Sawmills of the World: Understanding and assessing their World Heritage potential

10. Nominating and Managing industrial World Heritage Sites

Paul Mahoney¹

¹ Department of Conservation, New Zealand

Session description Sawmills of the World

Understanding and assessing their World Heritage potential

Paul Mahoney, Department of Conservation, New Zealand

For TICCIH, Kiruna, Sweden, 2025

Problem Statement

Globally, the heritage of sawmills is substantially underrepresented relative to the economic importance of this industry. One factor is the lack of published guidance to help understand sawmill technology and assess heritage significance. This paper provides an initial knowledge foundation to encourage more sawmill heritage projects to happen. The focus is World Heritage potential but the scientific method applies to any site.

Global Technology

Globally three sawmill 'design camps' predominated: North American; British; and European. The countries involved exported globally sawmill machinery, including complete sawmills. Some recipient countries copied these designs and produced improved local variants with considerable expertise. Certain design concepts predominate around the world enabling generalised models of sawing machines and material flow plans.

Sawmill Operations

A generalised global model is offered for how sawmills work. Exceptions are sufficiently rare as to not devalue the model and some exceptions may produce valuable insights. Seventeen important sawmill physical elements are: Fig-1 add

The relationship of these elements can be depicted in various plan formats:

- Flow plan of wood through the mill
- Machinery plan of mechanical elements
- Site plan of the location of elements

Principal Saw Types

Three saw types predominate in global sawmills. The paper explains these types and variants:

- Strip saw
- Circular saw
- Band saw

Wood processing

'Sawmills & sawn timber' are a subset of the higher-level category 'wood processing & forest products' that includes:

· Plywood· Chip board· Paper· Cardboard

· Tannin· Resin· Poles, posts· Matches

The scientific methodology within this paper can be used to understand the World Heritage potential of all these forest product industries. An aim of this paper is to enable the preservation of important sawmill and wood processing heritage.

Figure-1: Sawmill physical elements

Tigare 1. Sawrinii priysical elements		
Key flow elements	Supplementary elements	Support elements
Log transport	Building	Power source
Log inventory	Log carriage	Drive system
Saw #1	Sawn product conveyors	Saw sharpening
Saw #2	Grading	Waste wood disposal
Saw #3	Dressing	Sawdust disposal
Sawn timber inventory	Drying	Employee accommodation
Sawn timber transport		

Shifting the narrative of OUV for industrial sites of everyday life

10. Nominating and Managing industrial World Heritage Sites

Yiping Dong¹

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Session description

How can the industrial site be evaluated from the perspective of everyday life?

This proposed session is dedicated to discussing how to construct the values and the narratives of the industrial production sites from the perspective of everyday life, such as the porcelain kilns or brewery sites. These sites have a long history, from the hand-craft period to the mechanical manufactory mass production, and have always been rooted in a particular living community.

Recently, there has been increasing interest in local governments' nomination of porcelain sites or brewery sites as potential industrial heritage sites, either from the significance of the historical level, or fine arts production, or global trading perspective. These industrial sites, including the production parts and the community for the productions, are deeply connected with our everyday lives, and the production has impacted the settlements for the laborers and the related built environment. For example, the town of Jingdezhen is a historical porcelain center from the eleventh century. It continues to keep production till now, which has been on the Chinese Nomination List waiting list. The recent discussion about the OUV of this site is focused on whether it should be nominated as the "Cultural Landscape," "series heritage," or the concept of "industrial heritage."

This session invites a discussion about the nomination of industrial sites, which is closely shaped by the necessity of everyday life. Also, the sites have a broader impact on the community's everyday life as well, such as porcelain industrial sites or other potential sites connected with everyday life.

Community and Arts to Approach the Cultural Palimpsest of Global Industrial Heritage.

11. Open Themes

Guilherme Pozzer¹, Maria Esperanza Rock Núñez²

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Session description

Colonialism has shaped the economies, subjectivities, and imaginations of colonised peoples through the exploitation of labour, extraction of natural resources, and imposition of technologies, beliefs, cultures, and aesthetics. In contrast, decolonisation proposes epistemological shifts, seeking forms of expression alien to the myth of colonial origin. Recent decolonial approaches seek to dismantle these categories and concepts that structure the realities of those formerly colonised.

Decolonising industrial heritage requires rethinking how we share and reconstruct memory, making methodology a means of exchange. This questions our tools and the role of researchers, highlighting the urgency of adopting innovative methodologies such as participatory mapping, digital storytelling, and artistic practices to focus on the voices, perspectives, experiences, and artwork of communities historically excluded from processes of memory, history, and heritage making.

This challenge goes beyond a methodological review: it implies building bridges of knowledge that integrate the symbolic, the material, and the sensible. Understanding the meanings associated with industrial heritage requires a deep engagement with diverse contexts, people, history, beliefs, memories, cultures, and places.

We seek to transcend political, socio-economic, and territorial limitations, promoting a humanising vision of deindustrialisation as a source of empowerment and symbiotic collaboration. This means actively involving communities in the research process, recognising their expertise, and co-creating new understandings of industrial heritage. This requires a shift away from top-down knowledge creation, towards a model where knowledge is generated by and for citizens. As a palimpsest, where each contribution overlaps without erasing previous ones, knowledge is built through the multiple layers of memory embedded in industrial heritage to create a more nuanced and inclusive understanding of the past and present, and to co-design the future.

This session invites participants to share their experiences and insights, contributing to a collective effort to decolonise industrial heritage and promote more inclusive and equitable practices.

Gas-working the future: Challenges

11. Open Themes

Barbara Berger¹ , *Jouni Kärki*² , *Nicholas Invernizzi*³ , *Althea Barton*⁴ , *Eva Eliasson*⁵ , *Marcello Groß*⁶

- ¹ TICCIH gasworks group + Berger Industriekultur und Architektur GmbH, Zurich
- ² TICCIH gasworks group + Suvilahti Cultural Center, Helsinki
- ³ TICCIH gasworks group + Berkely Group, London
- ⁴ TICCIH gasworks group + New Hampshire Preservation Alliance
- ⁵ TICCIH gasworks group + CA Fastigheter AB, Stockholm
- ⁶ TICCIH gasworks group + Visiodrom, Wuppertal

Session description

Long before the structures of gasholders transformed the cityscapes, it was the gaslight that revolutionized daily life in the cities at the beginning of the 19th century: Public gas illumination was introduced for the first time in London towards the end of 1813.

Gasholders are technical buildings constructed to store locally produced coal gas, used for lighting in the 19^{th} and early 20^{th} centuries. These emerging iron structures represented a new kind of industrial architecture and became a symbol for the gas industry.

In the 1960s coal gas was gradually replaced by natural gas, and new methods of storage were developed. Today, the surviving historic gasholders are industrial relics – many have already been demolished – or are part of steelworks that produce gas as a by-product. Unlike the former gasworks, gasholders at steelworks are still in operation, with their building technology updated to the current state of the art – mostly using welded rather than riveted structures.

Beyond their historical significance, the remaining gasholders should be recognized as testimonials of industrial and engineering history, as monuments, as landmarks with architectural potential for conversion rather than as candidates for demolition.

Historic gasholders are often situated within large, inaccessible gasworks sites. The entire ensemble of buildings is usually derelict, and the ground is contaminated due to the coal gas manufacturing process. Therefore, any project involving these structures requires thorough investigation, not only for the future use.

This session aims to discuss current challenges of gasholder conversions and to highlight outstanding examples of reuse and refurbishment, in order to preserve these industrial monuments for further generations.

Contributions:

The gasholder as a building type (Berger); Gasworks Suvilahti (Kärki); Gasworks Stockholm (Eliasson); Visiodrom Wuppertal (Emde); Gasholder Concord-New Hampshire (Barton); Challenges of Gasworks Redevelopment (Invernizzi).



How did industry become heritage? A multi-scale approach to analyse the industrial heritage process

11. Open Themes

Florence HACHEZ-LEROY¹

¹ University of Artois, CREHS

Session description

Historical research has made a significant contribution to our understanding of industry, enabling the identification and construction of industrial heritage. Historically, these two domains were distinct, with history providing a foundation for heritage projects. In recent years, a new trend has emerged, with historical PhD theses examining industrial heritage as a process of social construction.

The cases show how awareness of their heritage value grew slowly and faced obstacles. Different scales are addressed: transnational, European, city-level and local.

Chair: F. Hachez-Leroy, CREHS/Univ. of Artois. Discutant: L. K. Morisset, UQAM

• Arthur Mettetal, PhD EHESS, The Orient-Express: A Transnational Corporate Heritage

The history of the Orient-Express shows how a brand can become a heritage object within a company strategy. In the 21st century, the property that makes up this cultural heritage provides a new way to understand the heritage of this famous train.

• YonnAh Kwon, Architect, CREHS/Univ. of Artois, The reconversion of industrial sites between France and the UK: a comparative approach

Factory conversion initiatives have caused different reactions in the scientific community that studies industrial heritage. By examining published articles in leading French and British journals dedicated to industrial archaeology, it is possible to discern this evolving phenomenon.

• Seynabou Sall, CREHS/Univ.of Artois, What place for industrial heritage in Saint Louis?

In 2000, the Island of Saint Louis (Senegal) was named a World Heritage Site. Its economy and colonial heritage were well documented. 25 years later, we ask how industrial heritage was considered and what its current status is.

• Louis Teyssedou, CREHS/Univ. of Artois, The complex construction of Cosserat velvet heritage

In the 19th and 20th centuries, the Cosserat velvet company was important in Amiens. After WW2, the company's know-how and production were seen as having heritage value, but half a century later, its disappearance raises questions.

Industrial Feeding and Feeding Industry: Food Infrastructure, from Production to Plate

11. Open Themes

Philip Carstairs¹, Leonor Medeiros²

- ¹ University of Leicester, A&O Shearman, UK
- ² NOVA FCSH, Lisboa

Session description

Industrialization brought not only changes in landscapes and economies but also profound transformations in food practices. Industrial projects would never have been practical without providing food for the workforce, and food often needs to be made on an industrial scale to accommodate a growing population employed in industry. How was the food produced and where? What sort of buildings were used to sell, prepare, serve and consume food it? How did the raw materials get to the kitchen? What sort of food did the industrialist think was fit for their employees? How did the requirement of feeding the workforce affect the culinary culture and foodways of the local community and vice versa? What are the challenges in locating understanding, interpreting and preserving the culinary heritage of industrial food?

This session aims to explore the production and consumption of food after the industrial revolution, including how large industrial projects relied on large-scale food production to sustain their workforce, or how the peripheries or unemployed members of these growing communities had access to food. We'll discuss the infrastructures created to prepare, sell, and consume food, and the solutions used in their absence, as well as the types of food chosen and considered of value. Also, these options and needs influenced the culinary culture of local communities, as well as their materiality and architecture. We are interested in papers addressing these topics or contributing to new perspectives on how to address the feeding of the growing and changing working communities.



Promoting Industrial Heritage Sites Through Short-Term Study Abroad Programs

11. Open Themes

Rebecca Jestice¹, Aruna Bharati¹, Ayman Husain¹

¹ Earlham College

Session description

This session proposes short-term study abroad program leaders as a target audience for programming to increase visitation, interest and support for industrial heritage sites and the fields of industrial heritage and industrial heritage tourism.

According to the Institute for International Education Open Doors Report, thirty to forty percent of US college students participated in a short-term study abroad program over the past decade. While opting for short-term study abroad programs, younger generations are also interested in understanding the connections between different sectors and their impact on society. Additionally, younger visitors increasingly seek tourism experiences that are educational and meaningful rather than purely extractive transactions for the host country.

The heritage tourism literature offers rich discussion on issues such as representation, audience engagement, and the social changes—both positive and negative—that heritage tourism can instigate. However, at many industrial heritage sites themselves it can be difficult to engage in these discussions beyond a tour's proscribed information, especially for groups from abroad. Finding additional links to connected tours or sites that share this information can be difficult, requiring hours of searching and luck for program leaders.

Given the rich scholarly and practical discussion about societal issues and business impact, having these discussions "in the field" would benefit students across multiple disciplines including business, public policy, environmental sustainability, and urban development and planning.

We will present our experiences and research on offerings available in the Ruhr region in Germany for short-term study abroad trips and propose developing educational networks for program leaders, similar to the Theme and Regional Routes in the ERIH.

Future memories from the deep. Adaptive Planning for Urban Resilience

2. Heritage in Motion in Time and Space

Virginia Sellari¹, Susanna Vissani¹

¹ Politecnico di Milano

Session description

Cities increasingly reveal their temporary and provisional nature, unable to keep up with the constant and rapid changes of external forces. The inborn rigidity of the built environment often clashes with the unpredictability of numerous variables linked to economic, climatic, and technological factors, leading to sudden or slow "shocks" that push people to move and prompting reflections on the meanings of identity, memory, and "spatial belonging." In this complex and ever-changing condition, how can tangible and intangible heritage find its new place? How can urban designers interpret this memory to keep the heritage alive?

The contribution attempts to investigate this issue through a speculative urban design project for the city of Kiruna where the iron mine expansion demands for the relocation of its inhabitants. Kiruna's economy, driven by mining, tourism, and scientific research, has shaped its social and cultural fabric fostering a way of living in a sort of "temporary permanence". The city's diverse population—including guest workers, tourists, and the indigenous nomadic Sami — gives a representation of this milieu as a fluid, smooth, and borderless environment, in perpetual motion in time and space.

This "nomadic attitude" together with the specific climate conditions lead the project towards a vision for an adaptive and resilient city; an isotropic organism open to future unpredictable events and able to shift the paradigms of the traditional "figures of speech" of cities. The project embeds and translates the "temporary soul" of this place into a spatial design able to stand the test of time.

The case of Kiruna exemplifies how economic interests can disrupt the balance between a city's environment and community memory. The contribution explores how urban design can serve as a critical tool in addressing this challenge, offering a potential and innovative solution for preserving heritage in the face of inevitable transformation.



Industrial heritage and modern business-building sustainable collaboration in the Arctic and beyond

2. Heritage in Motion in Time and Space

Per-Olof Grönberg¹, Linda Lindroos²

- ¹ Luleå University of Technology
- ² Centria University of Applied Sciences

Session description

The Gulf of Bothnia region and the Fennoscandian Arctic has a rich and diverse industrial and maritime heritage, linking the past, the present, and the future. The industrial activities of this area are deeply rooted in history, offering today's businesses and municipalities a significant resource for building a sustainable future. There is potential for industrial heritage actors and businesses to support each other and find connections to build stronger brands and improve the region's attractiveness.

This session discusses the results of the ongoing EU-project Bothnia Business Heritage, with practical examples and models that can be applied in different fields, opening up new opportunities for cooperation between cultural heritage and business. It is a chance to understand how the past and the present can come together to build a sustainable and successful future.

The session invites contributions on similar topics, such as:

- 1. What kind of collaboration does the business sector expect from cultural heritage actors? How do cultural heritage actors currently meet these needs?
- 2. Building sustainable and effective networks between cultural heritage actors and other stakeholders.
- 3. Is it appropriate to commercialize and sell maritime and industrial heritage, and how can it be done responsibly?

Nordic-Baltic industrial heritage in motion

2. Heritage in Motion in Time and Space

Anders Houltz¹, *Maths Isacson*², *Anita Antenišķe*³, *Eva Dahlström Rittsél*⁴, *Marija Drėmaitė*⁵, *Caspar Jørgensen*⁶, *Henry Kuningas*⁷

- ¹ Centre for Business History, Stockholm
- ² Dept. of Economic History, Uppsala university, Uppsala
- ³ Institute of Architecture and Design, Riga Technical University, Riga
- ⁴ Swedish National Heritage Board, Stockholm
- ⁵ Faculty of History, Vilnius University, Vilnius
- ⁶ Agency for Culture and Palaces, Copenhagen
- ⁷ Department of Heritage Protection and Conservation, Estonian Academy of Arts, Tallinn

Session description

Despite national differences, the same bird's eye view curve for industrial heritage seems to apply in the Nordic and Baltic countries. After decades of increased interest during a period of globalization and deindustrialization, we have reached a stage of maintenance and management rather than development, with local, regional and national actors and funds. When you look closer, however, the picture of each country becomes more complex and characterized by significant historical contexts.

This thematic session aims to present and compare the development of industrial heritage management in seven Nordic and Baltic countries over the last 50 years. Which historical factors and relevant groups have been decisive for the emergence and development of the public and institutional industrial heritage in each country? What were the results of decades of heritage formation, national listing and protection initiatives in each country?

Presently, new meanings and new challenges arise due to geopolitical tensions and antiglobalization on the one hand, and an urgent need for industrial green transition in response to the global climate change on the other. Taking this situation into account, how can industrial heritage gain new relevance in today's societies on both sides of the Baltic Sea?

The session presents the results of the transnational and transdisciplinary research project Nordic Industrial Heritage Culture in the 2020s.

Railway Heritage in Motion (session)

2. Heritage in Motion in Time and Space

Günter Dinhobl¹, Toni Häfliger²

- ¹ TICCIH Austria
- ² ICOMOS Switzerland

Session description

Railways moves and Railway Heritage is on the move. Since railways are listed as UNESCO-World Heritage sites the discussions, and experiences on Railway Heritage became multidimensional. "What makes a railway landscape or location" worth to become a Heritage was asked by Anthony Coulls in 1999 - this is still the most important question, not only for becoming a heritage but also to be a heritage: recent demands like climate change and sustainable development form the basis to foster railway transport as most eco-friendly land transport mode. This result in a dynamic development of the railway system and "continuity through change" (Coulls 1999) was not only the past of railways, but will be their future. Railways are changed and adopted to these demands of today. What makes a historical substance of railway items in times of continuous changes?

The session "Railway Heritage in Motion" deals with these questions by presenting different perspectives on this area of railway heritage. The focus will be on the challenges of being a Railway Heritage: not only items wear out and are replaced, also technical standards and legal framework changes and has impacts on the design of railways, both of the railway infrastructure and the railway vehicles. The papers will provide insights from the identification of Railway Heritage, its inventorization, up to the maintenance methods and its limits how to remain as heritage:

HÄFLIGER Toni: Change as continuity in railway systems. On the current state of railway monument preservation

SCHALLOW-GROENE Bärbel: What does the railway bear witness to? Challenges and new approaches to a stock-specific inventory of line contexts

DINHOBL Günter: Railway vehicle collections: The Austrian 'Bundessammlung' and international comparison

BAUMANN Karl: Renewal of bridges and tunnels on the Rhaetian Railway

OGLETHORPE Miles: Firth of Forth bridge maintenance

VIKLUND Roine: Railway Heritage in Sweden and its challenges

Versus new frontiers of valorization of infrastructure heritage

2. Heritage in Motion in Time and Space

Francesco Antoniol¹

¹ Studio Associato Virginia

Session description

Marking the 50th anniversary of UNECE's formal establishment of the European road numbering system, this session invites contributions that explore the historical, technological, and sociological evolution of European road infrastructure. This includes the primary international E-road network and local routes, which are vital to the broader socioeconomic fabric of Europe. While infrastructure is a key element of European history, public awareness of its significance is waning, even though iconic industrial engineering monuments still stand across Europe, symbolizing past achievements. One primary focus is on understanding these structures, not just as engineering projects, but as artifacts of historical, economic, and cultural importance. The recognition of their value goes beyond the mere construction; it encompasses the ingenuity of design, material choices, and societal impacts over time. These roads and structures are part of the collective European identity, reflecting both tangible and intangible heritage. However, the focus today is shifting from creating new infrastructure to maintaining and adapting existing ones. This modern approach raises several challenges: understanding the properties of older materials, ensuring sustainable restorations, and possibly repurposing old structures for environmentally friendly uses. Additionally, preserving the memory of obsolete or demolished infrastructures is important, with virtual reconstructions serving to keep their legacy alive.

The session will thus address various dimensions of European road infrastructure: historical, economic, sociological, and practical aspects of maintenance and heritage conservation. It will also consider the promotion and rediscovery of these routes, emphasizing the value of physical connections like bridges, tunnels, and service stations. As freedom of movement and cross-national connections face uncertainties, this gathering will reflect on the importance of preserving and valuing Europe's road networks and the cultural ties they foster.

Arctic Mining Towns and Regions in Transition

3. Industrial Heritage and a Sustainable Future

Dag Avango¹, *Ulrich Schildberg*², Roine Viklund¹

- ¹ Luleå University of Technology
- ² Ruhr-Universität Bochum

Session description

The global demand for mineral resources has been rising over the last decades, driven by economic growth as well as policies and profit opportunities in the context of a green transition. Consequently, new mining projects are being started in parts of the world that are rich in minerals and where societal conditions seem favourable. Several hot-spots for this development are located in the Arctic. The development there are ambivalent however: On the one hand, mining of base metals and strategic metals is expanding, for example in northernmost Fennoscandinavia. On the other hand, the mining of resources such as coal is being phased out, giving a reminder on the important fact that no mining operations lasts forever. The new mines of the present will eventually be closed in the future, which requires strategies for how to deal with legacies of mining in a responsible way. The closure of mines in regions such as the Arctic brings challenges, because of large distances, vulnerable environments and affected local communities. How can communities dependent on mining succeed in economic transition? How can social and environmental justice be achieved in post-mining transitions? How can legacies of past mining operations be dealt with?

The Arctic region holds many examples on the challenges of transition, ranging from attempts to attain socio-cultural justice, remediation of environments transformed by mining, re-use and re-purposing of former mines and buildings, and the heritagization of former mining communities. Research on such transitions in past and the present is important for supporting well informed decision making regarding mineral extraction in a region not only subject to growing extractive industries, but also to climate change and growing geo-political tensions.

This session invites contributions on the themes outlined in the above, with a focus on the Arctic region or comparing with the Arctic region.

Co-Creating Futures: Community-Driven Conservation&Adaptive Reuse in Industrial Heritage Landscapes

3. Industrial Heritage and a Sustainable Future

Lea Brönner 1 , *Mareike Herold* 1

¹ IHM - Institute for Heritage Management

Session description

The session, Co-Creating Futures: Community-Driven Conservation and Adaptive Reuse in Industrial Heritage Landscapes (working title), addresses transitional phases in which industrial sites become vulnerable to abandonment or demolition. Traditional preservation decisions often emphasize economic factors while overlooking the cultural significance of industrial sites, especially those not institutionally recognized as cultural monuments, despite their vital roles in regional identity and social cohesion. Drawing from diverse case studies, such as the German government-funded project 'Participatory documentation of the tangible and intangible mining culture and development perspectives for bioeconomy in the Lusatian lignite mining region', this session seeks to demonstrate how community-centered approaches can enrich decision-making and integrate industrial heritage into sustainable, shared futures by re-using industrial sites relevant to local identity for sustainable industries.

The relevance of this approach extends well beyond Lusatia, offering valuable insights for post-industrial regions globally as they navigate socio-economic and environmental shifts amid climate change. By linking industrial heritage with sustainable land-use, this session aims to expand conservation frameworks to include community perspectives and cultural narratives, thereby supporting a just transition for regions in a time of structural change, thus, creating a dynamic synergy between heritage conservation and innovative land use. To deepen insights, the session will draw from comparative cases in other post-industrial regions, addressing: (a) community-driven heritage identification, (b) sustainable reuse of industrial heritage, and (c) innovative approaches to regional identity preservation that foster a strong sense of local ownership. The discussion will focus on how the adaptive reuse of industrial sites can harmonize heritage conservation with sustainable development, aligning with UN sustainability goals while strengthening cultural identity and local resilience.

Cultural Sustainability and Technical Heritage at the Heart of Territories

3. Industrial Heritage and a Sustainable Future

Marina Gasnier¹, Pierre Lamard², Rojas Luc³, Aurélie Brayet⁴

- ¹ FEMTO-ST/RECITS (UMR 6174) (Researcher) Université de technologie de Belfort-Montbéliard (Professor)
- ² FEMTO-ST/RECITS (UMR 6174) (Researcher) Université de technologie de Belfort-Montbéliard (Professor Emeritus)
- ³ IHMC (Institut d'histoire moderne et contemporaine, Paris 1 Panthéon Sorbonne) (Associate Researcher)
- ⁴ FEMTO-ST/RECITS (UMR 6174) (Associate Researcher)

Session description

Understanding the future of tangible and intangible industrial and technological cultural heritage is fundamental for analyzing **cultural sustainability challenges** in the context of business, industry, and regional development. The objective of this session is not to propose a new definition of cultural sustainability but rather to **gain a deeper understanding of this concept within the context of technological democracy, with a particular focus on practical examples from industry. This session will consider these issues from two principal standpoints:**

- 1- **Integration of Cultural Heritages**: Integrating cultural heritage within industry and territories raises numerous questions concerning notions of commitment, common?, community, and decision-making processes. These processes are subject to constant (and sometimes contradictory) concerns regarding economic and territorial development. This prompts the question of how technology and industrial heritage can help companies and territories conceptualize, envision, and actualize a sustainable future.
- 2- **Requalification of Territories:** Converting industrial and technological heritage offers a valuable opportunity to address the multifaceted challenges of implementing cultural sustainability. The preservation of historic sites and the reuse of existing buildings highlight issues related to legislation that does not align with the characteristics of older structures and a lack of knowledge about traditional materials, particularly in terms of their mechanical strength. What strategies might be employed to address these shortcomings, given the imperative to densify areas through the reuse of existing buildings? How can we preserve the history of old building techniques and principles while contributing to regional development?

These are just some of the many paradoxes of cultural sustainability. An **international** and multidisciplinary approach is essential to identify the most effective practices and understand the diversity of stakeholders involved.

Communications will be accepted in English or French.

How can tangible industrial heritage conservation relate to today's big world themes?

3. Industrial Heritage and a Sustainable Future

PD Dr. Roman Hillmann¹

¹ Geman Mining-Museum Bochum and University of Stuttgart

Session description

The sheer quantity of today's worldwide important themes makes it necessary to reflect our responsibilities and how themes may best be addressed. There are themes of industrial history and its involvement into extinction of species, to climate change and to colonialization (e.g. latex for tires was strongly linked to colonialization). It leads to questions like: How can we structure this range of serious issues for future activities in our field? What does the community of practice of industrial heritage conservation need to know? How to de-colonialize our thinking and research?

- What themes to address, what themes to leave out?
- What kind of research do we need?
- What actions in which formats do we want?

The session chair suggests three sub-themes to discuss the questions:

- 1. Industrial Heritage offers tangible history to show. It is huge, rusty and complex. How can we use visits to it to bring in aspects of today's responsibilities for climate change and colonialization? What do we get out of the tangible industrial heritage's concreteness to bridge between today's themes and a sustainable and aware future?
- 2. Technologies for the conservation of industrial heritage: How can they make conservation understandable for society? How can conservation be a model for repair and re-use in architecture and production?
- 3. Traditional overproduction and overconsumption as industrial mechanisms What ways are there to talk about future sufficiency in consumption in a kind of education for sustainability in Museums of industry and in historic plants?

Conservation specialists have to position in today's conflicts and tendencies. It is important to adopt a level-headed attitude in debates and base it on the concreteness of industrial heritage tangible objects and conservation ethics. The session participants are thus interested in an interlink of its three main themes to other parts of the conference.



Industrial Heritage as a Catalyst for Sustainable Education

3. Industrial Heritage and a Sustainable Future

Chris Whitman¹, Lui (Radium) Tam¹

¹ Welsh School of Architecture, Cardiff University

Session description

Industrial heritage sites, especially those linked to historic carbon extraction or carbon intensive industries, provide unique educational opportunities for both structured and unstructured learning as we seek to confront the climate and ecological emergencies and broader aspects of sustainable development. These opportunities may be actively explored in formal and informal education, across all levels and ages, utilising both traditional and experimental pedagogical and interpretation methods. Equally, the potential for imaginative adaptive reuse can stimulate creative ideas for sustainable futures, whilst the often-monumental structures can provide artistic inspiration. The persisting presence of industrial heritage within our everyday environments and collective memory also provides more subliminal lessons for society. The potential to focus the minds of current and future generations on the causes of anthropogenic climate change gives further impetus to the valorisation of these heritage sites. Meanwhile, the sacrifice and pride of associated local communities also deserve our attention to avoid exacerbating a sense of intergenerational betrayal and unjust attribution of carbon debts. Furthermore, industrial heritage often embodies contested or difficult memories and emotions of their associated communities. A rethinking and retelling of industrial heritage's stories have the potential to provide opportunities of life-long learning and healing, contributing to health and wellbeing. Regeneration of industrial heritage, if done well, can also promote the economic wellbeing of the previously and currently disadvantaged communities of these former industrial sites. Industrial heritage sites offer an ideal nexus for the integration of humanities and arts into a debate dominated by physical science.

This session welcomes presentations on both case study examples, and theoretical papers that investigate both the opportunities and risks of the use of industrial heritage as a catalyst for sustainable education in its widest understanding. It is hoped that the outcomes can be further developed following the congress into an edited volume.

Key Considerations for Sustainable Industrial Heritage Management in Urban Areas

3. Industrial Heritage and a Sustainable Future

Yonca Erkan¹, Irem Ince Keller², Stefan Berger³, Clive Davis⁴, John Pendlebury⁴, Andrew Law⁴, Qiangian Qin⁴, Fiona Hamilton¹

- ¹ University of Antwerp
- ² University of Lausanne
- ³ Ruhr University Bochum
- ⁴ Newcastle University

Session description

Deindustrialization processes have led to significant social, economic, and environmental challenges, including population decrease, unemployment, and social distress due to structural change. While some industrial heritage sites have been left abandoned, others have been repurposed, regenerated, sold, or demolished (Mah, 2012). Today, many of these sites, which encompass historic, aesthetic, social, and technical values, remain deeply embedded in the urban fabric.

Adaptive reuse plays a significant role in conserving industrial heritage, allowing to preserve the legacy of these sites, while promoting sustainable urban development. However, the challenge lies in applying these preservation and management practices to smaller-scale industrial heritage sites. Industrial heritage is often vulnerable and at risk, with many sites lost due to a lack of awareness, documentation, recognition, or protection. These risks are exacerbated by changing economic conditions, negative perceptions, environmental challenges, the scale and complexity of these sites within urban areas. Repurposing industrial sites often risks losing their historical integrity and technological value, which can disconnect these sites from their communities. Engaging local communities in the reuse and management of industrial heritage has therefore become increasingly important.

This session explores the complexities of industrial heritage in urban areas and the issues specific to deindustrialization processes and social movements, memory and cultural appropriation, climate change and heritage ethics, legal dynamics and heritage justice in sustainable management practices.

Presentations:

Neoliberal policies as an actor in industrial heritage management, Yonca ERKAN Reimagining industrial heritage through creative placemaking: Unveiling the dynamics of law, space, and society, Irem Ince KELLER

The role of social movements in sustainable heritage management, Stefan BERGER A whole landscape approach to heritage management of extractive industry sites, Clive DAVIES, John PENDELBURY

Re-remembering Zhang Zhidong and industrial heritage in Wuhan, Andrew LAW, Qianqian QIN

Obsolescence as opportunity: A case for adaptive reuse of century-old industrial architecture, Fiona HAMILTON

Legacies of industry in land use conflicts

3. Industrial Heritage and a Sustainable Future

Dag Avango¹

¹ Luleå University of Technology

Session description

Heritagization of industry and legacies of industry has often been based on narratives about value creation and progress – economic growth, employment and welfare, architecture and settlement planning, basis for livelihoods. In recent decades however, academic scholars and practitioners engaged with industrial heritage have taken an increasing interest in a wider variation of experiences and understandings of histories and legacies of industry, reflected in sub-disciplines such as critical heritage studies, political ecology and environmental history. Placed in this broader trend, this session engages with one the consequences of large scale industrialization processes – conflicts and cooperation pertaining to land use. Building on papers presenting results and conclusions from two large research projects – "Cultural heritage and the legacies hydro-power in the Swedish north" and "Conflict or cooperation? – Learning from historical land use tensions in Arctic Sweden", the session deals with long term societal impacts of past industrialization processes, impacts that are often embedded in complex entanglements between built environments, landscapes and human experiences.

How can we build a deeper understanding of the environmental and societal challenges that space-demanding, natural resource oriented industries such as hydro-power, mineral extraction and forestry has generated? How can we include difficult experiences of industry in heritage making and narration of the history of industrial society? How can academic scholars and practitioners in the heritage sector contribute to truth, reconciliation and social sustainability in regions with a controversial industrial pasts and controversies industrializations in the present?

The session is open to papers relating to these themes and questions.

Our industrial heritage, a tool for developing a sustainable industry

3. Industrial Heritage and a Sustainable Future

Pierre Fluck¹, **Bartosz Walczak**², Bernard Durand¹, Pascale Nachez¹

¹ Université de Haute-Alsace, Mulhouse

Session description

The European built industrial heritage is now largely reinvested by tertiary activities (offices, administrations, culture, education, etc.) or small businesses. Buildings are very rarely reused for their primary industrial function, regardless of the sector of activity, considering that these are places that are often unsuitable for constantly evolving technologies, and are also heavily polluted with often prohibitive costs of compliance. In the 21st century, the textile industry is rediscovering ancient fibers like flax, hemp, etc. Historical buildings, machines, and processes are being renewed with AI and robotics, renewable energies like water, wind, etc. are being favored and better controlled. The desire to "relocalize" industries is becoming increasingly heard in Europe, both for economic reasons (developing markets while favoring more energy-efficient short circuits) and to satisfy the increasingly strong demand from consumer for "clean" and local products. These questions are particularly present in the textile sector, whose production has mainly moved outside Europe since the 2000s. A large number of former textile cities impacted by deindustrialization initially saw the disappearance of an unloved industry as an opportunity to develop tertiary sector activities.

The session will identify good practices with testimonies from different professions and sectors of activity that offer new sustainable solutions for historic industrial sites and to understand tangible and intangible industrial heritage as an opportunity for these transformations.

The speakers, archaeologists, architects, engineers, etc., will bring an interdisciplinary dynamic to this analysis.

The issue of post-industrial territories and districts will be explored in its contribution to achieving the objectives of the European Green Deal with a competitive and sustainable industry taking into account the action plan for the circular economy.

² Lodz University of Technology

Preserving Metal Objects: Sustainable Approaches in Monitoring and Materials Science

3. Industrial Heritage and a Sustainable Future

Nicole Lefort¹, Michael Prange²

- ¹ Georg Agricola University of Applied Sciences, Bochum
- ² Deutsches Bergbau-Museum Bochum

Session description

Objects of Industrial Heritage were never designed to last forever. The shutdown of industrial machines and plants often results in changed environmental conditions and increased maintenance efforts. For many of the metal-based objects, this creates significant conservation challenges: from individual components to entire systems, there are coated and uncoated objects with superficial to deep traces of corrosion and degradation.

Advances in monitoring technologies and materials science offer promising ways to make the conservation of these objects more efficient and environmentally friendly. Continuous condition monitoring is essential for effective preservation and enables targeted maintenance actions. Sensor- and data-driven structural health monitoring technologies can significantly enhance this process. Particularly for large-scale objects, a more automated analysis or the integration of artificial intelligence enables more rapid and precise evaluations of structural condition and damage patterns. The strategic use and development of materials testing methods helps to detect early damage, understand deterioration mechanisms and evaluate new coating systems and conservation methods.

When applied in a targeted and interdisciplinary way, monitoring technologies and materials science can make a significant contribution to a sustainable conservation and reuse of industrial heritage: from intelligent condition assessment to the development of environmentally compatible conservation solutions and energy-efficient practices.

The session will include individual presentations followed by a concluding discussion open to the audience.



Regenerating Hydroelectric Heritage: New Economic and Sustainable Opportunities for Communities

3. Industrial Heritage and a Sustainable Future

Knut Markhus¹

¹ Independent Cultural Advisor/TICCIH Norway

Session description

This session will explore the regeneration and enhancement of hydroelectric cultural heritage, focusing on its potential to drive sustainable economic development and territorial revitalization in regions affected by demographic decline, reduced tourism, and societal shifts. Hydroelectric heritage, often overlooked as both individual objects and larger technological systems, presents a valuable opportunity for renewal through innovative approaches that combine cultural preservation with sustainable tourism and economic diversification.

Beyond the immediate challenges posed by climate change—such as increased precipitation impacting hydropower infrastructure—the session will also examine how factors like centralization, urban expansion, and evolving energy policies affect the preservation of hydroelectric heritage. In regions where newer energy infrastructure is prioritized, historical sites risk abandonment, underfunding, and limited access to resources for maintenance and interpretation.

A key focus will be on how hydroelectric heritage can serve as a tool for sustainable regional development. Participants will explore how these sites can foster new economic opportunities through tourism and cultural initiatives. By integrating this heritage into tourism strategies, communities can revitalize local economies, transforming what might be seen as burdens into valuable assets.

Additionally, the session will highlight how hydroelectric heritage offers lessons on integrating infrastructure within landscapes, showing that knowledge of past approaches can inform the acceptance and design of new energy infrastructure in a sustainable manner. Learning from historical examples helps foster a deeper understanding of how renewable energy systems can coexist with cultural landscapes.

Participants will be encouraged to think broadly about the role of hydroelectric heritage, considering its socio-economic, political, and environmental implications, and explore strategies to position it as part of a sustainable and resilient future.

Key Themes:

- Climate change and hydropower heritage
- Socio-economic and political challenges
- Economic and tourism opportunities
- Heritage preservation and sustainable development
- Regional resilience and regeneration strategies

Targeting Windows of Opportunity: Cultural Heritage as a Strategic Resource in the Green Transition

3. Industrial Heritage and a Sustainable Future

Charlie Gullström¹, Jennie Sjöholm², Anders Houltz³, Tony Svensson⁴, Elin Backersten⁵, Dag Avango⁶, Benito Peix Geldart³

- ¹ Chalmers University of Technology
- ² Gothenburg University
- ³ Centre for Business History
- ⁴ Dalarna University
- ⁵ Sweco Sverige AB
- ⁶ Luelå Technical University

Session description

Chair: Charlie Gullström, Chalmers University of Technology

Participants: researchers from the on-going project "Goal Conflicts in the Green Transition: A Method Toolbox for Cultural Value Creation in Planning" representing Sweco, Luleå University of Technology, Gothenburg University, Centre for Business History, and project partners representing Kiruna municipality, local industry, and civil society associations.

Abstract:

The ongoing green transition creates hope and expectations but also urgent socio-cultural heritage challenges in many communities, not least in the north of Sweden. The coexistence of new industrial activities and cultural heritage values often generates conflicts that, potentially, could be turned into synergies with the help of dialogue, capacity-building, foresight and adequate methodological approaches in planning practices. This roundtable discusses the results from the 3-year transdisciplinary research collaboration "Goal conflicts in the green transition: A method toolbox for cultural value creation in planning". The project explores three Swedish municipalities where the green industrial transition is fueling rapid change: Borlänge, Älvsbyn and Kiruna. The project delivers a multidimensional method toolbox to support industry, municipality, consultants and civil society actors by integrating value-creating perspectives and cultural values in dialogue and planning. The roundtable will shed light on different perspectives that were raised in the project, voicing reflections from industrial, municipal/regional and civil society actors, as well as academia, who contributed to the project, hereby addressing the value of a toolbox that serves to prevent goal conflicts by better taking advantage of windows of opportunity in the planning for the built environment, its policy and practice.

The Energy Transition and Industrial Heritage: Design as a Restorative Path to a Sustainable World.

3. Industrial Heritage and a Sustainable Future

Timothy Scarlett¹

¹ Michigan Technological University

Session description

The energy transition is a once-in-a-century tranformation of global ecosociotechnical systems of extraction, generation, transmission, storage, and consumption. Some countries are decarbonizing, aiming at zero-carbon energy infrastructure to combat climate change. Market pressures from continuous improvement in distributed and irregular generation technologies are also overtaking the increasing costs of highly centralized legacy infrastructure, while the aged distribution infrastructure can not manage expanding demand. The transition is creating an opportunity to adapt existing best-practices in industrial heritage planning, governance, and management learned over 50 years of work. We can steer infrastucture changes into new ecosociotechnical energy systems that are inclusive, sustainable, resilient, and equitable because we incentivize restorative designs that understand and redress past inequities while emphasizing the cultural, economic, and ecological advantages of reuse and reinvestment in 'brownfield' instead of 'greenfield' projects. The papers in this session explore case place-based studies of varying scope and scale, where heritage-led projects attempted co-design, co-create, or co-produce solutions to infrastructures of extraction, production, distribution, or consumption of energy and the decomissioning of legacy systems.



Hidden Legacies: Indigenous Industrial Histories and Heritage

4. Who's Heritage - Inclusion or Exclusion?

Anna Varfolomeeva¹

¹ University of Oulu, Finland

Session description

This session focuses on the interrelations between industrial heritage and Indigenous identity. The damage that industrial activities may cause to Indigenous livelihoods and cultures has been widely discussed in academic literature (Annandale et al. 2021; Bainton et al. 2011; O'Faircheallaigh 2008). However, the involvement of Indigenous residents in industrial activities receives less scholarly attention, although shared industrial histories may also form a part of Indigenous identity. There are situations when such histories remain silenced as they do not go in line with the conceptualizations of Indigenous residents through the lens of "ecological nobility" as communities fixed in the past and resisting all kinds of industrial activities (Nadasdy 2005). In the cases when Indigenous industrial histories are neglected or overlooked, the nuanced and complex perspectives of Indigenous and local communities on resource development in their areas may also not be heard and taken into account. The session aims to explore the inclusion of Indigenous residents in industrial activities in the past and present, as well as the ways industries influence the articulations of Indigeneity in various circumstances. It will also discuss how Indigenous industrial histories are included or excluded from industrial heritage sites, such as museums, exhibitions, or ethnic theme parks. The session welcomes papers focusing on different regions and coming from various disciplinary perspectives, including but not limited to environmental history, cultural geography, cultural studies, heritage studies, and literary studies.



Industrial legacies beyond conventional artefacts: Exploring the interfaces of heritage and greening

4. Who's Heritage - Inclusion or Exclusion?

Erik Jönsson¹, Mattias Qviström²

- ¹ Department of Human Geography, Uppsala University, Uppsala
- ² Department of Urban and Rural Development, SLU Uppsala, Uppsala

Session description

Over the past decades, post-industrial sites have frequently been used to "green" cities and regions. This has contributed to an important reconceptualization of urban or regional nature. However, such work has mainly concerned core artefacts of the industry: open mines, railway lines and industrial ruins. In this session we therefore explore what and whose heritage comes into view if we broaden our search for industrial legacies beyond such artefacts? That Industrialization has been intertwined with both urbanization and with forging new multi-scalar connections urges us to considering as potential industrial heritages a range of seemingly non-industrial spaces produced by the rise of industrial production. What does it for example do to our understanding of industrial heritage to think of early urban parks or other recreational landscapes as such heritages? Can we go even beyond such sites and none-the-less merit from understanding sites as industrial legacies? What other places, processes or assemblages can be discerned, and to what extent does this open up for other ways of thinking and acting at the interface between attempts to "green" and to acknowledge an industrial heritage?

This session invites for innovative approaches to tracing industrial legacies beyond conventional artefacts, urging us to rethink the relation between greening and industrial heritage. We are interested in papers grappling with the conceptual and political implications of a broad understanding of industries' socio-material heritage. What could the conceptual and political result be of acknowledging post-industrial landscapes today not primarily understood as industrial heritages? How can studies of industrial heritage and memory in such a broadening be put in conversation with fields such as landscape studies, environmental history, resource geography, or political ecology? And how are heritages, as both symbolic designations and concrete material remains, made, remade and potentially obliterated within memory-political and heritage planning action?

Who's Missing? The Neglected Agents of Industrial Heritage

4. Who's Heritage - Inclusion or Exclusion?

Aijia Mu¹, Juntao Yang², Alexa Deanne Spiwak³

- ¹ University of Oulu
- ² Columbia University in the City of New York
- ³ University of Oslo

Session description

Heritage has been recognized as masculine by many scholars, especially in male-dominated and male-symbolized industrial heritage discourses. The agency of women in industrial heritage has been largely ignored, and the working groups that are inseparable from industrial heritage often lose their voices in the heritage-making process. Indigenous peoples and national minorities are also often silenced, despite having been displaced from their homes, leading to heightened tensions over land use. These marginalized groups are also often forced to bear the additional burden of industrial development and its decline. These embodied traumas have opened up a channel between the material agency of harmful industrial residues and chemical toxicity and the physical sensitivity/vulnerability of marginalized groups, thus allowing for the co-creation of spaces for contestation and negotiation, education and self-empowerment within the heritage-making process. Thus, as voiceless subjects hidden beneath industrial heritage, the absence of women, local communities, victims of chemical exposure and other groups and their complex relationships with industrial heritage deserve to become the focus of research.

This conference therefore provides an opportunity to shed light on those groups that have been omitted by official discourse but are closely related to the heritage-making process. Discussion questions can include, but not limited to: what kinds of groups and materials are ignored during the industrial history and industrial heritage management process? How can we, industrial archaeologists, expand upon this discourse under the official narrative? How can these groups participate in industrial heritage and advocate for their interests? We welcome multidisciplinary research and diverse methodological approaches, with a particular interest in studies worldwide to unveil discourses of inequality in industrial heritage.

Dystopian hybridism or pure utopia? Artisanal crafts and industrial manufacturing in the 21st c.

5. Post Industrial Heritage - For Whom?

Ana Sousa¹ , **Diana Felícia**²

- ¹ Faculty of Arts and Humanities Porto/ CITCEM
- ² CITCEM/ Faculty of Arts and Humanities Porto

Session description

The remnants of artisanal production in various industries, now obsolete or extinct, reflect the historical evolution of materiality throughout time. In today's post-industrial world, objects are shaped by a wide range of materials (metals, woods, ceramics, etc.) and techniques, many of which involve minimal human intervention and rely heavily on machinery.

Taste determines this interplay. During the 19th and 20th centuries, the creation of industrialized products was strongly associated with progress and modernity. Contemporaneity values different aesthetic qualities and lower costs. As a result, materials such as cast iron, which punctuated our cities' streets and buildings in the form of railings, lamps, and park benches, are now being replaced by aluminum pieces. The wood that assumed intricate shapes in the most diverse pieces of carpentry and furniture, is now substituted by agglomerates and plywood. The techniques of goldsmithing and silversmithing, such as chiseling or filigree, are at risk of disappearing due to the rapid substitution by mechanized processes.

Considering the current state of technical hybridity in many trades, this session aims to explore the following topics: the current state of traditional crafts; the uneven competition between artisanal production and modern technology; the adaptation to the constraints imposed by new materials; the pressing ecological concerns that dictate the non-use or rationalization of certain materials; and the future formal, technical, and aesthetic aspects of decorative and applied arts after the disappearance of the last artisans.

Discovery of the Remains of Japan's First Railway (Takanawa Embankment) and subsequent development

8. Heritage at Risk

TAKASHI ITOH 1 , TOSHITAKA MATSUURA 2 , TOSHIAKI YAMADA 3 , TSUGIO SHOJI 4 , YOSHIHIKO NAKAYAMA 5 , KEN AKIBA 3

- ¹ Industrial Heritage Information Centre
- ² TICCIH Japan
- ³ Japan Industrial Archaeological Society
- ⁴ Association for the Complete Preservation of Takanawa Embankment
- ⁵ OSAKA GAKUIN UNIVERSITY

Session description

A major redevelopment project is underway in the southern part of Tokyo, covering an area of 9.5 hectares in a rectangular shape. The area was used as the "former Shinagawa depot" and the project has started in 2019.

This presentation will tell the story of the discovery of the remains, and examine the significance of the international petition to preserve the remains.

In November 2020, the remains of Japan's first railway (Takanawa Embankment; 2.3 km running east-west along the coastline; completed in 1872) were discovered in the area.

Subsequent research revealed that it was one of the earliest sea embankments in the world, and the first autonomous railway in Asia, rather than a subordinate colonial railway. English engineers, including Morel, assisted with the project, but the civil engineering work was carried out by Japanese using traditional Japanese techniques such as masonry.

It was in the early stages of the redevelopment project that the developer, Japan Railway East, found the embankment but did not publicise the new discovery of the embankment. But it was spotted by a newspaper reporter commuting by train, who confirmed a stone wall in the distance and had his company's helicopter confirm it from the sky, and he soon wrote about the embankment and contributed to the newspaper.

Soon after, Japan received a petition to preserve the remains from Dr. Miles Oglethorpe, President of TICCIH, and a Heritage Alert from ICOMOS.

In this presentation we will report on subsequent developments and the significance of the TICCIH Petition for Preservation and the ICOMOS Heritage Alert.



Lights on Kiruna: a symbiosis between industrial heritage and urban development?

8. Heritage at Risk

Jennie Sjöholm¹, Charlie Gullström², Anders Houltz³, Elin Bäckersten⁴, Erica Välimaa⁴, Benito Peix Geldart³, Tony Svensson⁵, Dag Avango⁶

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- ² Chalmers University of Technology
- ³ Centre for Business History
- ⁴ Sweco
- ⁵ Dalarna University
- ⁶ Luleå University of Technology

Session description

Chair

Jennie Sjöholm, University of Gothenburg/Luleå University of Technology

Participants

Researchers from the on-going project "Lights on Kiruna: A window of opportunity for cocreation in urban development" representing Sweco, Luleå University of Technology, Centre for Business History, and project partners representing Kiruna municipality, local industry, and civil society associations.

Abstract

This roundtable invites to a discussion about the results from a year-long co-creation process relating to the role of industrial heritage in the urban development of Kiruna's new city centre. Focus will be on issues such as how industrial heritage can contribute to shaping attractive public spaces, methods to raise awareness of the significance of cultural heritage in planning processes, and approaches to involve local stakeholders beyond formal, regulated, consultations.

A starting point for the discussion will be the former mining area of the Tuolluvaara Mining Company (TGA), where characteristic brick buildings and hoisting towers serve as a reminder of the industrial past of the place. The location is adjacent to where the new Kiruna urban core is taking shape and contains many material and immaterial layers of a rich history, although the fate of the old structures becomes contested when the area is being claimed for new purposes.

In Kiruna's urban transformation, there has been a focus on the ambitions scheme to move some historic buildings, such as the church and a selection of other buildings, from the old city centre to the new. Less attention, however, has been paid to the on-site heritage already present. Therefore, there is a potential of socio-cultural value creating SLO (Social License to Operate) and co-creation between municipality, industry and civil society. Can traces of past activities and socio-cultural meeting places add qualities to the emerging "new" Kiruna?