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O L H A R E S



OTHER LANDSCAPES OF CULTURAL HERITAGE(S): history and politics

# OTHER LANDSCAPES OF CULTURAL HERITAGE(S): history and politics

Nuno Lopes  
Walter Rossa  
Miguel Bandeira Jerónimo  
(editors)

This book offers a heterogeneous enquiry into the historical contexts and policies that conditioned the emergence and institutionalisation of cultural heritage assets, focusing mostly on geographies shaped by Portuguese influence and using as an operational tool the concept of landscape. Assessing related discourses and practices, which reveal comparative dynamics, this volume deals with history as a basis for understanding the different and shared realities in each country and region, and politics (and policies) taken as a repertoire of action to tackle the problems and challenges associated with cultural heritage, that is, those identified and contested as such. The topics addressed by each chapter are diverse and crucial: contested heritage; social justice; heritage as performance; industrial colonialism; tourism and heritage; heritage management and preservation; conservation, heritage, and landscape.

The Patrimónios (Heritages) — UNESCO Chair on Intercultural Dialogue on the Heritage of Portuguese Influence — and the homonymous PhD course, promote integrated interdisciplinary cooperation and research about the assets that, from the point of view of active cultural heritage (architecture, arts, geography, history, landscape, urbanism), entail convergences in recognising the values common to the communities where Portuguese forms of presence have existed, or still exist. Its focus is not the latter but the variety of cultural outcomes it has generated in the world, recognising the role of the other, the co-constitution and multi-directional of North-South and South-South relations, the consequences of movements and processes of violent subjugation implicit in the phenomena of emigration and colonisation, as well as new or renewed forms of post-colonial domination.

O L H A R E S

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## Part One

### Chapter 5

#### HERITAGE-LED DEVELOPMENT — A SYSTEMIC APPROACH

Leonor Medeiros

##### Abstract

The Sustainable Development Goals show a new emphasis on cultural heritage and present an opportunity to review our framing of what development is and how it can be achieved. For the first time, heritage is specifically included in these efforts, on Goal 11's target, even if for several decades culture has been pointed out as a key element of sustainable development, namely seen as a 4<sup>th</sup> pillar. But the discussions on how heritage sites and entities can contribute to improve their communities still need to increase their impact on the mechanisms of planning and decision-making.

The concept of heritage-led development, of using cultural and natural legacies to promote growth and improvement, is particularly relevant in postindustrial areas. These areas, where industrial activity has ended or diminished significantly, are today one of the most pressing and problematic areas for development, especially if they are not located in or near urban centres. They present an urgent need to find ways to achieve the sustainable development of communities who feel "abandoned", left with the inherited social, economic and environmental consequences of their industrial past.

To address how heritage and its professionals could lead transition in these communities, the author proposes the framework of systems science, seeing the area as an organic organism, where the heritage elements can reinforce the parts of the system connected to social, economic and environmental aspects of sustainable development, allowing for an integrated and interdisciplinary vision of the messes we find in these places.

**Keywords:** *Sustainable Development; Industrial Heritage; Systems Science; Deindustrialization; Cultural Landscapes.*

## INTRODUCTION

In 2015, the United Nations established the Sustainable Development Goals as a new attempt at reaching worldwide sustainable development, based on the successes and the shortcomings of the Millennium Development Goals. For the first time, heritage is specifically included in these efforts, on Goal 11's target: "Strengthen efforts to protect and safeguard the world's cultural and natural heritage". Although the idea of culture was already included in the discussions on development for several decades, this new emphasis on cultural heritage is already pointed out as one of the greatest opportunities in our framing of what development is and how it can be achieved sustainably. The cultural sector has been for long arguing for culture as a 4<sup>th</sup> pillar of sustainable development, or as a binding agent for the other pillars, but the discussions on how heritage sites and entities can contribute to improve their communities haven't steadily reached the core mechanisms of planning and decision-making, threatening to turn into a missed opportunity and demanding our focus.

The concept of heritage-led development, of using cultural and natural legacies to promote the growth and improvement of a place, is particularly relevant in postindustrial areas. These towns and communities affected by deindustrialization, defined as places where the main economic activity, industrial in nature, has ended or diminished significantly, are today one of the most problematic areas for development, especially if they are not located in or near urban centres. The year of 2015 was also the date of the closing of the last deep coal mine in the UK, the Kellingley Colliery, symptomatic of the end of an era for the western world. And as these areas, industrial in character, transition from active to inactive, at a global scale and accelerated pace, they present an urgent need to find ways to achieve the sustainable development of communities who feel "abandoned", left with the inherited social, economic and environmental consequences of industrial production. When questioning how heritage — and especially this dark heritage, with mixed feelings towards its memory — could lead transition in these communities, and how the heritage experts could review their role, beyond researching and protecting, into actively promoting change,

we can find opportunities in the framework of systems science. By seeing the area as an organic organism, where the heritage elements can reinforce the parts of the system connected to social, economic and environmental aspects of sustainable development, it allows for an integrated and interdisciplinary vision of the messes we find in many of these places. This ultimately leads to a systemic approach to the areas in need of development, using heritage to ignite aspects of social, economic and environmental development, and promoting the active and transformative role of the archaeologist and heritage manager in addressing change.

### **HERITAGE AND DEVELOPMENT: FROM OPPOSITES TO PARTNERS**

Development is a concept loaded with multiple meanings; some are idealistic and positive — like the Sustainable Development Goals (UN 2015) with the notion of worldwide accessible education/ work/ health, and some are negative — like a community seeing a parking lot show up where their home/playground/school once stood.

Even if there's not one closed definition of development, since it may mean different things depending on the needs, goals and culture of the group using the concept (Schech and Haggis, 2000), for the purpose of this study we will consider that development, especially at post-industrial areas, means the removal from periphery and forgetfulness, from economic, social, and environmental problems, and the approximation to the best potential of a site and its people, (re)building a community and an identity. Ultimately, a place where people, environment, economy and culture thrive. And to achieve this kind of development at these areas, the process has much to gain if it is anchored in its heritage, seeing it beyond a tourism opportunity or a sanitized longing for a remote past, but as a tool or motor for thinking development "glocally".

Today there is already a wide consensus that heritage brings "a significant contribution to sustainable development" (UNESCO, 2005: 2), being both a driver and an enabler of it (UNESCO, 2016; ICOMOS, 2015; or IFACCA *et al.*, 2013), and being "an essential component of a successful society" (ICOMOS-UK, 2015). But, for long a time

during the 20th century (and still lingering in many projects today), the vision of development, and even of sustainable development, did not include culture or heritage, and was centred on economic issues, with sustainability meaning mostly just diminishing the negative impacts of development on the environment. Towards the end of the 20<sup>th</sup> century it was clear to some that development was not unlimited, that it could stop at any moment if badly managed, and that it was being done at the expense of damaging human and natural resources (WCED, 1987). Furthermore, its global scale could no longer be ignored, requiring a concerted effort of several nations to address the changes in the economy and the pollution at planet scale.

The idea of sustainable development derived more from the observance of the damage done to the natural environment than to any notion of loss of cultural heritage. Considering the concerns of the second half of the 20<sup>th</sup> century, industrialization was actually a threat to sustainable development and, if unchanged, would lead to surpassing “the limits to growth” (Reid, 1995). The phrase itself, “sustainable development” was introduced in 1980 by IUCN, of the UN Environmental Program, in the publication *World Conservation Strategy: Living Resource Conservation for Sustainable Development*, but it will be the better known *Brundtland Report* (WCED, 1987) that will spread the challenge of making development sustainable (Sachs, 2015). This report from the World Commission on Environment and Development states that sustainable development “meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). And even if the definition clearly included the idea of creating limits to development in order to achieve it, it was also generic enough to be open to interpretations. According to economist J. D. Sachs, “As an intellectual pursuit, sustainable development tries to make sense of the interactions of three complex systems: the world economy, the global society, and the Earth’s physical environment” (Sachs, 2015: 3), and is also a normative outlook of the world, defining goals. But it has mostly been a discussion of capital and environment, of dwindling natural resources and threatened nature. Ecosystems’ resilience, population levels, policies, or technology, are topics debated in this area as parts of the “wicked problem”, or mess, of sustainable development. The relations

between elements in this problem, be it availability of resources or level of development, are so varied, that there is no single solution or answer, with the results varying in every situation and not allowing for a single direction to achieve the sustainable development goal.

The recognition of the lack of a single answer or replicable solution has actually been a great achievement in the discussion of SD, that has risen in the early 1990s, when it became “increasingly fashionable to criticize “Western” development imperatives” with several anti or post development positions (Desai & Potter, 2013: 1). The question behind it was the questioning of “who defines development?”, against what was being seen as a replication of a western, white, or northern model of development that could actually not be meaningful to other cultures. There are indeed culturally specific definitions of what is sustainable, what is to be sustained (nature, way of life, other aspects?), or how needs are defined in different cultures, so who decides and on what basis are the decisions made? (Redclift, 2013).

Today, with the recently defined 2030 Agenda for Sustainable Development, culture is finally taking a more prominent role in the policies and actions targeted to promote SD. The SDGs aim to go to “the root causes of poverty”, covering the three dimensions of sustainable development: economic growth, social inclusion and environmental protection. This document brings a new and key element to SD, heritage, as:

it is the first time that the international development agenda refers to culture within the framework of Sustainable Development Goals related to education, sustainable cities, food security, the environment, economic growth, sustainable consumption and production patterns, peaceful and inclusive societies.<sup>1</sup>

Heritage has entered specifically the SDGs in its 11<sup>th</sup> Goal — *Make cities and human settlements inclusive, safe, resilient and sustainable*, with one target (11.4): *Strengthen efforts to protect and safeguard*

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<sup>1</sup> “Sustainable Development Goals for Culture on the 2030 Agenda”, in <http://en.unesco.org/sdgs/clt>, accessed 30.06.2017.

*the world's cultural and natural heritage*. It is to be evaluated through one indicator (11.4.1) focused on the economic investment in heritage sites. Even if it is a light presence in the middle of the 169 targets, it is also accompanied by several references throughout the document to the importance of culture in achieving sustainable development. Even though this is a small inclusion that does not respond to the calls that have been made for the past decade nor affirms culture as the 4th pillar of sustainable development, it is a mark of progress, and something that the heritage community can continue to build upon. Society, economy and environment are all connected in a web of cause and effect, and very hard to isolate. Culture also interacts with these pillars in the same way, but its recognition as a pillar can anchor new practices and approaches, from science to the arts, that can indeed make the concept of sustainable development work. The pillars of sustainable development, early defined in the Brundtland report (WCED, 1987), are a well-known depiction of what sustainable development is based on, the three big areas where action needs to be undertaken to achieve SD: economy, society and environment. Before this report, development was seen as being achieved through economic aspects, but it has grown to be seen as the result of the combined strength of social, economic and environmental aspects. These three pillars are hardly homogeneous and simple like an architectonic column, but they represent a crucial reality in SD: if one of the pillars is weak then the whole system is unstable, so they need to work jointly and balanced to support sustainable development.

Since culture was first proposed as a pillar to support sustainable development, many steps were taken to help identify and transmit the importance of including culture and heritage in policies and practices worldwide. It started as an area that was necessary to include when discussing the other 3 pillars and it is starting to gain a structure of its own. Culture is not the only 4<sup>th</sup> pillar that has been proposed for SD, from institutions (Spangenberg, 2002) to good governance (Sachs, 2015), but it has been fully supported by heritage organizations throughout the world, from ICOMOS to UNESCO, or even the members of the UCLG's Agenda 21 for Culture. As the SDGs of 2015 have shown, the work that has been done still needs to be reinforced to fully integrate heritage in the list of goals. It must therefore be helped by mechanisms

in practice that will help them fully integrate the development goals in 2030.

The idea of culture as a pillar of the SD model was also promoted by UNESCO and the United Nations Development Program [UNDP], stating in their Creative Economy Report of 2013 that “culture should be not just the fourth pillar but the central pillar” around which the other three stand (UNESCO & UNDP, 2013: 51), an idea that was being proposed since the beginning of the millennium and was fermenting years before that. An early example can be seen in the launching of the World Decade of Cultural Development (1988-1997), where UNESCO’s Director-General, Federico Mayor, stated that:

[...] the priorities, motivations and objectives of development must be found in culture. [...] From now on culture should be regarded as a direct source of inspiration for development, and in return, development should assign to culture a central role as a social regulator. (Mayor, 1988).

This perspective goes beyond the generalized tendency to see culture as a mere aid to economic development. The environmental and economic centred perspective of the Brundtland Report clearly stated that “We have the power to reconcile human affairs with natural laws and to thrive in the process. In this our cultural and spiritual heritages can reinforce our economic interests and survival imperatives” (WCED, 1987), but the current role of culture is seen today as more active and central than that, with a call “not to view it as an “add-on”” but as a participating, central aspect of development (UNESCO, 2013b: 5). Culture is varied and the concept itself shows its complex implications: development is culturally seen as modernization, as ‘the right culture’; we can’t understand the world without passing it through our own cultural lenses and that influences the way we conceptualize ideas such as development or heritage (Schech & Haggis, 2000). The way we interact with heritage, “the production of heritage” that takes place in the everyday contacts with its various dimensions, is increasingly on the foreground of how we see sustainable development today. This brings new potential opportunities to the way we use the values of heritage in our daily life, be it for tourism or education, memory



or transformation, re-use or preservation. But in many aspects there seems to be a lack of connection between the uses of heritage and the needs of the local communities. For example, during fieldwork in the mining town of Mina de São Domingos, in Portugal, when interviewing the local inhabitants about how they felt about the museum, they commented on how a yearlong exhibition made them use the site only once or twice per year, but what they really missed was the movies that used to happen in the building when the mine was still active and in its original use as a theatre. For a remote community, opportunities for entertainment are valued, and for an aged community infrastructure to support the elderly was also asked for, and both were missing while the past was partially frozen in a museum and the landscape decayed and changed.

## **DEVELOPMENT AT POST-INDUSTRIAL LANDSCAPES**

Industry is easily associated with economic development, but is rarely associated with sustainability, environmental quality or social justice, which are all basics of sustainable development. Sustainability was for some time a matter of environmental sustainability, of preserving ecosystems, helped by a strong movement that showed how the planet was increasingly dirty, ugly, polluted. The contrast of the two ideas was often shown by using images of industrial sites, with factories and chimneys tossing dark smoke, and dead fish in nearby rivers. In the case of now post-industrial areas, the legacies of industry are in themselves proof of its unsustainability, of its failure to succeed, an image (or stigma) that passes on to the spirit of place, making these areas “places of failure” (Russo & Linkon, 2003: 202).

Post-industrial areas are places where industrial activity, once the motor of the community, has ended or diminished significantly, leaving communities with inherited social, economic, environmental, and cultural legacies, which often constitute a weight more than a wealth. As pillars, these only maintain a structure of decay, limitations and shortcomings. These areas went through a process of deindustrialization that meant the closing of the factories and their supporting economic activities, the unemployment and devaluation of

the worker, or the decay of the landscape, amidst an environment of depression, "solastalgia" and pollution. In these cases what is needed is not an adaptation to change, but to change in order to survive.

The remaining communities not only face those expanding social, economic and environmental consequences, but are also increasingly more detached from a cultural legacy that is decaying further with every passing season. In these areas there is a complex and interrelated reality, made of the "interpenetration of economic, social and cultural lives" (Strangleman & Rhodes, 2014: 417), where development is greatly weighed down by the heavy legacies of industry. But the cultural element, its unique history and landscape, and the way that legacy is looked at and used, have the potential to propel its advance and therefore be the unifying element that leads to sustainable development. Also, if we look at these aspects from a heritage management perspective, many of the weaknesses can actually be seen as opportunities if we change the focus, like for example considering the scientific research around environmental problems, namely the acidic waters of metallic mines, as happens in Rio Tinto, Spain, or the remote location of many of these sites which has helped preserve much of the infrastructure and sense of place.

Identifying these issues is not enough to make a difference in the communities affected by this new stage of industry but is the first step for understanding the complexities faced when dealing with these sites and their people. I argue that the negative aspects of current post-industrial communities are not legacies of the industry that characterized them once, but legacies of the deindustrialization process, usually characterized by poor management of the infrastructure, of the social and political relations, and of the idea of legacy itself, as the company leaves. Furthermore, the deindustrialization discourse has long seen industry only as an economic problem and fails to see industry as part of a wider network of social, environmental, political, historical, cultural or international events that constitute the landscape of post-industrial communities.

These images and perspectives cause difficulties in the attempt to showcase that industry, now in the heritage format, can lead to sustainability without being completely sanitized, commodified and cleaned of "unpleasantness". When needing to unite industrial

heritage to the sustainability movement, are the culturally specific prejudices against the “industrial” — especially since it is the opposite image of “green” — damaging our efforts to establish a connection? Is industry only useful for providing words of caution and examples of how development shouldn’t be, or it can be used to move forward without needing to erase and/or forget the past? Several projects show how industrial areas can become important areas of cultural and economic revitalization, even become references for environmental education and recuperation, while continuing to offer scientific education, connection with communities, and appeal to outside visitors and investors. But many more have been destroyed, sold for scrap, or changed beyond recognition, representing a loss of the cultural, educational, memory, aesthetic and many other values that were anchored in the physical heritage elements.

The systematization of the process of deindustrialization under the SD paradigm of the 3 pillars of SD, has benefits in terms of putting the specificities of deindustrialization under a common set of designations that are already in use and can easily be agreed on. The analysis of deindustrialization under these pillars showed that these have many points of contact and mutual influence, making a social problem also an economic problem, and vice-versa, across all pillars. It became obvious that if these are to be the pillars of sustainable development in post-industrial areas, then they are currently broken and eroded, in need of profound work to be able to sustain thriving communities. But the analysis also shows that the cultural pillar appears to be the one with more ambivalent elements, elements that can easily be focused on the positive or the negative, pointing to the proposition that, more than being a 4th pillar, it can indeed be used to support and unify the other pillars, taking a lead on the development process (Medeiros, 2018).

The tendency to connect heritage and sustainability through tourism practices and building re-use remains common in the industrial heritage arena. The development of industrial heritage has often been connected to museums and tourism, and in the 1990s with the ideas of re-use and re-purposing. Tourism has also been a much-promoted avenue to give a new life to closed industrial sites, and even if good projects abound, one must be careful of the heritage discourse that

makes the ones responsible for the reinterpretation and reuse be privileged newcomers that rebuild the place to their own criteria. But industrial heritage needs to integrate the debate on sustainable development with solutions more creative than building re-use, beautification, or selective preservation of memories, while industrial archaeologists need to embrace their role in heritage to promote sustainable development of these sites in active need of solutions. Even if the interest in industrial sites and landscapes has grown, mostly since the 1980s, they offer big challenges in preservation, the biggest of them the pollution issues. Storm, in her recent book addressing what she calls these “scars” or “wounds” on the landscape, sees industrial landscapes as the “anti-landscape”, since they are so far, visually, from the typical bucolic ideals of landscape (Storm, 2014). Rehabilitation of these areas, usually called “brownfields”, is a large-scale investment that often is not compatible with the preservation of its historical or industrial character.

There is also awareness that there is more in the context of post-industrial sites than just the buildings, and that approaches to development need to go beyond the income of visitors, to include the maintenance of old ways of life and the preservation of the place’s identity. Today, as much as people want new and updated infrastructure, they “also, equally, want connections, tangible and associative, with the past within their landscapes. Creating connections is the challenge of new development and the social and cultural aspect of sustainability” (Fairclough, 2009: 126).

To promote and achieve heritage-led development, we need to work at the landscape scale, considering their diversity and contexts, the immaterial and the tangible aspects, the visible and the invisible dimensions. The recognition of landscapes as both a key physical area for the upkeep and well-being of human populations and as an operatory concept for research and development has increasingly been recognized for the past decades. Understanding the landscape as both an active element (which influences and shapes human culture) and a passive element (also being shaped and altered by human action), which continuously reflects the interactions between the natural and cultural elements, has helped to understand the complexity of human adaptation to the environment, in more nuanced and rich ways.

Archaeologists and heritage managers aim to address “managed change” because we know the landscape is constantly moving, inhabited and used, perceptibly or not. With post-industrial landscapes, those industrial landscapes brought by the Industrial Revolution that are now in decay, the idea of change is more than something to be managed, it is something to be actively put in motion. And as was shown before, development is increasingly more open to views that come from local communities, creating diversity in the approaches to the social, economic and environmental problems. The proposal of heritage-led development is then to use the cultural pillar to make changes in the other 3 dimensions of development.

The aim is to redefine the position of heritage in the post-industrial society, stating that heritage is not the new local resource to be exploited, but a legacy to inform, inspire and support the other sectors of the society. Working on the cultural pillar of post-industrial areas can be transformative, through a set of direct and indirect relations, showing the potential of heritage-led development. This means focusing on the legacy as potential, not ignoring that it is also a problem, and unapologetically taking the lead in proposing solutions to address social, economic and environmental problems, recognizing them as interlinked.

As such, the application of the current developments in systems theory can provide a key to transform our approach to cultural landscapes, whether we are trying to understand past systems or current systems. It can be transformational also in addressing the request for management of change in these landscapes, and to promote change in areas that urgently need it, like post-industrial mining areas, because it is a tool that helps visualize and organize both the problems and the opportunities in these situations.

## **SYSTEMIC THINKING FOR A SYSTEMIC APPROACH**

Systems theory provides the theoretical and methodological foundations for understanding systems, regardless of the type of system. This broad capacity and reach has made it a staple tool for many research areas for more than half a century, from engineering to

biology, organizational and information management, or archaeology, and it is regaining prominence in research, mainly for its capacity to address complexity in many, if not all, areas of research. It derives from the premise that the world around us is organized in a multitude of systems, flexible in ways that allow us to influence the working of the entire system by acting on selected elements. As such, systems theory allows us to explore the connections between elements and how they can be managed in order to cause change, maintaining the perspective that a system (like a landscape) is more than the sum of its identified elements.

It emerged in the 1940s from the work of Austrian-born biologist Karl Ludwig von Bertalanffy, who, in his study of living organisms, defended that they should be studied as a whole (a system) and using an interdisciplinary approach uniting several disciplines. His research into systems theory (initiated in the 1920s) stemmed from the realization that something was missing in current science research, with increasing specialization that led to the creation of sub-disciplines, encapsulating each area and making communication among disciplines difficult to achieve (Bertalanffy, 1968). But he also identified the growing tendency, among several research areas, towards an "organismic conception", to "study not only parts and processes in isolation, but also to solve the decisive problems found in the organization and order unifying them, resulting from dynamic interaction of parts" (Bertalanffy, 1968: 31).

Thinking in systems (a systems approach), for Bertalanffy, was made necessary by technological evolution:

A steam engine, automobile, or radio receiver was within the competence of the engineer trained in the respective specialty. But when it comes to ballistic missiles or space vehicles, they have to be assembled from components originating in heterogeneous technologies, mechanical, electronic, chemical, etc.; relations of man and machine come into play; and innumerable financial, economic, social and political problems are thrown into the bargain. (Bertalanffy 1968, 4).

During the 1940s, as his research became more well-known, he

suggested that several areas of research were identifying the same needs and showing a tendency to look at the whole. What had been a contraction towards detail and specialization, in fields as diverse as biology, psychology or mathematics, was now moving towards overarching analysis and search for cooperation among scientists. In 1954, Bertalanffy got together with economist Kenneth Boulding, mathematician Anatol Rapoport, and physiologist Ralph Gerard, at the new Center for Advanced Study in the Behavioral Sciences, in Palo Alto, California, where they explored the possibilities of the convergent perspectives that each were identifying in their different fields of study. This led to the creation, in 1954, of the Society for General Systems Theory, currently the International Society for Systems Science [ISSS]. A General Systems Theory aimed to “support interdisciplinary communication and cooperation, facilitate scientific discoveries in disciplines that lack exact theories, promote the unity of knowledge and help to bridge the divide between the object-oriented and the subject-oriented disciplines” (Rousseau, 2015). As such it addresses the demands caused by increasing complexity, as in system with several problems, a mess, such as the one present when we look at the social, economic, environmental, and heritage challenges of a post-industrial area.

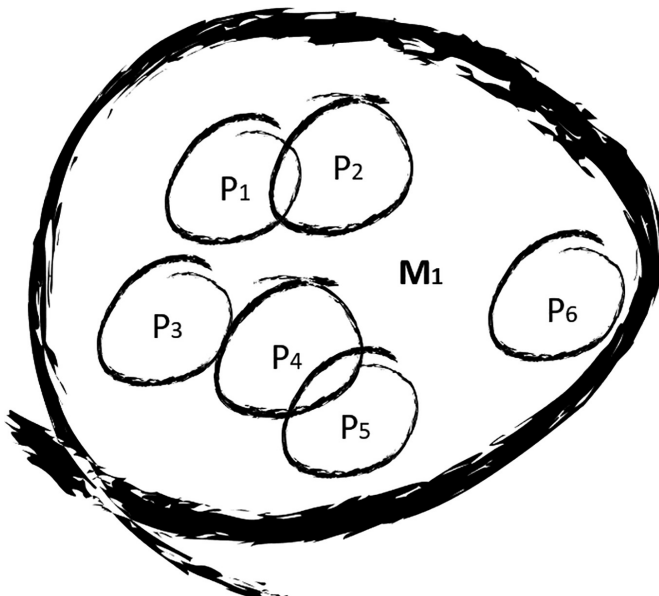


Figure 1: Depiction of a potential mess (M1) and its constituent problems (P1-6), after Hester and Adams (2014, 49).

A mess (M1) is defined as a “system of problems”. It consists of the identified Problems and their context (P1, P2, P3, P4, P5, P..., Pn) and “is in the interaction of these constituent problems and their associated context where the mess truly arises” (Hester & Adams, 2013: 313). It is not a mere addition of problems but the problems in their context, with their relations and indirect effects. To achieve this holistic understanding of a mess one needs to identify the problems that constitute it and the relations it establishes with other aspects of the situation, going beyond heritage or economy to see how they connect to the other pillars. Only through this systemic view we can truly address the aspects that lead to sustainable development. Often the “messes” of the post-industrial landscapes are addressed in a fragmented approach, looking at each project, building and problem in a short circle, which doesn’t allow us to understand their position or potential in the wider context that needs to be addressed. It is this complex web of relations, analysed by systems theory that provides the foundational underpinning for systemic thinking, aiming for a holistic and multidisciplinary approach to messes:

[...] no single discipline can solve truly complex problems. Problems of real interest, those vexing ones that keep you up at night, require a discipline-agnostic approach. They require us to get out of our comfort zone a little bit, to reach across the aisle, and embrace those fundamental concepts of other disciplines that may be advantageous to our effort. Simply, they require us to think systemically about our problem. (Hester & Adams, 2014: ix).

Engineers Hester and Adams have been key authors in promoting the use of systemic thinking in various areas, especially in engineering fields, aiming to increase understanding “about problems and messes of any size, complexity, or discipline” (Hester & Adams, 2014: 38). Solving a problem isn’t necessarily the ultimate goal of systemic thinking: “A singular view of “best” is not only not achievable but also not necessary. Instead, the goal of a systemic thinking endeavour is achieving increased understanding of a mess” (Hester & Adams, 2013: 314). The move towards that understanding can provide solutions for



problems, but it can also reach the understanding that we may not want to intervene and upset the existing equilibrium or the direction the system is taking.

Systemic thinking is an approach that favours flexibility and adapts to the uniqueness of each mess, being possible to adapt to each unique area, regardless of period, technology, geography or current state. It is what Hester and Adams have called a “lack of prescription”, allowing the manager to “adjust to real world nuances impossible to be captured by prescriptive approaches to understanding complex scenarios” (Hester & Adams, 2013: 318). This stems from the fact that there can be many perspectives over the same problem, making it that there is not a “correct” or “true” perspective regarding the solution of the problem, requiring a complementarity approach. From this approach, the different perspectives “reveal truths regarding the system that are neither entirely independent nor entirely compatible.” (Hester & Adams, 2014: 26).

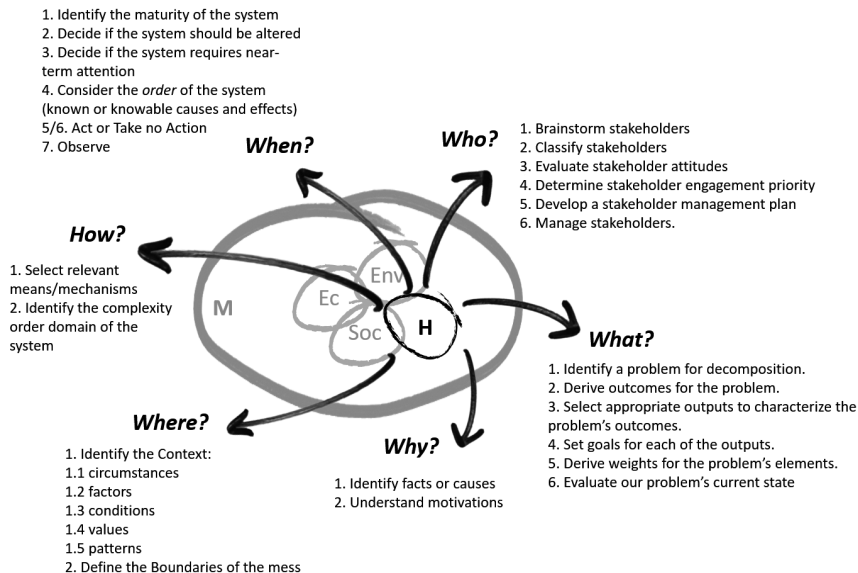


Figure 2: Applying Hester and Adams' Systemic Thinking Methodology to the heritage problem/ System of the Mess (M), not losing sight of its contextual setting amidst the economic, social and environmental problems.

Systems thinking, as proposed by engineers Hester and Adams (2014), recommends an analysis of the system under 7 main questions: Who?, What?, Why?, Where?, When?, How?, and Who?. Its strengths lie in being an organized method to address systems' problems, which can identify stakeholders, motivations, resources, or timings, in a collaborative and overarching way. By going deep in the understanding of these 7 aspects, and by promoting constant iteration between them to allow for updating and reviewing, the process allows for a clearer understanding of the situation and for a better assessment of the potential of each solution that can be applied to the problem. To achieve this holistic understanding of a mess one needs to identify the problems that constitute it. We have often been looking at the "messes" of the post-industrial landscapes in a fragmented approach, looking at each site, building and problem individually, failing to understand their position and potential in the wider context of the situations that need to be addressed in the community.

By seeing the post-industrial mining landscape as a mess, or a system composed of social, economic, environmental and heritage problems, the relation between these pillars of SD becomes further evident (Medeiros, 2018). It also allows us to focus on the heritage problem without losing sight of the others. This heritage problem — itself a system composed of many elements that create it, like infrastructure decay, lack of financing, bad decisions or competing heritage areas — can then be analysed using systemic thinking. This innovative tool proposes an 8-step analysis that, in its identification of stakeholders, integrated with goals and motivation, defined in context and time for action, leads the way into identifying how to address the problem. Furthermore, it sustainably promotes long-term change and ensures continued iteration and communication, continuously reviewing and analysing changes in the system.

To redefine the position of industrial heritage in the post-industrial society, we have to start where it really is needed, stating that heritage is not the new resource to be exploited, but a legacy to inform the other sectors of the society. Working on the cultural pillar of post-industrial areas can be transformative, through a set of direct and indirect relations that bring effects on other aspects of the life of the community, showing the reactive potential of heritage-led

development. This means focusing on the legacy as potential, not ignoring that it is also a problem, and unapologetically taking the lead in proposing solutions for social, economic and environmental problems.

The application of the current developments in systems theory can therefore be the key to transform our approach to cultural landscapes, whether we are trying to understand past time systems or current systems. It can be transformational also in addressing the request for management of change in these landscapes, and to promote change in areas that urgently need it, like post-industrial mining areas, because it is a tool that helps to visualize and organize both the problems and the opportunities in these situations. Looking at these areas as systems produces insights about the resources and elements of the landscape and their relations, allowing an improved understanding of the system and its key influencers.

While the use of indicators has often suggested that the world is like a machine with parts that need to be fixed, complexity theory looks at it as an organism that grows, evolves and adapts. And systems' thinking is helpful to understand the real complexity behind the apparent simplification of sustainable development on the three-pillar model, which hides a rich variety of variables to consider. Furthermore, the idea of sustainability today must address a variety of demands, making it so that for a landscape to be successfully managed we are required to know and value its past, respect its present uses and needs, and prepare for the future, while addressing all the several dimensions of the landscape and the expectations of the many stakeholders.

The current tendency is also to look at SD from a systemic perspective (Reid, 1995), and at post-industrial mining landscapes there is the possibility to explore the potential of systems theory for heritage-led development. It is not the same framework of the 70s; it has gained much insight from new areas of research that have applied it and from improved methods of data processing. The system we find will be unique in each landscape but also represent bigger tendencies, especially in our analysis of post-industrial mining landscapes. The main goal behind looking at the landscape as a system, in this case, and of using the current perspectives on systemic approach and prospective studies, is to provide the management tool that not only provides an

analysis of the landscape but also simultaneously addresses its needs towards the sustainable development of these areas.

Systems theory can be, again, “a new way of looking at old problems” hoping that “it will almost certainly lead to important new insights” (Doran, 1970: 294) today as well. In the late 1970s, Meinig suggested that one of the 10 possible “versions of the same scene” was landscape as system, pointing out how it derived from science and was in active development at the time. For the author this approach allowed to “understand things not apparent to the naked untrained eye” by “beginning with analysis, disintegrating things into their parts, and turning increasingly to synthesis, putting things together in such a way as to give us a new level of understanding interrelationships” (Meinig, 1979).

## **CONCLUDING CONSIDERATIONS**

Often development and heritage have been in opposite sides, seen as incompatible: the old had to give way to the new. Today we move towards enlarging the ways in which we see and operate heritage for the development of communities worldwide. Achieving sustainable development is a challenge loaded with social, economic, environmental and cultural legacies to which we often struggle to respond. The complexity of this legacy, which turns these areas into meta-problems, asks for a renewed landscape approach that can gather the relevant information, organize it, and act on it. To these ends, systems theory presents itself as a renewed approach to address these topics.

Systems are increasingly more complex, more interlinked, and they are not easy to read: multiple objectives and expectations, a potentially tremendous number of variables to account for, a web of interconnectedness that makes consequences of alterations hard to predict, the time it takes for the processes to take place, uncertainty, emotions, and so many other complicated characteristics. Any observer of this complexity will need to include as many perspectives as possible, to understand a problem accurately, using several contextual lenses to focus on the understanding of its elements. Seeing the elements as

organized in a system favors reading the web of influences between elements, systems and sub-systems, proving a greater understanding of the situation, or mess, and allowing the identification of key variables to which one can direct focus and efforts.

Systemic thinking, a method recently developed, informed by systems theory, has been presented here as a promising tool to address such complexity, to be applied in the analysis and study of heritage sites at the landscape scale, namely the increasing post-industrial landscapes. Also, a systemic approach to the landscape, by promoting the identification and inclusion of all stakeholders, allows professionals to be open about the research that is being made, constantly sharing the research and receiving contributions for its continuation, creating more channels of communication.

It does not offer a protocol or road-map, because the uniqueness of each landscape, community or definition of sustainable development cannot be encapsulated in a process that fits all. A rigid model is not recommended for these areas, as it is not something we can easily follow step-by-step without taking responsibility for adapting it to specific events and situations — which is why the iterative dimension of systemic thinking reinforces the relevance of the framework for the process of managing these changing landscapes. But it provides a set of elements to be addressed, questions to be answered and tools with which to analyse the situation at hand. It involves answering the questions of what we have, what we want to achieve and how we can achieve it, through a holistic view of the unique web of elements that constitute the mess to be analysed.

Just like deindustrialization was a process, just like landscapes are constantly changing, the recovery and renewal of these areas also has to be a process. The process is likely to be a long one, requiring commitment and a team. Just the step of identifying the heritage and creating an overview of the system, including all stakeholders and their wants, can take a long time before the question of *how* can be made and successfully answered. Also, the process would be a reflex of the cultural values and knowledge of the time and of the team affected to it. Nevertheless, heritage cannot be absent from the core of the discussion on development, and since heritage-led projects “provide a crucial public place and space for negotiating that core tension

between continuity and discontinuity” (Frisch, 1998: 248-9), if actively engaged with the other economic, social and environmental aspects of the system, heritage can be a truly sustainable motor towards renewal.

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