

Heritage Research Matters

Case studies of research impact contributing to sustainable development



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to sustainable development

Swedish National Heritage Board (Riksantikvarieämbetet)
P.O. Box 5405
SE-114 84 Stockholm
Tel. +46 8 5191 80 00
www.raa.se
registrator@raa.se

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Heritage Research Matters. Case studies of research impact contributing to sustainable development.

Editor: Anna Laine, Jamie Davies, Karen Buchanan, Katherine Warren, Jan Turtinen.

Cover: Monks, nuns and laity, joining together at the Saptabidhanotta Puja and prayer ceremony, Kathmandu.

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Foreword

This report by the Joint Programming Initiative on Cultural Heritage and Global Change (JPI CH) focusses on how the impact of cultural heritage research can enrich sustainable development. It aims to advance the ways that impact can be articulated in the design, implementation and assessment of research. It also promotes a holistic approach to sustainability where its social, economic and environmental dimensions are integrated. The case studies have been collated through an online survey, and collaboratively assessed by the JPI CH partners in the United Kingdom and Sweden.

The report is directed towards heritage practitioners, policy makers and funding bodies, as well as researchers within the cultural heritage sector and beyond. Through the explanatory introduction and series of case studies, we hope to inspire and create space for innovative heritage research that contributes to achieving sustainable development. Along with the strategic research goals of JPI CH, the research is linked to the goals of Agenda 2030 and the European Heritage Strategy. This enables us to promote research that has a positive legacy for future generations and which embraces sustainable ways of working and creating impact.

Riksanantikvarieämbetet / Swedish National Heritage Board

Arts and Humanities Research Council, United Kingdom Research and Innovation

Heritage Research Matters

Sustainability has become a core pillar of contemporary life. Since the declaration of the Brundtland Commission Report (United Nations 1987), it has been demonstrated that sustainable development requires a holistic approach that integrates social, economic and environmental dimensions. New insights into how sustainability is conditioned have implications for the way we value, use and care for natural and cultural heritage. On a global level, natural and cultural heritage are included in the UN Agenda 2030 for Sustainable Development (United Nations 2015), and heritage is relevant for several of the 17 goals. On a European level, the Council of Europe has adopted the European Cultural Heritage Strategy for the 21st Century, where heritage is identified as a central field of collaboration and development (Council of Europe 2017). In 2018, the European Commission organised a European Year of Cultural Heritage, and proposed a New European Agenda for Culture to continue and scale up efforts launched during the year (European Commission 2018). Heritage is further connected to sustainability on several national levels. As highlighted by Europa Nostra's (2015) report *Cultural Heritage Counts for Europe* (CHCFE), research demonstrates that heritage contributes to all dimensions of sustainability.

This report aligns with the acknowledged role of cultural heritage in sustainable development. However, it also moves one step further by investigating research on cultural heritage and identifying what forms of impact this research has on the objectives of achieving sustainable development. Researchers are often motivated by the possibility of making a difference and enriching our lives – and politicians, policy makers and funders increasingly demand that researchers are able to demonstrate concrete benefits of their research in terms of impact. It has become increasingly important to be able to prove the impact of research in the evaluations of the quality of research, as well as in the justification for use of public-research funding. Subsequently, methods for articulating and monitoring both quantitative and qualitative impact need to be further developed.

The aim of this report is to investigate, and develop arguments for, how cultural heritage research contributes to sustainable development. Through a number of case studies collated from across Europe,

the report demonstrates that research results, including methodological choices, can have beneficial societal impacts. The report seeks to inspire and guide scholars to find ways to work with impact that support sustainable development, and to make practitioners and policy makers attentive to how society benefits from research. The report aims to speak directly to funding bodies and demonstrate how heritage research has a particular role to play in sustainable development and deserves to be prioritised and financed.

JPI CULTURAL HERITAGE AND GLOBAL CHANGE

This report is an activity as part of the Joint Programming Initiative on Cultural Heritage and Global Change (JPI CH), which was established through research collaboration at European level and is one of 10 Joint Programming Initiatives (JPIs) set up to address major contemporary challenges. The JPIs develop research alignments nationally as well as transnationally, and impact of research is a prioritised field within the common framework (JPI 2015). The JPI CH is focussed on developing improved and shared strategies of cultural heritage research, and has taken several initiatives in this direction. A special impact task force has been established, and understanding the actual effects of heritage research forms a central part of its activities. Together with ICCROM, the JPI CH has developed a Memorandum of Understanding, which declares that increased co-operation between research institutions and non-academic communities is needed to ensure research has greater relevance and impact in the heritage field and in society at large.

The emphasis on sustainability and impact in this report is linked to the four priority areas identified by the JPI CH's Strategic Research Agenda (SRA) in 2014 (JPI CH 2014). They are: developing a reflective society; connecting people with heritage; creating knowledge; and safeguarding our cultural heritage resources, and will be further addressed below. The SRA is being revised and updated in 2019–2020 to reflect changes in the heritage research landscape. The current process of understanding the impact of heritage research from across Europe provides an important contribution to this task.

The introduction provides an overview of discussions on sustainable development and impact, and how their relationship to cultural heritage research can be better understood. The case studies presented in the report have been gathered through an online survey directed to the JPI CH partner countries, and the process is described in the following section. An executive summary highlights case studies that

exemplify the main lines of inquiry and identify the challenges of delivering heritage research with impact that contributes to sustainable development. The collated case studies listed in this report provide brief overviews of research activities and impact. Descriptive summaries of 52 case studies from 13 contributing partner countries within JPI CH are included and are divided between long and short impact overviews. The assessment, analysis and editing of the submitted case studies, along with this delivery of the report as a whole, has been co-created by the Arts and Humanities Research Council (AHRC) and the Swedish National Heritage Board (SNHB), in accordance with the assigned JHEP2 tasks.¹

SUSTAINABLE DEVELOPMENT AND HERITAGE

Mounting contemporary challenges – such as health, food, water and energy supply, societal transformation and inequalities, climate change and species extinction – throw new light onto what heritage is and what it could be in the future. Each challenge brings with it the need for new solutions in order to achieve sustainable development. This report considers how societal challenges can be addressed through heritage research and how this research can have an impact on sustainable development.

Sustainable development derives from the pressures on contemporary society and the need to pass on a livable world to future generations. It has been a guiding principle for societal action since the Brundtland Commission Report was presented at the UN General Assembly in 1987. The Brundtland report divides sustainable development into three interlinked dimensions – environmental, economic and social – and it emphasises that they need to be balanced to reach the intended effects. Environmental sustainability means, for example, to avoid depletion of natural resources, such as water, land, air or vegetation, when providing for human needs. Environmental sustainability includes the management of natural and cultural heritage assets and the relationship between them in the processes of conservation and stewardship for future generations. However, environmental sustainability needs to be delivered at the same time as peace and security, social participation, empowerment, freedom of speech, well-being and equality. This, in turn, must be weighed against economic development and matters where short-term gains are judged against long-term development, stability of organisations, gender equality

The 4 goals of the Strategic Research Agenda (SRA) within JPI CH

Developing a reflective society – research which seeks to understand heritage values, ethics and its relationship with personal identity and perception.

Connecting people with heritage – promotes protection through the use and the sustainability of heritage assets in recognising their socio-economic-environmental benefits.

Creating knowledge – link information and develop new research methods and tools.

Safeguarding our cultural heritage resource – identifying new approaches and tools to protect and conserve our fragile and irreplaceable heritage.

1. The specific assignment is Task 2.4 within the JHEP2, funded 2016–2019 by the European Union's Horizon 2020 research and innovation programme under grant agreement No 699523.

and acceptable labor conditions (cf. Albert 2017, 33; Logan and Bille Larsen 2018). The Brundtland commission also introduced intra-generational considerations in the definition of sustainability: ‘Humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs’ (United Nations 1987, 24).

Culture can be recognised as the fourth dimension of sustainability. It is considered to provide people’s lives with a direction or with identities (Albert 2017, 35), and the aforementioned Europa Nostra publication builds on the Hangzhou Declaration of 2013 where culture is stressed as a fundamental enabler of sustainability (UNESCO 2013). While acknowledging the role of culture and cultural diversity, this publication has chosen to work with the three major categories of sustainable development and to regard culture as a contributor integral to environmental, economic and social sustainability. The current perspective links culture more closely with the social dimension of the Brundtland report, and further aggregates the difference between nature and culture in times where such separation is both questioned and possibly damaging (Fredengren 2015).

Sustainable development works holistically and the balance between the three dimensions is of utmost importance. However, as is demonstrated by the case studies in this report, it is a complex balance and can be difficult to attain. Research outputs might be linked to more than one dimension of sustainable development, or one dimension and its impacts might not be possible to trace until decades later. There remains a tension around how impact with regards to sustainability can be evaluated. Labadi (2018) recognises this complexity and considers how societal development on the one hand is equaled with progress, and heritage on the other is connected to traditions and the past. The links between heritage and sustainable development are captured in four different ways by Logan and Bille Larsen (2018: 8). Firstly, sustainable heritage in its own right, which deals with if/how a heritage resource can be passed on to future generations. Secondly, heritage versus sustainable development – where one is pitched against the other. Thirdly, sustainable development for heritage, which considers how practices in the heritage sector can be adapted in more environmental, economic and socially sustainable ways. Finally, heritage for sustainable development, which focusses on how heritage assets can be useful for the development of more sustainable societies. The way forward adopted by the UN is to break down the holism of the Brundtland model into more directly achievable objectives. Within

the overarching goals of Agenda 2030, 17 Sustainable Development Goals (SDGs) have been identified to facilitate and operationalise this process.

There are a range of issues concerning the term sustainable development. The definition is vague and can encompass a number of different, sometimes contradictory, actions. For example, sustainable and economic development may not be compatible as sustainability may demand de-growth. As expressed by Alaimo (2012), on occasions, sustainable development has been hi-jacked and used as technocratic green-washing in developments. Furthermore, as pointed out by Smyth (2011, 2), sustainable development is human- and development-centered. In addition to this, and as argued by Escobar (1995, 192–194), the sustainability of the Brundtland commission tends to push a western environmental managerialism onto local communities with radically different ways of relating to their surroundings (see also Smyth 2011).

WHAT IS IMPACT?

Impact is the demonstrable contribution that excellent research makes to society. It occurs in many ways – through creating and sharing new knowledge; inventing new products, companies and jobs; developing new and improving existing public services and policies; enhancing quality of life and health; improved biological diversity, and more. Research impact occurs at several levels – in individuals; organisations; communities; nations and systems. Through public engagement, impact creates general awareness, knowledge and skills development. In an academic context, impact concerns significant advances in understanding, methods, theory and application.

This report focusses on impact generated by cultural heritage research. It also aims to identify impact within this field that supports sustainable development. Moreover, it looks at intended or unintended demonstrable change related to the social, economic and environmental dimensions of sustainable development, as caused by heritage research. Rather than focusing on the value of heritage itself in sustainability processes, the report elucidates how heritage research can be employed to improve sustainable development. The roles and effects of cultural heritage practices are implicitly integrated in the impact analysis, as they constitute the topic of heritage research. It is important to note Europeana's 2017 Impact Playbook for Museums, Libraries, Archives and Galleries. The impact playbook method is designed for cultural heritage organisations to assess the impact of

Sustainable development:

The kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs, and which is identified through social, economic and environmental dimensions – as it has been declared by the Brundtland Commission Report Our Common Future.

(UN 1987)

digital resources. It is founded on the principles laid out in the Balanced Value Impact Model developed by Professor Simon Tanner, King's College London. Where the Europa Nostra report CHCFE has addressed the explicit impact of heritage in sustainable development, this report aims to strengthen the position of heritage research in delivering sustainable development impacts.

Impact can be difficult to evaluate, but it has increasingly become the task of researchers to engage in its planning, as well as delivery, in order to legitimate their projects to society and funders. The UK has implemented this way of working since 2007, where impact needs to be thoroughly considered at the time of designing a project and submitting a funding application. This report is inspired by the knowledge and expertise developed in the UK, and aims to provide constructive guidance on the complex issue of evaluating impact – and subsequently advance the common agenda and strategies within the JPI CH. For the purposes of this report, impact is defined as: The fundamental intended or unintended demonstrable change occurring in individuals, organisations, communities, nations or systems as a result of implemented heritage research linked to sustainable development. United Kingdom Research and Innovation (previously Research Councils UK) requires all research proposals to include a Pathway to Impact statement (AHRC n.d), outlining who the potential beneficiaries of the research are and what can be done to ensure the research makes a difference.

Another approach to understand impact is the Kirkpatrick Model. The Kirkpatrick model was developed in the 1950s to evaluate the effectiveness of learning solutions, and has been widely disseminated in various contexts. The model consists of four levels of potential impact, generated by projects/activities and situated within processes of learning.

The first level is reaction, which focusses on how participants in a project or a specific activity initially respond. A person's reaction can be assessed through observation and their written or spoken response, immediately following the activity or after they have had time to reflect. The second level, learning, looks at whether someone has learned something from the activity/project. A person's perception of increased understanding should be addressed through specific questions during the assessment of the first level. The third level focusses on behaviour and whether this has changed as a result of the activity/project. The measurement of this level of change requires ongoing contact, and might necessitate experts from other fields. The last level,

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results, looks at long-term impact, and points at the necessity of evaluating impact within an extended timeframe. Impact might be possible to identify and measure directly after an activity, however, certain effects are identifiable months or years later. Assessment of long-term impact requires both renewed contacts with participants and comparisons with control groups. While this level provides more in-depth knowledge, it entails considerable resources with large budgets.

It is important to reach a depth of understanding in the evaluation process, and that numerical data based on quantitative methods needs to be considered in relation to data generated by qualitative methods. Measuring long-term impact further necessitates considerations of other projects taking place simultaneously which may potentially have larger impact on the investigated issue. Negative as well as positive outcomes need to be assessed, as the former can provide clues to future improvements. In gathering case studies for this report, we searched for evidence of impact generated from heritage research, and have included examples spanning from measurable results to impact at the different levels of the Kirkpatrick model.

GATHERING IMPACT ONLINE

The impact case studies presented in this report have been gathered through an online survey. The form of this assessment was based on a model constructed for the UK Researchfish system² utilised by UKRI. A call for participation was distributed to the partner countries within JPI CH, and all the received 52 case studies are included in the report. The division of these contributions into the long and short descriptions is partly based on an aim for a balanced representation between the 13 participating partner countries. Their relevance in relation to the main focus on impact that strengthens sustainability has been another central factor in the processes of selecting and structuring the content.

The survey call was accompanied by a set of instructions and examples to facilitate the submission process. They were directed towards guidance explaining the complex idea of focussing on the impact of heritage research results rather than the impact of heritage assets. This extended model of inquiry is motivated by an increasing demand within policy making and research funding to prove that research generates benefits for society beyond academia. The current focus on sustainability, where social, economic and environmental dimensions

The Kirkpatrick Model – 4 levels of potential impact:

Reaction – the initial response to participation.

Learning – changes in people's understanding, or raising their awareness of an issue.

Behaviour – whether people subsequently modify what they do.

Results – to track the long-term impacts of the project on measurable outcomes.

2. The UK Researchfish system is used under a Creative Commons Attribution-Share Alike 4.0 International License attributed to RAND Europe, The Researchfish User Group and UKRI <https://app.researchfish.com/helpwiz>.

integrate, arguably has the potential to strengthen the position of heritage research as well as heritage – as the former always embodies the latter. To enhance the criticality of the report, the instructions further addressed the possibility of research results pointing at negative or adverse effects of heritage research, which could hamper sustainability and create the aforementioned tensions between its dimensions.

The survey centred on an ‘impact narrative’. Following a summary of the contributor’s chosen case study/research project, this narrative aimed to capture how results of the completed research had been used and created impact. The participants were asked to identify the users of research results and the stakeholders involved. Then to reflect on how specific research-generated knowledge had been implemented, and in which ways, and for whom, the implementations had generated benefits related to sustainability. The instructions suggested groups, organisations, practitioners or individuals and potential beneficiaries should be named. The narrative was open for impacts of heritage research in any geographical location instead of solely focussed on the participant’s own country, and also for single as well as group projects. The instructions asked for both qualitative and quantitative information, in order to make robust cases suitable for evidence building. Evidence of impact and evidence sources were asked for in the survey, and the instructions provided examples of valid sources. Forms of impact were further possible to assess through seven pre-set categories (Appendix 2), also based on the AHRC methods: knowledge and skills; creativity, culture and society; health and welfare; the environment; business and organisations; and public policy, law and services. It was possible to add images, and submitted photographs are included in this report.

CHALLENGES AND EXECUTIVE SUMMARY

The case studies collated in this report present a large variety of engagements with cultural heritage, and innovative impact that has contributed positively to sustainable development. A number of connections with both evidenced and potential impact have been established and, at the same time, the report has identified certain challenges that the JPI CH needs to address further.

Neither sustainability nor impact are established concepts in all our partner countries, and neither are they acknowledged in all areas of cultural heritage research. To further strengthen the position of the heritage field, this report suggests increased attention on how impact can be understood and articulated. It has identified the 2019 revision of the JPI CH Strategic Research Agenda (SRA) as an excellent oppor-

tunity to further address these issues. The following discussion exemplifies how some of the case studies clearly demonstrate the holistic notion of sustainability and of evidenced impact, while others provide implicit suggestions. It further includes attempts to reframe submissions of the latter to trace more explicit routes to Agenda 2030 and provable impact. The current assessment of impact and its relationship to sustainability could be enhanced by long-term engagements within respective local contexts, and further comparisons with each other in larger analysis frameworks. Such analysis is beyond the task of this report, where most collated case studies are recently completed or even ongoing projects. At this stage, public dissemination and engagement has been central in evaluating proven and potential impact. Academic impact, as well as collaborations across various fields to reach policy makers and funders, has further been in focus. Knowledge development can be identified as one of the strongest forms of impact among the cases, while changes in attitudes and behaviours leading to long-term impact could potentially be proven at later stages. As such, this report is a step on the way to establishing strategies that incorporate impact and sustainability within heritage research and through the JPI CH strategies.

Notions of sustainability have evolved in diverse ways in the submitted case studies. In some, such as the Norwegian case study ‘SPARC’ on vulnerable high mountain heritage environments, sustainability is clearly pronounced through a holistic approach that includes all three dimensions (p. 47). The research focusses on high mountain environments that largely consist of perennial snow patches which are increasingly melting as a result of climate change. Heritage research at these sites demonstrates their archaeological and scientific value, but also their fragility and worth as heritage assets. The archaeological material illustrates the 5500 year history of sustainable interdependency between man and reindeer in the region. This close and long-term culture-nature relationship, where reindeer herding is regarded as the main economic resource, has iconic status within the Norwegian national identity. Reindeer hunting and management is continued among the indigenous Sámi population, and the melting of the inland ice and potential extinction of the reindeer poses a considerable threat to their way of life. In terms of impact, the research findings have been widely disseminated in both public and academic arenas with three museum exhibitions, user-workshops, scholarly publications and international research exchanges, and it has contributed to management guidelines and recommendations for the management of glacial

heritage sites. Collaborations with Sámi communities inhabiting the investigated environments and embodying their melting archives have further enhanced the results and impact of the project.

The Netherlands case study of 'Blind Spot' focusses on the economic and social value of cultural landscape in sustainable development of Metropolitan areas (p. 42). A first phase consisted of an international comparative analysis of 10 metropolitan areas, mapped in terms of knowledge economy infrastructure, landscape use, protected landscapes, and the development of landscape policies and initiatives. A second phase applied the first findings to 12 Dutch pilot projects where the participants exchanged experiences in a community of practice that incorporated evidenced value of cultural landscape. This Dutch implementation, which currently is ongoing, is based on collaborative research between a university, government agencies and non-governmental organisations. The communities of practice developed among them, as part of the research method, further includes policy makers, designers, researchers, students and decision makers. This cross-sectional way of working has the potential to result in debate and evidence that challenges conventional wisdom and ideas, and further influence policy makers. The title refers to a free online magazine produced within the project which points at the quality of landscape and environment as a blind spot in many strategies of the business sector. In addition, lessons learned have been shared in the form of essays and conference presentations, and are making their way into national agendas and policies.

Public site-specific art as cultural heritage is addressed by one of the Swedish cases (p. 69). The research primarily concerns the material aspects of this heritage, by investigating how its protection and management can be improved by law and in practice. Reconceptualised within the sustainability framework, this project calls for viable structures that preserve public art and its values in sustainable ways. This value is mainly discussed from the perspective of art history, cultural heritage and economics, while the social values of art, for example contributing to people's well-being and relation-building, are mentioned only briefly. Impact evidence is demonstrated by the project's results being directly referred to and supported in a Government bill on cultural heritage politics, and in turn affected the tasks assigned to the SNHB and the Public Art Agency Sweden.

Several case studies examine the development of heritage tourism, treating the impact of these processes and their relation to sustainability in different ways, from having stabilising to destabilising

effects. For example, the Belarusian case (p. 23) describes how the E-40 waterway system and its heritage environment is being developed into a new tourist route. It has a holistic approach to sustainability and the project is increasing the quality of life of the population by enhancing inhabitants' knowledge about their history, reviving relationships with their environment, and expanding the labour market in tourist-related services, which in turn reduces migration outflow. The development is largely based on thorough historical research on architecture and urban planning, and demonstrates how research can inform sustainable infrastructure developments.

Development of heritage tourism through research that engages local inhabitants to promote regional social and economic sustainability can further be evidenced by the Portuguese case study 'Tasting literature' (p. 61). It connects literary and food heritage and employs unconventional multisensorial methods directed at the public through combining lectures and dinners based on results of historical research. Impact, both from the research and the methods used in applying its result, can be traced in an increased awareness of these specific heritage forms, locally as well as among tourists, and skills have further been developed among the catering teams providing the dinners.

Emphasis on one dimension of sustainability for the benefit of another might lead to tension, such as social in relation to economic. However, some of the collated case studies also bring attention to social tensions which arise from heritage being inherently diverse and unstable phenomena (Fredengren 2015). One example of this is addressed by Poland, through an ongoing investigation of the antagonism between Germanness and Polishness in the Western and Northern territories of the country (p. 54). The region was transferred to Poland after the Second World War and has seen forced displacement and the need to rebuild social ties, as well as infrastructures and physical environments. Sustainability is not used as an explicit framework in this case study, but both its social and environmental dimension can be interpreted as central goals of the described on-going collaboration between museums and research institutes.

One of the case studies from Lithuania articulates related concerns through contemporary research into 20th century Modernist architecture as a defining feature of national identity and a main focus of Kaunas as the European Capital of Culture 2022 (p. 38). A focus on Modernism has emerged through contesting points of views between heritage as a fixed resource for cultural identity and heritage as a field of social tension where modernist and post-modernist perspectives

have been in conflict. The Kaunas heritage programme aims to incorporate these tensions and present heritage as a field where the creative narratives of today are equally important as authentic relics of the past. The emphasis of heritage as a constantly developing, renewable resource in this case has resulted in its conceptualisation as an ecosystem and a resource for a holistic sustainable development.

Research shows the social tensions and destabilising conflicts that sometimes surround heritage can also be understood as productive. This type of impact is exemplified by one of the Swedish case studies which investigates an urban development project where a former working-class area was to be demolished to provide space for a more affluent area (p. 67). The announcement by local authorities triggered resistance among inhabitants, which, after a long process, led to parts of the area being formally declared as heritage. The relation between heritage and resistance here is theorised as a transformative and productive process where local communities can develop self-determination and strategies of struggle. The latter aspects promote social sustainability, however, the researchers conclude that the process also entails a risk of gentrification where local inhabitants need to be displaced. In addition to conventional public and academic dissemination, this project has led to collaborations between artists, activists and scholars on local heritage in relation to gentrification and social sustainability.

A number of case studies demonstrate that public awareness and knowledge about heritage has increased through open access of research results. This can lead to changes in public behaviour and improved management of both cultural and natural heritage assets, which, in turn, are central to sustainable development. Public values, attitudes and actions are further impacted through collaborative and participatory research methods. The French case study on the research and digitisation of materials from the First World War combines these two ways of working (p. 28). The first phase of the project consisted of transcription and research into a collection of testimonies written by French soldiers, which resulted in scientific and online publications. The second phase mobilised volunteers who continued the process of transcribing and encoding additional material on an online platform. They received training in archive research and digitisation skills and new guidelines were developed in the process.

Research collaboration with local scholars and communities and attention to local techniques played a central role in one of the UK case studies, which focussed on post-earthquake reconstruction in

Nepal (p. 76). Governmental and Non-Governmental Organisations were trained by multidisciplinary scholars in an international workshop, and the results were disseminated in meetings with stakeholders and curated into a travelling photographic exhibition. Results and recommendations developed in the project, such as avoiding intrusive materials, also entered Government policies on World Heritage Sites in Nepal.

The safeguarding of cultural heritage, both tangible and intangible, was common across the submitted case studies. New approaches, methodologies and resources, as well as knowledge exchange and capacity building, form the basis of the research impact. The case study from Cyprus focusses on the development of new predictive methods for monitoring and protecting heritage sites. The project was attentive to the larger geological and geotechnical contexts of heritage sites, and how climate change and human interaction could worsen the effects of natural hazards (p. 25). Innovative technical solutions combine space science and cultural heritage conservation science, which are considered to be effective in terms of preventive conservation as well as in relation to costs, have been widely disseminated within academic contexts. The Italian case study looked at the restoration of a fountain sculpture, and the designing of an advanced online digital system with 3D modelling to archive and manage all the multi-media documentation of the project and increase public knowledge (p. 33).

Innovation and entrepreneurial activity through the design and delivery of new products or services brings together stakeholders and enhances the social and economic value of heritage. The development of new technology can result in the improved effectiveness of workplace practices and access to cultural heritage assets. In the Danish case studies, digital design and innovation have been directed to learning situations in the museum context (p. 27). One case study describes the Media Mixer, an installation co-developed by the national research centre DREAM and the Danish Media Museum to improve learning results among students in upper secondary education. The installation is interactive and allows students to jointly create, edit and discuss media sounds and images. It influences how the students encounter the professional media materials that the museum archives and displays. The interactive installation has improved students' learning processes, and it is a creative example of how researchers and museum practitioners can collaborate.

Technological innovation has been further linked to heritage research and experimental archaeology at the two open air museums presented by Spain (p. 65). Museums established at the archaeological

sites of Atapuerca and Arqueopinto provide opportunities for education, leisure and entertainment. Live demonstrations and object handling are an important part of the visitor experience, and inclusivity is strengthened by training programmes for people with disabilities, a website with 3D virtual reality models, and an app that enhances teaching and learning about the archaeological sites and collections. New management software has been developed which resulted in more efficient processes and ways of working.

The UK case study on the reanimation of Sierra Leonean heritage, like the post-earthquake effort in Nepal, looks beyond Europe into a global perspective on impact and sustainability (p. 73). Heritage collections taken from their original context in Sierra Leone during the colonial period are now held by museums in the UK. The research project focussed on reconnecting the collections with their source communities and giving them new life through digitisation, community engagement, and collaborative gathering and recording of new materials. The expanded digital collection is accessible online and this website constitutes a form of 'virtual repatriation' where local as well as diaspora communities can engage with their heritage. The website has been further enlarged by digitisation of collections held at the Sierra Leone National Museum, realised by training and capacity building of the local heritage sector. The project has evoked recognition of the collections' value and importance among its citizens and for the development of the country, and new funding has improved conditions for outreach activities, preservation and employment. Simultaneously, a renewed European interest in the Sierra Leonean collections has led to contemporary exhibitions and an attention beyond current stereotypes based on narratives of child soldiers, 'blood diamonds' and poverty.

In sum, the collated case studies of this report point to the capacity of heritage research to advance the development of sustainable societies, and subsequently reach the goals of Agenda 2030. While some case studies are straight forward in their impact on fields such as policy making, enhanced research programmes and/or public engagement, others provide clues to how potential impact can be assessed over a longer period. Framed through this report, the case studies widen the perspective of how impact can be captured and analysed in line with the aspirations of the JPI CH.

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Case Studies Submitted by JPI CH Partner Countries

LONG DESCRIPTIONS

New Tourist Routes along the E-40 Waterway (Belarus)

Funded by The National Academy of Sciences of Belarus and the Ministry of Transport of the Republic of Belarus, since 2012.

Research within architectural history and urban planning has positively impacted a tourist development project. The project pays attention to both tangible and intangible forms of heritage and fosters links between the environmental, social and economic dimensions of sustainability.



The E-40 waterway.

The Belarus case study is an example of how a revival of cultural heritage can contribute to the establishment of a local tourist industry. This development project is mainly based on historical research focussed on architecture and urban planning.

The new tourist industry centres around the Belarusian section of the E-40 waterway, flowing from Brest, near Poland, in the West to Mozyr, near Ukraine, in the East. The route has been made accessible primarily through a cruising ship, launched in 2017, which makes several stops along its one-week journey on the rivers Muchavets, Pina, Prypjat and The Western Bug.

A number of historical sites with built heritage and cultural practices are located along the waterway, such as ancient cities, monuments, memorials, and venues where regional festivals and holidays take place. The route also includes biological and landscape reserves, and a National Park. Tourists are met by conventional guides at the stops, and can also find their own paths through newly-produced booklets and a special internet application.

The social orientation of the continuing project has been addressed by surveys among local inhabitants with the aim of identifying particular needs, initiatives and social positions. Results of Belarusian cultural heritage research have been used in educational activities, such as seminars and discussions, a project website, various media presentations and coordination with other projects and programmes in the region. The knowledge emerging through these processes has informed the rehabilitation and operation of the waterway and its coastal infrastructure, and of the development of tourist businesses. It is argued that the project increases the quality of life of the population by enhancing inhabitants' knowledge about their history, reviving relationships with their environment, and expanding the labour market in tourist-related services, which further reduces migration outflow.

A.S. Shamruk has suggested new strategies and projects should meet the needs of people, improve the living environment, as well as create a modern infrastructure and develop public spaces. A.I. Lokotko further emphasises that the development of architectural protection in Belarus needs to build on national identities and artistic criteria rather than only give attention to economic priorities, and that tourism and recreational industries should integrate activities in the natural landscape with historical and cultural values. The current case study thus exemplifies how several research projects developed over a longer time period can have impact on sustainable developments.

The developments of the new tourist routes in south Belarus are based on research within architectural history and urban planning. For example, Yuri Vladimirovich Chanturia at the Belarusian National Technical University, who has shared his research on the cultural heritage of the East Slavic region with scientists, architects, designers, governing bodies in the field of urban planning and restoration of monuments, and professional historians. The research directly informed the design of the infrastructure project. This case study has further developed from research results which argue for architectural and planning strategies that are in dialogue with history, as well as the contemporary context with its inhabitants.

For more information:

Lokotko, A.I. (1999), National Features of the Belarusian Architecture, Minsk (in Belarusian).

Shamruk, A.S. (2007), Architecture of Belarus 20th to early 21st Century: The Evolution of Styles and Artistic Concepts, Minsk (in Belarusian).

Chanturia, Yu. V. (2017), Belarusian Town-planning Art: Medieval Heritage, Renaissance, Baroque, Classicism in the European Architecture System, Minsk (in Belarusian).

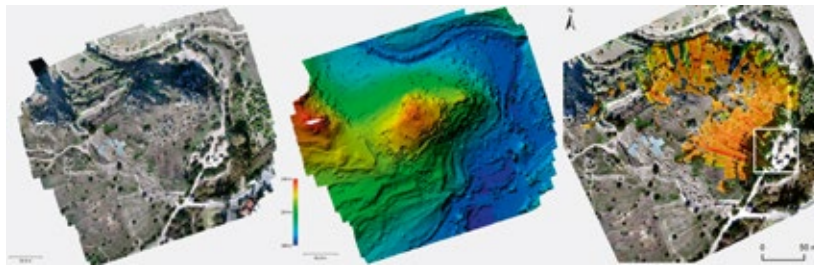
<https://www.kp.by/daily/26668/3690194/> 'Cruise ship Belaya Rus was sent to the first voyage. The ship was launched from the shipyards of the Pinsk Shipyard and Ship repair Plant. The ceremony was held according to all the rules: a bottle of champagne was broken on the side and it was sprinkled with holy water' (website in Russian).

PROtection of European Cultural HERitage from GeOHazards (PROTHEGO) (Cyprus)

Funded within JPI Cultural Heritage Plus call by Research Promotion Foundation (RPF), Cyprus, Ministry of Cultural Heritage and Activities (MiBACT), Italy, Arts and Humanities Research Council (AHRC), United Kingdom, and Ministerio de Economía y Competitividad (MINECO), Spain, 2015–2018.

Predictive techniques and preventative conservation is mitigating the effects of natural hazards, and their potential worsening by climate change and human interaction. Research enhanced strategies and practices of cultural heritage management enabling sustainable forms of preservation.

PROTHEGO has developed new technical solutions to mitigate the increasing vulnerabilities of tangible cultural heritage. Investigations of vulnerable sites, from archaeological sites to historical centres, have commonly focussed on the heritage context in response to environmental risks (i.e., degradation and corrosion of building materials) without fully considering or understanding the entire geological and geotechnical context. The PROTHEGO project focussed on effects of natural hazards, such as landslides, settlement, subsidence, earthquakes or extreme meteorological events, and the fact they could be worsened by climate change as well as human interaction. PROTHEGO further addressed the lack of a comprehensive overview of global heritage sites currently affected by geohazards. Through the JPI funded collabora-



Choirokoitia, a Cyprus site showing orthophoto, digital elevation model and rockfall modelling. Photo: Kyriacos Themistocleous.

tive research between Italy, United Kingdom, Cyprus and Spain, each partner country investigated a national heritage site included in the UNESCO World Heritage List. The research impacts include the continued development of new techniques, as well as policies on conservation, and together they provide reference case studies for managing heritage sites. The archaeological site of Choirokoitia constituted the Cyprus case study, and it demonstrates the research impact from local scale monitoring, investigation, documentation and 3D modelling.

PROTHEGO combined innovative space technologies based on radar interferometry (InSAR), which provides remotely sensed information on ground stability conditions with local-scale field surveying, geological investigations and advanced modelling. Analysis of these datasets at the pilot sites were used to understand geological processes and predict geohazards. The aim is to enhance strategies and practices of cultural heritage management through predicting techniques and establishing preventive conservation interventions rather than reconstruction and restoration following a geohazard. Ultimately, this shift is directed towards sustainable forms of preservation. Preventive conservation methods are a more sustainable form of heritage management, in terms of preserving a heritage site as well as the cost. This also positively contributes to the quality of the visitors' experience and engagement. At Choirokoitia, which is a popular tourist site, the investigations indicated a potential rock-fall situation, which could be mitigated before it affected the heritage, but also before it endangered the visitors.

Results were disseminated at seven international conferences concerned with remote sensing and geo-information of environment, and they built knowledge and capacity among scholars and practitioners. The aim is to use knowledge and innovation to impact cultural heritage management practices at a national level – by reinforcing institutional support, legislation and governance.

For more information:

<http://www.prothego.eu/>

The Media Mixer: Digital Learning in the Museum (Denmark)

Funded by DREAM: Danish Research Centre on Education and Advanced Media Materials and the Danish Media Museum, 2009–2012. Vitus Vestergaard, University of Southern Denmark.

Innovative links between museum collections and pedagogical tools for students have been created, along with improved relationships between academic scholars and practitioners within the museum and heritage sector.



The Media Mixer at the Danish Media Museum.
Photo: Danish Media Museum.

Collaboration between a national research centre, DREAM, and the Danish Media Museum has advanced students' creative media production and learning through their use of an interactive on-site installation, the Media Mixer. As part of a new permanent exhibition at the museum, the partners co-designed the installation, which allows students to jointly create, edit and discuss media sounds and images. Launched in 2010, the Media Mixer is still part of the permanent exhibition.

The collaboration focussed on students in upper-secondary education (15–18 years of age) paying physical visits to the Danish Media Museum with their teachers. The Media Mixer trains students' joint processes of creative media production. These processes support students' media and information literacy learning and they catalyse new student perspectives on professional media output, which forms the core of the Media Museum collections.

Universities have gained insights into core conditions for developing interdisciplinary collaboration with external partners in the heritage sector. These insights have resulted in the formation of Danish Centre for Museum Research, a national network of university departments researching museums and heritage which co-ordinates, catalyses and helps advance practice-based museum studies. Heritage research has clarified its insights into the need for a research-based approach to museums' communication with the public. Students' joint processes of creative media production have been supported through the formation of a digital learning tool impacting their formal educational output and best-practice guidelines have increased organisational awareness (for both museums and schools) of institutional and pedagogical challenges for long-term development of students' media and information literacy.

For more information:

Vestergaard, V. & Mortensen, C. H. (2011), 'The Media Mixer: User Creativity through Production, Deconstruction and Reconstruction of Digital Media Content', in *Nordic Museology*, 1: 15–34.

Vestergaard, V. (2012), *Det hybride museum: Unge brugeres deltagelse gennem produktion og deling af indhold i et fysisk museumsrum* [The Hybrid Museum. Young users' participation through production and sharing of content in a physical museum space]. Dept. of Literature, Culture and Media, University of Southern Denmark, PhD thesis.

DREAM presentation video (incl. stakeholder interviews),
<https://vimeo.com/138019402>

DREAM website: <http://www.dream.dk/?q=en>

Testaments de Poilus 1 & 2: a collaborative platform for the valorisation of written heritage of First World War French soldiers (France)

Funded by Fondation des Sciences du Patrimoine, since 2016.

Unknown materials written by French soldiers have been digitised through public participation and made openly accessible through an online platform.

This project focussed on transcribing and researching testimonies from an unknown corpus of French soldiers drafted between summer 1914 and the end of the First World War in 1918. The crowdsourcing

French soldiers probably around 1916–1918. Photo: Bain News Service, publisher.



campaigns occurred during the centenary of the First World War. The project is funded by the Fondation des Sciences du Patrimoine and managed by the AGORA and ETIS Laboratories (Université de Cergy-Pontoise), Archives nationales, Archives départementales des Yvelines, Archives départementales du Val d'Oise, and the Centre Jean Mabillon (Ecole des chartes), Université Paris. It is supported by the French Government's First World War Centennial Mission.

A first campaign of scientific publication was conducted in 2016, and 134 testimonies were published online. This was followed by a crowdsourcing campaign and participative archival research process. Volunteers were mobilised, in order to investigate, transcribe and encode additional testimonies online. A specific online platform was created in January 2018 (*Testaments de Poilus*), allowing the online transcription and coding of the texts (XML/TEI), before their final digital publication. Two months after the opening of the platform, and the first training workshops, 260 volunteers had already subscribed to the platform (March 2018). This largescale public participation led to new forms of access and new knowledge of this rediscovered heritage. By September 2018, 260 testimonies had been transcribed, with 191 being encoded and validated. Volunteers were trained in archive research, transcription and digitisation, and specific guidelines were produced. This project led to the preservation of unknown archives and written heritage and the creation of new online collections that are easily accessible to the general public. It has also resulted in new engagement with collections in both national and local archives across France. The text transcriptions in XML-TEI, images and transcription software

are freely accessible under CC-BY license. A contributors day was held at the National Archives of France in September 2018 and a symposium is planned for 2019 when they hope to have digitised and transcribed more than 500 wills.

The crowdsourcing process and infrastructure was based on other similar projects – Transcribe Bentham (University College London, UK); Letters of 1916 (Maynooth University, UK) and Les Herbonautes (Museum d'Histoire Naturelle, France). In 2017, the project team presented at the 'Le Crowdsourcing: pour partager, enrichir et publier des sources patrimoniales' at the Université d'Angers which brought together crowdsourcing projects from France and elsewhere in Europe to share experiences and discuss best practice.

The project has been widely reported in both local and national media in France online, in print and on the television. The high-profile crowdsourcing project contributed to at least two PhDs in France: Mathieu Andro (Crowdsourcing, and crowdfunding applied to digitisation projects and digital libraries, INRA, October 2016); Anne Vikhrova (Architecture and evaluation of crowdsourcing for citizen scholarly editing, Grenoble, December 2017).

Occurring during the centenary of the First World War, the project provided an opportunity to get the public involved in research which both commemorates the war and ensures that personal heritage is rediscovered and preserved. It demonstrated the benefits of crowdsourcing and participatory research, as it resulted in a nationally active volunteer community who have gained new skills, knowledge and contributed to the preservation of cultural heritage. Another strength of the project was the scoping of best practice from similar research projects globally during the project design stage, which enabled it to build on existing knowledge, processes and infrastructure. Going forward, the project will need to ensure that the new datasets themselves are archived and accessible given the challenges of preserving digital heritage.

For more information:

<https://testaments-de-poilus.huma-num.fr/#/>

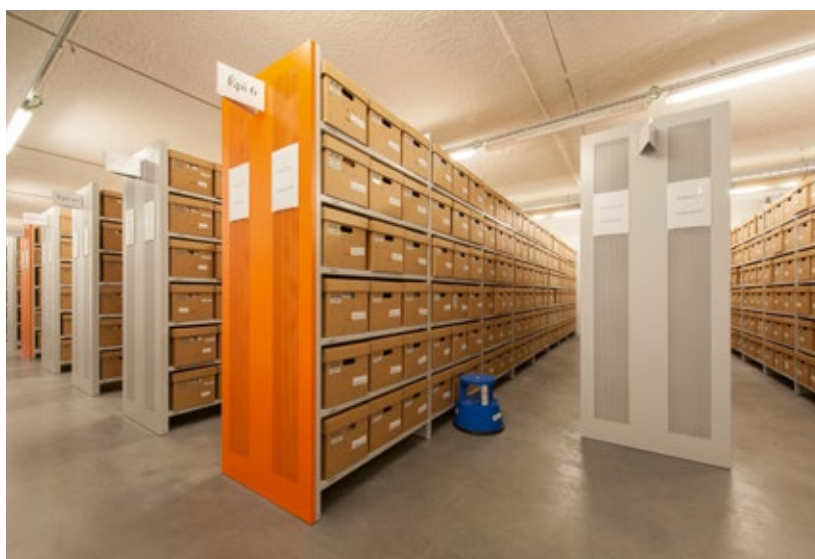
ECOPAT- Ecology of heritage collections (France)

Funded by MiC, Foundation for heritage Sciences (FSP) and Labex CAP, since 2017.

Infrastructures and practices within national archives have been investigated, through a holistic approach across humanities and heritage research, to improve the sustainability of archive and collection management.

This project focusses on archives as a research field and in further understanding the conservation practices relating to collections management. The project team comprises Labex post-doctoral researchers and staff from the Archives Nationales, Musée du Quai Branly-Jacques Chirac, Institut Francilien Recherche Innovation Société/ Centre Alexandre Koyré, École des Hautes Études en Sciences Sociales, CERLIS-Université Paris Descartes and Printemps-UVSQ.

This project pursued the work performed in several French institutions, such as the Quai Branly Museum – Jacques Chirac and the Centre Pompidou/ Musée national d'art moderne, which aim to implement an ecological approach to collections. It was born out of an emerging field of research: the sociology of infrastructures. This approach considers heritage and collections as inseparable elements of the infrastructures and general environment to which they belong and where they evolve (institutions, buildings, professionals, activities etc.), implementing principles of 'pragmatic sociology' and studies of



Hallway and storage, Archives Nationales, Pierrefitte.
Photo: Archives Nationales (France)\Nicolas Dion.

social sciences in an ethnography of the Archives Nationales. The project articulated humanities and heritage sciences in a comparative way, in order to draw meaningful comparisons between different types of objects, collections and institutions, and experiment with new forms of collaborations between the academic world and heritage institutions.

An innovative study of national archives institutions investigated the relationship between conservation, technical maintenance and knowledge transfer and also the socio-material organisation of archives. Researching the museum and archive infrastructure and recording processes and practices led to an improved management and conservation of collections in their environment, as well as a better understanding of the complexity of these human, spatial and temporal environments and corresponding infrastructures. For example, a seminar series on the Ecology of Collections informed and trained professional services and archivists to use these new approaches. One seminar in 2018 held at the Quai Branly Museum – Jacques Chirac considered ‘Conserving the living: the case of taxidermy’. The speakers included a taxidermy conservator, taxidermist and an anthropologist, who reflected on similarities and differences in the way they value and work with museum and archive collections.

In addition to presentations at conferences, symposia and seminars, the work produced by the team gives rise to collective publications, presenting the research methodology, setting out the empirical and epistemological foundations of the project and sharing the main results of the surveys. The project was presented at the 2017 Conference of the International Institute for Ethnomethodology and Conversation Analysis. Given the cross-disciplinary nature of the research, the project team plan to submit articles to heritage and conservation academic journals (*In Situ*, *Revue des patrimoines*, *La Gazette des archives*), sociology and anthropology academic journals (*Social Studies of Sciences*, *Revue d’Anthropologie des Connaissances*), and to general journals in human and social sciences (*Genèses*, *Sociétés et Représentations*, *Temporalités*).

The key strength of this project is how it applies theoretical approaches and comparative analysis to museums and archives in order to build capacity and to promote sustainable practices. Furthermore it facilitated dialogue between researchers (anthropologists, sociologists, historians, philosophers) and professionals (curators, conservators, librarians, archivists), which led to new ways of thinking about their relationship with and responsibilities for heritage collections.

The project could have been expanded to include international comparisons and perspectives, and recordings of the seminars could have been made available online.

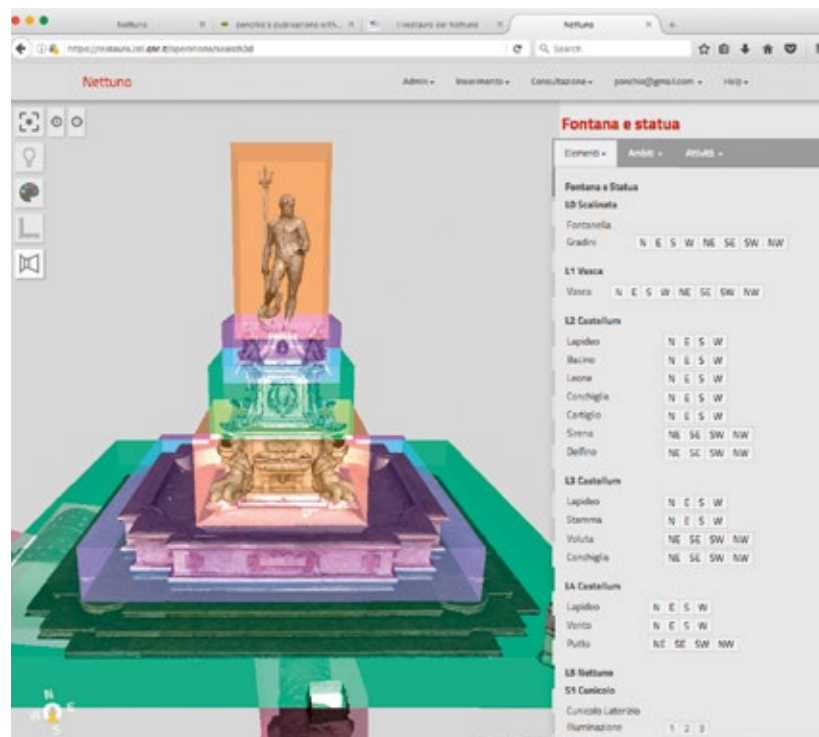
For more information:

<http://www.sciences-patrimoine.org/projet/ecologie-des-collections-patrimoniales-ecopat/>

A digital documentation system designed for the restoration of the Neptune Fountain in Bologna (Italy)

Funded by the Institute of Information Science and Technologies of the Italian National Research Council (CNR-ISTI) and Comune di Bologna (Bologna city administration), since 2017.

New technology is making the process of heritage conservation more accessible, engaging and efficient, for the public as well as a wide range of stakeholders.



Graphics interface of the Neptune information system.
Photo: CNR-ISTI.

This project focussed on the restoration of the Neptune Fountain in Bologna. The fountain was designed by Giambologna and completed in 1567. The project involved the CNR-ISTI, Istituto Superiore per la Conservazione ed il Restauro del MiBACT (ISCR) and the University of Bologna designing a digital system to store, archive and manage all the multi-media documentation from the conservation project. The digital information system was designed to store text, images, results of scientific investigations, graphical models and statistics. The web-based information system was produced to host all of the data produced from the restoration project, to allow the conservation-restoration specialists to interact onsite with an accurate 3D representation of the elements of the fountain, and to directly reference all information and data produced on the geometry of the 3D model. The digital system was accessible onsite for the conservation team from the Inst. Superiore per la Conservazione ed il Restauro through the use of tablets and laptops, which allowed instant access to the geo-referenced datasets and to visualise and add new data in real time. The web-based information system allowed multiple access to a centrally-stored dataset and the mapping of all conservation interventions (operation entries) to this complex multi-material monument. A total of nearly 1,100 operations were inserted, nearly 800 of which had 3D annotated data attached and about 10,000 documents (images, reports, 2D drawings, etc.) stored.

The multidisciplinary team comprised physicists, chemists, biologists, hydraulic engineers, structural engineers, geomatics experts, restorers, architects, architecture and art historians and computer and information scientists. The restoration also provided practical training for more than 30 students from the University of Bologna and the ISCR's School of Higher Education.

The 3D-based information system provided new forms of dissemination to the public including the open access web-based 3D digital model. The model was the result of scanning using a terrestrial laser scanner providing an average of less than 1 mm resolution which was supplemented by photogrammetry. The digital documentation and resulting model guided the conservation team in the structural analysis, surface cleaning and the 3D printing of the missing parts of the Neptune Fountain. The model and the information system allowed restorers to calculate in advance the quantity of products needed to clean and conserve the fountain. It also allowed them to run lighting simulations to model different illuminations and decide on new solutions for managing the lighting of the monument. Water

system simulations were also run on the 3D model using data captured in the digital information system to complete the rehabilitation of the water supply system and water jets.

The innovative project was itself recorded and disseminated through an article in the Journal of Cultural Heritage and in the proceedings of the International Society of Photogrammetry and Remote Sensing's 2017 conference on Geomatics and Restoration – Conservation of Cultural Heritage in the Digital Era – held in Florence. A website created by Comune di Bologna also provides more information about the project and direct access to the digital model and video simulations. Guided tours were held between July 2016 and December 2017, which allowed the local community and tourists to learn more about the restoration of the Neptune Fountain and the conservation approaches and tools being utilised.

This project demonstrates how new technology is making the process of heritage conservation more accessible, engaging and efficient. It has enabled a wider range of stakeholders to be involved in the conservation process and allowed for new forms of access and dissemination to the general public. The challenge now comes to ensure this digital information system and datasets are themselves preserved and accessible for future generations.

For more information:

Apollonio, F., and V. Basilissi, M. Callieri, M. Dellepiane, M. Gaiani, F. Ponchio, F. Rizzo, A.R. Rubino, R. Scopigno, G. Sobra' (2017), 'A 3D-centered information system for the documentation of a complex restoration intervention', in Journal of Cultural Heritage, Volume 29, pp. 89-99, available online at: <http://vcg.isti.cnr.it/Publications/2017/ABCDGPRRSS17/>

<https://www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XLII-5-W1/329/2017/isprs-archives-XLII-5-W1-329-2017.pdf>

<http://nettuno.comune.bologna.it/en/>

Digital Archive of Lithuanian Architectural History and Heritage (Lithuania)

Funded by the Lithuanian Research Council, 2010–2013.

A wide range of dissemination actions resulted in larger social engagement in heritage. New national and local heritage communities emerged, and private heritage conservation initiatives encouraged.

This case study is an example of how open access availability of archived research data can enhance public knowledge and engagement in local cultural heritage, while at the same time facilitate continued research. The website ‘Critical analysis of architecture’ (see link below), digitally archived historical data and research materials on the Lithuanian history of architecture, has been made available and searchable. The research was undertaken by the Research Centre of Architectural History and Heritage (RCAHH) of Kaunas University of Technology, and the website created in partnership with the Kaunas Municipality. The database continues to grow, as researchers at RCAHH carry on collecting materials and uploading onto the website.

The archive currently contains around 1700 heritage objects from across Lithuania, and some data has also been translated to English. It covers a wide range of architectural objects, starting with the pre-industrial period and ending with articles on contemporary architecture of Lithuania. However, the focus area is the legacy of 20th century and its Modernist heritage, which has been promoted and



Summer school ‘Promoting the Progressive: Modernism and its Value as a Historic Urban Landscape’, Kaunas, 2018.
Photo: Martynas Plepys.

adopted as a central element of Kaunas' identity. This research priority is further investigated in the second Lithuanian case study.

The materials available on the website were in turn transmitted through various forms of communication, such as social platforms, publications, exhibitions, public lectures, and heritage walks. Free heritage walks were offered in Kaunas, and digital routes were made freely available online. Two architectural guides were published, and the research contributed to a television series on Modernism in small towns in Lithuania. Other users utilised the website in school projects, local exhibitions or individual travels. The level of engagement in social media was measured by number of users. The Facebook platform of the website 'Critical analysis of architecture' has more than 6000 followers (<https://www.facebook.com/autc.lt/?ref=bookmarks>). The platform 'Kaunas Modernism', which is a sub-product of the initial project, has almost 4000 followers on Facebook (<https://www.facebook.com/KaunasModernism>). The number of unique visitors on the website is around 6000 unique IP per month.

This wide range of dissemination actions resulted in larger social engagement with Lithuanian heritage. National and local heritage communities emerged in the process, and it encouraged private heritage conservation initiatives. Public knowledge increased as a result of the recent accessibility, and the database was used to create an official register of national cultural heritage values. It can be argued that a strong heritage community of this kind is undoubtedly one of the keystones of sustainable development.

The research and the following activation of heritage communities developed in relation to macro level events. Kaunas was awarded the European Heritage Label (EHL) for '1919–1940 Kaunas' in 2015, as testimony to the importance of the provisional capital's role in the building of Europe. Two years later, Kaunas' Modernist architecture was included in the tentative list of UNESCO world heritage sites. Since 2017, the heritage programme 'Modernism for the Future', has been part of the European Capital of Culture 2022. This programme was prepared and is being curated in collaboration with RCAHH, and it interprets the inter-war heritage within a broad artistic, social and cultural context. Through these initiatives, the historical knowledge of architectural heritage distributed on the digital platform has become a catalyst for the growth of the heritage community.

For more information:
<http://www.autc.lt/en>

'Modernism for the Future' – Programme for the European Capital of Culture 2022, Kaunas (Lithuania)

Funded by the Lithuanian Research Council and the Kaunas 2022 platform Modernism for the Future, since 2018.

Cultural heritage as a resource for sustainable development in urban environments – how it can be an agent shaping social activities, and a historic legacy as a source of creativity, dialogue, identity and purposeful memory.

This case study presents the development of the cultural heritage section of the overall programme for Kaunas as the European Capital of Culture 2022. It is dedicated to Modernist architecture, built in the 20th century across Lithuania's capital and its district, and resulted from close co-operation between the Institute of Architecture and Construction of Kaunas University of Technology (KTU) and the public sector, i.e. the office for the European Capital of Culture 2022, Kaunas, Lithuania (Kaunas2022).

The programme section 'Modernism for the Future' emerged through varied and contesting perspectives. The understanding of cultural heritage as a fixed resource for fostering cultural identity and self-awareness through learning from the past, has been linked to the simultaneous dimensions of cultural heritage as a field of social tension. The critical approach was investigated by the KTU project 'Heritage as a conflict: the shift between Modernist and post-Modernist



Summer school 'Promoting the Progressive: Modernism and its Value as a Historic Urban Landscape', Kaunas, 2018.
Photo: Martynas Plepys.

concepts of heritage in Lithuania', where the two keywords 'heritage' and 'conflict' were explored in various thematic sections of heritage protection. The programme focussed on the huge variety of artefacts with different functions and made from different materials created in the 20th century, which have now become part of the heritage, despite not being made for that purpose. With reference to the Venice Charter (1964), the architectural legacy from the Modernist period needs to be protected on the basis of individual adaptive strategies. In order to accomplish this, the research adhered to the following principles: (a) the continuity of the character of the architectural environment – the physical dimension; (b) ensuring the linkage between the heritage community and physical architecture – the social dimension; (c) ensuring constant circulation of artistic ideas and creativity – the cultural dimension.

Definitions of cultural heritage as a resource for sustainable development in urban environments are strongly implicated in the development of 'Modernism for the Future' and its aim to promote cultural dynamism and continuity. One of the main goals of the research was to foster the understanding of historic legacy as a source of creativity, dialogue, identity and purposeful memory. Heritage is treated as an agent capable of shaping social activities, and heritage protection is associated with creativity, social innovation, experiment, etc. The main motives for this change are the creation of new emotional ties and creating new forms of education that not only convey knowledge, but also stimulate critical reflections and challenge cultural heritage protection as an activity aiming to create completely new forms of culture.

Cultural heritage is further discussed as an ecosystem, understood as the universe of buildings, historical knowledge and people living here now with their expectations for the future. This expresses the main aim and potential impact of the project: to shift the traditional idea of 'heritage as a non-renewable cultural resource' to an understanding of 'heritage as a constantly developing, i.e. renewable resource'. It also corresponds to concepts of Historic Urban Landscape, Critical Heritage and Experimental Preservation.

The project invites discussions on the legacy of Modernism as a collection of unique cultural references with rich diversity of building types, technological solutions and aesthetic strategies which is far from being just a collection of white masterpieces by great masters of the Modern Movement. Kaunas is considered as a unique urban landscape of modern times, and consequently one of the best places

to discuss the legacy of the 20th century as a potential laboratory of heritage where the creative interpretations and narratives of today are equally important as authentic relics of the past.

The Kaunas 2022 programme organised three events for the European Year of Cultural Heritage 2018 to disseminate the basis of its cultural heritage section:

The concept of the summer school ‘Promoting the Progressive: Modernism and its Value as a Historic Urban Landscape’ (<http://mokykla.modernizmasateiciai.lt/en/>) was based on one of the priorities of Joint Programming Initiative on Cultural Heritage (JPICH, <http://www.jpi-culturalheritage.eu/>) – ‘knowledge transfer/exchange with heritage practitioners’.

The forum ‘Modern Movement in architecture – an asset to cultural heritage: Central and Eastern Europe Perspective’ – aimed to bring together important urban sites of 20th century heritage and to discuss the possibility of Cultural Route on destinations of Modernism in Europe (<https://www.coe.int/en/web/cultural-routes>).

The conference ‘Modernism for the Future’ (<http://konferencija.modernizmasateiciai.lt/en/>) aimed to build a heritage community and to introduce the concept of cultural and social sustainability in cultural heritage sector. Further developments will continue with establishing a ‘Modernism research and interpretation center’ by Kaunas University of Technology.

For more information:

<http://kaunas2022.eu/en/programme/modernism-for-the-future/>

<http://mokykla.modernizmasateiciai.lt/en/>

<https://konferencija.modernizmasateiciai.lt/en/>

How valuing cultural ecosystem services can advance participatory resource management: the case of the Dutch peatlands (Netherlands)

Funded by the regional water authority Hoogheemraadschap De Stichtse Rijnlanden and the municipality of Woerden, 2014–2018.

Cultural Ecosystem Services research resulted in participatory resource management, engaging local stakeholders in planning processes, and instigating value deliberation and participatory design of management options.

The project focussed on the role of Cultural Ecosystem Services in making comprehensive decisions on the management of cultural landscapes with regards to soil subsidence and emission reduction of greenhouse gasses in the Dutch peat areas. Cultural Ecosystem Services valuation and Cost-Benefit Analysis were employed to support a local resource management process. Cultural Ecosystem Services valuation involves the identification and assessment of the non-monetary benefits people obtain from ecosystems through recreation, tourism, aesthetic enjoyment and physical and spiritual enrichment. The project revealed how Cultural Ecosystem Services valuation can be used to advance participatory resource management at a local scale, engage local stakeholders in the planning process, and instigate a process of value deliberation and participatory design of management options.

Three participatory workshops with local experts in the Dutch peat areas were held to better understand the stakeholders and management of the cultural landscape. Cultural Ecosystem Services indicators were selected based on these discussions. An internet survey was undertaken to identify stakeholders' willingness to pay for the current situation and the possible future planning scenarios, as well as their valuation of the selected Cultural Ecosystem Services indicators. The project evaluation revealed a response rate of approximately 58% for the key stakeholder group in the research area, i.e. the farmers. A contributing factor to the high response rate was the round-the-clock opportunity to respond to the survey: 60% of the farmers responded after working hours, in the evening or at night.

Following an impact assessment of the research area and GIS modelling, a cost-benefit analysis was conducted and pathways for sustainable management were identified. Topographic maps, land use scenario visualisations and landscape preference maps were used to elicit the stakeholders' preferences. Visualisations showed four versions of the same photographic image which had been edited to show possible images fifty years on. For example, the first image showed the current situation, the second illustrated incremental changes in land use, the third depicted larger-scale dairy farming and high-intensity recreation, while the fourth and final scenario represented changes to biomass crops and low-intensity recreation. The interactive mapping tool DialogueMaps was utilised to ensure that multiple stakeholder perspectives were recorded and to explore sustainable management scenarios. The follow-up phase of the research was unable to be completed due to budgetary reasons, as a cyclic approach to research and learning would have further strengthened the project conclusions.

Furthermore the research led to a multi-player serious gaming legacy project that enabled the elicitation of the valuation of cultural ecosystem services to go beyond visual land use scenarios, to evaluate potentially viable management strategies and to further reveal social-ecological interactions in the Dutch peatlands.

This study was funded by the regional water authority Hoogheemraadschap De Stichtse Rijnlanden and the municipality of Woerden and the project team comprised staff from the Copernicus Institute of Sustainable Development, Utrecht University, the Hoogheemraadschap De Stichtse Rijnlanden and Deltametropool. The results of the research were published in the December 2018 issue of the Ecosystem Services journal and presented at the Resilience 2017 – Resilience Frontiers for Global Sustainability conference as well as the 2018 International Water Conferences.

The research confirms the importance of reaching out to the broadest coalition of stakeholders, and in being transparent and engaging when conducting phased research. The use of new technology and software was key in attracting the highest number of potential participants and in reducing the barriers to their participation. The complex research subject was made accessible through participative exercises and repeat workshops and events. While a scientific journal article was published, a more public facing publication would have further ensured the research findings and best practice reached wider audiences both nationally and internationally.

For more information:

<https://www.sciencedirect.com/science/article/pii/S2212041617307829?via%3Dihub>

Blind spot: economic value of landscape in knowledge economy (Netherlands)

Funded by Cultural Heritage Agency of the Netherlands, Wageningen University, Cultural heritage Agency of the Netherlands, Ministry of Economic Affairs, Forest Agency, the Deltametropolis Association, West8 and several Dutch regions/municipalities, since 2016.

Natural and cultural heritage can be preserved and enhanced as part of the sustainable development of metropolitan areas, here managed by a process of making a scoping report and developing active communities of practice in local pilot projects. The findings and recommendations have been filtered into government and municipal policy.

This project focussed on the economic value of cultural landscape (as heritage assets) and assessed 10 international metropolitan case studies. The research was a collaboration of academia (Wageningen University), governmental agencies (Cultural heritage Agency of the Netherlands, Ministry of Economic Affairs, Forest Agency, and several Dutch regions/municipalities), the Deltametropolis Association, and design firm West8. The Deltametropolis Association is a public organisation that promotes the sustainable development of Randstad Holland. It brings together businesses, public interest groups, research institutions and governmental agencies and, through research such as The Blind Spot project, aims to promote the socially-supported design of the Randstad metropolitan area. It is focussed on the welfare, prosperity and strengthening its international competitiveness.

This research resulted in the free online magazine Blind Spot (English), published in 2016. The magazine provides evidence of the economic value that landscape heritage offers. The title derives from the finding that 'the quality of the landscape and environment is a blind spot in many strategies on business climate'. The project aimed to demonstrate how natural and cultural heritage can be preserved and enhanced as part of the sustainable development of metropolitan areas. Based on interviews with Mayors of metropolitan areas around the globe, practical strategies were described, demonstrating why landscape approaches should be central to regional economic strategies but also how investments into this public good can be funded and managed. As part of the research, two workshops were held in the Metropolitan Region of Rotterdam – The Hague and the Metropolitan Region of Amsterdam. The comparative analysis of 10 metropolitan areas mapped the knowledge economy infrastructure, landscape use, and protected landscapes, as well as the development of landscape policies and initiatives. Examples included the role of green belts and natural reserves, heritage and branding, mega events, sustainable infrastructure projects, waterfront regeneration projects, cycling strategies and urban farming and park initiatives. Keys to success were identified as public and private leadership, an appropriate governance structure and strategic projects to invest in spatial quality.

In a second phase, the international findings were applied to Dutch regions through 12 pilot projects, exchanging experiences with each other in a Community of Practice, incorporating the evidenced value of cultural landscape in their spatial strategies. The findings were shared at international events, including the Urban Land Institute conference, the International Federation of Landscape Architects

conference and the 2017 Landscape Triennial. In 2017, a free online magazine Spot On (Dutch) and a series of pilot essays were released to share the lessons learnt from the Dutch pilot projects. Bilingual versions of all the publications would have ensured that the findings and recommendations reached the widest possible audience.

The Community of Practice comprises 180 policy makers, designers, researchers, students and decision makers involved in the pilot projects. In 2020, the Community of Practice will share their experiences at the next Landscape Triennial in Brabant. To date, four Dutch regions (Brabant, Metropolitan Region Amsterdam, Zuid-Holland and Utrecht) are now explicitly introducing landscape as a location factor into their regional economic policy programmes. The theme is also included for the first time in the draft national integral vision on the living environment.

The project demonstrates the importance of international comparative analysis and local adaption and implementation. The phased approach, which included a scoping report, local pilot projects and the creation of an active community of practice, resulted in the findings and recommendations being filtered into government and municipal policy. High quality non-scientific publications and representation at international stakeholder conferences and meetings have ensured the findings are disseminated at a high level and to the relevant communities of interest.

For further information:

<http://deltametropool.nl>

The EVA-Lanxmeer project: Genius Loci and the development of a sustainable and environmentally-aware society (Netherlands)

Funded by RCE, since 1995.

Collective design, maintenance and use of green spaces contributed to the social cohesion and sense of community in a local neighbourhood. This community attracts architects and urban planners from around the world investigating best practices for sustainable development.

This project resulted in the creation of EVA-Lanxmeer, an ecological settlement within the small-scale city of Culemborg, near Utrecht, the Netherlands. The settlement, which was built on former farmland,

Example of house in EVA-Lanxmeer district. Photo: Lamiot. Wikimedia Commons.



was developed according to modern ‘deep green’ principles and as a bottom-up initiative. It was the first case in the Netherlands where permission was given to build near to, and partially inside, the protection zone of a drinking-water extraction area.

In 1994, the municipality of Culemborg and Stichting E.V.A (Ecologisch Centrum voor Educatie, Voorlichting en Advies/ Ecological Centre for Education, Information and Advice) decided to build a sustainable environmentally-friendly neighbourhood. A multidisciplinary group of public and private professionals, as well as the future residents themselves, were involved in the planning and the construction of the neighbourhood.

The aim was to keep and strengthen the existing qualities of the landscape (*Genius Loci*) and to connect the architecture with the landscape elements. The conservation of existing natural and archaeological structures, as well as the integration of urban, natural and agricultural elements and functions, were fundamental to the project. An important base for the layout of the settlement was provided by research into the cultural history and heritage of the site. This survey related to archaeology, built heritage and the cultural landscape, as well as the natural environment including water zoning and an ecological plan. As a result, two Bronze Age sites were conserved, a historic creek was restored and an old riverbed was excavated to provide sustainable water sources. Residents were responsible for the design and management of the green spaces. This collective design contributed to the social cohesion and sense of community in the neighbourhood, as evidenced by Virginie Anquetil’s (2009) research

on Neighbourhood social cohesion through the collective design, maintenance and use of green spaces.

The archaeological survey was carried out by RAAP Archaeological Consultancy, the largest independent archaeological company in the Netherlands. BügelHajema drew up an urban framework for the spatial development of EVA-Lanxmeer, while Bureau Econnis designed the landscape plan in collaboration with Copijn Utrecht Tuin- en landschapsarchitecten.

EVA-Lanxmeer was completed in 1999. 800 Residents are currently living in the 250 houses and apartments composing the neighbourhood. Houses are accessible for all classes: 30% are reserved for social class, 20% for the middle class and 50% for the upper class. The neighbourhood also contains 40 000 m² of offices and business units, a bio-ecological city farm, one school and two high schools. The neighbourhood has been designed with accessible public transport, renewable energy infrastructure and the preservation of open spaces. There is an established system and structure for community meetings in the neighbourhood which enables the bottom-up and co-design principles to be embedded as the eco-town continues to grow today. The neighbourhood exemplifies this form of urban design and living and has been used as a model for subsequent developments around the world with architects and urban planners regularly visiting EVA-Lanxmeer to learn from the best practice.

The initiative demonstrates how sustainable urban planning can ensure the conservation and increased awareness of both cultural and natural heritage assets. The success of EVA-Lanxmeer is down to the buy-in and collaboration of a wide range of stakeholders from national through to local level, and importantly the residents themselves. The systematic survey and planning based around clear sustainable design and development principles provided a focus for the project and resulted in a living legacy which continues to centre around those principles today.

For more information:

<http://www.eva-lanxmeer.nl/>

SPARC. Snow-Patch Archaeological Research Cooperation. The Effects of Climate Change on Vulnerable High Mountain Heritage Environments. (Norway)

Funded by the Norwegian University of Science and Technology, the Directorate for Cultural Heritage, the Norwegian Research Council, and the Norwegian Environmental Agency, 2011–2016.

Research into natural and cultural heritage can reveal insights into relationships between sustainability and the creation of new resources, as well as approaches for the sustainable development of the assets themselves. The SPARC research contributed to sustainable development through new guidelines and recommendations for cultural heritage management of glacial heritage sites and environments.

Archaeological finds in high mountain snow patches have revealed evidence of long-term hunting sites, and their low-temperature conditions have preserved these organic remains for thousands of years. However, as a consequence of climate change, many Perennial alpine Snow Patches (PSP) are melting. This case study presents the SPARC project, which investigated how heritage previously embedded and preserved in ice and snow is increasingly subjected to exposure and deterioration. This research was based at the University Museum of the Norwegian University of Science and Technology (NTNU), and international concern over this issue has resulted in collaborations in Europe, USA and Canada.



Svalbard reindeer, Svalbard.
Photo: I. Perhols, Wikimedia
Commons.

The research centred on the alpine snow patches as important archaeological and scientific archives. The snow patches are melting and degrading due to increasingly warmer climatic conditions, and prove a distinct multidisciplinary scientific and management challenge. At the same time they provide striking materialised evidence of climatic change, both for local communities and internationally, when archaeological material that has not been exposed for thousands of years is revealed by melting ice. The project combined different archaeological, glaciological, climatic, taphonomic and zoological approaches in an integrated manner.

The project consisted of individual and integrated work groups and tasks. Various research groups carried out a wide variety of sampling, documentation and monitoring activities in the collections – in labs and on-site. Local participation has been closely integrated, and the activities have been carried out annually since 2012. The intention is to continue some of the monitoring activities in order to build up valuable long-term data series of current degradation processes.

The SPARC research touches upon threats to several iconic national symbols in Norway. It looks at the long-term human-nature interrelationship of hunting and herding, the potential extinction of the reindeer, and the potential disappearance of the inland ice. The social role and history of reindeer in Norway, and the pressure they are currently experiencing, has been useful in enhancing public awareness of the research results. The research shows more than 5500 years of sustainable interdependency between man and reindeer through management, herding and hunting, and how the inland ice in Norway plays a key role. Wild reindeer populations in Europe only exist in Norway, therefore, the country has a further international obligation to manage this population for future generations. For the indigenous Sámi communities, tame reindeer herding continues to be a core resource, while climate change further affects their sustainability.

The SPARC project produced new knowledge and understanding of the processes and timescales involved in the degradation of important alpine heritage sites. These results have been widely disseminated in various academic and public fora. Three museum exhibitions have been organised: 'Snøfonnens Hemmeligheter' and 'Evig endring, fra istid til framtid', all shown in Trondheim, and 'Secrets of the Ice', shown in Oslo. Regional and national user-workshops focussing on the management of ice patches as heritage environments have been arranged. The project contributed to management guidelines and recommendations for cultural heritage management of glacial heritage sites and environments in Norway.

The emphasis on education and training resulted in the completion of eleven MA, two PhD and two Post-Doctoral research projects in the three main disciplines involved in the project: archaeology, ecology and glaciology at NTNU. Several incoming and outgoing international researcher exchanges have been organised and facilitated. The project spawned spin-off projects and research collaborations that are currently either ongoing or are seeking funding for future research, such as Åarjelsaemien tsoevtsh (regional project in Southern Sápmi), CRYOPATCH (National Norwegian collaboration), ICECOLOGY (International collaboration). The project in Sápmi involves Sámi institutions as well as a wide range of practitioners and informants to whom reindeer herding is a core activity and source of income.

For more information:

SPARC-Snow Patch Archaeological Research Cooperation

<http://www.ntnu.no/vitenskapsmuseet/sparc>.

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<http://phys.org/news/2015-02-ancient-patches.html>.

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Saving the Oseberg Ship project (Norway)

Funded by the Norwegian Ministry of Education and Research, and the University of Oslo, since 2014.

Scientific analysis into the deterioration processes of the Oseberg Viking Ship burial has resulted in innovative preservation methods which have marked a milestone in its sustainable development.

The Oseberg find consists of the Oseberg ship and associated goods from a Viking burial mound dated to the first half of the ninth century CE. It is one of the most important archaeological finds in Norway and represents the most comprehensive collection of Viking Age wooden objects in the world. While the ship itself is in a good



Oseberg viking ship at the Viking Ship Museum in Oslo. Photo: Eivind Lindseth, Flickr.

condition considering its age, this is not the case for the smaller artefacts, some of which are in alarming condition due to conservation methods used a century ago (after excavation in 1904, the most deteriorated wooden objects were treated with alum salts). The current case study examines how to minimise the deterioration process and preserve the finds, and at the same time define a long-term preservation policy of the archaeological wood collection. The research was carried out at the Museum of Cultural History in Oslo, and includes the Viking Ship Museum, which holds the Oseberg find.

The Saving Oseberg (SO) project is interdisciplinary and combines natural and cultural sciences. Important conclusions so far are that the extreme acidity of the treated wood was caused by the alum treatment. The implication is that, whenever possible, alum salt should be washed out with water, and replaced by a different consolidant. However, many artefacts would fall apart if the alum were removed, and can therefore not be treated with water. Instead, these must be treated with alkaline nanoparticles to neutralise the acid, and with a consolidant in an organic solvent that does not dissolve the alum. To this end, the SO team designed and tested new materials and chemical formulations. These outcomes were communicated in 16 peer-reviewed scientific papers and presentations at international conferences in the field of conservation, chemistry and cultural heritage. The research group expects that both testing protocols and conservation methods developed in SO will become part of the best practice of the next generation of object conservators working with waterlogged wood.

The impact of the SO project on culture and society is large, but indirect. The Oseberg collection is the basis of all graphic representations

of the Viking era, and plays a central role in the dissemination of historical knowledge to a wide audience. While Viking culture is closely connected to Nordic cultural identity, the Vikings are also an essential part of the mediaeval world history. They contributed to cultural coherence in Europe and the Mediterranean through the exchange of goods and knowledge on their travels. The broad global interest in Viking age and culture is reflected by the large number of international tourists visiting the Viking Ship Museum in Oslo every year. They are met with a critical understanding of how cultural exchange and international relationships in the past form the basis of the creation of a cultural identity in today's fast-changing world. In addition to the museum exhibit, the SO project communicates directly to the general public through outreach activities, such as presentations in journals and a radio programme.

The development of new treatment materials for waterlogged archaeological wood will have an impact on the environmental aspects of future conservation practice. SO takes into account the implications on health and safety in the selection of new materials that are safe to work with for object conservators, leave a minimum of hazardous waste, and fewer waste products generally. The economic dimension of sustainability in the SO project concerns the tourist industry advanced by the Viking Ship Museum, where visitors come to see original, preserved objects rather than replicas or reconstructions. Likewise, motifs from the Oseberg collection have been popularised in consumer products of all kinds, and inspired contemporary artists. While documentation of the Oseberg collection is part of the museum's strategy to preserve it, recorded designs have also found their way into various products sold in the museum's gift shop. This constitutes a considerable contribution to the economy of the museum itself and its suppliers. The strong symbolic value of these motifs depends, however, on the preservation of the original artefacts in the museum.

For more information:

<https://www.khm.uio.no/english/visit-us/viking-ship-museum/exhibitions/>.

<https://www.khm.uio.no/english/research/projects/saving-oseberg/>.

Baglioni, P. and Chelazzi, D. & Giorgi, R. (2014), *Nanotechnologies in the Conservation of Cultural Heritage: A compendium of materials and techniques*, Dordrecht etc: Springer.

Fink, J. K. (2017), *Chemicals and Methods for Conservation and Restoration: Paintings, Textiles, Fossils, Wood, Stones, Metals, and Glass*, John Wiley & Sons.

Non-Intrusive Regulation Planning at Archaeological Sites (Norway)

Funded by The Norwegian Institute of Cultural Heritage Research and the Norwegian Public Roads Administration, since 2010.

A new methodology of non-destructive detection and documentation of subsurface archaeological sites was proven to be sustainable, with cost-effective and relationship-building impacts in regulation planning at a county level.

In co-operation with the Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology, the Norwegian Institute of Cultural Heritage Research (NIKU) has specialised in the development of advanced methodology and approaches to non-destructive documentation for the monitoring and evaluation of archaeological sites and landscapes using large scale motorised non-intrusive geophysical methods. Various attempts have been made at combining methods and technology, such as satellite imagery, laser scanning data and geophysical data, as well as more traditional archaeological methods, such as surveying, GIS and map regression. None of these are new in themselves, but by testing combinations of these methodologies, NIKU has achieved interesting results. Using non-intrusive surveys of large-scale planning areas, they have been able to detect and map the terrain, as well as underground archaeological remains, with centimetre accuracy. These new methods offer unprecedented possibilities to advance necessary research and technological developments to map entire archaeological landscapes covering several square kilometres.

The project shows how implementation of this technology is beneficial for the management of cultural heritage sites. It enables researchers to be better equipped in managing the increasing pressure from infrastructural developments on such sites. It provides more accurate and meaningful archaeological research results, which will increase our understanding of past landscapes and their development over time. The impacts of this non-destructive detection and documentation of subsurface archaeological sites are greater cost-efficiency for planners, contractors and landowners, and the minimisation of conflict between the management of cultural heritage sites and farming purposes in infrastructural development projects.

The success of the research has been to efficiently map, document and analyse cultural heritage sites and their contexts without resorting

to destructive methods, such as excavation or topsoil stripping. The potentials of these methods are evident in the integrated approach and their deployment on large-scale, long-term archaeological projects.

The methodology that NIKU developed was successfully applied in various work with regulation plans in Norwegian counties, for example in the planning process for the Intercity Project Vestfold (IC-Vestfold) in the county of Vestfold. NIKU efficiently mapped, documented and analysed cultural heritage sites and their contexts. In the example of IC-Vestfold, the developer reduced the cost of archaeological registration by over one-third of its original budget. The landowners were also pleased as their cultivation areas were less exposed to undesirable soil degradation. According to the Norwegian Public Roads Administration, conflict with landowners is one of the greatest challenges in road development. In addition to local communities and individual landowners and farmers, the research impact was also beneficial to the cultural administration of the County Council and large developments, such as road and railway.

For more information:

<https://forskning.no/2015/02/satellitt-og-laser-avdekker-kulturminner>
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The Western and Northern Territories Network (Poland)

Funded by the Polish Ministry of Culture and National Heritage, since 2017.

A new network supports sustainability by bridging antagonistic claims of Polishness and excessive emphasis on Germanness in a region transferred to Poland after World War II.

The Western and Northern Territories of Poland were transferred to Poland after World War II, and this case study looks at the development of a network that aims to bridge antagonistic claims of Polishness and excessive emphasis on Germanness in the region. The network consists of five already well-established research and heritage institutions: the Dialogue Centre ‘Przełomy’, a branch of the National Museum in Szczecin; the National Research Institute – Silesian Institute in Opole; the Zygmunt Wojciechowski Institute for Western Affairs in Poznań; the Wojciech Kętrzyński Scientific Research Centre in Olsztyn; and the Remembrance and Future Centre in Wrocław. The activities of the network focussed on three main projects: a research programme; scientific residency scholarship and a mobile exhibition.

The network developed a programme of interdisciplinary research on the past and contemporary history of the Western and Northern Territories. The research concerned issues of resettlement across the new border, the creation of new Polish identities and social bonds, reconstruction of the area during the early post-war years, and the activities of Cardinal Kominek (a central figure in the process). Through the research programme, the network established an international residency scholarship for young researchers who are provided access to Polish sources and literature.

The mobile exhibition ‘Taking Root. Western and Northern Territories. The Beginning’ was produced in correspondence with the research programme. The objective of the exhibition was to present selected aspects of the early post-war years on the areas that were transferred to Poland. It considered the numerous consequences of the decision made by the US, UK and USSR – from exchanging the population; the need to rebuild the country from war-time destruction and re-establish the destroyed social ties; the need to familiarise a foreign cultural space and build a new identity; as well as specific actions of the communist authorities regarding these territories. Together it created a joint and unique historical experience of Western and Northern Territories and the people who live there. The exhibition

took the form of a spatial installation where visitors entered a type of a labyrinth. It featured more than 300 archived photographs and films, as well as recorded accounts by people who witnessed the history. 'Taking Root' is currently travelling through Poland as a 'museum in many places', and the network also plans for international displays to expand the impact of their activities. Further outreach activities, such as debates, educational workshops, conferences and seminars, are taking place at two previously established exhibition sites, at Wrocław's Depot History Centre and the Dialogue Centre 'Przełomy'.

The resources of oral history archives, along with donations of memorabilia, documents and shared memories are growing as a result of the network's activities. The network promotes the preservation of these resources and makes them available in chambers of remembrance (like a local community-owned museum). The open access scientific journal Yearbook of the Polish Western Territories published the research results, showing that the first focus on the post-war period and Polish reconstructions of a war-torn area has been expanded by a longer historical time-frame – one that provides significant and meaningful contexts, as well as openings for a broader set of research questions.

For more information:

Yearbook of the Polish Western Territories <https://rocznikziemzachodnich.pl/rzz/about>.

'Taking Root' exhibition: <http://szzip.pl/en/are-we-from-here-and-at-home-find-answers-at-the-taking-root-western-and-northern-territories-the-beginning-exhibition/>.

The Multi-annual Programme Niepodległa (Poland)

Funded by the Polish Ministry of Culture and National Heritage, 2017–2022.

National agencies in collaboration with citizens have identified historic figures, events and symbols that are widely accepted and increasingly used, and thus carry the potential of playing a unifying role in social life.

This case study concerns the attitude of Poles towards the history of Poland, the National Independence Day, the celebration of state and national holidays, and the notion of patriotism. At the request of the National Centre for Culture, and in preparation for the 100th anniversary of the regaining of Polish independence in 2018, a research project was undertaken by the research company TNS Poland in 2016.

The surveys resulted in a document establishing The Multi-Annual Governmental 'Niepodległa' Programme – the main objective of which was to strengthen the sense of belonging to the civic community among all citizens. As part of the 'Niepodległa' Programme, the National Centre for Culture is now delivering the project 'National symbols – tradition and contemporaneity' with a focus on how Poles chose to celebrate the centenary.

Poland is one of several post-communist countries where certain indicators show that the level of social participation is low. This research aimed to identify elements of collective memory and symbols which carry the potential to form pro-social attitudes, increase social bonds, bring people together and build social capital. The initial investigation was conducted through both qualitative and quantitative methods and covered topics such as knowledge on key historic figures and events, opinions on various ways of commemorating historical events, and methods of manifesting patriotism (including activities related to both tangible and intangible heritage).

The results showed that people are interested in history but that general knowledge of it is shallow. These insights were discussed during four public debates organised at public institutions in Warsaw, as well as published as a book by the National Centre for Culture. The secondary project, which focussed on national symbols, arranged two family picnics with educational activities, two exhibitions and a historical novel-writing competition. The impact of these activities is starting to be evidenced as later surveys show an increase in awareness of Polish history related to the commemoration of Independence Day and respect for using the national flag, anthem and coat of arms. The establishment of the 'Niepodległa' Programme and the following project on national symbols has provided policy makers, cultural managers and journalists with in-depth knowledge about perceptions of heritage and interest in history.

For more information:

Indicators of The Multi-Annual Governmental 'Niepodległa' Programme (representative survey results): <https://niepodlegla.gov.pl/komunikat-prasowy/podsumowanie-2017-i-plany-na-2018/>.

The Multi-Annual Governmental 'Niepodległa' Program:

<https://niepodlegla.gov.pl/bip/wp-content/uploads/sites/2/2018/09/PW-Niepodleg%C5%82a-sierpie%C5%84-2018.pdf>.

Report 'Celebrating Independence on 11th November 2018':

<https://nck.pl/badania/projekty-badawcze/raport-swietowanie-niepodleglosci-11-listopada-2017-roku>.

Full Academic Edition of the Underground Archive of Warsaw Ghetto (Poland)

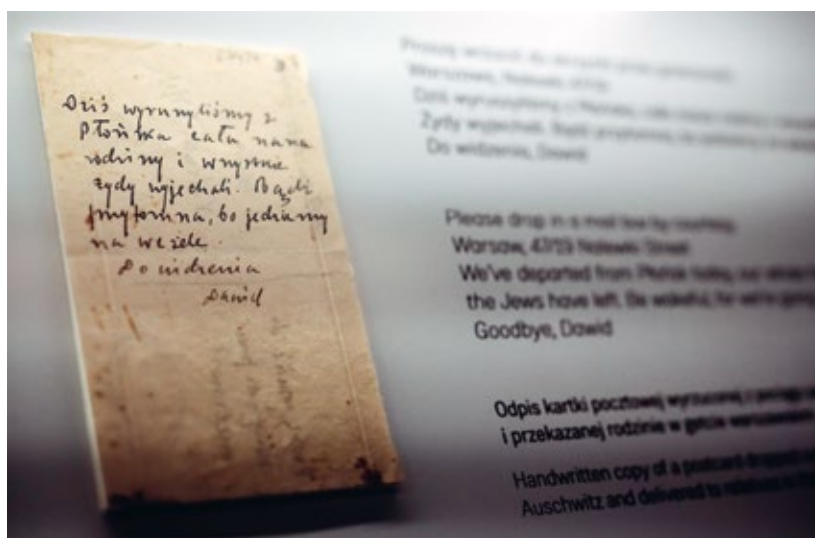
Funded by the Polish Ministry of Culture and National Heritage and Ministry of Science and National Education, 2012–2017.

The acquisition of knowledge and education is proven through the case study's influences on the teaching of Jewish history within schools and universities, which will further impact the insights of future generations.

The underground archive of the Warsaw Ghetto – known as the Ringelblum Archive, or under its code name Oneg Shabbat/Oyneg Shabbes – is the most important collection of testimonies of the lives and deaths of Jews in Nazi-occupied Poland during the Second World War. The research project resulted in the publication of a full academic edition of this collection and had a large impact on Holocaust knowledge and Jewish culture among scholars as well as the general public.

The Ringelblum Archive was conceived and organised by Polish-Jewish historian Dr Emanuel Ringelblum, in collaboration with approximately 50–60 people, including journalists, economists, teachers, rabbis and writers. In 1999, the collection was included in the UNESCO's 'Memory of the World' register. The Archive comprises over 35,000 pages, with documents in Polish (some 50%), Yiddish (40–45%), Hebrew and German. There are diaries, school essays, research works and accounts from approximately 300 Jewish communities from all the territories in occupied Poland. Official German documents, such as posters, identification cards and food ration cards are also included, as well as photographs, drawings and paintings. The full collection is housed in the Jewish Historical Institute in Warsaw, with the exception of several dozen documents that are in YIVO, New York and in Beit Lochamei Hagetaot in Israel.

The full edition of the archive was produced by the Emanuel Ringelblum Jewish Historical Institute. All the archival material was included and divided according to subject matter. The edition has been published in 36 volumes (two of them in two parts) and this effort will be concluded in 2019. The scholarly research carried out for the needs of the full edition has created an international network of academics, which has turned the project into a transnational endeavour with 70 editors and translators involved. Specific editing guidelines and translation standards have been developed, which have impacted on professional services and practical skills.



Material from Ringelblum Archive, exhibited at Jewish Historical Institute. Letter from a Jew from Płońsk, dated 16 December 1942, dropped out of a train bound for Auschwitz and delivered to family in the Warsaw ghetto. Obverse of the letter: Please mail by courtesy, Warsaw, 47/19 Nalewki Street. Reverse of the letter: We've departed from Płońsk today, our whole family, and all the Jews have left. Be wakeful, for we're going to a wedding. Goodbye, Dawid. Photo: Jakub Certowicz.

The edition provides a substantial expansion of the primary source base related to the Holocaust. It is now extensively used in research on all aspects of Jewish life in occupied Poland during World War II. The material also reaches out to the general public, as the initial research formed the basis for the permanent exhibition on the Oneg Shabbat which opened in the Jewish Historical Institute in 2017. The project has further included the digitisation of the entire archive. This means the collected materials are now fully available to non-academic audiences, leading to a significant increase in interest among the wider public. The new accessibility has had further impact on mainstream media attention with intensified proliferation of the subject matter. The project's impact on the acquisition of knowledge and education is proven through its influences on the teaching of Jewish history within schools and universities – and this will further impact the insights of future generations.

For more information:

The online version <https://cbj.jhi.pl/collections/749436>.

Examples of the new volumes:

Polit, M., oprac. (2013), 'Archiwum Ringelbluma. Konspiracyjne Archiwum Getta Warszawy', t. 10, 'Losy Żydów Łódzkich (1939–1942)', Warszawa.

Bańkowska, A. and T. Epsztein, oprac. (2013), 'Archiwum Ringelbluma. Konspiracyjne Archiwum Getta Warszawy', t. 11, 'Ludzie i prace „Oneg Szabat”', Warszawa.

Janczewska, M., oprac. (2014), 'Archiwum Ringelbluma. Konspiracyjne Archiwum Getta Warszawy', t. 12, 'Rada Żydowska w Warszawie' (1939–1943), Warszawa.

Mértola Alcáçova: spaces, buildings, and functions between Late Antiquity and the Christian Reconquest (Portugal)

Funded by the Foundation for Science and Technology, Portuguese Ministry of Science, Technology and Higher Education (FEDER), 2005–2007.

Cultural tourism has resulted in new business opportunities and transformed a local economy which, until a few decades ago, was primarily dependent on agriculture.

This project involved a study of the historical and archaeological evolution of the palatine district of the town of Mértola (South-eastern Portugal) and the redevelopment of the town into a cultural tourism destination. Since 1978, archaeological excavations in Mértola have revealed three phases of the city: a religious complex of Late Antiquity, built on an imposing crypto-portico; a housing district of the Almohad period and the medieval and modern cemetery. This project is part of a series of research and development projects aimed at discovering, preserving and disseminating the cultural heritage of this small village in the hinterland of Portugal's poorest region. The research was funded by the Foundation for Science and Technology, Portuguese Ministry of Science, Technology and Higher Education to the Campo Arqueológico de Mértola (Mértola Archeological Centre).

Campo Arqueológico de Mértola is a local cultural and scientific association with non-profit goals. Since its foundation the main goals are the survey, research and preservation of archaeological, ethnographic and artistic values in the region of Mértola. For more than 40 years, Campo Arqueológico de Mértola has carried out multidisciplinary scientific investigations in the area of social sciences, with research undertaken through the disciplines of history, archaeology, heritage, museology and anthropology. The organisation has been successful in growing cultural tourism and sustainable cultural heritage development.

Since 1978, through a complex process of interaction between public and private institutions, the cultural heritage assets of Mértola have been utilised to develop cultural tourism and foster socio-economic sustainability. Mértola Vila Museu/Mértola Museum Town now comprises 12 sites accessible to visitors, spread around the historic centre. The town of Mértola itself is the museum, from its three national monuments (River Tower, Castle and Church/old mosque), town walls and archaeological remains, to the traditional forms and



Mértola.
Photo: Femidio,
Wikimedia Commons.

techniques of construction and inhabitants keeping ancestral knowledge and traditions alive.

Examples include the investment in 2009, which resulted in the installation of a set of covers to protect the archaeological remains and passages of Mértola Alcáçova and allowed visitors to wander among the ruins. In 2015, its visitor reception centre, 'Islamic House', was inaugurated. This was a reproduction of one of the Almohad homes on a real scale (1:1). Inside, several objects found in the excavations were recreated to reveal the daily life of the inhabitants of the Mértola Almohad. Both temporary and permanent exhibitions have been scattered over the whole area, promoting the idea that there is not just one Mértola Museum but rather the town itself is the museum, along with all that belongs to it.

There has been strong collaboration with the central state agencies, for example, transferring state heritage management, as in the case of the castle Mértola Alcáçova, and the loan of collections from national museums for display in Mértola. Several Portuguese universities, as well as researchers from outside Portugal, have been essential to the ongoing research and public engagement and enhanced the local research capacity.

There has been a clear growth of cultural tourism in Mértola over the last four decades, with an increase of 72 % in the last ten years. The town has a population of only around 1,000, but visitors to the Parish church increased from 6,500 in 2005 to 46,426 in 2017. Cultural tourism has resulted in new business opportunities and transformed the local economy which, until a few decades ago, was primarily dependent on agriculture. Furthermore, like other European rural communi-

ties, Mértola was suffering from rural migration. Cultural tourism has provided new opportunities for young people to stay or return, and to strengthen the local identity.

For more information:

<http://www.camertola.pt/en/info/short-story>.

Gómez Martínez, Susana; Rafael, Lúcia; Torres, Cláudio (2016) – Mértola Vila Museu. Um projecto arqueológico de desenvolvimento integrado. Revista Arqueologia Pública. [Em linha] Campinas: LAP/NEPAM/UNICAMP. Vol.10, nº3 (2016) p. 55–80. [Consult. 14 Nov. 2016]. DOI: <http://dx.doi.org/10.20396/rap.v10i3.8645842>.

Tasting Literature/ Sabores da Escrita (Portugal)

Funded by FCT – Portugal: Centre of Classical and Humanistic Studies – University of Coimbra, since 2014.

Regional literary and food heritage has been safeguarded and promoted to tourists and local residents through multisensorial themed dinners and lectures based on historical research. The role of gastronomy in education and innovation has improved, along with an awareness of culinary heritage.

This project focussed on the relationship between literary heritage and gastronomy and was undertaken by researchers from the Centre of Classical and Humanistic Studies and the Centre for the History of Society and Culture from the Faculty of Arts and Humanities at the University of Coimbra. The project was an initiative by the transnational Portuguese and Brazilian DIAITA Project: Lusophone Food Heritage, the Faculty of Arts and Humanities of the University of Coimbra, in collaboration with the Municipality of Coimbra and the National Literacy Plan (Ler + Ciência – Leituras do Território = Read + Science – Territory Readings).

Public engagement was a key strength as academic staff and members of the general public took part in a series of multisensorial themed dinners preceded by a lecture from one of the researchers. During the meal, there was poetry, music and theatrical performances. The lecture, menu, dinner settings and structure were based on research into notable Portuguese authors – their lives, personalities and the characteristics of Portuguese culture and history that influenced them.

Since 2014, a total of 23 sold-out sessions have been performed at Casa da Escrita (Writing House) in Coimbra, with themes ranging

from the ancient classical cultures (Greek World and Roman Empire), to medieval, modern and contemporary Portuguese heritage, such as dinners inspired by José Saramago, Fernando Pessoa and Luís Vaz de Camões. The performance interludes were delivered by not-for-profit theatre companies (Cooperativa Bonifrates, Companhia Teatro Viv'Arte, and Thíasos – the group of classical theatre from the Centre of Classical and Humanistic Studies) and musical groups including the Fado section of Associação Académica de Coimbra. Each dinner cost 15 euros per person and was limited to 50 seats.

For example, a night was held based on the life and work of Luís Vaz de Camões, the 16th-century Portuguese poet. The dinner included food and drink typical of the period and those referred to in his works, and gastronomic terminology and recipes from the time were used. Costumed poetry recitals of the works of Luís Vaz de Camões took place during the interludes, as well as a short lecture by José Augusto Bernardes, director of the General Library of the University of Coimbra who has widely published on the historical authors of Portuguese Literature.

The project was an important part of the successful application for Coimbra for the European Region of Gastronomy Award for 2021. It confirms how the region is focussed on safeguarding and promoting cultural and food diversity, boosting sustainability and health through local food, supporting SMEs and enhancing the role of gastronomy in education and fostering innovation. The Tasting Literature project was also presented by the Municipality of Coimbra (in the municipality activities merit category) as a successful case study in the BLT (Bolsa de Turismo de Lisboa Travel Market), the most important tourism fair of Portugal. A book is being developed by the Municipality of Coimbra which will include the lectures and menus from the dinners.

In addition to raising awareness of both literary and food heritage, gastronomic skills were developed as catering teams had to prepare the meals based on historical research, thereby contributing to the preservation of Portuguese heritage. New understandings were gained of culinary heritage and the non-conventional public engagement was proven to be successful and popular, with more than 1000 people attending the series of dinners. The unique dinners also provided an opportunity for local cultural groups to perform, as well as an educational and entertaining cultural product for both tourists and local residents.

For more information:

www.alimentariauc.wixsite.com/universidadecoimbra/sabores-da-escrita.

Academic Biscuits – Literary and Gastronomic Heritage of the University of Coimbra (Portugal)

Funded by FCT-Portugal: Centre of Classical and Humanistic Studies
– University of Coimbra, since 2016.

Food heritage research was undertaken in partnership with the commercial sector. The reproduction of forgotten edible items created awareness of local heritage and received a historical and patrimonial certification.

This project involved professors and students of the Food Heritages: Cultures and Identities PhD programme of the Centre of Humanities at the University of Coimbra. Forgotten among the pages of the first Portuguese cookery book, *Cosinha Portuguesa* (Portuguese Cuisine), which dates back to 1899, the Academic Biscuits recipe belongs to both the literary and gastronomic heritage of Coimbra. The Academic Biscuits' project is an innovative example of how historic and heritage research, in collaboration with the business sector, can preserve cultural heritage and create new cultural products.

The first phase of research focussed on the historical study of the origins of the national culinary identity of Portugal, through literary sources. The research resulted in an exhibition of books and manuscripts from the University's Libraries and Archive which took place from 4 March to 1 April 2016, and followed with an open access catalogue which allows people from around the world to explore some of the most important literary sources on Portuguese and European food in Coimbra's University Libraries and Archive – https://digitalis.uc.pt/pt-pt/livro/biblioalimentaria_alimentação_saúde_e_sociabilidade_à_mesa_no_acervo_bibliográfico_da.

In the second phase, this food heritage was brought to life as the Academic Biscuits were recreated through a partnership between the University of Coimbra and Vasco da Gama Gourmet Group. The project involved the first sponsorship agreement of a historical food product between the University and a company. The Vasco da Gama Gourmet Group funded the development of the open access catalogue and provided supervision and training to university staff and students to enable them to recreate the lost heritage and satisfy modern safety requirements and taste.

The recreation of the Academic Biscuits was the first successful case of knowledge transfer between a university research centre and a commercial company in Portugal. The food heritage research resulted in



Book cover of the Academic Biscuits' cookbook. Photo: FCT-Portugal.

the development of a product which then led to the creation of the first historical and patrimonial certification for products and services in Portugal (Heritage Powered by University of Coimbra). Academic Biscuits is the first product to have this registered trademark, which, in the future, is expected to expand to other research-based products, thanks to new initiatives being explored by Food Heritages researchers and governmental and private institutions. This innovative partnership was an important component in Coimbra's Region winning application for the European Region of Gastronomy Award for 2021.

The collaborative doctoral project raised awareness about the importance of the University of Coimbra's heritage and Coimbra's food heritage. As the biscuits are only available to purchase in the city of Coimbra, the project has created a new product for both the local community and the tourist market. The project has been widely promoted and received national media coverage, with workshops and presentations being delivered to different research communities, cultural operators, government authorities, private companies and schools.

For more information:

<https://www.biscoitosacademicos.com>.

Atapuerca and Arqueopinto Archaeological Parks (Spain)

Co-funded by the Castilla y León Regional Government, the Spanish Ministry of Education, Culture and Sport and the Spanish Ministry of Economy, Industry and Competitiveness, since 2010.

Two outdoor museums created educational value combined with leisure and entertainment, including live demonstrations and object handling. Innovative engagement activities and programmes were developed and new technology utilised to enhance the sustainability of the cultural institutions.

In 1993 work first began to develop two outdoor archaeological parks, the rural site of Atapuerca (Burgos) and the suburban site of Arqueopinto (Madrid). Significant desk research, scoping and evaluation was undertaken to analyse the environment, needs and possibilities prior to the investment and redevelopment.

Both the Arqueopinto and Atapuerca open air museums opened in 2001. The Atapuerca museum reflects the heritage of the Sierra de Atapuerca archaeological cave sites, which was made a UNESCO World Heritage Site in 2000 for its Palaeolithic remains and contributions to the understanding of human evolution, while the Arqueopinto site has reconstructed local heritage from the prehistoric and Roman periods. The company Paleorama (founded in 1993) manages the Arqueopinto site, and previously ran the Atapuerca site between 1994–2008. The Atapuerca site is now managed by Fundación Atapuerca. Both parks are members of the international association of Experimental Archeology (EXARC).

Arqueopinto includes a reconstructed prehistoric settlement and Roman country house. New attractions include a reconstructed prehistoric dolmen, Bronze Age palisade and smelting pit and Iron Age round houses. In 2017–2018, Arqueopinto received 50,151 visitors. The Atapuerca open air museum, now called the Center for Experimental Archaeology (CAREX), forms part of a wider visitor experience. It includes Spain's first permanent exhibition on Experimental Archaeology carried out in Spain and reconstructions of the prehistoric caves.

The development of the archaeological parks centred on their educational value, as spaces for training, leisure and entertainment. Experimental archaeology is at the heart of both archaeological parks and live demonstrations and object handling are an important part of the visitor experience. Courses developed around prehistoric themes

allowed visitors to partake in pottery making, lithic knapping and basketry. Paleorama also provides specific training programmes for people with disabilities. In 2002, two deaf participants who completed one of the training programmes became staff at Atapuerca and have since incorporated sign language visits to the park's visitor offering.

Technological investment ensured that the archaeological parks were accessible. Paleorama developed a website with 3D virtual reality models, as well as an app that is available for both Android and IOS operating systems which ensures the archaeological sites and collections can be used by visitors both nationally and internationally, and by educational users for teaching and learning.

A software package called Paleosoftware was developed in 2013, consisting of two programs that facilitate the tasks of managing and revitalising activities in centres and museums. An inventory programme (Paleoinventario) allowed the park management to analyse resource consumption by activity, movement of stock between warehouses and track expenditure by use and supplier. This online software means datasets are available on-the-go through mobile, tablet and laptop access. The software has proved successful in controlling spending and in budgeting monthly and annual costs. The second programme, called Paleogestion, served to organise and co-ordinate the activities and offerings of the parks. This software has an internal chat feature, document store and allows for the monitoring of staff and contractor activities at one or more site. The timeline feature enables users to access and record activities and internal and external events over the year, and includes an alert and notification option for errors and deadlines. This software is also available on mobile devices.

For more information:

15 años en Atapuerca y Arqueopinto. Claves para el desarrollo de programas sostenibles eficaces Manuel Luque Cortina, Raúl Maqueda García-Morales. Tejuelo: Didáctica de la Lengua y la Literatura. Educación, ISSN-e 1988-8430, N°. Extra 9, 2014 (Ejemplar dedicado a: sOpA'13 I Congreso Internacional sobre Educación y Socialización del Patrimonio en el Medio Rural), págs. 631-645.

<https://www.atapuerca.org/>

<https://whc.unesco.org/en/list/989>

Heritage and Urban Resistance: Exploring Identity Politics, Commons and Conflict (Sweden)

Funded by the Swedish National Heritage Board and Gothenburg University, 2015–2016. Feras Hammami and Evren Uzer, Gothenburg University and the Parson School of Design.

Heritage was utilised in the local urban regeneration process, with new narratives and identities resulting in social sustainability.



Gårda's annual flea market (Loppis) organised by the Gårda Tenants' Association in 2017.
Photo: Gårda Tenants' Association.

The relationship between heritage and resistance is an under-researched area and this project shows that it can be a transformative and productive process. The research focussed on how heritage and urban resistance, as concepts as well as empirical realities for people on the ground, are fundamentally interdependent and today constitute multiple sites of conflict. Their interdependencies were studied at contested sites located in Palestine, Turkey and Sweden, and the findings have contributed to current debates on democratic and sustainable cities.

The Swedish part of the project focussed on the former working-class neighbourhood Gårda, in Gothenburg. It has been revealed how local values developed since Gårda was earmarked for demolition on detailed development plans from the 1960s. These values provided keys to the main strategies of resistance used to challenge the plans. Local groups, such as the Gårda Tenants' Association, developed constructive ideas to destabilise the dominant discourses of the area being dangerous, crime-filled and in decline, and instead introduced new narratives of upgrading and conservation. Heritage was indirectly involved as local community groups addressed politicians and civil servants through a redefinition of two Gårda blocks as an important historic industrial environment. The presence of students and professionals within architecture, art and civil engineering among the inhabitants provided a language that further made use of social sustainability, community development, right to the city, and mixed city, as well as historical literature on the area describing local shops, such as fishmongers, cafés and breweries. The local government eventually halted plans for demolition and the two blocks are now protected. However, it remains unclear whether the local community will be able to stay in their neighbourhood.

The research results demonstrate how Gårda has become an object of 'heritagisation', which might yet lead to gentrification and displacement of the local community. Shared among the inhabitants, the results have provided a certain self-confidence and they are available to consult when new campaigns need to be formed. The project has gained scholarly attention at conferences and journals in the field of cultural heritage and conservation, as well as brought forth discussions on heritage activism, non-violent resistance and heritage from below. The results have further contributed to a collaboration with Nordregio, an organisation established by the Nordic Council of Ministers. An article was co-authored with a Nordregio scholar, and the results presented to its partners, including public and voluntary organisations from Nordic countries. This collaboration addressed the broader debate on what heritage is and its potential role in social sustainability. It focussed particularly on how heritage can be used to enhance current tools for assessment and certification of urban development projects directed towards neighbourhood sustainability, such as Building Research Establishment Environmental Assessment Method (BREEAM) Communities and LEED Neighbourhood Design (LEED ND).

The project was disseminated through a number of conferences, publications in peer-reviewed journals and books, and organisation of roundtables, seminars and project meetings. The results have informed two new research projects on heritage in relation to contemporary trends of gentrification (funded by the Swedish Research Council and Formas). The project team collaborated with the new project members, including civil society organisations, to explore gentrification linked to issues of social justice, sustainability and notions of heritage. The findings have further enhanced interest in heritage among artists. This has led to a collaboration with the platform STATUS, managed by scholars at the art centre Konstspidemin and funded by the Swedish Institute, where academics and artists jointly explored ways in which art and activism can ‘make heritage’ and change societies.

For more information:

Hammami, F. and Uzer E. (2018), ‘Heritage and Resistance: Irregularities, Temporalities and Cumulative Impact’ in *International Journal of Heritage Studies*, 24:5, pp 445–464.

Hammami, F., Benesch, H., Uzer, E. Holmberg, I. (2015) ed. *Heritage as Commons – Commons as Heritage*. Gothenburg: Makadam Publishers.

Public Site-Specific Art: Policy Instruments for Supervision and Conservation (Sweden)

Funded by the Swedish National Heritage Board and the Public Art Agency Sweden, 2011–2013. Henrik Orrje and Karin Hermerén.

Research into public site-specific art resulted in its formal valorisation and protection. The project informed a Government bill and was the focus of collaborative tasks for two Government Agencies.

This project focussed on the sustainable management and conservation of Swedish public site-specific art of the 20th century. This art genre has played a role in the development of Sweden as a modern welfare state, and has recently been identified as cultural heritage. The point of entry into the investigation was the lack of understanding over how the legal framework governing historic environments could be applied to the supervision and care of public site-specific art, and the goal was to substantially improve this situation.

The term 'site' in public site-specific art mainly refers to built heritage, and artworks may be immovable, such as a wall mural, or movable, like a figure sculpted and placed in relation to a specific building. 'Public' means the artwork was commissioned for a specific site intended for a public operation or function – it is often financed by public funds. The artwork and building constitute a built landscape that are increasingly identified as historic environments and cultural heritage in need of preservation. The sites are properties, many of which have shifted from state ownership and management to private ownership and entrepreneurial management influenced by investment interests. While the Public Art Agency Sweden is assigned to supervise state-owned art, there is no legislation to protect privately-owned site-specific art. This risks losing sight of professional supervision and care of these artworks, potentially leading to their deterioration.

The project identified several strategic and practical areas in need of improvement, on regional and local levels, as well as the establishment of a national government agency assigned with the responsibility of sustainable management of public site-specific art. Collaboration and knowledge exchange between property owners and actors within the heritage sector is another area of potential improvement. The development of relationships between property owners holding site-specific art and heritage sector professionals, such as museum experts, art historians and heritage managers, was included as a research method in the project. This interdisciplinary way of working expanded during the dissemination of the results, and further impacted how management policies could be enhanced. The project and its findings were published as a book, and presented in scholarly seminars and conference papers. The results also reached the general public through news media and open lectures.

The research results had a direct impact on policy makers. They were included in a recent Government bill on cultural heritage (Kulturarvspropositionen 2016/17:116), where the need to improve governance for the management and conservation of public site-specific art from the 20th century as cultural heritage was emphasised. The bill informed the assignments given by the Government to the Swedish National Heritage Board, which during 2018 was assigned, in collaboration with Public Art Agency Sweden, to investigate the need for measurements that will increase knowledge of the supervision of this particular art form. The results further influenced a Government bill on the politics of the lived environment (Politik för gestaltad livsmiljö 2017/18:110), where the necessity to supervise and care for site-specific public art as cultural heritage is reiterated.

For more information:

Hermerén, K. och H. Orrje (2015), Offentlig konst – Ett kulturarv: tillsyn och förvaltning av byggnadsanknuten konst, Stockholm: Public Art Agency Sweden.

Kulturarvspropositionen (The Government Bill Cultural Heritage Politics) 2016/17:116, <https://www.regeringen.se/4933fd/contentassets/127b80d33b084194a415d72b85721874/16171160oweb.pdf>.

At the city outskirts: Swedish-Roma life stories and camp sites of the 20th century (Sweden)

Funded by the Swedish National Heritage Board, 2015–2016.

Lotta Fernstål, the National Historical Museums and Charlotte Hyltén-Cavallius, the Institute for Language and Folklore.

Excavations at camp sites and gathering of new materials have advanced national archives and empowered Swedish-Roma communities. The centrality of place relations in shaping identities is addressed, and was a catalyst for advancing the dynamics of sustainability. Participating adolescents learned about human rights, discrimination and antiziganism.

The more than 500 years' presence of Roma groups in Sweden has been absent in the nationalist narrative of Swedish history. Situated in a wider recognition of national minorities and their legislated rights, this project has addressed the lack of Roma materials in state archives and museums. Objects are rare and existing accounts are written by representatives of the Swedish majority rather than by people who identify as Roma, and they have often been articulated through a discriminatory perspective. This project focussed on Roma history in Sweden during the 20th century, a period when the values and norms of the majority population were hostile towards nomadic lifestyles. In addition, contemporary relations were investigated and discussed through human rights perspectives.

The research was carried out through archival studies and life-story interviews, in combination with archaeological excavations at sites of previous Roma camps. Collaboration with Roma associations has been central to the process. Researchers with archaeological, anthropological and ethnological skills worked with Roma communities from the development of the initial ideas and implementations of methods to the analysis and production of outputs. Everyday lives and struggles, as well as political disputes, have been revealed, and the public aware-



Researchers from the National Historical Museums and former residents examine the Skarpnäck camp site. Photo: Lotta Fernstål, National Historical Museums.

ness of the long-term Roma presence in Sweden and the role of Roma ways of being and thinking in constituting Swedish cultural heritage has been enhanced.

The attention to camp sites (40 were localised) addressed the importance of place relations as part of identity making which, in turn, engaged with the environmental dynamics of sustainability. An excavation at the site of Skarpnäck, increased public knowledge as many local inhabitants visited out of curiosity, and groups of 12-year-old children were invited to participate through a school collaboration. The Stockholm City Council created a summer-job project for adolescents at the excavation site to enhance their knowledge of human rights, discrimination and antiziganism, and to support them in developing capacities to influence political decisions. They presented their new insights online through videos and written reports. Public media has given considerable space to the research project, and given rise to a TV-series on Roma history produced by the educational branch of Swedish public television (UR Skola). An application has been made to the County Government for a formal legislation of the site as an ancient remain, and it awaits a sign declaring it as a national cultural heritage site.

The results of the project were disseminated through seminars, lectures, workshops, conferences, articles, and books – within Roma communities and associations, the cultural history and heritage sectors, and students and researchers in archaeology, ethnology and Romani Studies. The gathered materials further expanded the collections and

exhibitions at the Swedish History Museum. Not least, the project has empowered the Swedish-Roma communities – by actively including their agencies in the research process, and their own accounts and objects in archives and museums. Roma experiences and localities were met without antiziganism and this approach opened a path for sustainable relations with the wider community.

For more information:

Fernstål, Lotta & Charlotte Hyltén-Cavallius, eds (2018). *Romska liv och platser. Berättelser om att leva och överleva i 1900-talets Sverige*. Stockholmia förlag: Stockholm.

Arnberg, Anna, red. (2017), *Skarpnäcksläggret. Arkeologisk undersökning av en svensk-romsk lägerplats vid Flatenvägen i Skarpnäck*, Stockholm: Swedish History Museum and the Arkeologiska uppdragsverksamheten, FoU rapport 17, research report http://shm.se/wp-content/uploads/2017/04/Skarpnackslagret_FoU-rapport-17.pdf.

Fernstål, Lotta & Charlotte Hyltén-Cavallius (2015). I stadens utkant. Svensk-romska livsberättelser och lägerplatser från 1900-talet. I: *Nordisk museologi*, 2015:1, s. 123–132.

Romernas historia 1900-tal, TV-series within the educational branch of Swedish public media. <https://urskola.se/Produkter/198783-Romernas-historia-1900-tal-En-bostad-at-alla>.

Reanimating Cultural Heritage: Digital Repatriation, Knowledge Networks and Civil Society Strengthening in Post-conflict Sierra Leone (UK)

Funded by the Arts and Humanities Research Council/ United Kingdom Research and Innovation, 2009–2012. Paul Basu, University College London.

In a society drained of its resources during a decade-long armed conflict, this project improved citizens' relationships to their culture and history and created a sense of shared ownership in collections held by previous colonial powers. The collections were digitised and expanded with new materials, and improved transnational relations within the museum sector as well as with diaspora communities.

This case study focusses on reconnecting Sierra Leonean collections held in European museums with their source communities. Objects isolated from their original contexts, and mostly hidden away in stor-

age, were given new life through digitisation, community engagement and collaboratively produced videos. The new accessibility of the objects, conceptualised as 'digital repatriation', impacted on the development of sustainability in several ways. It influenced museum policy making, particularly in terms of showing how museums can play a role in strengthening international relationships. In Sierra Leone, a society drained of its resources during a decade-long armed conflict, the project improved citizens' relationships to their culture and history, and created a sense of shared ownership in the collections. This engagement has infused the notion of cultural heritage with new meaning among the Sierra Leonean diaspora communities and thereby also improved transnational relations.

The project's key output was the website Sierra Leone Heritage, where the digitised historical collections and associated media were made accessible ([link below](#)). More than 4000 objects, images and sound recordings held in the British Museum (BM), Brighton Museum, Glasgow Museums, World Museum Liverpool, British Library Sound Archive, and Cootje van Oven ethnomusicological collection were 'virtually repatriated' and reanimated by recent video and sound media from Sierra Leone. Collections of the Sierra Leone National Museum (SLNM) were also digitised and made available, improving their visibility and security. Through activities and partnerships brought about through the project, the SLNM evolved into a vibrant cultural hub, with expanded interest among Government representatives, press and citizens. The museum was recognised for its value and importance in the development of the country, and new funding improved conditions for outreach activities, preservation and employment. The project also increased interest in Sierra Leone collections in European museums, where, for example, the British Museum curated a new exhibition that gained large interest and formed part of an international tour. This new attention challenged negative stereotypes about Sierra Leone, based on narratives of child soldiers, 'blood diamonds' and poverty.

The digitisation process and construction of the website provided opportunities for training and capacity-building within the museum and heritage sector in Sierra Leone. The strengthening of local professional capacities was enhanced by a partnership with the BM's Africa Programme, including a redisplay of the permanent galleries in the SLNM, knowledge-exchange visits, collaborative exhibitions, and education programmes. The project created learning resources that have developed teaching and educational outreach which, in turn, have

Digitising collections. Heritage skills sharing at the Sierra Leone National Museum.
Photo: Paul Basu.



enhanced relations between the museum and schools. In a national curriculum that lacks provision for teaching of Sierra Leonean culture or heritage, the digital heritage archive was distributed on DVD to schools, colleges, universities and community ‘access points’ to areas without internet access. History clubs were established at schools and the museum launched a Teacher’s Forum.

This extensive project engaged a large number of communities, in Sierra Leone as well as in its diaspora, and many participated in collecting heritage materials. In relation to the three dynamics of sustainability, the impacts that have emerged foremost concern social developments. However, the acquisition of skills, knowledge and education relating to creativity, culture and society have the potential to further impact on economic and environmental dynamics. The Government has recognised that the museum and its collections contribute to national development, and various communities are discussing sustainable approaches to safeguarding heritage sites. As a consequence of the project, its Principal Investigator Paul Basu, was invited to be an international advisor to the Monuments and Relics Commission, which manages Sierra Leone’s museum and heritage sector, and was appointed by the Ministry of Tourism and Cultural Affairs to lead a review of Sierra Leone’s cultural heritage legislation.

For more information:

<http://sierraleoneheritage.org/>

Basu, Paul (2008), ‘Confronting the Past? Negotiating a Heritage of Conflict in Sierra Leone’, in *Journal of Material Culture*, (13) 2, pp. 233–247.

Basu, Paul (2011), 'Object Diasporas, Resourcing Communities: Sierra Leonean Collections in the Global Museumscape', in *Museum Anthropology*, (34) 1, pp. 28–42.

Basu, Paul (2013), 'Recasting the national narrative: Postcolonial pastiche and the New Sierra Leone peace and cultural monument', in *African Arts*, (46) 3, pp. 10–25.

Basu, Paul (2015), 'Reanimating Cultural Heritage: Digital Curatorship, Knowledge Networks and Social Transformation in Sierra Leone', in Annie Coombes & Ruth Phillips (eds), *International Handbooks of Museum Studies: Volume IV: Museum Transformations*, Oxford: Wiley-Blackwell, pp. 337–364.

Can we rebuild the Kasthamandap? Promoting Post-Disaster Rescue Excavations, Salvage and Subsurface Heritage Protection Protocols in Kathmandu (UK)

Funded by the Arts and Humanities Research Council, 2016–2017.

Advancement of post-earthquake reconstruction methodologies in collaboration with local scholars and communities, with attention to local techniques has engendered a reflective and sustainable knowledge exchange. The results have been disseminated to stakeholders and the general public, and entered into Government policies on UNESCO World Heritage Sites.

This project was awarded to Professor Robin Coningham (UNESCO Chair in Archaeological Ethics and Practice in Cultural Heritage, Durham University) following the earthquakes which struck Nepal in 2015. Not only did they inflict loss of life and livelihoods, they destroyed substantial parts of Kathmandu's unique UNESCO World Heritage site. The programme involved the delivery of a Practical Field Training Workshop to assess the foundations of the collapsed Kasthamandap, and evaluate the causes for its failure, as well as salvaging material to assist plans for its reconstruction. The project ensured that in the face of strong political, social and economic desire to reconstruct rapidly, post-disaster rescue archaeology informed authentic reconstruction.

In 2016, a 14-day workshop was held in the ruins of the collapsed Kasthamandap and involved a post-disaster team of 30 Nepali archaeologists, architects, engineers, Sanskritists, soil scientists, civil servants, heritage and disaster managers. The workshop allowed the

team to establish methodologies for the recording and evaluation of collapsed heritage sites, the salvaging of materials within post-disaster urban contexts and to assist post-earthquake reconstruction plans. Additional funding from the Government of Sri Lanka and French Charity 'Oriental Cultural Heritage Sites Protection Alliance' also enabled archaeologists from India, Myanmar and Sri Lanka to attend the workshop. This was the first time such a diverse group from Non-Governmental Organisations and Governmental Organisations had been trained together, allowing those from different disciplines to learn about each other's approaches, as well as collectively recognise the risk to Kathmandu's subsurface heritage during reconstruction.

Following the workshop, the information and recommendations were disseminated through community stakeholder meetings, technical briefing meetings and a travelling bilingual photographic exhibition. Despite being open for only four days at each of the World Heritage Sites in Kathmandu, the travelling exhibition was visited by 8,079 people, of whom 62.42% were Nepali. 12,850 visitors also attended a bilingual exhibition which was displayed in Durham's Oriental Museum between September 2017 and January 2018. The project findings were also disseminated through articles in the *Journal of Cultural Heritage Management*, *Spaces* – a magazine specialising in Kathmandu art and architecture – and also *Ancient Nepal*, the journal of the Government of Nepal's Department of Archaeology.

The project's findings and recommendations filtered into Government policy through the Department of Archaeology, Government of Nepal, who are now blocking and mitigating a number of destructive interventions relating to the reconstruction and renovation of Kathmandu. These include the halting of the rebuilding of the Kasthamandap by the Kathmandu Municipality with new intrusive foundations and the agreement by the Chinese Government to deploy Department of Archaeology archaeologists, rather than engineers, to cut and record exploratory trenches as part of the Basantapur Palace rehabilitation. As a result of the research, the team co-produced the archaeology strand for the new Master Plan for the Pashupati Area Development Trust, another of Kathmandu Valley's UNESCO World Heritage Sites.

The project also involved work at Pashupati, the most sacred Hindu temple in Nepal and another UNESCO World Heritage Site that was badly damaged by the 2015 Earthquake. In 2016, a 'live exercise' was held there to train first-responders, which included the Nepalese police and army, as well as heritage officers from the government.



Monks, nuns and laity, joining together at the Saptabidhanotta Puja and prayer ceremony, to reanimate the Kasthamandap after the post-disaster archaeological recording.
Photo: Robin Coningham.

It offered the opportunity for capacity building in a safe training environment, giving first-responders the necessary skills and knowledge of post-disaster archaeological methods and protocols to enable the protection of heritage alongside rapid response during search and rescue efforts focussed on the injured, trapped or dead. This project resulted in the broader dissemination and capacity building around post-disaster rescue archaeology recovery, protection and rehabilitation, for example in the Jaffna Peninsula, Sri Lanka during 2017.

For more information:

<https://www.dur.ac.uk/cech/unescochair/research/kathmandu/>.

World Heritage FOR Sustainable Development (UK)

Funded by the Arts and Humanities Research Council, 2016–2018.

Academics, practitioners, stakeholder organisations and groups gained new and transnational perspectives on the mobilisation of World Heritage for sustainable development. Findings and recommendations will shape policy and strategy, and further enhance World Heritage Site management.

This project awarded to Professor Mike Robinson (Ironbridge International Institute for Cultural Heritage, University of Birmingham) established a research network focussed on understanding the rela-

tionship between UNESCO World Heritage Sites and the United Nation's 2030 Agenda for Sustainable Development. The network sought to reveal the role that World Heritage Sites can play in sustainable development as high profile actors in both cultural heritage and international tourism.

Both academics and non-academics participated in a series of two-day World Heritage Site based workshops at the Ironbridge Gorge (UK), West Lake, Hangzhou (China) and Petra (Jordan). A final workshop was held in Brussels with officials from the European Commission and UNESCO.

The first workshop held at the Ironbridge Gorge, was a scoping meeting to set agendas and develop the approach to the project. It was also attended by PhD researchers working on aspects of World Heritage. The workshop provided the opportunity for the Lead of UNESCO's World Heritage Sustainable Tourism Programme to brief the team regarding 'state of the art' policy instruments relating to addressing the Sustainable Development Goals through World Heritage.

Forty people attended the two day workshop in China, which focussed on the themes of policy and governance and their relation to World Heritage and sustainable development. Attendees included staff from different departments of the Management Authority, representatives from the heritage and tourism sectors and local community stakeholders, academics and young researchers from Zhejiang University and from Beijing, the Vice Chair of the World Heritage Monitoring Programme at the Chinese Academy of Cultural Heritage.

The third workshop was hosted by the Petra Development and Tourism Regional Authority. All five of Jordan's World Heritage Sites were represented at the workshop, including the Government Department of Antiquities. Also present were academics, community representatives and tourism stakeholders – in total around 30 people attended. The core issues that emerged related to the issues of governance and of communication between sites, from national to site level. The attendees at the workshop formed the partners of a subsequent bid to the Newton-Khalidi Fund.

The final workshop was held in Brussels and focussed on a synthesis of the issues discussed by 26 academics, practitioners and policy-shapers. Speakers focussing on World Heritage Sites from Jordan, Tunisia, Egypt, Myanmar, Greece, France, Nepal, and India were invited to reflect on issues relating to the themes running through all the workshops – governance, communication and capacity building – and discuss practical measures to explore these within wider policy contexts.



World heritage for sustainable development workshop in Jordan.
Photo: Mike Robinson.

The workshops reached a broad range of practitioners and academics and identified existing examples of good practice and innovative partnerships from both the Global North and South, and between World Heritage managers and the wider constituency of the cultural and creative sector, the tourism sector, education and business. Academics, practitioners, stakeholder organisations and groups gained new and transnational perspectives on the mobilisation of World Heritage for sustainable development.

In working with UNESCO's World Heritage Centre, specifically the Sustainable Tourism Programme, the Network's findings and recommendations are now being shared to shape policy and strategy, and are to be disseminated beyond its immediate partners, to engage with further World Heritage sites in countries receiving Overseas Development Aid.

For more information:

<https://wh4sd.wordpress.com/>

SHORT DESCRIPTIONS

The Energy Agent (Denmark)

Funded by DREAM: Danish Research Centre on Education and Advanced Media Materials, the Faculty of Natural Sciences, University of Southern Denmark, and The Experimentarium, 2012–2015.

Through its focus on collaboration between researchers, the museum sector, and young users of digital tools, this case study is linked to the Danish The Media Mixer research project. The Energy Agent collaboration developed a digital application – ‘The hunt for green energy’ – aimed at lower-secondary school-age (12–13 years old) visitors to the science centre Experimentarium. The app used a narrative and game-based approach to science learning and enhanced students’ creative and reflective science learning, as well as their awareness of environmental sustainability. One of the outcomes was best-practice guidelines for student science-learning, along with a strengthening of research in museums.

For more information:
<https://vimeo.com/I380I9402>.



The energy agent. Photo: Celia Simonsen, DREAM.

BREEAM certification for Dutch museums (Netherlands)

Funded by the Foundation for Sustainable Museums and the Cultural Heritage Agency of the Netherlands, since 2015.

Instructed by the Foundation for Sustainable Museums (Stichting Verduurzaming Musea), this baseline research for eight museums in Amsterdam was conducted by Royal Haskoning DHV, a design and engineering consultancy firm. The study provided recommendations for the museums to enhance their environmental performance and to achieve the Building Research Establishment Environmental Assessment Method (BREEAM) ‘In Use’ certification. In an attempt to reduce the ecological footprint, the city of Amsterdam is encouraging its cultural institutions to improve their daily operations by introducing the certificate as a prerequisite for a less intensive control by the environmental department. Each participating museum has focussed its effort on a certain aspect, and shared its experience with the other institutions. In December 2017, Stedelijk Museum, Amsterdam Museum, Joods Historisch Museum, EYE en Scheepvaartmuseum and the Rijksmuseum achieved the certification. Currently, the coalition is building an online ‘warehouse’ to showcase the research and capture the practical experiences shared by the users, the museums. Several other cities, including New York and Stockholm, have showed interest in this approach and, as such, the initiative not only contributes to sustainability goals but also to the image of the city, the foundation, and its cultural institutions.

For more information:
<https://www.museumenduurzaamheid.nl/>.

The Archaeology of Ice (Norway)

Funded by the Museum of Cultural History, University of Oslo, the Norwegian Ministry of Climate and Environment, and the Oppland County, 2006–2015.

This research project explored the long-term relationships between environmental and cultural change by close archaeological examination of mountain environments where perennial ice and snow is melting. These sites constitute a warning of the increasing effects of climate change, as well as an opportunity to learn more about how people have coped with climate change over the last six millennia. New evidence deepens current understanding and proposes that high mountain activity might not necessarily have been caused by climate change but rather agricultural stress or high demand. The project had a large international outreach and contributed to museum exhibitions and the Mímisbrunnr Climate Park 2469 outdoor discovery centre.

For more information:

<http://secretsoftheice.com/contact/glacier-archaeology-program/>.

<https://www.khm.uio.no/tema/utstillingsarkiv/isens-arkeologi/english/>.

From fragmented to integrated landscape management: Values of green cultural heritage and implications for future policies and practices (Norway)

Funded by the Norwegian Research Council, since 2015.

The project focussed on the management of planning and land use in a historic landscape in the municipality of Ørland. The landscape surrounds the cultural heritage site of Austrått

manor and castle (which is protected by the Cultural Heritage Act). The project addressed the values of 'green cultural heritage' (i.e. man-made landscapes with heritage values), which are often under pressure from different kinds of developments. Protecting these landscapes can contribute to improved environmental sustainability within the rural surroundings of cultural heritage sites. The results of the project increase understanding about the values of green cultural heritage to local and national administrations, cultural heritage authorities and the general public.

For more information:

<https://www.nmbu.no/en/projects/node/35005>.

HEROICA – Health and Edibles in the Roman Iberia – a case study for archaeometry (Portugal)

Funded by FCT-Fundação para a Ciência e Tecnologia, 2011–2015.

This project focussed on the analysis of ceramics and osteological remains to reveal information about health and diet in Roman Iberia (south of Portugal). It was an interdisciplinary project that involved archaeologists, anthropologists, archaeozoologists, chemists and geologists from three Portuguese Universities. New analytical methodologies were utilised, including the analysis of the contents of ancient ceramics, and the use of stable-isotopes and trace-element analysis to infer paleodiets from osteological remains. These analytical methodologies have since been used in food science to analyse modern Portuguese wines, olive oils (Medoomics project) and local textile crafts to certify their quality and local provenance. The project demonstrated how analytical methodologies and networks developed for archaeological projects can have modern relevance, broader applications and legacy projects.

For more information:

HEROICA:

<https://www.sciencedirect.com/science/article/pii/S2352409X18300178>.

Medoomics:

<http://www.arimnet2.net/index.php/research-projects/projects-2nd-call/medoomics>.

Holocene and Pleistocene recovery of geomagnetic secular variation in the North Atlantic: Geomagnetic and volcanological implications (Portugal)

Funded Fundação para a Ciência e a Tecnologia (FCT), since 2012.

This project focussed on Archeomagnetism, and researched the direction and intensity of the Earth's Magnetic Field through analysis of the remaining magnetisation recorded in ceramics, volcanic rocks and sediments. In order to use Archeomagnetism as a dating tool, this collaboration between Portuguese and French institutions revealed the secular variations of the Earth's Magnetic Field in mainland Portugal in the Roman period. The project was co-ordinated by researchers at the Instituto Dom Luiz (Associate Laboratory of the University of Lisbon IDL-FCUL) and the Laboratoire d'Archéologie Moléculaire et Structurale (Université Pierre et Marie Curie), Institut de Physique du Globe de Paris and Institut National de Recherches Archéologiques Préventives, and resulted in interdisciplinary research (archaeology, geophysics, and geology). The reliability of the resources as a chronological tool for dating ceramics was tested through a sample corpus from seventeen sites between the 1st and 5th centuries BC.

For more information:

Ângelo, M., M. Lopes, A. Genevey, P. Silva, and R. Alfenim (2017), 'Archeomagnetism in Portugal. Study of geomagnetic field variations in direction and intensity during the Roman period (1st century BC to 5th century AD) – Applications in Archaeology'. The project and the first results. Poster presentation at PMAG 2017 – Magnétisme de la Biosphère aux Planètes telluriques. 17–19, October, 2017.

Cultural Heritage and Transdisciplinary Gender Studies (Sweden)

Funded by the Swedish National Heritage Board, since 2017.

Pia Laskar, the Swedish History Museum.

Surveys on normative processes of gender and sexuality, related to questions about ideals, narratives and representations, are scarce within heritage studies. On the other hand, research on gender and sexual norms rarely pay attention to heritage studies. The purpose of this project was to address this gap, and create dialogues between norm-critical gender and sexuality studies scholars, as well as professionals in the heritage sector. The project established a network with activities promoting exchanges between the fields, such as workshops, public seminars and analyses. It developed theory, concepts and new practices, as well as strategies for enhanced social inclusion of gender and diversity perspectives within Swedish cultural heritage. The final results will be presented during g-19, a biennial conference for cross-disciplinary gender studies.

For more information:

<http://www.genusarv.se/>.

Re: Heritage: Circulation and Marketization of Things with History (Sweden)

Funded by the Swedish Research Council and University of Gothenburg, 2014–2018.

Staffan Appelgren and Anna Bohlin, University of Gothenburg.

This project investigated the circulation of things on the second-hand market from a heritage perspective, paying particular attention to inclusive approaches to heritage and sustainable perspectives on consumption. It demonstrated that circulating second-hand objects and materials often gained higher value when they were marketed as cultural heritage. It also showed that the resulting expansion of the recycling economy is related to a growing public awareness of the necessity of environmental sustainability. This perspective opens up new ways to think about heritage in relation to its preservation of the past and relevance for the future, definitions of tangible and intangible heritage, and what, in terms of values and knowledge, are included in the term ‘cultural heritage’. The results of the project led to further research on how we value, collect and discard everyday objects, and to collaborations with non-academic partners, such as the furniture industry, the Swedish Energy Agency, the museum sector and customer collaborations within the second-hand market.

For more information:

Appelgren S. and A. Bohlin (2017). “Second-hand as ‘Living’ Heritage: Intangible Dimensions of Things with History” in Routledge Companion to Intangible Cultural Heritage, London: Routledge.

Heterogeneous Cultural Heritage: To Change the Future (Sweden)

Funded by the Swedish National Heritage Board, 2015–2016.

Mikael Eivergård, Örebro County Museum.

The focus of this project was the relationship between human rights and cultural heritage. By identifying fights for rights among citizens who have been socially excluded based on their collective belonging in marginalised groups, the project constitutes an example of heritage research that aims for sustainability by way of increased inclusion. The researchers argued there was a need for new heritage narratives about Sweden and that this in turn required a renewed cultural heritage practice. In addition to practitioners within the heritage sector, the results were directed towards the general public, including an exhibition with a catalogue at the Swedish History Museum. Impact included improved awareness and engagement in political processes, as well as knowledge and capacity building, and the potential for enhanced personal development and quality of life by inspiring people to take action for larger social inclusion and so contribute to sustainable development.

For more information:

Eivergård, M. and A. Furumark, eds (2017), 50 rättighetskamper i Sverige 1890–2017, Västerås : Västmanlands läns museum.

Managing Laponia: A World Heritage as Arena for Sami Ethno-politics in Sweden (Sweden)

Funded by the Swedish National Heritage Board, the Swedish Research Council, and Uppsala University, 2002–2009.

Carina Green, Uppsala University.

This doctoral research project investigated the implications of implementing the World Heritage site of Laponia in northern Sweden, an environment historically linked to Sami people. Green demonstrated that Sami communities have been excluded from the governing agencies that manage Laponia, and her study looks at Sami resistance strategies to these conditions. The situation has improved since the study took place, for example through the establishment of the Sami-led supervising organisation Laponia-tjuotjuddus in 2013. The inclusion of Sami voices led to a collaborative, and consequently more sustainable, management of the site. In an assessment of this positive development at samer.se, a web platform concerned with Sami rights, the research is described as a crucial part of the process.

For more information:
<http://www.samer.se/5586>

Bringing Nottingham's History to Life (UK)

Funded by the Arts and Humanities Research Council, 2014–2018.

This project awarded to by Roma Patel (Nottingham Trent University) resulted in the creation of new augmented-reality interpretative media for Nottingham City Museum and Galleries. The project explored how augmented reality can



Bringing Nottingham's history to life – Riot 1831 @ Nottingham Castle. Photo: Adrian Trowell.

enhance the understanding of museum collections and deepen audience engagement through multiple narratives. Working in collaboration with Hot Knife Digital Media, a 2D/3D animation design studio, the project team developed the storylines and tested the impact of this technology on visitor experiences. Riot1831@ Nottingham Castle was an augmented-reality exhibition (2014–2016) and app that used storytelling to develop an understanding of the relationships between the 'real' and 'virtual' objects, designed to help the visitor feel connected to people of the past. 77% of those surveyed agreed that the use of augmented reality was engaging, while 70% felt the app helped them understand the historical relevance of the objects, and 79% said it helped them understand history.

For more information:
https://webarchive.nationalarchives.gov.uk/20161104002827uo_/http://artsdigitalrnd.org.uk/wp-content/uploads/2013/07/NCMG-Riot-1831-Project-Report.pdf.

PARNASSUS: Ensuring integrity, preserving significance: value based flood resilience for protection of cultural heritage from climate change impact (UK)

Funded by the Arts and Humanities Research Council, 2010–2013.

This project awarded to Professor Dina Francesca D'Ayala (University College London) developed an interdisciplinary system to quantify risk for historic buildings and archaeological sites from driving rain and flooding caused by climate change. In collaboration with Bristol City Council, a flood-risk study for historic listed buildings was completed, while structural analysis was undertaken in collaboration with Trinity House for five UK historic lighthouses. The project resulted in further research for the UK Centre for Moisture in Buildings on indoor mould growth and a grant from the Department for Business, Energy & Industrial Strategy to test waterproofing cavity walls. The project successfully led to new guidelines, tools and collaborations with sector partners to improve the resilience of heritage buildings.

For more information:
www.ucl.ac.uk/parnassus.

Heritage Futures (UK)

Funded by the Arts and Humanities Research Council, 2015–2019.

Rodney Harrison, University College London.

Heritage Futures was a four-year research programme funded by a UK Arts and Humanities Research Council (AHRC) Large Grant

(Assembling Alternative Futures for Heritage), and supported additionally by its host universities and partner organisations. The project carried out ambitious interdisciplinary research to explore the potential for innovation and creative exchange across a broad range of heritage and related fields, in partnership with a number of academic and non-academic institutions and interest groups. The project was structured around four themes, each of which identified a challenge for the future of heritage and looked at a range of institutions aiming to tackle it in various ways. The themes were: Uncertainty – how is the uncertainty of the deep future conceived and managed in different fields of conservation practice? Transformation – what values are associated with heritage structures and landscapes that are allowed to undergo transformation and change? Profusion – how do museums and people in their homes decide what to keep in the face of mass production and consumption? Diversity – how are biological, cultural, genetic, and linguistic diversity categorised and conserved, and what can one field learn from another? The project facilitated co-designed knowledge exchange activities with around 25 international partner organisations and other participating groups. Key beneficiaries included international organisations such as UNESCO, IUCN, ICCROM and ICOMOS. The project fed into changes in policy and heritage practice which have had an impact across a broad range of heritage domains. It ended in a major three-year exhibition, an open access book 'Heritage Futures', a website and a series of short films. The exhibition asked members of the public to help to imagine, design and begin to create ideas on what the future will look like.

For more information:
<https://heritage-futures.org/>.

Conserving Cultural Heritage: The Resilience of Forcibly Displaced Syrian Artisans in Jordan (UK)

Funded by the Economic and Social Research Council, 2016–2018.

Haia Al-Dajani, University of Plymouth.

This project addressed Jordan's development challenges arising from the burgeoning influx of forcibly-displaced Syrians by exploring the resilience, vulnerabilities and identities of displaced Syrian artisans residing in Jordan since the war in Syria erupted in 2011. It answered questions about the socio-political impact on this community of engaging in cultural heritage crafts, and the impact of the cultural appropriation of the Syrian cultural heritage products on the Syrian community as well as the host nation. It explored the impact of displacement and the arising marginalised masculinities, and the resilience of neo-patriarchal displaced Arab communities. This project was designed to maximise impact through capacity building, knowledge transfer, and policy development via academic and non-academic routes. The project trained and mentored six Jordanian and fourteen forcibly-displaced Syrian artisans in social enterprise creation. This helped the artisans to organise their sector, support their work, protect working rights and against the threat of exploitation, and give their products enhanced trade rights. The Displacement Studies Research Network was set up which enabled sharing of information and knowledge.

For more information:

<https://www.plymouth.ac.uk/research/syrian-artisan-entrepreneurship-project>.

Rapid, Catastrophic Decay of Building Limestone: Implications for masonry selection and lifetime behaviour (UK)

Funded by the Engineering and Physical Sciences Research Council, 2006–2009.

Heather Viles, University of Oxford.

Stone is widely recognised as a sustainable construction material and as a store of much of the world's tangible cultural heritage. With this recognition has come an understanding that stone has a finite life – one that can be drastically curtailed when it is placed in the often-aggressive urban environments. In particular, many limestone buildings experience seemingly unpredictable, episodic and sometimes catastrophic breakdown as stone strength is exceeded by gradual decay, the slow accumulation of internal stresses and/or subjection to extreme external stresses such as severe frost. This project examined questions through field studies of stone structures in Oxford, UK and nearby areas built of oolitic limestone that is prone to rapid retreat. The project developed fibre optic sensors that allowed moisture and salt movement within individual blocks to be monitored in relation to environmental conditions. This led to a better understanding of stone decay mechanisms, which has improved knowledge of the environmental and material controls on rapid decay. A range of new measurement techniques (2D resistivity, laser scanning) were used. The project also led to long-term collaborations with architects, conservators, engineers and equipment manufacturers.

For more information:

http://www.qub.ac.uk/geomaterials/epsrc/resources/project_background.pdf.

Heritage Smells! (UK)

Funded by the Arts and Humanities Research Council, 2010–2014.

Lorraine Gibson, University of Strathclyde.

Experts in science (chemistry, physics, statistics), heritage science and sensor technology worked together to develop diagnostic olfactory tools for heritage science. The new devices provide real-time data and are non-invasive, non-contact, portable and simple to use. This makes them well suited to address cultural heritage questions and survey collections, particularly for objects where potential hazards, access issues or sampling restrictions have precluded study to date. The development of these new devices enabled collections custodians to make informed decisions about the acquisition, storage, conservation, display and long-term preservation of items, while ensuring the health of those accessing public and private collections. These new methods of analyses have already been implemented in over 20 institutions worldwide and new requests continue to be received.

For more information:

<https://www.ucl.ac.uk/bartlett/heritage/research/projects/project-archive/heritage-smells>

Dark Tourism in Comparative Perspective: Sites of Suffering, Sites of Memory (International)

Funded by the Arts and Humanities Research Council, 2016–2018.

Annette Becker, University Paris Ouest Nanterre La Defense and Charles Forsdick, University of Liverpool.

This project explored, in comparative perspective, the relationship between memory, place, cultural heritage, colonialism and public understanding of suffering and imprisonment. Former places of suffering and detention have recently been developed into museums, hotels, memorials, conference centres and other commercial or heritage buildings across the world. This project focussed on the public reception of these buildings; the part they play in memorialising and interpreting ‘difficult’ pasts; and their commercial and economic importance to the heritage and museum industry. The project produced a series of outputs that capture the similarities but also the distinctiveness of the evolution of the theory around ‘dark tourism’ in France and the UK. These include a policy document entitled Penal Heritage: Approaches to Interpretation. With a particular focus on the translatability of the concept across cultures, the project increased understanding of the intersections of dark tourism and heritage in a range of Anglophone and Francophone contexts.

For more information:

<http://passes-present.eu/en/dark-tourism-comparative-perspective-sites-suffering-sites-memory-39242>

OPAL the Oxford-Paris Alexander Project – Transnational Perspectives in a Digital Age (International)

Funded by the Arts and Humanities Research Council, 2016–2017 (in collaboration with the French LABEX-Pasp).

Andrew Meadows, University of Oxford and Bibliothèque nationale de France.

The OPAL project, a collaboration between the University of Oxford and the Bibliothèque nationale de France, focussed on the coinage of

Alexander the Great. The project placed collections of this coinage held by both institutions online in a Linked Open Data Framework. Over 4,000 digital objects were presented through the websites of the Ashmolean Museum, Oxford and the Bibliothèque nationale de France, while also being linked to the PELLA project based at the American Numismatic Society. The project also resulted in an exhibition at the Ashmolean Museum and a published collection of essays from the collaborative conference. The OPAL project serves as a case study for the role that a digital collection may play in the construction of a virtual, transnational presentation of transnational heritage.

For more information:

<http://passes-present.eu/en/opal-oxford-paris-alexander-project-transnational-perspectives-digital-age-43426>

Disrupted Histories, Recovered Pasts: A Cross-Disciplinary Analysis and Cross-Case Synthesis of Oral Histories and History in Post-Conflict and Postcolonial Contexts (International)

Funded by the Arts and Humanities Research Council, 2016–2019 (in collaboration with the French LABEX-Pasp).

Sian Sullivan, University of Bath Spa, and Archives Department of Creuse.

This project produced a cross-disciplinary analysis and cross-case synthesis of experience and memory in post-conflict and postcolonial contexts. The research explored the relationship between oral histories and amateur histories using archives and historiography in a series of disrupted settings (evictions in colonial and apartheid west Namibia; memories and historical interpretations of the Egyptian Jewish diaspora; war-time evacuation in Vichy, France;

recent maritime exodus of migrants from Africa; and Portuguese migrant subjectivities in postcolonial Angola). The project produced five case studies based on primary research that systematically interrogated relationships between oral histories and amateur histories with more formal written historical archives and historiography. The publications from the research projects contributed to greater sensitivity in the inclusion of diverse past experiences in practices of commemoration in the present.

For more information:

<https://dsrupdhist.hypotheses.org/>

GASTROCERT: Gastronomy and Creative Entrepreneurship in rural Tourism (International)

Funded within JPI Cultural Heritage Plus call, 2015–2018.

Claudio Marciani, Mediterranean University of Reggio Calabria; Peter Varley, University of the Highlands and Islands; Nadia Fava, University of Girona; Daniel Laven, University of Mid Sweden; Annelie Sjölander Lindqvist, Göteborg University.

The GASTROCERT project investigated the dynamics between gastronomic heritage, tourism and creative entrepreneurship. Specifically, it explored how the development of local gastronomy can help to protect rural values, and how entrepreneurial culture can enhance locally-produced food as a value-added touristic experience. The project findings argued that food plays a vital role in shaping cultural identities and strengthening local and regional traditions, and that these processes can be promoted to create sustainable tourist economies. It contributed to knowledge exchange with policy makers, and has the potential to contribute to sustainable local growth where

identity-making is intertwined with entrepreneurial development and environmental care. At the same time, the project showed there are certain discrepancies between the focus on scaling up within the tourist sector, and the aim to remain as a smaller business beyond notions of classical growth among the entrepreneurs.

For more information:
<http://creativegastronomy.com/uccn2016/>.

Cultural Landscape in Heritage (CHeriScape) (International)

Funded by Norwegian Institute of
Bioeconomy Research and JPI CH, 2013–2016.

This international interdisciplinary project increased the awareness of the intimate connections between landscape, heritage, nature, culture and society, and how landscape can be used as a tool to meet global challenges. CHeriScape explored links between the European Landscape Convention (2000) and the Faro Convention on the Value of Cultural Heritage to Society (2005). Researchers from Belgium, Netherlands, Norway, Spain and the United Kingdom organised five international and interdisciplinary conferences on the theme of 'landscape as heritage'. The research addressed environmental degradation caused by anthropocentric perspectives, demographic pressure, and social changes, and argued that dominant policies based on economic market forces and eco-environmental solutions need to be complemented by a strong cultural and societal dimension in decision making and planning. CHeriScape consequently promoted a people-centred culturally-sensitive approach where cultural solutions are offered to culturally-created problems.

For more information:
<https://cheriscape.eu/>.

CHIME: Cultural Heritage and Improvised Music in European Festivals (International)

Funded within JPI Cultural Heritage Plus call,
2015–2018.

Tony Whyton, Birmingham City University;
Helene Brembeck, University of Gothenburg;
Walter van de Leur, University of Amsterdam.

The CHIME project explored uses and re-uses of jazz as cultural heritage, in connection with jazz festivals held at urban heritage sites in the Netherlands, Sweden and the UK. The festivals have impacted on urban sustainable development in their capacities to create new public interest towards the heritage sites. The project further investigated how jazz festivals can be effectively organised, and these insights will have a lasting impact on policies through the handbook *Grow your own festival*. The CHIME website, along with a travelling exhibition and events such as a hack day, makes the findings available to the wider public, and a new app intended to improve the experiences of festival visitors will impact the festival market. Academic scholarship will be enhanced through a number of completed and planned articles and books.

For more information:
www.chimeproject.eu.

CHANGES: Changes in Cultural Heritage Activities, New Goals and Benefits for Economy and Society (International)

Funded within JPI Cultural Heritage Plus call, 2015–2018.

Stefano Della Torre, Politecnico di Milano; Els Verstrynge, University of Leuven; Silvia Naldini, Technische Universiteit Delft; Christer Gustafsson, Uppsala University.

The CHANGES project focussed on the development of local sustainable models of conservation and management of built heritage. These models are based on the understanding of heritage as a tool for the production of human and social capital, and they pay attention to collaboration between various actors, including politics, the market, people and experts, in creating environmental and economic sustainable regional development with win-win solutions for all. Implemented and investigated in Belgium, The Netherlands, Italy and Sweden, this integrated approach strived for planned preventive conservation and valorisations rather than major repair works. The analyses provided policy makers with effective tools, and the scientific outputs were disseminated through seminars, conferences and publications.

For more information:

<http://www.changes-project.eu>.
www.changes-project.eu.

TRACES: Transmitting Contentious Cultural Heritages with the Arts (International)

Funded within Horizon 2020 Research and Innovation Programme, 2016–2019.

Multi-disciplinary team with 11 partners from: Universitaet Klagenfurt, Politecnico di Milano, Humboldt-Universitaet zu Berlin, Universitet i Oslo, Zürcher Hochschule der Künste, Homan Durabil, Naturhistorisches Museum, The University of Edinburgh, Uniwersytet Jagielloński, Ulster University, Drustvo za domace razikave.

The TRACES project investigated the role of contentious heritage in contemporary Europe. It used an innovative research methodology based on an artistic/ethnographic approach with transdisciplinary co-productions, and analysed challenges, opportunities and practices inherent in transmitting difficult pasts and heritages. TRACES has the potential to have a large impact on the understanding of contentious heritage, among scholars as well as practitioners within the heritage and arts sectors, and enhance social sustainability by bringing conflicting perspectives of particular heritages into dialogue. The website gave access to the project's four-monthly refereed journal TRACES fanzine, catalogues of project exhibitions, a calendar with ongoing events, and presentations of all participants. The research programme concluded with a conference in Oslo in 2019.

For more information:

<http://www.traces.polimi.it/>.

Appendix

JPI CH Members and Observers

Members

France (Coordinator)

Ministry of Culture
Ministry of Higher Education and Research

Belarus

National Academy of science of Belarus

Belgium

Belgian Science Policy Office
Onroerend Erfgoed
Royal Institute for Cultural Heritage

Cyprus

Research Promotion Foundation

Czech Republic

Ministry of Education, University and Sports
Institute of Theoretical and Applied Mechanics

Ireland

Department of Culture, Heritage and the
Gaeltacht
Heritage Council of Ireland

Italy

Ministry of Cultural Heritage and Activities and
Tourism
Ministry of Education, University and Research

Latvija

Ministry of Education and Science of Latvija
State Inspection for Heritage Protection

Lithuania

Ministry of Education and Science of the
Republic of Lithuania
Vytautas Magnus University
Kaunas University of Technology

Moldova

Ministry of Culture

The Netherlands

Netherlands Organization for Scientific Research
Ministry of Education, Culture and Science

Norway

The Research Council of Norway
Norwegian Ministry of Climate and
Environment

Poland

Ministry Of Science and Higher Education
The Ministry of Culture and National Heritage

Portugal

Ministério da Ciência, Tecnologia e Ensino
Superior

Romania

Ministry of Education
Ministry of Research and Innovation

Spain

Agenda Estatal de Investigación

Sweden

Swedish National Heritage Board

United Kingdom

Arts and Humanities Research Council

Observers

Austria

Federal Ministry of Science, Research and
Economy

Bulgaria

Ministry of Education and Science

Estonia

Ministry of Culture

Germany

Deutsche Bergbau-Museum Bochum
National Museums Berlin

Greece

Ministry of Culture and Sports
National Technical University (NTUA)

Israel

Ministry of Environmental Protection

Slovakia

Ministry of Education of The Slovak Republik

Types of heritage-related impact contributing to sustainability

NOTE: These are intended to be widely illustrative examples and not a comprehensive list of all types of impact.

Impacts on research, the acquisition of skills, training, knowledge or education

Impacts which result in positive changes to academic understanding, teaching, training or skill development courses within educational or professional training institutions.

- Academic debate has been shaped or informed; this may include activity that has challenged established norms, modes of thought or practices.
- New areas or topics of research have been opened up or new inter- or multi-disciplinary collaborations and approaches to existing research have been formed.
- New groups or individuals have been included in the design and/or delivery of heritage research or training (e.g. community members, businesses, charities, policy makers).
- Influencing the design and delivery of curriculum and syllabi in schools, universities or other educational institutions where the impact extends significantly beyond the lead organisations. For example, through the widespread use of text books, primary sources or an IT resource in education.

Impacts on creativity, culture and society

Impacts where the beneficiaries are individuals, groups of individuals, organisations or communities whose knowledge, behaviours, practices, rights or duties have been influenced.

- Generating new ways of thinking that influence creative practice.
- Creating, inspiring and supporting new forms of artistic, literary, linguistic, social, economic, religious, and other expression.

- Contributing to economic prosperity via the creative sector including publishing, music, theatre, museums and galleries, film and television, fashion, tourism, and computer games.
- Public or political debate has been shaped or informed; this may include activity that has challenged established norms, modes of thought or practices.
- Improved social welfare, equality, social inclusion; improved access to justice and other opportunities (including employment and education).
- Influential contributions to campaigns for social, economic political and/or legal change.
- Enhanced cultural understanding of issues and phenomena; shaping or informing public attitudes and values.
- Contributing to processes of commemoration, memorialisation and reconciliation.
- Contributing to a wider public understanding of basic standards of wellbeing and human rights conceptions.
- Contributing to widening public access to and participation in the political process

Impacts on health and welfare

Impacts where the beneficiaries are individuals and groups (human or animal) whose quality of life has been enhanced (or harm mitigated) or whose rights or interests have been protected or advocated.

- Development or adoption of new indicators of health and wellbeing.
- Development of policy and practice.
- Influence or shaping of relevant legislation.
- Influencing policy or practice leading to improved take-up or use of services.
- Improved provision or access to services.
- Development of ethical standards.

- Improved standards in training.
- New or improved public health interventions.
- Improved health and welfare outcomes.
- More effective dispute resolution.

Impacts on the environment

Impacts where the key beneficiaries are the natural, historic and/or built environment, together with societies, individuals or groups of individuals who benefit as a result.

- Specific changes in public awareness or behaviours relevant to the environment.
- Improved management or conservation of natural resources or environmental risk.
- Improved design or implementation of environmental policy or regulation.
- Changed conservation policy/practice or resource management practices.
- Changes in environmental or architectural design standards or general practice.
- New or improved methods of conservation of historic buildings and artefacts
- Influence on professional practice or codes.
- Improved provision or access to services.
- Development of ethical standards.

Impacts on economics, commerce and organisations

Impacts where the beneficiaries may include new or established businesses, or other types of organisation undertaking activities which create wealth.

- Contributing to innovation and entrepreneurial activity through the design and delivery of new products or services.
- Development of new or improved materials, products or processes.
- Improved effectiveness of workplace practices.
- Improvements in legal frameworks, regulatory environment or governance of business entities.
- Enhanced corporate social responsibility policies.
- More effective dispute resolution.

- Developing stimuli to tourism and contributing to the quality of the sustainable tourist experience.
- Improved provision or access to services.
- Development of ethical standards.

Impacts on practitioners and professional services

Impacts where the beneficiaries may include organisations or individuals involved in the development and/or delivery of professional services (heritage or otherwise) and ethics.

- Contributing to continuing personal and professional development; use of research findings in the conduct of professional work or practice.
- Helping professionals and organisations adapt to changing cultural values.
- Changed practice for specific groups (which may include cessation of certain practices shown to be ineffective by research).
- Influence on professional standards, guidelines or training.
- Development of resources to enhance professional practice.
- Influence on planning or management of services.
- Use of research findings by professional bodies to define best practice, formulate policy, or to lobby government or other stakeholders.
- Practitioner debate has been informed or stimulated by research findings.
- Research has challenged conventional wisdom, stimulating debate among stakeholders.
- Influencing the methods, ideas or ethics of any profession.
- Improved provision or access to services.
- Development of ethical standards.

Impacts on public policy, law and services

Impacts where the beneficiaries are usually government, public sector and charity organisations and societies, either as a whole or groups of individuals in society, through the

implementation or non-implementation of policies, systems or reforms.

- Informing or influencing practice or policy as a result of research on the nature and extent of religious, sexual, ethnic or linguistic discrimination.
- Legislative change, development of legal principle or effect on legal practice.
- Forms of regulation, dispute resolution or access to justice have been influenced.
- Shaping or influence on policy made by government, quasi-government bodies, Non-Governmental Organisations or private organisations.
- Changes to the delivery or form of any service for the public.
- Policy debate has been stimulated or informed by research evidence, which may have led to confirmation of policy, change in policy direction, implementation or withdrawal of policy.
- Effect on the quality, accessibility, cost-effectiveness or efficiency of public or business services.
- Impact on democratic participation.
- Influencing the work of Non-Governmental Organisations or commercial organisations.
- Improved public understanding of social issues.
- Enabling a challenge to conventional wisdom and ideas.
- Providing expert advice to governments, Non-Governmental Organisations, charities and the private sector in Europe and internationally, and thereby influencing policy and/or practice.
- Engaging with and mediating between Non-Governmental Organisations and charities in the UK and internationally to influence their activities, for example in relation to heritage preservation, health, education and the environment.

Examples of types of evidence

Quantitative indicators

- Publication and sales figures both nationally and internationally, audience or attendance figures (including demographic data where relevant), broadcasting data and other forms of media, download figures, or database and website hits over a sustained period.
- Funding from public or other charitable bodies.
- Evidence of use of education materials arising from the research (where they extend significantly beyond the submitting organisation).
- Tourism data, including audience figures and visitor numbers at exhibitions, events, performances.
- Growth of small businesses in the creative industries. Generation of new products. Sales figures and income generated. Employment data (for example, evidence of jobs created).
- Visitor or audience numbers, or number of participants.
- Measures of improved inclusion, welfare or equality.
- Quantitative data, for example, relating to cost-effectiveness or organisational performance.

Critiques or citations in users' documents

- Citations in reviews outside academic literature. Independent citations in the media, including in online documents. Reviews, blogs and postings. Programme, exhibition or catalogue notes. Prizes. Translations. Recorded feedback.
- Inclusion in teaching materials or teaching bibliographies. Replication of work in structure of courses.
- Evidence of uptake of research in documents produced by public or commercial bodies; citations in policy documents and reviews, or other published reports on policy debates.
- Incorporation in training materials.

Public Engagement

- Information about the number and profile of people engaged and types of audience.

Follow-up activities or media coverage.
Evidence of sales, downloads of linked resources or access to web content.

- Descriptions of the social, cultural or other significance of the research insights with which the public have engaged. Evaluation data. User feedback or testimony. Critical external reviews of the engagement activity. Evidence of third party involvement, for example how collaborators have modified their practices, contributions (financial or in-kind) by third parties to enhance services or support for the public, or evidence of funds from third parties to enhance or extend the engagement activity. Evidence of sustainability, through, for example, a sustained or ongoing engagement with a group, a significant increase in participation in events or programmes, continuing sales, downloads, or use of resources.
- Parliamentary or other democratic debate.

Policy engagements

- Evidence of influence on a debate in public policy and practice through membership of or distinctive contributions to expert panels and policy committees or advice to government (at local, national or international level).
- Formal partnership agreements or research collaboration with major institutions, NGOs and public bodies. Consultancies to public or other bodies that utilise research expertise.

- Evidence of engagement with campaign and pressure groups and other civil organisations (including membership and activities of those organisations and campaigns) as a result of research.
- Parliamentary or other democratic debate.
- Changes to professional standards and behaviour.
- Documented evidence of influence on guidelines, legislation, regulation, policy or standards.
- Documented change to professional standards or behaviour.

Independent testimony

- Acknowledgements in annual reports or other publications of NGOs, charities and other civil society organisations. Testimony of experts or users who can attest to the reach and/or significance of impact. Third-party evidence of changed policies, practices, processes, strategies.
- Independent documentary evidence of links between research and claimed impact(s).

Formal evaluations

- Professional evaluations of exhibitions, performances or other outputs. Formal peer reviews of funded impact-relevant research. Studies on the social return on investment.
- Satisfaction measures (for example, with services).

