective measures do not vary, so what happens, once precedent is set? With the introduction of the notions ‘attributes’ and ‘values’, theoretically the issue of scale disappears from protective measures (Veldpaus and Pereira Roders, 2014). Management based on attributes and values implies the whole environment is a cultural landscape and protection measures are related to the (level of) significance we attach to the various attributes. It is however, still unexplored how such system would work in practice, in relation to both management and monitoring. Also, there is only little research to be found on a method of revealing and locating the attributes and values of a site (e.g. Damen et al., 2013; Swart et al., 2012; Boxem et al., 2012). This paper further explores this method to reveal and locate the attributes and their related categories of value as defined in the statement of OUV further. The aim of this paper is to understand in how far this can inform the integrated management of World Heritage cities.

Amsterdam World Heritage city

Amsterdam is a Historic Urban Landscape and it includes a variety of cultural heritage that is not only of local importance, but is also of “outstanding universal value” – that is, of global importance. The management of such urban landscapes is subject to a multi-level governance system, where a substantial body of guidelines and policies ranging from supra- to sub-national levels is continuously being developed. This can enrich cultural diversity of urban settlements, but can also provide a source of tension for the comprehensive management of varied urban landscapes. The local authorities are the main responsible for managing the various the cultural significance of the urban landscape (Swart et al., 2013). The global significance as expressed in the Statement of Outstanding Universal Value (SOUV), can be found in the ABE (ICOMOS, 2010). The SOUV describes the variety of attributes and values present in the designated area. These attributes “may include the relationships between physical elements, essence, meaning, and at times related processes, that need to be protected and

managed in order to sustain OUV” (ICCROM et al., 2010). Through a variety of attributes, tangible as well as intangible, properties may be understood to meet the conditions of authenticity if their cultural values are truthfully and credibly expressed, depending on the type of heritage and its cultural context (OG, 2013). These tangible and intangible attributes are defined by the question: “*what is heritage?*”, while the answer to the question why is it heritage will provide the related values.

The assumption being that when it is clear what is heritage and why, management of the entire landscape can be managed in a more tailored and flexible way, while better integrated with larger planning frameworks. However, how do we know where to find those buildings, structures, traditions or other relevant attributes and their subsequent values? The official documents explain the reason for inscription, but often a clear list of attributes is missing, and consequently there are hardly any maps or other user-friendly accessible materials specifically showing them, this is also the case for the Amsterdam Canals (Stash et al., 2013).

Seventeenth-Century Canal Ring Area inside the Singelgracht

As the name of the inscribed property suggests (Seventeenth-Century Canal Ring Area of Amsterdam) the area is a result of the 17th century, the Dutch ‘golden age’ (Prak, 2005). The OUV is related mostly to remainders of this era. To gain some understanding of the area between the Singel and the Singelgracht, the Amsterdam Canal Zone with its associated canals is displayed in Figure 1; the map includes the different stages of urban expansion that plays a significant role in the development of these canals. Due to economic prosperity in the 17th century, Amsterdam had to expand in order to accommodate the large growth of its population. From the start of the first expansion (1585), the city grew from 30.000 to 105.000 inhabitants in less than 40 years, as a result of immigration (Prak, 2005). In the first expansion, the Singel was completed.



Figure 1: Overview of The Amsterdam Canal zone, and its urban expansion stages (adapted from Abrahamse, 2007; ICOMOS, 2010)

The two largest expansions were the third and the fourth expansion, which resulted in the completion of the Herengracht, Keizersgracht and Prinsengracht (Abrahamse, 2007; 2010). Herengracht and Keizersgracht were the principal canals, primarily residential while the Prinsengracht was less expensive and as such designated for markets, businesses with warehouses (Kingdom of the Netherlands, 2009a; 37). To reduce the sample, the choice was made to *not* map the Herengracht as it was expected to be similar to the Keizersgracht. The other two canals and the Singel were mapped to be able to compare between the three.

The Seventeenth-Century Canal Ring Area of Amsterdam inside the Singelgracht was inscribed on the UNESCO World Heritage list in 2010 because it “illustrates exemplary hydraulic and urban planning on a large scale through the entirely artificial creation of a large-scale port city. The gabled facades are characteristic of this middle-class environment, and the dwellings bear witness both to the city’s enrichment through maritime trade and the development of a humanist and tolerant culture linked to the Calvinist Reformation” (WHC, 2014). So, maritime trade and the subsequent urban expansion using hydraulic planning are important for the urban development of Amsterdam that is listed on the World Heritage list.

This paper will first go into the document analysis, to reveal the attributes and values as described in the official documents. Next, it will describe the fieldwork as conducted by a group of students during an eight week research seminar (TU/e), and finally it will relate those two each other and position the results in the perspective of local management practices. Over the past five years, several WH cities have been researched as in-depth case studies with the research program OUV, WH cities and Sustainability led by Pereira Roders (TU/e) and Van Oers (UNESCO; WHITRAP) (Pereira Roders & van Oers, 2010a). This research is part of, and builds on their achievements.

Attributes and values

Methods

The research has two stages: the document analysis and fieldwork. First, a significance survey (Speckens et al., 2012) was used to identify the attributes and values of the property. The questions “what is heritage” (attributes) and “why is it heritage” (value) structured this significance survey. The ‘what’ question was approached with open coding, developing a list of attributes over the course of the analysis. For the ‘why’ question, a pre-coding method was used to classify all identified values according to eight categories of cultural value. These are respectively the social, economic, political, historic, aesthetical, scientific, age and ecological value categories (Pereira Roders, 2007; Tarrafa Silva and Pereira Roders, 2012). The results on the attributes draws upon data collected and classified by the authors, the results on value categories are complemented by a larger set of revealed attributes as classified by predecessors in the research program by Bruin and van den Berg (2013).

A full mapping of the canals of even all attributes and values mentioned in the SOUV, was not possible within the scope of the research seminar. Therefore the researchers selected a sample of attributes focussed on the theme of maritime trade. This was identified by tangible indicators of attributes which were detectable from the outside of the building.

Results

The SOUV describes Amsterdam as a port city. It illustrates “exemplary hydraulic and urban planning on a large scale through the entirely artificial creation (scientific and aesthetic value) of a large-scale port city. The gabled facades are characteristic of this middle-class environment (social value, aesthetic value), and the dwellings bear witness both to the city's enrichment through maritime trade and the development of a humanist and tolerant culture linked to the Calvinist Reformation (economic value, social value, political value)”. This quote shows the method of analysing the documents. Attributes are made bold, and the values are underlined and categories are mentioned between brackets. It reveals the importance of the port city, dwellings and gabled facades. So important is the artificial creation of this port city represented by its urban layout and hydraulic planning, as well as the architecture representing both a socio-cultural (tolerant culture) timeframe and socio-economic one (maritime trade). This is further reinforced by the text for the specific criteria descriptions (i, ii and iv). From this, maritime trade was selected to analyse in the fieldwork, in specific in relation to the dwellings and gabled facades. Further research showed that some gable (sub) attributes were specific for certain type of dwellings related to maritime trade: warehouses and merchant houses (Kingdom of the Netherlands, 2009a). As a specific aspect of the gable, the gable (or wall) stones were found to be representative for the maritime trade (Boer, 1992). The respective value categories (Figure 2) are determined by a means of a combination of data by the authors and a previous data set (Bruin and van den Berg, 2013). For each attribute, all referenced values were selected from the full data set, and shown as a percentage of the total amount of values mentioned for that attribute.

Attributes	TAN / INT	Ecological (%)	Age (%)	Scientific (%)	Aesthetical (%)	Historic (%)	Political (%)	Economic (%)	Social (%)	Architectural indicators used to map (sub attributes)
Port city	INT	0	22	10	10	22	0	14	22	
Maritime trade	INT		9	0	0	18	18	45	9	Gable stones - Symbols on gables representing maritime trade
Warehouse	TAN	0	9	0	30	22	0	30	9	Spout gable
Merchant house	TAN	0	13	13	13	13	13	22	13	Cellars (basements)

Figure 2: a selection of maritime trade related attributes in Amsterdam Canal Ring area, and their respective value categories.

In the becoming list, it is specified and described how these attributes were identified to enable a structured mapping during the fieldwork.

Port city – Amsterdam is a commercial and port-city, [...] organised around its port and the canals that govern its merchant activity. (ICOMOS, 2010). Port city is an intangible attribute, consisting of a large amount of specific ‘sub-attributes’ e.g. the following four on this list. The value categories age, historic, and social were found as equally important related to the attribute port city. The economic value category is also mentioned frequently, but not as much as previous values.

Warehouses – Warehouses were buildings for the storage of goods, including spices, grain, furs, oil and peat. These types of buildings were built frequently during the Golden Age of trade in the Canal Ring Area. These buildings can be identified by the type of gable, they were signified by integrating a funnel-shaped gable style, classified as ‘spout gable’ (Kingdom of the Netherlands, 2009c, p. 284). The value categories aesthetical and economic are the most important value categories related to warehouses, with 30 per cent for each.

Merchant houses – Merchant houses integrated storage, offices and other business functions into one building. Merchandise was stored in the attics and the cellars (Kingdom of the Netherlands, 2009c, p. 284). The windows low in the façade were taken as the architectural indication for cellars. The age, aesthetical, scientific, historic, political, economic and social value categories are all detected related to the merchant houses attribute.

Maritime trade – The frequent symbols that can be found on gable stones on the façade of the buildings of the Amsterdam Canal Zone, often relate in some way to maritime trade. There are the obvious ones, depicting literal items of shipping (e.g. ships), but also many others e.g. food symbols relate to the goods and grains which were shipped from the Baltic Sea to Amsterdam (Kingdom of the Netherlands, 2009c), while symbols of animals like elephants and leopards are related to trade with the East (Boers, 1992). The value categories economic and historic are the most mentioned value categories for this attribute, with respectively 36 and 27 per cent.

Mapping attributes and values

Methods

Next, fieldwork on the Amsterdam Canal Zone has been done to locate the above-mentioned attributes within the Canal Ring area – as Port City is represented by the entire Canal Zone this attribute is not further mapped as a whole. Photographs were taken and additional data was collected using a pre-structured fieldwork form. In total 2070 buildings in the core zone were mapped (figure 1), which is about half of all buildings in this zone. This was processed using an Open Source Geographic Information System, QGIS. As mentioned in the introduction, this research attempts to locate the (traces of) attributes and accordingly their assigned value categories. The fieldwork form was based on specific elements as indicator of the attributes as described in Figure 2. The specific elements that help identifying the attributes are shown in Figure 3. The spout gable is one specific indicator for a warehouse, where cellars are for a merchant house, and gable stones are for the attribute Maritime trade.



a. spout gable - warehouse



b. cellar – merchant house



c. gable stone – maritime trade

Figure 3: Specific elements that identify the attributes.



Figure 4: Result of mapping the architectural indicators for the attributes

Results

Through fieldwork the attributes warehouses, merchant houses, and maritime trade are located using their architectural elements, shown in Figure 4.

Warehouses - At the moment 160 spout gables - indicating warehouses (blue) - can be found in the field work area. This is eight per cent of the total amount of researched buildings, and those are located in the Prinsengracht mostly. The mapped spout gables are those that currently have this type of gable, meaning that this is not a complete set of all the warehouses within the Amsterdam Canals, as during the ages some warehouses changed their gable top into cornice gables, and original step gables were turned into spout gables due to architectural impoverishments (Levie, T., & Zantkuyl, H., 1980; Hart-Runeman, Vluggen-Bunders, & Maase, 1976). There are also other indicators to identify a warehouse, such as large shuttered windows in the middle and low ceiling height in all the floors of building (Kingdom of the Netherlands, 2009c, p. 284). These indicators can be used during the fieldwork to differentiate the original warehouses from the buildings which had transformed to step gables in possible further researches.

Merchant houses – Buildings with cellars, indicating Merchant houses (yellow) are much more frequently found (46 per cent of the total) in the Keizersgracht. The remaining merchant houses are found spread over the other canals. In total, over 900 merchant houses are indicated in the inventory of the fieldwork.

Maritime trade – In total nineteen per cent of the buildings researched, have a symbol represented on gable stones, which most probably refers to maritime trade (red dots). The spread of symbols along the canals is not equal. There are areas that contain more symbols than others, most of them are

located in the third expansion area of the Amsterdam Canal Zone (figure 1). The percentage per canal also varies. In the Prinsengracht, fifteen per cent of the houses have symbols, where this number is eighteen per cent and 27 per cent for Keizersgracht and Singel respectively.

As indicated above, all attributes have related value categories. By mapping those, we can reveal if certain value categories related to maritime trade prevail in a certain area. A ‘heat map’ of value categories is created, as shown in Figure 5. The highest counted value category of each attribute (figure 2) is displayed in the map. The size of the dot is an indicator of the intensity of the value category in the particular area.



Figure 5: Heat map showing the intensity of the top value category of each attribute and their mutual applied zones.

The heat map shows the general intensity of the value categories is more in the west of Canal ring. This area is largely part of the second and third expansions of Amsterdam between years 1585 and 1610 (Abrahamse, 2011). Singel has the most historic value category due to the density of gable stones. The west part of Keizersgracht hosts a density of political and economic value category. This is resulted from the quantity of merchant houses, warehouses and symbols. The aesthetical value category is spread almost equally in the Canal Area, but it also has the most compactness in the west area and in Keizersgracht and Prinsengracht.

Mapping of the attributes related to maritime trade has led to the localisation of the elements ‘warehouses’, ‘merchant houses’, ‘maritime trade’. The localisation of warehouses and merchant houses is based on the typical elements of these buildings in that time, for example a spout gable for warehouses. While the function of these building nowadays is often changed, some original

architectural elements remain intact. The symbols, depicted on the gable stones, show clear traces of the history of the residents and the important role of maritime trade in the past. Relations between the fieldwork and the document analysis can be drawn using a 'heat map', revealing the dispersion and intensity of the value categories subsequent to the thematic list of attributes. Aesthetical, historic, political and economic value categories are the most important value categories for the corresponding attributes. The third expansion seems to have more valuable areas than the fourth expansion when it comes to attributes of maritime trade. Maritime trade attributes within the historic value category are typically present in Singel; as well as the political value category in the Keizersgracht, and the economic and aesthetical value category in the Prinsengracht.

Discussion & Conclusion

Evolving theoretical concepts of the nature of cultural heritage have consequent evolution in the monitoring and conservation strategies and policymaking. As stated in the introduction of this paper the heritage (management) theory is shifting from an object-based approach to a value-based or landscape-based approach. In other words, instead of focusing on monuments and designated areas, the tendency is to consider a more broad area of cultural and historical layers, which exists of a set of specified attributes and values. Arguably any historic urban landscape exists only of natural and cultural attributes, which are either tangible or intangible. The mapping of the attributes and value(s) shows a landscape of significance. This research aimed to understand which attributes there are, what are the related value categories and map it, in order to see if such approach would be beneficial to heritage management in Amsterdam. Based on this small sample and without follow up discussions with the stakeholders in Amsterdam, we cannot give a conclusive answer to that question yet.

However, we can extrapolate the results and discuss the possible benefits and pitfalls. The method of coding and classifying attributes and values has been proven valuable in previous research to reveal differences in emphasis on specific attributes or value categories, between documents written in different times or from different types, for example nomination files and management plans. It also proved to be a useful method for mapping attributes, and comparing those to previous states of conservation to reveal changes in time (e.g. Swart and Claus, 2012; [Damen et al, 2013](#)). This research is an attempt to bring the significance survey further by mapping the landscape of significance. The exercise shows the possible problems of the approach. Huge data collection would be needed, on both tangible and intangible attributes. This could partly be tackled by merging existing databases and applying 3D Laser Scanning techniques ([Chauhan et al., 2014](#)). However, the latter might not be very useful (yet) in mapping most intangible attributes. Moreover, a high level of preciseness in describing attributes is needed, including their relations (which are arguably intangible attributes), to establish a set of attributes that comprehensively describes the urban landscape. Also using extra indicators for each attribute can conclude in more precise mapping results. While this research, and the used data sets have those gaps and defects – e.g. only half of the buildings in the core zone are mapped, and within this sample, only a very small selection of attributes has been identified – it is a helpful attempt.

By this small sample we can extrapolate that a more comprehensive mapping will reveal specific attributes, as well as their geographic relation(s) to each other, and their presence and intensity in specific areas. To a certain extent, this is already done by the mapping of specific indicators ([Gemeente Amsterdam, 2014](#)). More detailed maps of attributes would show the specific locations of many attributes. This could be helpful in decisions related to small changes and building applications, and determining the limits of acceptable change. The relation of one specific element to the whole gives a quick insight on the location and dispersion or the rarity of certain attributes in that area. This way of looking at the entire landscape, for one specific (set of) attributes, could create an interesting cross-over with the current way of management that looks at the individual building, including all its attributes. An interesting addition to this could be a classification of attributes as well as the classification of values – which could be done by either pre-set categories, or ones based on the coding of the documents.

In addition, such a (GIS) database could inform for example the tourism sector, by creating routes through the city focussed on a specific set of attributes. Especially digital tour-guide applications could benefit from this, as by entering a personal appreciation, a personalised route can be conjured up from a database of attributes (Stash et al., 2013).

As can be seen in the results, the map indicating values includes location as well as intensities. It shows a general value-landscape rather than any individual building. Although by selecting a specific set of attributes, those maps could be made more specific. Those value-landscapes could inform a more comprehensive understanding of the site as a whole. Comparison of such maps with current zoning plans, development plans and other policy tools would inform policy and decision makers. They could hint the potential loss (or gain) of certain values in a particular area. Also they could be compared to the values attributed by e.g. local communities, tourists or other stakeholder groups, which could be obtained by simple mapping exercises.

In theory, this way of management would allow a comparison between the attributes and values as indicated to be of global importance (OUV) and the attributes and values indicated by the national and sub-national bodies. Such comparison could highlight possible conflicts. Moreover, if done over time, it would be a comprehensive monitoring tool. Based on this discussion of possibilities it would seem, that the approach would be a valuable addition, and not a replacement, of the current heritage management practices in Amsterdam.

References

- Abrahamse, J. E. (2007). *Het oude en het nieuwe bouwen: Amsterdam, de markt en de woningbouw*. Thoth.
- Abrahamse, J. E. (2010). *De grote uitleg van Amsterdam: stadsontwikkeling in de zeventiende eeuw*.
- Araoz, G.F. (2011). Preserving heritage places under a new paradigm. *Journal of Cultural Heritage Management and Sustainable Development*, 1(1), pp. 55–60.
- Bandarin, F. & Van Oers, R. (2012). *The Historic Urban Landscape managing heritage in an urban century*, John Wiley and Sons.
- Boer, O.W. (1992). *De gevelstenen van Amsterdam*. Amsterdam: De Bataafsche Leeuw.
- Boxem, R., Führen, R., Pereira Roders, A.R., Veldpaus, L. & Colenbrander, B.J.F. (2012). Assessing the cultural significance of world heritage cities: the historic centre of Galle as case study. In K. Similä & S.M. Zancheti (Eds.), *Conference Paper: Measuring Heritage Conservation Performance*, (pp. 75-81). Olinda and Rome: CECI and ICCROM.
- Bruin, J.A.C., Berg, D.L. van den (2013). Canal district Amsterdam World Heritage: "a functional analysis of the seventeenth-century canal ring area". (Unpublished Master Thesis). Eindhoven: Technische Universiteit Eindhoven. <http://repository.tue.nl/770812>. Accessed October 2014.
- Chauhan, I., Brenner, C., Garg, R., & Parida, M. (2014). A New Approach to 3D Dense LiDAR Data Classification in Urban Environment. *Journal of the Indian Society of Remote Sensing* 42 no.3, 673-678.
- Council of Europe (1975). *European Charter of the Architectural Heritage – 1975*. <http://www.icomos.org/en/charters-and-texts/179-articles-en-francais/ressources/charters-and-standards/170-european-charter-of-the-architectural-heritage>. Accessed June, 2014.
- Damen, S.G., Derks, R., Metgod, T.L.M., Veldpaus, L., Tarrafa Pereira da Silva, A.M. & Pereira Roders, A.R. (2013). Relating the state of authenticity and integrity and the factors affecting World Heritage properties: Island of Mozambique as case study. *International Journal of Heritage and Sustainable Development*, 3(1):7
- Fairclough, G., Harrison, R., Jameson, J. H., & Schofield, J. (2008). *The heritage reader*. Routledge.
- Gemeente Amsterdam (2014). <http://maps.amsterdam.nl/>. Accessed June, 2014.
- Hart-Runeman, S., Vluggen-Bunders, E., & Maase, W. (1976). *Vier eeuwen Herengracht: geveltekeningen van alle huizen aan de gracht, twee historische overzichten en de beschrijving van elk pand met zijn eigenaars en bewoners*. Amsterdam: Stadsdrukkerij van Amsterdam.
- Howard, P. (2003). *Heritage: management, interpretation, identity*. Bloomsbury Publishing.
- ICOMOS (2005). Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas (Adopted in Xi'an, China by the 15th General Assembly of ICOMOS on 21 October 2005)
- ICCROM, ICOMOS, IUCN, UNESCO World Heritage Centre (2010). Retrospective statements of outstanding universal value for World Heritage Properties.
- ICOMOS (2010). The Canal Area of Amsterdam (Netherlands) No 1349 Advisory Body Evaluation
- Jordaanweb (2014.). Tuitgevels. <http://www.jordaanweb.nl/startamsterdam/HTML/index.htm?/startamsterdam/HTML/tuit.htm&1>. Accessed October 2014.
- Kingdom of the Netherlands (NL) (2009a). The seventeenth-century canal ring area of Amsterdam within the Singelgracht Nomination File.

- Kingdom of the Netherlands (NL) (2009b). The seventeenth-century canal ring area of Amsterdam within the Singelgracht Management Plan.
- Kingdom of the Netherlands (NL) (2009c). The seventeenth-century canal ring area of Amsterdam within the Singelgracht Background topics.
- Kourtit, K. et al., (2014). A blueprint for strategic urban research: the urban piazza. *Town Planning Review*, 85(1), pp.97–126.
- Landorf, C. (2009). A framework for sustainable heritage management: a study of UK industrial heritage sites. *International Journal of Heritage Studies*, 15(6), 494-510.
- Levie, T., & Zantkuyl, H. (1980). Wonen in Amsterdam in de 17de en 18de eeuw. Amsterdam Historisch Museum. Municipality of Amsterdam. (n.d.). Gevels. <http://www.amsterdam.nl/kunst-cultuur-sport/grachtengordel/weten/koopmanshuizen/gevels/>. Accessed October, 2014
- Municipality of Amsterdam. (n.d.). Koopmanshuizen. <http://www.amsterdam.nl/kunst-cultuur-sport/grachtengordel/weten/koopmanshuizen/>. Accessed October, 2014.
- Pendlebury, J.R. (2008). *Conservation in the Age of Consensus*, Routledge.
- Pendlebury, J., Short, M., & While, A. (2009). Urban World Heritage Sites and the problem of authenticity. *Cities*, 26(6), 349-358.
- Pereira Roders, A. (2007). *Re-architecture: lifespan rehabilitation of built heritage - Book I*. Eindhoven: Eindhoven University of Technology.
- Pereira Roders, A., & van Oers, R. (2010a). OUV, WH cities and sustainability. <http://www.bwk.tue.nl/auide/includes/download.php?fileId=773>. Accessed June, 2014.
- Pereira Roders, A.R. (2010). Revealing the World Heritage cities and their varied natures. In R. Amoêda, S. Lira & C. Pinheiro (Eds.), *Heritage 2010: Heritage and Sustainable Development (Volume 1)*, Evora, Portugal, June 2010, (pp. 245-253). Barcelos: Greenlines Institute for the Sustainable Development.
- Pereira Roders, A.R. & Oers, R. van (2010). Outstanding universal value, world heritage cities and sustainability: mapping assessment processes. In M.T. Albert (Ed.), *World Heritage and Cultural Diversity* (pp. 225-236). German Commission for UNESCO.
- Pereira Roders, A. (2014) How can urbanization be sustainable? : a reflection on the role of city resources in global sustainable development. *BDC. Bollettino Del Centro Calza Bini*, 13(1), pp.79–90.
- Petzet, M. (2004). Principles of preservation: an introduction to the international charters for conservation and restoration 40 years after the venice charter. In M. Petzet, ed. *International Charters for Conservation and Restoration. Monuments & Sites*, München: ICOMOS, pp. 7–29.
- Pickard, R. (2001). *Policy and law in heritage conservation*. London & New York: Spon Press.
- Pickard, R. (2002). A Comparative Review of Policy for the Protection of the Architectural Heritage of Europe. *International Journal of Heritage Studies*, 8(4), pp. 349–363.
- Prak, M. (2005). *The Dutch Republic in the seventeenth century: the golden age*. Cambridge University Press.
- Silva, J. da & Morera, B.E., (2014) *City Resilience Framework: City Resilience Index*, London, UK: Rockefeller Foundation and Arup International Development.
- Smith, L. (2006). *Uses of heritage*. Routledge.
- Speckens, A., Veldpaus, L., Colenbrander, B.J.F. & Pereira Roders, A.R. (2012). Outstanding universal value vs zoning regulations: Willemstad as case-study. In S.M. Zancheti & K. Similä (Eds.), *Conference Paper: Measuring Heritage Conservation Performance*, (pp. 134-141). Olinda and Roma: CECI and ICCROM.
- Stash, N., Veldpaus, L., Bra, P.M.E. De & Pereira Roders, A.R. (2013). Creating personalized city tours using the CHIP prototype. In L. Ardissono, L. Aroyo, L. Bordoni, J. Kay & T. Kuflik (Eds.), *Conference Paper: PATCH 2013: Personal Access to Cultural Heritage (UMAP 2013 Extended Proceedings, Rome, Italy, June 10-14, 2013)*, (CEUR Workshop Proceedings, 997, pp. 68-79). Aachen: CEUR-WS.org.
- Stubbs, J.H., Makas, E.G.. (2011). *Architectural conservation in Europe and the Americas – National experiences & practices*. Hoboken NJ: John Wiley.
- Swart J.J. and K.E.A. Claus (2012) Amsterdam canal district: locating and mapping attributes of outstanding universal value. (Unpublished Master Thesis). Eindhoven: Technische Universiteit Eindhoven. <http://repository.tue.nl/749130>. Accessed October, 2014.
- Swart, J.J., Bakker, K.A., Veldpaus, L., Claus, K.E.A. & Pereira Roders, A.R. (2012), World Heritage cities: Amsterdam's canal district case study. In R. Amoêda, S. Lira & C. Pinheiro (Eds.), *Conference Paper: HERITAGE 2012: Proceedings of the 3rd International Conference on Heritage and Sustainable Development*, (1, pp. 175-186). Barcelos: Green Lines Institute.
- Swart, J.J., L. Veldpaus, L., Pereira Roders, A.R. (2013), *Assessing Amsterdam's heritage management framework*. Conference Paper : IAIA 13 Conference Proceedings : Impact Assessment the Next Generation, 33rd annual meeting of the International Association for Impact Assessment, 13 – 16 May 2013, Calgary, Alberta, Canada.
- Tarrafa Pereira da Silva, A.M. & Pereira Roders, A.R. (2012). Cultural heritage management and heritage (impact) assessments. Conference Paper : Proceedings of the Joint CIB W070, W092 & TG72 International Conference on Facilities Management, Procurement Systems and Public Private Partnership, 23-25 January 2012, Cape Town, South Africa.
- Turner, M., Pereira Roders, A.R. & Patry, M. (2012). Revealing the level of tension between cultural heritage and development in World Heritage cities. In Z. Similä & S.M. Zancheti (Eds.), *Conference Paper: Measuring Heritage Conservation Performance*, (pp. 124-133). Olinda and Roma: CECI and ICCROM.
- UNESCO. (1976). *Recommendation concerning the Safeguarding and Contemporary*

- Role of Historic Areas*. http://portal.unesco.org/en/ev.php-URL_ID=13133&URL_DO=DO_TOPIC&URL_SECTION=201.html. Accessed June, 2014.
- UNESCO (2005a). The Operational Guidelines for the Implementation of the World Heritage Convention. <http://whc.unesco.org/en/guidelines>. Accessed June, 2014.
- UNESCO (2005b). WHC-05/15.GA/INF.7 Vienna Memorandum on World Heritage and Contemporary Architecture – Managing the Historic Urban Landscape (as adopted by the International Conference “World Heritage and Contemporary Architecture - Managing the Historic Urban Landscape” held from 12 to 14 May 2005 in Vienna, Austria, under the patronage of UNESCO and welcomed by the 29th session of the World Heritage Committee (Durban, 2005)
- UNESCO (2009). 181 EX/29 preliminary study on the technical and legal aspects relating to the desirability of a standard-setting instrument on the conservation of the historic urban landscape.
- UNESCO (2010). WHC-10/4.COM/20 Report of the decision adopted by the World Heritage Committee at its 34th session. Paris: UNESCO World Heritage Centre.
- UNESCO (2011a). 36 C/23 Recommendation on the Historic Urban Landscape.
- UNESCO (2011b). WHC 11/35.COM/7B. 100 Report of the decision adopted by the World Heritage Committee at its 35th session. Brasilia: UNESCO World Heritage Centre.
- UNESCO (2013). Operational Guidelines for the Implementation of the World Heritage Convention.
- Van Oers, R. ed. (2013). Report on the Historic Urban Landscape Workshops and Field Activities on the Swahili coast in East Africa 2011-2012, Paris, France: UNESCO World Heritage Centre. <http://whc.unesco.org/en/news/1066/>. Accessed June, 2014.
- Veldpaus, L. & Pereira Roders, A.R. (2014). Learning from a Legacy: Venice to Valletta. *Change over time*, 4(2), accepted or in press.
- Veldpaus, L., Pereira Roders, A.R. & Colenbrander, B.J.F. (2013). Urban Heritage: putting the past into the future. *The Historic Environment: Policy & Practice*, 4(1), 3-18.
- Verbruggen, R., Pereira Roders, A., Stash, N., Leony, D., De Bra, P. (2014). Protected Urban Planet: Monitoring the Evolution of Protected Urban Areas Worldwide, Special Session 'Real Spaces and Cyber Spaces: New Challenges in Regional Science' within ERSA 54th congress Regional Development & Globalisation: Best practices, Saint Petersburg, Russia.
- World Heritage Centre (2014) description of Seventeenth-Century Canal Ring Area of Amsterdam inside the Singelgracht. UNESCO. Online via <http://whc.unesco.org/en/list/1349>. Accessed April, 2014.
- Waterton, E., Smith, L., & Campbell, G. (2006). The utility of discourse analysis to heritage studies: The Burra Charter and social inclusion. *International journal of heritage studies*, 12(4), 339-355.
- World Heritage Institute of Training and Research for the Asia and the Pacific Region (2014). Historic urban landscape. <http://www.historicurbanlandscape.com/index.php?classid=535>. Accessed June, 2014.
- Whitehand, J.W.R. (2012). Issues in Urban Morphology. *Urban Morphology*, 16(1), pp.55–65.