

Preventive and planned conservation as a new management approach for built heritage: from a physical health check to empowering communities and activating (lost) traditions for local sustainable development

“The successful preservation of an historic building, complex or city depends on its continued use and the daily care and maintenance” (D’Ayala and Fodde, 2008, p. xv). This statement reflects the basic principle of preventive and planned conservation approaches, which became increasingly present in European and international policies and research over the last three decades. Within these developments, special notice is made of the 2008 FP7 project SPRECOMAH, or Seminars on PREventive Conservation and Monitoring of the Architectural Heritage. In 2009, combined with a project supported by the Flemish Government and UNESCO, this resulted in the launch of the UNESCO Chair on preventive conservation, monitoring and maintenance of monuments and sites (PRECOM^{OS}) at the Raymond Lemaire International Centre for Conservation (University of Leuven) in collaboration with Monumentenwacht Vlaanderen and the University of Cuenca in Ecuador. Since its establishment, the international network has steadily grown with the aim of identifying research and educational activities in the field of preventive conservation, as well as developing new tools and techniques to improve preventive preservation strategies while considering a variety of cultural and social contexts.

As outlined in the working definition of preventive and planned conservation by PRECOM^{OS} UNESCO Chair (Vandesande and Van Balen, 2018), curative conservation and restorative treatments of built heritage do not always result in the removal of causative factors. Once conserved, the historic structure can return to an environment leading to further deterioration, likely requiring future interventions and establishing a reactive pattern of treatment. Consequently, arguments can be made against an exclusive focus of curative approaches that can result in postponed interventions, i.e. the high cost of restoration, the always-increasing demand for funding and the uncertainty of sufficient revenue to cover costs of property management.

In response, preventive conservation is a health check for built heritage aiming to aim to avoid unnecessary deterioration and specific damage patterns by means of periodical monitoring, scheduled maintenance and integral condition assessments. Thereby maintenance and repair interventions are planned according to a methodological model based on the guidelines of the International Committee for the Analysis, Conservation and Structural Restoration of Architectural Heritage. The model consists of four cyclical steps: anamnesis, diagnosis, therapy and control, which correspond respectively to the search for significant data and information, identification of damage causes, choice of remedial measures and control of interventions (ICOMOS, 2003). The contribution of Van Roy *et al.* in this volume gives more insight in how these principles are applied in a preventive and planned conservation approach, specifically for historical timber roof structures, and demonstrates the importance of monitoring and knowledge enhancement as a means for understanding a structure’s behaviour.

Increasingly, preventive conservation, maintenance and monitoring are recognised by researchers given their effectiveness in the management of historic structures, environments and extending their long-term physical authenticity and integrity. Although a pro-active approach towards monitoring already gained importance since the 1990s, as “a reflection of the growing commitment to improving management frameworks



for care of cultural heritage through the use of monitoring, which is understood as a key component of the management process” (Stovel, 2008, p. 15), the built heritage field has largely failed to resolve the issue of maintenance and in extension of preventive conservation. As outlined by Van Balen (2015), the implementation of preventive conservation requires a system approach assuring the interaction between different components, some of which are addressed in this special issue.

The importance of scale and existing markets can be found in the contribution of Theodossopoulos on nineteenth century housing preventive conservation in Edinburgh and its Western European context, which demonstrates how the management of common repairs is hampered by the fragmentation of ownership and the small size of the repair industry. Thereby tax incentives and regular inspections, in line with the existing Monumentenwacht model (Vandesande and Van Balen, 2016), are suggested to inform the increasing extent of repair interventions.

The aspect of continuity and stressing processes rather than outcomes is addressed in other contributions in this volume. Ossana and Rinaldi discuss the transition towards maintenance as a permanent “project site” in the Great Pompeii Project, which is conceived as a technical-scientific activity characterised by an analytical approach and constant planning. The need for alternative management and financing mechanisms is dealt with by Moioli *et al.*, who focus more on the level of complex properties management and presents the case study of Royal Villa and Park in Monza where an operational management model for maintenance and prioritising interventions was implemented. The case study is an interesting example of how the understanding of conservation and valorisation as preventive and planned activities changed current protection measures, increased the effectiveness of private business models and created a network of local stakeholders. Fabbri *et al.* use the case of Cuneo War Wounded House to introduce the Discounted Cash Flow Analysis, which has a wide application in the real estate sector, as a method of economical strategic planning for preventive conservation and maintenance.

A system approach also requires complex data integration whereby multiple actors from various disciplines use a variety of data sources and data models, a topic dealt with by Zalamea Patino *et al.* The authors discuss how they identified knowledge-based representations for built heritage and their strengths and weaknesses in supporting preventive conservation. The main focus of the paper is explicitly representing 3D features by using the City Geography Markup Language (CityGML) standard, combined with an ontological approach to achieve the semantic refinements required for built heritage.

These contributions to the volume demonstrate that preventive and planned conservation are characterised by different influencing factors, a.o. the available knowledge and know-how as well as financial, environmental and social factors. This aligns with previous research which demonstrates that a preventive approach contributes to cost effectiveness for built heritage owner managers (Forster and Kayan, 2009), the link with local employment policies (Ižvolt, 2015) and environmental enhancement (Heras *et al.*, 2012).

However, the scope of preventive and planned conservation research and practices goes completely beyond solely economic considerations and the preservation of physical fabric. Today, the PRECOMOS UNESCO Chair activities stress and highlight the potential for preventive conservation based local sustainable development through capacity building, participation of end-users, empowering communities and activating (lost) traditions – either when dealing with individual properties or the larger historic urban or rural environment – to increase social capital and strengthen local networks (Vandesande, 2017). This link between preventive conservation and local sustainable

development is reflected in the contribution of Ferreira, which proposes a methodology to combine the physical actions of preventive conservation, monitoring and repair activities with participatory strategies and training in prevention, maintenance and use. This community empowerment approach is developed based on a Portuguese experiment, the Romanesque Route, which created employment in small local contractor firms, the qualification of local users for the future safeguarding and sustainability of their heritage and a decreased use of economic and ecological resources. In contrast, Guerrero Baca and Soria Lopez focus on the importance of vernacular architecture by the enormous accumulated knowledge that its shapes, materials and social use represent. The contribution proposes a sustainable conservation approach of built heritage based on international research and case studies from Mexico, including both traditional building typologies and local community-based projects. From a more practical point of view, Cardoso *et al.* present a wide range of preventive conservation tools and approaches which demonstrated their potential for local development within the World Heritage City Preservation Management/Ciudad Patrimonio Mundial (vIirCPM) project, a nine-year institutional cooperation between the Universidad de Cuenca in Ecuador and the University of Leuven in Belgium. The contribution evaluates the different activities and research lines aimed at improving the quality of life (buen vivir) of Southern-Ecuadorian provinces based on a preventive conservation approach that started from inventory and damage registration system and evolved towards capacity building tools and maintenance campaigns in rural and urban areas.

Taking full potential of the different preventive and planned conservation-based projects and results presented in this volume, combined with practical approaches that link built heritage conservation interventions to the needs of society, is a validated formula to initiate local sustainable development.

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References

- D'Ayala, D. and Fodde, E. (2008), "Preserving safety and significance", *Proceedings of the 6th International Conference on Structural Analysis of Historic Construction (SAHC2008)*, CRC Press/Balkema (Taylor & Francis Group), 2-4 July.
- Forster, A. and Kayan, B. (2009), "Maintenance for historic buildings: a current perspective", *Structural Survey*, Vol. 27 No. 3, pp. 210-229.
- Heras, V., Wijffels, A., Cardoso, F., Vandesande, A., Santana Quintero, M., Van Orshoven, J., Steenberghen, T. and Van Balen, K. (2012), "A value-based monitoring system to support heritage conservation planning", *Journal of Cultural Heritage Management and Sustainable Development*, Vol. 3 No. 2, pp. 130-147.

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- ICOMOS (2003), "Principles for the analysis, conservation and structural restoration of architectural heritage", ratified in Victoria Falls.
- Ižvolt, P. (2015), "Preservation of the cultural heritage through inclusion of unemployed in Slovakia: present challenges of conservation practice", in Van Balen, K. and Vandesande, A. (Eds), *Reflections on Cultural Heritage Theories and Practices*, Vol. 3, Heritage Counts, Antwerp, pp. 305-316.
- Stovel, H. (2008), "Origins and influence of the Nara document on authenticity", *Association for Preservation Technology Bulletin*, Vol. 39 Nos 2/3, pp. 9-17.
- Van Balen, K. (2015), "Preventive conservation of historic buildings", *International Journal for Restoration of Buildings and Monuments*, Vol. 21 Nos 2/3, pp. 99-104.
- Vandesande, A. (2017), "Preventive conservation strategy for built heritage aimed at sustainable management and local development", Thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Engineering Science (PhD): Civil Engineering, University of Leuven.
- Vandesande, A. and Van Balen, K. (2016), "An operational preventive conservation system based on the Monumentenwacht model", in Van Balen, K. and Verstrynghe, E. (Eds), *Proceedings of the 10th International Conference on Structural Analysis of Historical Constructions (SAHC2016), Anamnesis, Diagnosis, Therapy, Controls*, CRC Press/Balkema (Taylor & Francis Group), Leuven, pp. 217-224.
- Vandesande, A. and Van Balen, K. (2018), "Preventive conservation applied to built heritage: a working definition and influencing factors", in Van Balen, K. and Vandesande, A. (Eds), *Reflections on Cultural Heritage Theories and Practices, Innovative Built Heritage Models*, Vol. 3, CRC Press/Balkema (Taylor & Francis Group), pp. 63-72.